

Pythagoras and the (Were)Wolf

By Kenneth R. Moore*

This article examines some complex connections between Pythagorean symbolism and related aspects of ancient Greek mythology concerning wolves, lycanthropy, the colour white, music, Mt. Lykaion in Arcadia, the gods Zeus, Apollo, Artemis and Pan as well as ancient mystical rites of initiation and the philosopher Plato. These connections are at times obscure but well attested in the sources. The article goes through each of them in turn and demonstrates their connectivity, along with broader implications in the mythology of the Near East.

In the course of researching another article on the Pythagorean symbolism in Plato's *Philebus*, I came across a number of interesting themes which did not fit easily into that overall discussion but which I felt were nonetheless significant enough to merit their own inquiry. These initially concerned the symbolic nature of the colour white but further researches also led me down a curious path that included no less than werewolves (or the first lycanthrope, to be precise), cannibalism and human sacrifice which connected with Pythagorean symbolism in the Plato's works and elsewhere. This article examines this symbolism, in context, and its broader associations in ancient Greek ritual and mystical practices.

The etymology of the colour white in ancient Greek is itself significant. *Leukos* (viz *LSJ*) "white" can also mean "shining" or "brilliant" and *leukos* was used to refer to normal sunlight too. Thus the previous assertion in another article that its symbolism related to the Pythagorean "central fire", the Form of Whiteness itself and other aspects of divinity found in both Platonic and Pythagorean sources.¹ *Leukos* is derived from the base *lyk-*, meaning "light" or "shining". The *Lykabantides*, for instance, were the hours that make up the year, that is, "the path of light", referring to the course of the sun throughout its annual cycle. The Greek word for wolf, *lykos*, also shares the same base *lyk-* and it seems that this is no accident. Wolves were thought to appear at the break of dawn (*lykē*) or at twilight, thus the conceptual association.²

There is furthermore an ancient proverb that connects wolves with vision and sound, as well as the lack there of. The popular phrase is *lykon idein*, "to see a wolf", and it seems to have been believed that if a wolf should spot someone before they spotted it, then that person would be struck dumb.³

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1. K.R. Moore, "The Pythagorean Symbolism in Plato's *Philebus*," *Athens Journal of History* 2, no. 2 (2016): 83-95.

2. See H. G. Liddell and R. Scott, eds., revised and ed. by Sir Henry Stuart Jones, *A Greek-English Lexicon*, 9th edition (Oxford: Clarendon Press, 1994), (*LSJ*), s.v. *Lykophos* (lit. "wolf-light") and *lykavyes* (lit. "wolf-dawn"), which mean "dusk" and "daybreak" respectively.

3. *LSJ* s.v. *lykos*, "to see a wolf, i.e. to be struck dumb, as was vulgarly believed of any one of whom a wolf got the first look".

However, chasing down this proverb has proven difficult. *LSJ* list Plato and Theocritus as sources for it. There seems to be something like it in Homer too, if only implicitly, in the scene from *Iliad* 10 when Dolon attempts to infiltrate the Achaeans' camp, wearing a wolf's skin, and is first perceived by Odysseus before Dolon sees him (330 ff.). It is Dolon, the would-be wolf, who is in some sense dumbstruck when confronted by the heroes Odysseus and Diomedes, or rather he is described as "gibbering" with fear (375). Perhaps this metaphorically illustrates what happens when one spots the "wolf" first. It is unclear, however, if Homer is alluding to this proverb about wolves in this scene; although, its similarity seems more than coincidental.

By the time of Theocritus (3rd century BC), and later Virgil (1st BC), this proverb about seeing a wolf was well established.⁴ Its origins remain no less obscure. A reference found in Plato is interesting and seems to confirm that such an adage did exist at least in the 5th/4th century, except that no actual wolf is mentioned in it. Rather, it is Thrasymachus, the "fierce fighter", who is characterised "as a wild beast, he sprang upon us as if he would have torn us in pieces" (336b), who plays the role of the wolf here. Socrates states:

His words startled me, and looking at him, I was afraid. And I think that if I hadn't seen him before he glared at me, I should have been dumbstruck.

