

Copyright

By

Andrew Peter Zawislanski

2011

The Report committee for Andrew Peter Zawislanski

Certifies that this is the approved version of the following report:

Plato's Mythological Project in the *Timaeus*

APPROVED BY

SUPERVISING COMMITTEE:

Supervisor : _____

Stephen A. White

Alexander P. D. Mourelatos

Plato's Mythological Project in the *Timaeus*

by

Andrew Peter Zawislanski, B.A.

Presented to the Faculty of the Graduate School

of the University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Master of Arts

The University of Texas at Austin

May 2011

Plato's Mythological Project in the *Timaeus*

by

Andrew Peter Zawislanski, M.A.

The University of Texas at Austin, 2011

SUPERVISOR: Stephen A. White

In the *Timaeus* Plato sets forth his cosmological system, and near the beginning of the dialogue he carefully qualifies his claims by saying that his account of the cosmos is not absolutely true, but only no less likely than any other account. Rather than being an offhand remark, this statement is key to understanding Plato's aim in constructing his cosmological myth. Plato's epistemological position prevents him from making strong assertions about physical objects and phenomena, but does allow him to make assertions of truth in morality and metaphysics. Thus while the *Timaeus* is ostensibly an account of the physical universe, for Plato its true value is in using the physical universe as a mythological symbol for moral and metaphysical truth. Plato's account is no less likely than those of other ancient cosmologists because multiple accounts can fit with the observed phenomena. However, his account, while no more likely, is superior to those of others in that it avoids impiety and, by qualifying its claims about the physical universe, is not threatened by future observations.

Table of Contents

INTRODUCTION	1
SECTION 1: EPISTEMOLOGICAL STATEMENT	2
SECTION 2: AN <i>EIKÔS</i> ACCOUNT	6
SECTION 3: ANCIENT EMPIRICISM.....	14
SECTION 4: MORAL TRUTH AND OBSERVATIONAL TRUTH	22
SECTION 5: A SPECIAL KIND OF MYTH	28
SECTION 6: INTELLECTUAL RIVALS	37
CONCLUSION.....	42
BIBLIOGRAPHY	44

Introduction

One of the main issues in the interpretation of the *Timaeus* is the question of whether the account given in the dialogue should be taken allegorically or literally. That is, is Plato's description merely a myth in our understanding of the word, or is it meant as a serious competitor to the materialistic theories of the *physiologoi*. But this is not an either/or proposition, as Plato's account fulfills both roles. His account expounds moral and metaphysical truth just as much as his other myths do, but at the same time it is no less consonant with observable fact than any other account offered by the *physiologoi*, whom Plato accuses of being led into great impiety by their materialistic doctrines.

Near the beginning of the dialogue Plato qualifies the truth of his claims by stating that his account, because it deals with the material world, is merely *eikôs*, or "likely." In this paper I aim to elucidate this *eikôs* qualification Plato places on the dialogue, and to show how the consequences of this qualification make Plato's cosmological text unique compared to other cosmologies from antiquity. The question of what makes an account *eikôs* is so striking because Plato, in his discussions of other areas of philosophy, such as metaphysics or ethics, does not hedge his claims so loudly and so repeatedly. It is precisely this distrust of the material world that led Plato to adopt an approach to cosmology that would render his account impervious to criticism based on new, unforeseen observations.

Section 1: Epistemological statement

In the proem to his speech (27c-29d), Timaeus warns his listeners that his account cannot be absolutely correct because of the subject matter on which he is speaking (29b-c). The cosmos is merely a copy of a divine paradigm, and it is in a state of becoming. Because the cosmos is in this state, it is impossible to have truly fixed knowledge about it (29c-d).¹ He says that his account will be only *eikôs* (likely), and this *eikôs* qualification applies in varying degrees to his entire cosmological speech (see the following section for a fuller discussion of the meaning of *eikôs*). This statement is reminiscent of sections in the *Republic*, specifically the ones in which Plato sets forth the epistemological status of the forms and their physical instantiations. The close connection among the *Republic*, the *Timaeus*, and the *Critias* is made evident in the opening sections of the *Timaeus*. I follow Mourelatos (2010: 232) contra Burnyeat in thinking it reasonable to assume a connection between what is said in the proem and what is said in the epistemological sections of the *Republic*. For the purposes of the distinction between metaphysical truth and observational truth, I put the former in the intelligible realm, and hence in the domain of true knowledge (*epistêmê*), and the latter in the visible realm and in the domain of opinion (*doxa*).

To see why Plato denies infallible knowledge of physical things, I consider a single arbitrary form, the form of horse, and what can be said to be true about the form and about a physical horse. I refer to these two entities as being on two separate levels:

¹ There is a difference between Socratic ignorance and the qualification in the *Timaeus*. Socratic ignorance is general, the qualification is limited and specific to one dialogue.

level one (form), and level two (physical horse). Take the arbitrary predicate P. At level one, if the horse is P (Ph), then it is necessarily the case that the horse is P. That is, when talking about the form of horse any statement about or description of the horse that is true must be constitutive of horse-ness and must be true always. At level two, by contrast, if Ph, then either it is necessarily the case that the horse is P or it is possible that the horse is P. For example, if we define P as “has four legs,” then P is necessarily true when predicated of a horse, but if we define P as “is black,” then P is possibly true when predicated of a horse.