But, as it was, I happened to look at him just as our discussion began to exasperate him, so I was able to answer...⁵

This is the earliest and most coherent articulation of the proverb that we have in the sources; even so, it is unclear as to whether it applies to wolves alone or to any "wild beast" that is sufficiently fierce. The fact that this appears in Plato is not insignificant, given his many Pythagorean associations, whether symbolic or otherwise.

It might seem pedantic to quibble of the precise nature of this axiom about wolves but there is considerably more that connects them with sight and sound, and divinity too. There is Mt. Lykaion in Arcadia—either "white, shining mountain" or "wolf mountain"—where sacred sites to Zeus, Apollo and Pan are situated. Each of these deities bears special importance to the Pythagoreans and I shall consider them one by one. The story of the establishment of the altar of Zeus *Lykaios* is found, as if on cue, in Plato's *Republic* (565d). Mount Lykaion

4. Virgil, *Eclogues* 9, 53-54, "Even voice itself now fails Moeris; the wolves have seen Moeris first. "; Theocritus, *Idylls* 14, 22-26, " 'Wilt be silent?' says one, and in jest, 'Hast met a wolf?'" ; confirmed by Pliny (23 CE – 25 August 79 CE), *Natural History* 8, 22, "Eye-sight of Wolves is hurtful; so that if they look on a man before he should see them, they cause him to lose his voice for a time." Pliny also recounts the story of Lykaion here.

5. *Rep.* 336d-e. In T. Taylor, *The Republic of Plato*, ed. T. Wratishaw (London: Walter Scott, 1997), 12, n. 1, the editor adds the following note to this passage: "Referring to a popular belief that any one meeting a wolf would be struck dumb, if the wolf saw him before he saw the wolf". Although, he gives no source on this, presumably he is referring to the above-cited passages in Virgil, Theocritus and Pliny. There is also a reference to the beguiling power of wolves on dogs at *Laws* 906e.

is sacred to Zeus *Lykaios*, who was said to have been born and brought up on it. This was in a district of Mount Lykaion, which was called Kretea according to Pausanias. Zeus was said to have been brought up there by the nymphs Theisoa, Neda, and Hagno; the first of these gave her name to an Arcadian town, the second to a river, and the third to a well.⁶ Callimachus (3rd BC) recounts this version, favouring it over Mt. Ida, in his *Hymn to Zeus*:

O Zeus, some say that thou were born on the hills of Ida; others, O Zeus, say in Arcadia; did these or those, O Father, lie? "Cretans are ever liars."⁷ Yea, a tomb, O Lord, for thee the Cretans builded; but thou didst not die, for thou art forever.⁸

And Mt. Lykaion was also the home of Pelasgus and his son Lykaon. The latter is reported to have founded the ritual of Zeus performed on its summit. Lykaon was also said to have founded Lykosoura, "the oldest city in the world", according to Pausanias, where dismembered animals were thrown into a hearth as part of some kind of gruesome, fire ritual.⁹

The cult of Zeus *Lykaios* also seems to have involved an annual human sacrifice. At the feast, the individual who received a portion of the human victim, which was mingled into the sacraments, was changed into a wolf as Lykaon had been after sacrificing one of his children to Zeus.¹⁰ Plato refers to this in the *Republic*:

...like the man in the story told about the temple of the Lykaian Zeus in Arcadia?

What story is that?

That anyone who tastes the one piece of human innards that is chopped up with those of the other sacrificial victims must inevitably become a wolf.

Have you not heard that story? (565d-e)

Pausanias elaborates on the tale, saying that the lycanthropic change was not permanent "because if he kept off human flesh when he was a wolf, he turned back into a man after nine years".¹¹ Buxton considers this indicative of some kind of rite of initiation by "ritual exclusion" in which the initiate would live apart from the rest of society for a time.¹² He cites Pliny's sanitised version

6. Pausanias, *Description of Greece*, VIII.38.

7. Referencing *Odyssey* XIII; see A. J. Haft, "Odysseus, Idomeneus and Meriones: The Cretan Lies of *Odyssey* 13-19," *The Classical Journal* 79, no.4 (Apr.-May, 1984): 289-306.

8. Hymn 1.4-10

9. Pausanias VIII.2.1; see W. Burkert, *Greek Religion* (Oxford: Blackwell, 1985), 27.

10. NB: One of the fifty sons of Lykaon was also named Plato (not the one who was sacrificed).

11. Pausanias, *Description of Greece*, VIII.2.6. If the man-wolf consumed human flesh during that time, he remained in his altered form.

12. R. Buxton, "Wolves and Werewolves in Greek Thought," in *Interpretations of Greek Mythology*, ed. J. Bremmer (London: Croom Helm, 1990), 60-79, 69.

of the same tale in which only a youth from a certain aristocratic family would turn into a wolf, without eating sacrificed human flesh, by swimming nude across a certain magical pool, and then live apart for nine years as a wolf. He would then return to normality, on the proviso that he must not have eaten any human flesh while in the form a wolf, by swimming back across the same pool and putting on his clothes.¹³ Pools of water were often seen as gateways to another world in the mystical context. These myths appear to represent some kind of *rite de passage* and there are numerous instances of ritual bathing and living apart in this regard, including the sort of mysteries said to have been employed by the Pythagoreans.¹⁴

Ritual activity involving sacrificial and other rites appear to have taken place on Mt. Lykaion for a considerable time. The altar of Zeus itself consisted of a great mound of ashes within a retaining wall. It was said that no shadows fell within the precincts and that anyone who illicitly entered the sanctuary would die within the year.¹⁵ The Greek-American interdisciplinary Mt. Lykaion Excavation and Survey Project detected evidence of a ritual presence at the site as far back as the beginning of the third millennium BC, at least a thousand years before Zeus was traditionally thought to have been worshiped in Greece.¹⁶ Although, archaeological finds there did include a Late Minoan rock crystal seal bearing the image of a bull which is an animal closely associated with Zeus in mythology. Numerous animal bones were found on the site, along with pottery and other ritual items, but no human remains had yet been discovered as of June 2016, when an earlier version of this article was delivered at the ATINER conference in Athens. Interestingly, in August of 2016, the Greek-American team did uncover the skeletal remains of a teenager on the side of Mount Lykaion, dated approximately 3,000 years old which appeared to have been sacrificed—situated on a "sacrificial altar" with the head removed.¹⁷ This interpretation is not without controversy and more research is clearly needed to confirm it. Of course, as the late 4th/early 5th century Roman grammarian, Servius Honoratus, has indicated, "in sacred rites that which is simulated is accepted as real" for ritually figurative purposes.¹⁸ And this alleged recourse to human sacrifice, which is so abhorrent that Pausanias was reluctant to discuss it, may have been purely symbolic at least by the Classical era; although, the recent archaeology suggests otherwise in the more distant past.

The sanctuary of Zeus also played host to athletic games held every four years known as the *Lykaia*. They transpired in an ancient hippodrome, stadium

13. Pliny, *Natural History*, 8.81.

14. Buxton, "Wolves and Werewolves," 70, n.37.

15. Pausanias, *Description of Greece*, VIII.2; although, according to Plutarch (*Quaest. Graec.* 39), interlopers would be stoned to death by the Arcadians.

16. D.G. Romano, *Mt. Lykaion Excavation and Survey Project 2008-2011*, accessed December 14, 2015, <http://bit.ly/1hNGy2b>. Although, it is not known who or what was worshipped there prior to Zeus.