It is important to notice that if something is necessarily true at level two, then it is also true at level one. Everything that is necessarily true of all horses is contained in the form. It follows from this that the only things that are necessarily true are true at the level of the forms. It is possible to make necessarily true statements about a physical horse, but these statements will be true of Horse itself, and consequently will be true of a particular horse only insofar as that horse participates in Horse itself.

Plato is notorious for his disparagement of poets and artists, and it is largely due to his epistemology that he comes to hold this view. Above I distinguish between two levels, level one being the realm of the forms, level two the realm of material manifestation. We can add to these a third level, the level of artistic representation. In the earlier analysis, what is true at level one is also true at level two. But it is not the case that what is true at level one is also true at level three. For example, while it is true at level one that a horse has one head, or possesses smallness compared to a whale, at level

three it can be true that a horse has five heads or is larger than a whale. A horse at level three has to have only enough qualities of a horse at level one or two to communicate that it is supposed to be a horse; the artist can choose to ignore as many of the necessary truths about a horse as he wishes. This is why Plato says at *Republic* 598e that knowledge of a subject is not necessary to give an artistic representation of it. The knowledge needed to represent a horse artistically is less than the knowledge needed to successfully raise and train a horse.

These considerations show not only why the account of the *Timaeus* will be epistemologically limited, insofar as it is cosmology, but also that moral and metaphysical accounts are not limited in the same way.² If one has knowledge of a form, it does not follow that one has knowledge of how a particular instantiation of that form will act in the future, for there is a difference between saying how a particular relates to a form and making a prediction about how that particular acts or is acted upon.³ For example, a philosopher could conceivably say, using his knowledge of Justice itself, that a particular action is just, but could not say what results that just course of action will bring; Socrates knew that the just course of action was to tell the truth at his trial, but that does not imply that he thereby knew what the outcome of the trial would be. Similarly, having knowledge of the form of horse would not imply infallible knowledge of how a particular horse will act.

2 This second point is important to keep in mind when considering the joint project of the *Timaeus*, being both cosmological and moral (see section 5).

3 “(C)onceiving of a thing's being F...does not involve bringing anything to mind about circumstances, times, or viewpoints at all. Such matters are simply not part of the property that it expresses”(Nicholas P. White 1992: 294).

A possible solution to this problem would be to say that once an investigator has knowledge of all the forms (or all the relevant forms), it will be possible to make judgments about particulars that will have the status of *epistêmê*. If I know that x is a horse and that x is big in relation to other horses, I might be tempted to claim that it follows that I know everything that is necessarily true about a big horse. In a similar way I could build up my knowledge of the forms until I have knowledge of the forms of every object and influence that the horse comes in contact with. But this claim is far from certain, even if we were to say that Plato believed this kind of omnipotent knowledge of the forms to be possible for mortals, which is unlikely. For once one turns around and sees the images being carried in front of the flame, it does not follow that one can say exactly how the flickering shadows will fall upon the wall. For the philosopher emerging from the cave to the sunlit world, the forms become brightly illuminated and clear, but particulars remain ever shadowy and vague. This degree of uncertainty concerning particulars is explained in the *Timaeus* by the theory of the receptacle. Making reference to the discussion at *Timaeus* 45c7-e6, Lloyd P. Gerson (2005: 221) argues that because material things have both transcendent and material causes (the unruly elements of the receptacle), the latter of which can only produce chance and disorderly effects, for Plato, the sum of necessary conditions could never be equivalent to a true cause. Because there is only knowledge of the forms and not of matter, it follows that there could not be knowledge of particulars.

Section 2: An *eikôs* account

Having looked at the epistemological statement in the proem, I turn now to the term *eikôs* itself. Plato declares in the proem that his is to be an *eikôs* account (29c), but makes slightly different statements about the nature of this *eikôs* qualification at 48d and 72d. Timaeus' cosmological speech is commonly divided into three sections, each of which deals with different topics: 1) the products of intellect (*nous*) (29d-47e), 2) the products of intellect and necessity (47e-69a), and 3) the production of humans and other living things (69a-92c).⁴ The three *eikôs* qualification statements occur roughly at the beginning of each of the three main divisions of the speech, and I hope to show that the nature of these statements is closely related to the respective subjects of the three sections. I believe that it is necessary to account for all three of these instances to understand fully what Plato means by giving an *eikôs* account.

A. First qualification statement

The word *eikôs* has a wide range of meanings, as does the English translation, “likely.” At 29c2 Plato juxtaposes *eikôs* with the related word *eikôn* (image), explaining that the present account is *eikôs* because it is an account of an *eikôn*. This *eikôn* is the cosmos, which is an image of a divine paradigm, and the account is “likely” in the same way that the image is “like” the paradigm. Plato goes on to say in the following line that the fixed realm of being is to the realm of becoming as truth is to belief (*pistis*).