17. "Skeletal remains 'confirm ancient Greeks engaged in human sacrifice'," *The Guardian*, accessed August 12, 2016, <http://bit.ly/2c8XQxu>.

18. Maurus Servius Honoratus, *on Aeneid* 2.116.

and accompanying buildings which rivalled those at Olympia. These "Wolf Games" were reportedly the parent-festival of the Lupercalia in Rome. The latter were supposed to have been instituted (or modified) by Numa Pompilius, the second king of Rome, who was also said to have been a contemporary and acquaintance of Pythagoras.¹⁹ Although Livy quite rightly thinks this association impossible due to a conflict of dates, the conceptual association is not insignificant.²⁰ In his *Life of Romulus*, Plutarch adds:

It is also a peculiarity of this festival that the Luperci sacrifice a dog. One Bontes, who wrote an elegiac poem on the origin of the Roman myths, says that when Romulus and his party had killed Amulius, they ran back in their joy to the place where the she-wolf suckled them when little, and that the feast is typical of this, and that the young nobles run...²¹

The etymology of Lupercalia seems to bear this out: "Lupercalia \Lu`per*ca"li*a\, plural noun. [Latin expression *luperealis*, from Lupercus the Lycean Pan, so called from *lupus* wolf, because he kept off the wolves.] (Rom. Antiq.) A feast of the Romans in honor of Lupercus, or Pan."²² As mentioned, a sanctuary of Pan was also located on the mountain. He too is said to have been born on Mt. Lykaion.²³ Pan *Lykaios* ("Lycaean Pan") could be just as easily translated as "Luminous Pan" thus further conflating this symbolism of wolves and light. The associations with light and darkness in mystery cults is here highlighted by the *Orphic Hymn to Venus*, considered central to the Eleusinian Mysteries, which refers to her as "lupercal". And Orphic hymns are sometimes generally referred to as lupercals. According to one Roman tradition, Evander led a colony from Pallantion in Arcadia into Italy, where he built the new town of Pallantion on the Palatine hill and introduced the cult of Pan *Lykaios* and the festival of the *Lykaia*, which later became the major Roman festival of the Lupercalia.

A latter-day (neo)Pythagorean and a Middle Platonist also have something to add about this Arcadian mythology and its wider significance. Porphyry reported that Theophrastus, Aristotle's successor, had compared the sacrifice at the *Lykaia* in Arcadia with Carthaginian sacrifices to Moloch:

Hence, even to the present time, not only in Arcadia, in the Lupercal festivals, and in Carthage, men are sacrificed in common to Saturn, but periodically, also, for the sake of remembering the legal institute, they sprinkle the altars of those of the same tribe with blood, although the rites

19. Plutarch, *Life of Numa Pompilius* 1, 19. Although, the connection with Pythagoras must be imagined rather than factual—but no less significant inasmuch as people wanted them to be associated.

20. Livy, *Ab Urbe Condita*, 1:18 ff.

21. Plutarch *Life of Romulus*, 21.

22. N. Webster, *Webster's Revised Unabridged Dictionary* (New York: G & C. Merriam Co, 1913), s.v. Lupercalia.

23. Pindar frg. 100 (68). As we saw earlier, Rhea was said to have given birth to Zeus there as well (Paus. VIII.38.2 ff.).

of their sacrifices exclude, by the voice of the crier, him from engaging in them who is accused of human slaughter.²⁴

Plutarch comments on the Carthaginian sacrifices to Moloch saying that "...the whole area before the statue was filled with a loud noise of flutes and drums so that the cries of wailing should not reach the ears of the people."²⁵ This is supported by passages from the Judaeo-Christian tradition as well which describe these fire-sacrifices to Moloch in more graphic detail.²⁶ In these descriptions, we have fire-based, human sacrifice accompanied by some kind of musical performance. And, according to the Neo-Platonist Porphyry, these biblical exemplars were very similar, indeed somehow related, to the sort of sacrificial ceremonies taking place on Mt. Lykaion, which we now know to be coeval with the earlier, Eastern practices, and which allegedly turned some of the participants unlucky enough to eat the human flesh from the sacrifice into wolves.

However interesting this potential connection with Carthage may be, it is difficult to substantiate and there is still more to consider about Mt. Lykaion. Concerning the origins of Apollo *Lykeios* ("of the wolf" or "luminous" or "of the twilight"), Pausanias writes:

On coming to Argos he [Danaus] claimed the kingdom against Gelanor, the son of Sthenelas. Many plausible arguments were brought forward by both parties, and those of Sthenelas were considered as fair as those of his opponent; so the people, who were sitting in judgment, put off, they say, the decision to the following day. At dawn a wolf fell upon a herd of oxen that was pasturing before the wall, and attacked and fought with the bull that was the leader of the herd. It occurred to the Argives that Gelanor was

24. Note that the exclusion of murderers here bears some resonance with the youth transformed into a wolf for eating human flesh in the Mt. Lykaion traditions. Porphyry *on Abstinence* II, 27, 56. Theophrastus was Aristotle's successor to his aptly named *Lykaion* (Lyceum) in Athens. Moloch (or Malek, Malik, Molekh, *l'Mlk* etc.), sometimes called the Carthaginian "Saturn", was a Semitic deity who received human sacrifices by fire. M. F. Lindemans, "Moloch," *Encyclopedia Mythica from Encyclopedia Mythica Online*, accessed December 14, 2015, <http://bit.ly/2c8XQxu> describes Moloch as follows: "'King'. The sun god of the Canaanites (Ammonites?) in old Palestine and sometimes associated with the Sumerian Baal, although Moloch (or Molekh) was entirely malevolent. In the 8th-6th century BC, firstborn children were sacrificed to him by the Israelites in the Valley of Hinnom, south-east of Jerusalem (see also Gehenna). These sacrifices to the sun god were made to renew the strength of the sun fire. This ritual was probably borrowed from surrounding nations, and was also popular in ancient Carthage. Moloch was represented as a huge bronze statue with the head of a bull. The statue was hollow, and inside there burned a fire which coloured the Moloch a glowing red. Children were placed on the hands of the statue. Through an ingenious system the hands were raised to the mouth (as if Moloch were eating) and the children fell into the fire where they were consumed by the flames. The people gathered before the Moloch were dancing to the sounds of flutes and tambourines to drown out the screams of the victims. According to some sources, the Moloch in the Old Testament is not a god, but a specific form of sacrifice."

25. Plutarch, *De Superstitiones*, 171.

26. See 1 *Kings* 11:7; 2 *Kings* 23:10; *Jeremiah* 32:35.

like the bull and Danaus like the wolf, for as the wolf will not live with men, so Danaus up to that time had not lived with them. It was because the wolf overcame the bull that Danaus won the kingdom. Accordingly, believing that Apollo had brought the wolf on the herd, he founded a sanctuary of Apollo *Lykeios*.²⁷

It is noteworthy that Danaus "lived apart" from the people, much as with the youths turned into wolves in the rites of Lykaian Zeus, as reflected in various mystical rites of initiation.

There is also a connection with fire/light here as an "eternal flame", called the "fire of Phoronius", was situated at this sanctuary of Apollo. The origins of the "fire of Phoronius" are obscure; but, the term appears to be connected with the "Phrygian magicians [*goetes*] of Ida" who, according to legend, discovered the works of Hephaistos and applied fire to ironworking, "bringing bright works to light".²⁸ These passages are preserved in the scholiast to Apollonius of Rhodes' *Argonautica* and are some of the few surviving fragments of the 7th century *Phoronis*, the epic of Argos. The scholiast has placed them here in response to the appearance of the Idaean Dactyls at the Argonauts' dance for the *Magna Mater*.²⁹ These sorcerers were also said to have been the inventors of music and Pythagoras, known sometimes as "Hyperborean Apollo", was reported to have been an initiate into their mysteries.³⁰ So, in that one obscure reference we have allusions to magic, mystical initiation, light, music and Pythagoras himself. And the deeply symbolic "fire of Phoronius" is heavily associated with Apollo, literally placed in his sanctuary on Mt. Lykaion. Of course Apollo is a god of music and knowledge, as well as light, and a deity of supreme importance to the Pythagoreans.³¹ He is also the god who drives the chariot of the sun.