Therefore the *eikôs* account is not concerned with truth, but with appearances. The most

⁴ I follow Zeyl in these divisions.

puzzling part of the qualification occurs at 29c7-d3, where Plato says that we should be content with an account of the physical world that is at best no less likely (*mêdenos hêttôn eikotas*) than the account of any other. That is, the cosmologies of at least some of Plato's predecessors and/or contemporaries are just as *eikôs* as his own cosmology. To explain this last point, I propose that *eikôs* in this context can mean “consonant with observable phenomena.” One of Plato's cosmological rivals might be in error when it comes to metaphysics, but that does not mean that the latter's account of appearances cannot be equally likely. It follows from this definition of *eikôs* that the word also means “probable” or “possible,” because what does not fit with observable phenomena is not possible. Multiple accounts are consonant with the visible phenomena,⁵ and multiple accounts are probable. To say that multiple accounts are equally *eikôs* captures both of these meanings.

I have made the “no less likely than any other's” portion of the qualification central to my interpretation, something that certain modern scholars have failed to do. Recently Burnyeat has argued against the standard translation of *eikôs* as “likely,” suggesting that the word should sometimes be translated as “appropriate, reasonable or rational” (2009: 171). As a related claim Burnyeat argues that “Something is *eikôs* not only if it is like what is true, but also if it is like what ought to be” (2009: 170). If the Demiurge is good and always makes the most reasonable choice in every act of creation, then an account that is aware of the Demiurge's method of creation (i.e., has correct metaphysical assumptions at its starting point) will have a greater probability of being

⁵ Plato would have been aware of the concept of multiplicity-in-explanation. See Mourelatos 2010: 247.

true.⁶

I dispute Burnyeat's claim that Plato's account is more likely because it is based on correct metaphysical principles. At 27c-29a several points are established by Timaeus before he presents his *eikôs* qualification. We should consider these points to be straightforward affirmations of truth, not subject to hedging as the rest of the dialogue is. That there is a distinction between unchanging being and shifting becoming, that the cosmos is in the latter category, that the Demiurge is good, that the Demiurge looked at an eternal model when crafting the cosmos, all of these points are assumed at the outset without rigorous argument (even if Plato would think that they are shown in his other works). Questions of metaphysics must be settled first, before moving on to a study of the cosmos. By saying that an account starting from these correct metaphysical principles can, at best, be no less likely than certain accounts that do not start from these principles, Plato shows, contra Burnyeat, that likelihood is not connected to metaphysical assumptions, but to accordance with perceptible phenomena. For Burnyeat's argument to work, we would have to assume that the other accounts that are of equal likelihood also start from these metaphysical principles. That is, for a cosmologist to produce an account as likely as Plato's, he would have to start from the same metaphysical principles. But the *physiologoi*, Plato's targets when it comes to cosmology, most certainly did not start from these principles, and it is on this very point that Plato criticizes them elsewhere.

6 "In Timaeus' physics, the more appropriate or reasonable the account of some phenomenon, the greater the probability of its being true, precisely because the one unchallengeable proposition about the cosmos that we must hold true, on pain of impiety, is that the Maker made it the best possible the materials allow" (Burnyeat 2009: 186).

It is true that Plato's cosmology, although no more *eikôs*, is better and more in line with the truth. But the *Phaedo* myth is also more in line with the truth than the accounts of the *physiologoi*, in that it has a correct metaphysical position. What must be accepted (from a metaphysical standpoint) and what cannot be disputed or confirmed by empirical data, is that the Demiurge is good and made everything as good as possible. In cosmology, one also must give an account that accords with perceptible phenomena. But an account is fallible (i.e., at best likely) when it tries to give the specifics of how and why the Demiurge effected one of his good works in the realm of manifestation. We can know that the Demiurge will always do what is best given the conditions in the cosmos, but cannot know these conditions. This is a common religious idea: we cannot know God's will, but we can know that He is good and that He always has good reasons for doing what He does, even when the reasons remain hidden from us. Any discussion of the *eikôs* qualification must account for the further qualification made by Plato that his account will be no less likely than another's. It is this latter qualification that has been the most puzzling to commentators, and I hope to show that fully grappling with its implications, rather than ignoring them, yields the clearest understanding of the dialogue.

B. Second qualification statement

At 47e Timaeus begins the second division of his speech, focusing on the things produced by intellect and necessity. Near the beginning of this section at 48d Timaeus repeats what he says in the proem concerning the likelihood of his account: "I shall keep

to what I stated at the beginning, the virtue of likely accounts, and so shall try right from the start to say about things...what is no less likely than any other's." So far there is nothing strange in this comment, as it would seem merely to restate what has come before. But the following words have proven very difficult for translators and commentators. The text reads as follows: *mêdenos hêtton eikota mâllon de hôs emprosthen*. I join Mourelatos and Zeyl in accepting the emendation first proposed by Taylor of *tôn* in front of *emprosthen*.⁷ This gives the sense that what Timaeus says in this section of the dialogue will be more *eikôs* than what he says earlier on, but that in both cases his account will only be no less *eikôs* than any other's (call this reading A). Leaving out the *tôn*, the passage suggests that while in the earlier section of the dialogue Timaeus' account is only no less *eikôs* than any other's, in this section it is more *eikôs* than any other's (reading B). We should reject reading B because Timaeus says quite clearly that in this section of the account he will observe closely (*diaphullatôn*) what was said on this topic at the beginning. Of the two readings, reading A certainly keeps to what was said at the beginning more than reading B, for reading B would require a new definition of *eikôs*, while under reading A we can retain the original definition.