But the wolfish connections with Apollo go farther still. There was a bronze wolf statue at that most famous sanctuary of Apollo, the Delphic Oracle, probably in memory of the wolf that killed a thief who had robbed the temple there, as Pausanias indicates:

Near the great altar is a bronze wolf, an offering of the Delphians themselves. They say that a man robbed the god of some treasure, and kept himself and the gold hidden at a place on Mount Parnassus where the forest is thickest. As he slept a wolf attacked and killed him, and each day thence went to the city and howled. When the people began to realize

27. Pausanias, *Description of Greece*, II.19.3-4.

28. Σ Apoll. Rhod. 1.1129.

29. S. Blakely, *Myth, Ritual and Metallurgy in Ancient Greece and Recent Africa* (Cambridge UP: Cambridge 2014), 192-3.

30. W. Burkert, *Lore and Science in Ancient Pythagoreanism*, trans. E. L. Minar Jr. (Harvard University Press: Harvard, MS 1972), 376; see Ephorus *FGrHist* 70F104 = Diod. 5.64, Plut. *Mus.* 5, Clem. Al. *Strom.* 1.73.1, Solinus 11.6 on music and see too Por. *VP* 17 on Pythagoras as an initiate of the Dactyls.

31. Apollo is the principle deity of music and geometry; see Homer, *Iliad* 1.473 and pseudo-Plutarch, *De musica* 1134b-d, 1146c and Burkert, *Greek Religion*, 144-9.

that the matter was not without the direction of divinity, they followed the beast and found the sacred gold. So to the god they dedicated a bronze wolf.³²

And there is more. In the *Aeneid*, Apollo assumed the form of a wolf in order to destroy the sorcerers of Rhodes.³³ In Aristotle's *History of Animals* (which he wrote while at his *Lykaion*), the chapter on wolves includes the myth of Apollo's birth on Delos.³⁴ According to this, his mother Leto transformed herself into a wolf and travelled to Delos from the land of the Hyperboreans accompanied by a pack of wolves. There is even a connection between wolves and Apollo's sister, Artemis. Her retinue included a wolf along with the other animals. Recall too Pythagoras' association with Hyperborean Apollo and that the "bloodless" altar of Apollo at Delphi at which he was said to have worshipped. This was an altar that had formerly belonged to Artemis.³⁵

Another Arcadian figure deserves mention in this context. The mythical/quasi-historical Lycurgus, whose name means something like "deeds of the wolf" or "wolfish deeds", was said to have established Sparta's earliest laws. Herodotus reported that he visited the Oracle of Apollo at Delphi, who authorised the Great Rhetra that would become Sparta's unwritten constitution. And as soon as he entered the shrine, so wrote the poet, the oracle proclaimed:

Hither to my rich sanctuary have you come, Oh Lycurgus
 Dear to Zeus and to all the gods who dwell on Olympus.
 I know not whether to declare you mortal or divine,
 But I am inclined to believe, Oh Lycurgus, that you are a god.³⁶

Plato was interested in Lycurgus too. In his *Minos*, the narrator confirms that Lycurgus got his laws from Crete (e.g. Zeus), and in the *Laws*, the Athenian Stranger refers to "the laws attributed to Zeus and the Pythian Apollo, which Minos and Lycurgus laid down" again, as with Herodotus, linking Lycurgus to both Zeus and Apollo.³⁷ Lycurgus is also credited with having introduced Homer to Sparta and we are told that Pythagoras himself later

32. Pausanias *Description of Greece*, X.14.7.

33. Virgil *Aeneid* 4. 377.

34. Arist. *Hist. An.* 6.85; see too Aelian, *On the Nature of Animals* 4. 4. Pseudo-Apollodorus, *Bibliothèque* 1.4.1; Antoninus Liberalis, *Metamorphoses*, 35, giving as his sources Menecrates of Xanthos (4th century BC) and Nicander of Colophon; Ovid, *Metamorphoses* 6.317-81.