Having accepted reading A, I move on to investigating why the change occurred. The first two sections of the dialogue are distinguished in that the first section deals with what is crafted by intellect, while the second with what is crafted by intellect and necessity. At first it is not apparent why an account of what is crafted by intellect and

⁷ See Taylor (1928: 310-11) for a discussion of the difficulties of this passage and his reasons for emendation.

necessity should be more *eikôs* than an account of what is crafted by intellect alone, as the discussion of necessity is related to the chaotic and unruly receptacle. But if we assume that by saying an account is “more *eikôs*” it follows that the account will also be “less fantastical” or “less allegorical/mythological,” then the choice to change the standard for this second section makes sense. This section of the dialogue is less mythological, and indeed if this section were all that survived from the dialogue we would likely not even mention the *Timaeus* in the context of Platonic myth, since taken on its own, this section does not fit the definition of myth provided above.

Plato includes this modification of the *eikôs* qualification at the beginning of the second section of the dialogue, and provides another difficult passage midway through the section at 56b. Here he says that his account of the geometrical shapes of the elements is *kata ton orthon logon kai kata ton eikota*. That is, “in accordance with the correct account and the likely.” Given what is said in the proem, we should be surprised that Plato invokes *orthos logos* in his argument, especially when it is paired with *eikôs*, which would certainly draw the audience's attention to the contrast. I suggest that the reason for this is that the elements in Plato's system are based on geometrical shapes, and true scientific statements can be made about geometry. Robert Turnbull (1980: 92) argues that for Plato, geometry is both a pure science of the forms and also an applied, natural science. Things that are true of triangle in the abstract can guide our theorizing about the properties of particular triangles, even if these particulars are not perfect triangles. Thus in forming this section of the account Plato uses reasoning from what is *eikôs* and from

deductive truths about geometrical objects. But although an *orthos logos* is involved in the theory of the elements, the account of the elements as a whole is only likely because there are still multiple accounts that fit the phenomena. All of these accounts are more likely than the account in the first section of the speech, inasmuch as the subjects of the second section of the account (the atomic elements) are more like the forms than the subjects of the first section of the account.

C. Third qualification statement

The third division of the speech begins at 69a and continues to the end of the dialogue. The section deals with physiology, mainly of humans, although somewhat of lower animals as well. For Plato, this includes discussion of the mortal soul and how it interacts with the physical constituents of the body. The qualification occurs at 72d and reads as follows: “that our account is surely at least a 'likely' one is a claim we must risk (*diakinduneuteon*).” One thing is immediately clear: the standard in this third division of the speech is lower than the standard in the second. We are no longer dealing with geometrical precision, but with the rather messy business of material manifestation. Given that the standard is lower in the third section than in the second, there are three options: the standard in the first and third sections is the same, the standard in the first is lower than in the third, or the standard in the third is lower than in the first. There is a hint of the last option in the use of the word *diakinduneuein*. While in the first section Timaeus cautiously but confidently sets out the epistemological limits of his account, here

in the third making a similar claim is something that he must “risk.” I suggest that Plato was even more skeptical of his physiology than his cosmology. I give further support for his position in the following section.

Section 3: Ancient empiricism

Given the fact that Plato has played such a monumental role in Western thought, and that the *Timaeus* is his only sustained scientific discussion, interpreters of the dialogue have often tried to determine what role the *Timaeus* has had in the development of Western science, often seeking to give Plato a positive or negative evaluation from the modern scientific perspective. Roughly speaking, was Plato pro- or anti-science? There has been a wide range of opinions. One view is that Plato, with his metaphysical prejudice, represented a step backwards in the development of an empirical scientific method, re-introducing divine causation into the mechanistic Presocratic models (Gregory Vlastos 2005). Another is that by his extreme caution about the material world Plato presaged the use of provisional theories in modern science, a view cited and disputed by Burnyeat (2009: 167). Thinking about these questions can be an invitation to anachronism, so I begin with an examination of what science and empiricism were in Plato's time, looking at the Ionian *physiologoi* and the Hippocratics.⁸

In the introduction I suggest that one possible motivation for Plato to hedge his claims about the cosmos is an awareness on his part that theories about the physical world can change when new evidence becomes available. But had this happened by Plato's time? Xenophanes suggests that knowledge accumulates over time (Stobaeus *Anth.* 1.8.2), and in Aristotle's *Politics* at the end of II.6 we find a very emphatic view that humans acquire greater skill over time. Plato would certainly have been aware that human civilization has progressed in terms of material culture, but this seems to apply to

⁸ I rely heavily on the work of G.E.R. Lloyd throughout this section.

technai rather than theoretical views in general.

A. Empiricism and cosmology

Better evidence for overturned theories comes from the agonistic milieu of ancient cosmology. Mourelatos (2010: 244) argues that the agonistic flavor of *Timaeus* 29b-c suggests that the contending theorists are aware of the possibility of defeat in the future. But while Greek science, like science today, was not static, the dynamism was not quite the same. In antiquity scientists “did not so much stand on their predecessors' shoulders as knock them down, step over them, and go elsewhere” (Rhoads 1999: 4). Hence we do not see refinement of theory based on an ever increasing store of empirical observation, but rather an intensely agonistic environment. Theory was revised, but the revision did not lead to a new consensus (as no one would today deny that the planets have their own moons). And this agonistic environment is certainly not limited to the physical sciences. It was prevalent in all areas of Greek intellectual life, and we must not forget that new metaphysical doctrines can replace old ones as well, and that the agonistic environment is just as pronounced in this area. Indeed it seems that the Presocratic cosmologists modified their predecessors positions *not through new observations, but rather through theoretical argument*. Although we hear stories of the ingenious inventions of the *physiologoi*, their fundamental shift in thought was the result of reasoning, not the result of new instruments, such as a telescope.

Yet despite all the differences between modern empiricism and Ionian empiricism,

I hope to show by reconstructing the logic of their arguments that it is fair to characterize them as empiricists who relied on observation. Ionian arguments for natural phenomena do rely on sensory observation, in the sense that heavenly phenomena should be explained in terms of the mechanics of earthly processes. The Ionian innovation in cosmology is thus similar to the roughly concurrent innovation in historical inquiry. As the historians applied the principle that the realm of possibility in the present is the same as the realm of possibility in the past (e.g., we must reject the idea that men in the past were capable of greater feats of strength than men today), so the *physiologoi* applied the principle that the realm of possibility on the earth is the same as the realm of possibility in the heavens.

To reconstruct the logic of this Ionian approach I focus on the argument by Anaximenes about the cause of thunder. Anaximenes follows Anaximander in explaining thunder and lightning as wind breaking through a cloud, and he supports this view by making an analogy: the wind breaking through the cloud is like an oar breaking through the water (Aetius 3.3.2). It is easy enough to see the logic behind this idea: striking water makes a noise and makes the water whiter (brighter), and in the same way when the wind strikes the cloud it makes a noise and makes the cloud brighter. The difference is one of scale, not kind. It is easily observable that as one strikes the water with larger oars, a louder noise is produced. The logic of the argument can be set forth as follows:

-Either an x or a y causes z.

-x (a physical phenomenon) can and has been perceived.

-y (an anthropomorphic god) has not been perceived.

-therefore x causes z.

As Lloyd (1999: 52) points out, traditional ideologies merely exchange one unknown for another, for example when they explain thunder and lightning by saying that they are caused by Zeus. The Ionian approach attempts to exchange an unknown for a known, empirically observed phenomenon. It is in this sense that the Ionians were empiricists.

Although Plato harshly criticizes the *physiologoi*, he does seem to accept one of the fundamental conclusions of their theories: the cosmos is rational. Arguments based on Ionian empiricism have made the previously held mythological notions about the cosmos obsolete. The *Timaeus* is far from an apology for the traditional view, and Plato would never declare Hesiodic myths to be *eikôs*, although, under my interpretation of the *eikôs* qualification, the accounts of the *physiologoi* are. As we see in section 4, Plato does have a sophisticated view on the use of myth, and he could have saved traditional myths from the Ionian triumph by arguing that these myths are best seen as symbols or allegories.⁹ But as Morgan (2000: 64) points out, “The impulse to see myth as symbol depends upon a prior rejection of its literal meaning.” Plato indeed criticized the *physiologoi* for their moral and metaphysical shortcomings, but nowhere does he dispute their essential contribution to science, that the cosmos must be rational.

⁹ Plato's complicated relationship with the traditional mythology is examined in the following section of this paper.

B. Empiricism and medicine

I now move on to the other area most often credited as the birthplace of scientific empiricism: Greek medicine. Some scholars have argued more strongly for attributing a pure empiricism to the Hippocratics. For example, Damianos Tsekourakis (1993: 167) argues that Hippocrates was an empiricist who “never relied on philosophical hypotheses”. Some make more limited claims. For example, Lloyd (1999: 158) points out that the Hippocratics had theories of internal organs based on philosophical speculation, theories that were little, if at all, influenced by observation, as in the case of positing three circuits of the human body corresponding to the three circuits of the heavenly bodies (more on this in section 6). But despite this caution, there is much merit to the claim for medical empiricism at this early stage.

This nascent empiricism is perhaps most evident in the practice of dissection. This practice is carried out for the express purpose of revealing new empirical evidence. The knowledge gained by dissection is new to the observer not necessarily because the senses were previously deceived but are later corrected, as in the case of the stick that appears bent when submerged in water, but because the observer has sought out new data previously not available. Hence, from an epistemological perspective, we cannot say that a previously held view later discredited by dissection was mistakenly held in the first place because the senses were faulty. Even if the senses perfectly perceived what was before them, it would still be possible for the investigator to come to an incorrect conclusion. But this possibility of dissection and consequent refutation are just as much a

part of the world of becoming as is faulty sensory perception. The nature of the world of becoming is such that the interior of the human body cannot be grasped by deductive reasoning, only by empirical investigation.

While most of the important discoveries made through dissection did not come until after Plato, there was already some notion of dissection by his time. Lloyd (1999: 157) points out as one of the foremost empirical arguments the argument in *On the Sacred Disease* using evidence from the dissection of a goat's head. Briefly stated, the argument is as follows: the Hippocratic author argues that epilepsy is caused by the excess of a humor in the brain, not by divine interference, and to support this position he claims that the brain of goat that suffers from this condition is overly moist (information that could only be gained through dissection). What the author is counting on is that both disputants will agree that the contents of the goat's brain will settle the dispute. One might attempt to map out the argument as follows:

Disputant A holds that:

- the goat's disease is caused by P (excess of a humor in the brain)
- if P is operating as a cause, then the diseased goat's brain will be X (wet)

Disputant B holds that:

- the goat's disease is caused by Q (divine influence)
- if Q is operating as a cause, then the diseased goats brain will not be X

They cut open the goat's head, the brain is X.