35. See C. Servinou-Inwood, "Myth as History: The Previous Owners of the Delphic Oracle," in *Interpretations of Greek Mythology*, ed. J. Bremmer (London: Croom Helm, 1990), 215-241.

36. Herodotus *Hist.* I.65ff.

37. *Minos* 318.c-d; *Laws* I.632d, elaborating at *Laws* I.630d that "Lycurgus and Minos established the institutions of Sparta and this country [Crete] the primary end they had in view was invariably warfare". Plutarch (*Life of Lycurgus* IV.1 ff.) also affirms that he studied the laws on Crete; see too Strabo 10.4.19 and Ephorus *FrGrHist* 70 F 149.

visited Sparta with a special interest in both their laws and music.³⁸ One can even draw some association with Lycurgus and human sacrifice, if Plutarch is to be believed in asserting that he established the *krypteia* in Sparta, one of whose primary functions was the annual, *pro forma* culling of helots.³⁹ Apart from his name, region of activity (Arcadia) and a generally fierce character, by all accounts, it is difficult to connect the mythical Spartan lawgiver with wolves or Mt. Lykaion in any direct manner; although, he clearly "ticks the boxes" in terms of conceptual connections with Apollo, Zeus, Pythagoras, Crete, music, sacrifice and ritual in the sources.

The fact that much of the lycanthropic mythology, proverbs about seeing wolves and the myths concerning Mt. Lykaion in general seem to originate (or at least appear to have been first written down) in the works of Plato is curious. We know that Plato was heavily influenced by Pythagoreanism. It is contested as to whether or not he was in fact a Pythagorean himself; although Aristotle asserted that he was "in most respects a follower of the Pythagoreans".⁴⁰ Whatever the case, we do know that the colour white was important to Pythagorean symbolism, that colour theory in general was important to the Pythagoreans, as well as to Plato, and that it formed part of the theoretical framework of both his and their musical theory.⁴¹

A potential connection between all of this mythology concerning wolves and light, given the perceived correlation between music and colour, may be observed in the so-called Pythagorean "Wolf Intervals" or "Wolf Tones".⁴² These are operationally defined as intervals composed of 3, 4, 5, 7, 8, or 9 semitones (i.e. major and minor thirds or sixths, perfect fourths or fifths, and their enharmonic equivalents) the size of which deviates by more than one syntonic comma (about 21.5 cents) from the corresponding, justly intonated interval. In the 12-tone Pythagorean division of the musical canon, all tones are separated by intervals of perfect fifths with the higher frequency at exactly $3/2$ times that of the lower.⁴³ This results in at least one note on the scale always being out of tune. It has been a well-attested issue for musicians and composers since antiquity. And it was known as the "wolf tone" due to its resembling the sound made by a howling wolf (sometimes referred to as the "flatted fifth" as

38. K. R. Moore, "Was Pythagoras ever really in Sparta?," *Rosetta: Papers of The Institute of Archaeology and Antiquity* 6(2009): 1-25.

39. Plut. *Life of Lycurgus* XXVIII.3-7.

40. Arist. *Metaphysics* A.V.987a30; and, see P. Kingsley, *Ancient Philosophy, Mystery, and Magic: Empedocles and the Pythagorean Tradition* (Oxford: Oxford University Press, 1997) for an overview of the evidence well as J. B. Kennedy, *The Musical Structure of Plato's Dialogues* (London: Acumen, 2011).

41. See G. Comotti, *Music in Greek and Roman Culture*, trans. R. V. Munson, (Baltimore and London: Johns Hopkins University Press, 1989), 110-20; See too *Meno* 76c-d, *Theatetus* 153e-154aff., both referencing Empedokles and Pythagorean theories of colour; *Lysis* 217d, *Timaeus* 67c ff., *Euthydemus* 303d, the *Republic's* myth of Er 617a, *Laws* 947b.

42. See W. Hawkins, *Pythagoras, The Music of the Spheres, and the Wolf Interval*. Accessed December 14, 2015. <http://bit.ly/2bQLACv>; see too Kennedy, *The Musical Structure of Plato's Dialogues*, *passim*.

43. W. A. Sethares, *Tuning, Timbre, Spectrum, Scale* (Madison, WI: University of Wisconsin Press, 2005), 163.

well as "the Devil's interval"). The problem arises because no selection of 3:2 intervals fits exactly into a stack of factors of 2. Thus, the longer stack, to which one adds one more note, the missing $A \flat$, will be similar, but not identical, to a stack of 7 factors of 2: $[A \flat]—E \flat—B \flat—F—C—G—D—A—E—B—F\sharp—C\sharp—G\sharp$. In reality, this will be about a quarter of a semi-tone larger and is referred to as the Pythagorean Comma. $A \flat$ and $G\sharp$, when brought into the basic octave, do not therefore coincide.

To get around this issue of the "Wolf Tone", Pythagorean tuning omits the $A \flat$ and uses only the 12 notes from $E \flat$ to $G\sharp$. This means that only eleven "just fifths" are utilised in order to construct the whole chromatic scale. The remaining fifth (that from $G\sharp$ to $E \flat$) is purposely left out-of-tune, meaning that any music that tries to combine these two notes is effectively unplayable. This constitutes the infamous beating, or howling, "Wolf Interval" or "Wolf Tone". The order can be adjusted, resulting in two different notes which together make the Wolf; however, whichever way one chooses to organise it, in Pythagorean tuning, there will always be at least one full "Wolf Fifth", with the consequence that it is impossible to play all of the keys in tune. Unfortunately, I can find no direct reference in Classical sources to the "Wolf Tone" (Fifth or Interval) by this name, although the principle of it was well known. The earliest use of the term appears to derive either from very late antiquity or from the Middle Ages.⁴⁴

What we are left with is a clear sense of connectivity between some key elements of Pythagorean symbolism, often recounted in Plato but relating to earlier ritual activity, concerning the colour white, light, music, wolves, cannibalism and human sacrifice, whether real or figurative. The particular association with transformative ritual and mystical initiation appears to be the most significant. What is unclear is whether these symbolic elements were "organically" implicit in Pythagorean lore or whether they were deliberately adopted according to an apparent agenda. I have sought here to unpack some of their meaning and to demonstrate potential connections across a range of eras and cultures.

Suffice it to say that there is much here that bears significance to the exploration of Pythagorean symbolism in Plato and farther afield. It would have been convenient to tie up all of the wolf/light/fire symbolism with the Pythagorean "Wolf Tone", but it is just not possible given the material available. In researching this, it has seemed to me more than once that there is something significant here just beyond my grasp and it is at once tantalising and extremely irritating. As more evidence comes to light from the various papyri, the Alexandrian mummy masks and palimpsests imaging projects currently ongoing, we may yet be able to capture this mysterious beast. For now, it is only an ephemerally symbolic connection—like the glimpse of a

44. See R. W. Duffin, *A Performer's Guide to Medieval Music* (Bloomington, IN: Indian University Press, 2000), 547. It is thought that the name might have originated when the wolf fifth was being played on Gothic organs and it reminded listeners of howling wolves; but, this is not to say that the term was not used earlier.

fleeting wolf at dawn or dusk (that we spotted first), it remains limnal and elusive.

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