Therefore, by modus tollens, the cause is P and not Q.

But there is a problem with this model, because disputant B would certainly not accept $Q \rightarrow \text{not } X$. That is, there is no reason why the goat's brain could not be wet if the disease has a divine cause. The next natural step for Disputant A (or perhaps an assumed step taken beforehand but not mentioned in the argument) would be to determine the normal wetness in the brain of a goat not suffering from the disease. This could be determined by large scale dissections. But would this be enough to convince Disputant B? He could simply maintain that a god causes the disease and the disease causes the wetness.

The empirical research of this period can seem rudimentary to modern eyes, and Lloyd points out that we should exercise caution when looking at these experiments, as “the function of (empirical) tests was to corroborate the theories in question, not to provide data to decide between competing theories” (1999: 151). But Plato was familiar with *On the Sacred Disease*, or at least with the argument contained therein, and furthermore was persuaded by it (*Timaeus* 85b, see section 6 for more discussion on this passage). We cannot say what part of the work was most convincing for him, and admittedly the argument from dissection forms only a small part of the Hippocratic author's attack, but we can say with some confidence that Plato was familiar with this work of empirical science, that he was convinced of its conclusion, and that the section of *Timaeus*' speech that qualifies its accuracy most emphatically deals with anatomy and physiology. Unlike “the things above the heavens and below the earth” whose distance precludes closer examination, the anatomy of earthly organisms could be explored meticulously and thoroughly. And while the ancients may not have been aware of the

potential for advances in instrumentation that would allow for new data previously unobtainable, there was the possibility that an investigator could draw new evidence from the examination of the body by noticing previously overlooked facts. Hence Plato's heightened caution when making statements about physiology.

Section 4: Moral truth and observational truth

Before deciding on the implications of the mythological status of the *Timaeus*, it is necessary to establish the status of stories that are universally accepted to be proper Platonic myths. Giving an exact definition of Platonic myth is a large task beyond the scope of this paper. Therefore I hope that the reader accepts for the present purposes the following definition, intended to be broad and uncontroversial. By “Platonic myth” I mean accounts in the dialogues, often narratives, that use imagery and figures to express ideas without the use of logical argument. By saying that they are without logical argument, I mean that they stand in contrast to the elenchus, in which Socrates (or other speakers) moves from premise to premise, establishing what follows from what has proceeded, and gains the assent of his interlocutor on each point as he constructs a logical series. In telling myths, a speaker gives a sustained account whose details are for the most part simply stated outright rather than shown to follow logically from what has already been agreed upon.

I look at two passages which I believe are programmatic statements by Plato concerning his use of myth. The first is from the *Phaedo*. Socrates has just given an account (108d-114c) of the fate of the soul after death that includes a description of the true nature of the earth. This myth, which follows an elenctic exploration of the nature of the soul, is a long, (mostly) uninterrupted speech by Socrates. He describes what he claims is the true surface of the earth, a paradisiacal region and destination of the blessed dead, and the subterranean rivers where the wicked go to be punished and cleansed. In

giving his vision of the earth and describing the journey of departed souls, Socrates uses assertions rather than reasoned argument. This account from the *Phaedo* clearly fits the definition of myth provided above. Upon completing the myth, Socrates qualifies the claims he has just made about the nature of the earth, saying that “it would not be fitting for a man of sense to maintain that all this is just as I have described it, but that this or something like it is true...I think he may properly and worthily venture to believe” (14d). Plato does not assert the truth of the details of the account, but he claims that the general thrust is correct and, most importantly, that the account that he has given, or one like it, benefits the soul. Given Plato's reluctance to make claims about the physical world, and his strong convictions about the soul and the goodness of the gods, I suggest that Plato is more confident about the moral truth of the account than its physical or observational truth. He appears open to making changes to the physical details of his account, but he certainly would not abandon his central moral position, that the soul is immortal and that the supernatural order of the cosmos justly treats the souls of the dead according to their earthly conduct.

But if the physical details of the myth can be altered, the only fixed and certain aspects being rooted in previously established or previously held beliefs, one might ask what the point of the myth is in the first place. What can Plato say in a myth that he cannot say in a more straightforward way? To answer this question I turn to the *Phaedrus* and the myth of the charioteer of the soul. Although this account does not explicitly deal with the term *muthos*, it does meet the definition of myth just provided. Plato uses the

imagery of chariots, horses, wings, etc. to describe the soul, he narrates the soul's ascent, and he gives this account in a sustained speech without elenctic argument. Furthermore, Plato is not strict in his use of the term *muthos*, and he does not seem to think of it having the narrow meaning of the modern word “myth.”¹⁰ At *Phaedrus* 246a Socrates is about to give a description of the soul as a chariot pulled by two winged horses, and he explains his choice of description by saying, “to tell what it really is would be a matter of utterly superhuman and long discourse, but it is within human power to describe it briefly in a figure (*hōi de eoiken*)”. Here Plato emphasizes the fact that he is using a physical description to make a moral and metaphysical claim.

A few points deserve mentioning before exploring more fully the implications of the text from the *Phaedrus*, that myth can communicate something that normal discourse cannot. First, I endorse the claim of Christopher Rowe (2009: 135 and passim) that just because myth takes over where rational discourse runs out does not mean that myth is irrational. I take the view that myth is here used to communicate something that cannot be communicated in normal discourse because it is supra-rational, not sub-rational. Second, although Plato's criticism of traditional myth is part of a general trend in ancient Greece, his criticism is distinct in that unlike some of his predecessors,¹¹ he takes issue not with the fantastic elements of traditional myth but with the moral elements. His own myths are revisions of traditional myths along moral lines, but he freely allows fantastic elements, as is seen in the *Phaedrus* myth. Plato is notorious for his complaints in the

¹⁰ See Brisson 1998: 128ff.

¹¹ For example, Thucydides' rationalization of the Trojan War.

Republic that the poets tell lies about the gods, claiming that the gods commit acts contrary to virtue, but he does not criticize them for giving supernatural accounts. In the *Republic*, Plato is concerned with the effect that poetry can have on moral education, and at one point in the dialogue (414-15) even suggests that a “noble lie” could be told to his citizens. Although not literally true, the noble lie will lead to correct moral knowledge. In creating his own myths, Plato attempts to convey stories which, while they do possess deep allegorical meaning, cannot lead to moral confusion when the audience sees only the surface narrative.

I have described how Plato's myths contrast with the traditional myths, but have yet to show how myths can communicate something that normal discourse cannot, and that myths are not simply propaganda or rhetoric to persuade those not open to rational argument, as the example of the noble lie might lead one to believe. In order to show this I examine the myth from the *Phaedrus* along with the Sun analogy from the *Republic*.

In the Sun analogy at *Republic* 508-509 the Good (G) is likened to the sun (S), and the intellectual objects (forms) produced and made intelligible by the Good (PG) are likened to those things produced and made visible by the sun (PS). That is, G is to PG as S is to PS. Plato has already established that PG are transcendent objects, not subject to coming to be and passing away. PS, on the other hand, are subject to coming to be and passing away, and in this analogy he likens PG to PS. It is not unusual that in an analogy something of one order is likened to something of another (in this case a transcendent object being likened to an object in nature).¹² But the true power of the analogy comes

¹² We see something similar in the *Phaedo* when Plato describes the mythical true surface of the earth by

from the relationship between S and PS. While both S and PS are objects in nature, in the popular Greek mind the sun is divine, and Plato also gives an exalted status to heavenly bodies, which have a sempiternal existence (see *Timaeus* 38cff). Therefore S differs from PS not only in magnitude but in kind. Therefore the Good transcends intellectual objects in the same degree as the sun (a god) transcends perishable, earthly creations. In describing the forms, Plato has already pushed human thinking to its limits, exploring a realm completely alien from normal experience. When it comes to the Good, he needs to show that the Good transcends the forms by another order of magnitude.

In the *Phaedrus* Plato introduces the myth of the charioteer to describe the soul, and he has Socrates say explicitly why he is using this image (see above). The soul is something so complex that to describe it in conventional language would be an almost impossible task, so an appropriate myth is adopted instead (246a). The myth is lengthy and rich in detail, but I focus on the section in which Plato describes the other side of heaven (247c). For Plato, the soul, or at least the immortal soul, is immaterial. To describe what it really is like, rather than describing it with an analogy, would require abstract language. In the *Phaedrus* he is able to talk about the soul using physical descriptions (the horses, chariot, etc.) only because these descriptions are part of the myth. Not only the soul but also the gods are given physical descriptions. Zeus is said to drive a chariot (*elaunôn harma*), and the gods go to feasts and banquets. But when it comes to the other side of heaven, Plato says that:

saying that it is more excellent than our surface of the earth in the same degree that the latter is more excellent than the sea.

the region above the heaven was never worthily sung by any earthly poet, nor will it ever be. It is, however, as I shall tell; for I must dare to speak the truth, especially as truth is my theme. For the colorless, formless, and intangible truly existing essence, with which all true knowledge is concerned, holds this region and is visible only to the mind, the pilot of the soul (247c-d).

This is similar to the move Plato makes in the Sun analogy. In this case, the soul, which is immaterial and beyond normal description, is likened to something that can be described physically, a chariot. But the soul then comes upon something that completely transcends its nature. Surely the soul is also colorless and formless (*aschêmatistos*), but if the account began by denying the soul such attributes, the author would be at a loss when trying to describe something that in turn transcends the soul. As in the Sun analogy, Plato begins by likening something transcendent to something material; and then he contrasts that material object with something transcendent. The implications of this analysis for the *Timaeus* are explored in the following section.

Section 5: A special kind of myth

Whether or not the *Timaeus* is a myth is a question that has a long tradition of varied opinion. John Dillon (1989: 72) argues that Plato intended the *Timaeus* to be a myth, but failed to communicate this to his immediate successors, as in the 4th century it seems that most did not take it as a myth, including Aristotle who assumes that Plato taught a literal beginning in time for the cosmos. The major Neoplatonic commentators (Porphyry, Iamblichus, Proclus) all took the *Timaeus* to be metaphorical (Dillon 1989: 59), although they did not come to a very nuanced view of the *eikôs* qualification.¹³ When examining Plato's objectives in the *Timaeus* it is important to note that the dialogue fulfills two different functions at the same time. As Burnyeat says, in the *Timaeus* Plato provides a myth that is simultaneously "a religious story as well as a scientifico-mathematical one" (2009: 169). It corrects both the poets and the *physiologoi*. Gone are the shameful deeds of the gods warring with each other, gone too are the explanations that conform to observation but make no reference to immutable first principles. Thus it is a special kind of myth, and one can describe it as being in the intersection of two different classes of accounts: one class being myths that are morally correct, the other explanations that are observationally correct. The myth of the *Timaeus* is no less likely with respect to observation than any other cosmological accounts consonant with observable phenomena, and is no less true with respect to morality than any of Plato's other myths.

From the *Laws* (884ff.) it is clear that Plato was deeply concerned with the

¹³ Proclus merely states that *Timaeus* claiming his account to be no less likely than any other's is a sign of modesty.

potential dangers associated with a materialistic cosmology, which he considered to be a threat to piety and morality. Plato lays out in harsh terms the moral dangers of these theories and the appropriate way to deal with those who hold to them, including imprisonment and even possibly execution, lest they spread atheism and impiety throughout the community. This treatment in the *Laws* shows that Plato perceived the main threat of these materialistic theories to be a moral one. His concern is not that someone will be led to have an incorrect view on the mechanics of a specific physical or medical problem, but rather that someone will be so dazzled by the illusory wisdom that the study of nature can provide that they will think the cosmos to be self-sufficient and not in need of transcendent causes. Sedley (2007: 136) argues that the materialistic conclusions of the Presocratics were reached by “explanatory economy,” “not out of any anti-religious motivation as such,” and Plato seems to echo this sentiment at *Laws* 886a-b. The Athenian Stranger has just described those men who proclaim atheism in some form, and his interlocutor apparently thinks that this atheism is simply an excuse for self-serving impious behavior. But the stranger assures him that these godless men do have intellectual reasons for their beliefs, not just desire for wickedness. He goes on to say that the *physiologoi* and their followers mistakenly adopt an ignorance (*amathia*) that appears to be the greatest *phronesis* (886b). Given these statements it is easy to see Plato's motivation for writing his cosmology. Something like the *Timaeus* would be needed—not just restrictive laws—to convince otherwise well-intentioned seekers who might have been led astray by materialistic speculation.

The *Timaeus* is a response to anyone who might say that the gods should not be worshiped because the cosmos can be explained without them. Plato offers an account no less likely than those of the *physiologoi*, yet one that allows for and requires divine agency. Other Platonic myths use physical descriptions to give accounts of moral and metaphysical doctrines, but their physical descriptions are fantastical (flying chariots, etc.). The *Timaeus*, therefore, has a unique status among Plato's myths in that the physical description is grounded in observable fact and explains those facts just as well as any other cosmology. The cosmology in Er (*Republic* 616bff) is not claimed to be *eikôs*. The description of the whorl, the weaving fates, etc., are meant to illustrate symbolically the fate of the soul after death, not how the earth actually appears to the senses. Put in ethical terms, some cosmologies can do injustice to body, some can do injustice to soul. The former would be less *eikôs* than the most *eikôs* accounts, and make claims contrary to observable phenomena; the latter, whether or not *eikôs*, ignore the transcendent. Of course some accounts can harm both body and soul, or do justice to both, the *Timaeus* perhaps being the only one that does the latter.

In a sense the distinction Plato is drawing is not between rationalists and traditionalists, but between materialists and himself. Both the *physiologoi* and proponents of traditional mythology fall on the side of materialism, failing to understand the transcendent meaning of both the cosmos and the stories about the gods. The proponents of traditional mythology think that the gods are like men in their desires and temperament, while the *physiologoi* think that the divine substrate can suffer change and

modification. The truly divine is too exalted for both human emotion and material change.

In the preceding paragraph I deliberately say “proponents of traditional mythology” rather than “traditional mythological accounts.” This is because Plato's view of the received tradition is complicated. Although the account in the *Timaeus* owes little to traditional stories about the gods, Plato does make reference to these stories at 40d-41a. In this passage Timaeus discusses the Olympian gods; but rather than working out a reasoned account of their origin, he states that:

...it is beyond our task to know and speak of how they came to be. We should accept on faith (*peisteon*) the assertions of those figures of the past who claimed to be offspring of the gods...we cannot avoid believing the children of gods, even though their accounts lack plausible or compelling proofs (*aneu te eikotôn kai anagkaiôn apodeixôn*).¹⁴

Commentators do not always take this passage seriously. Burnyeat (2005: 175), for example, declares, in reference to this passage, that “it sounds pretty ironic to me.” I, however, do take the passage seriously, and agree with W.K.C Guthrie (1952: 240), who points out that the acceptance of these traditional stories fits in with Plato's treatment of divine *mania* in other dialogues. To support this position further I suggest that there is an analogy between this passage in the *Timaeus* and the treatment of the Delphic oracle in the *Republic*. In the latter dialogue the Delphic oracle is respected and obeyed (427b-c),

14 One might argue that the use of *kai* suggests that something can be both *eikôs* and *anagkaios*, undermining my interpretation of the former word. But I interpret this passage to mean that these mythographers lack accounts that are A and accounts that are B, not that they lack accounts that are both A and B. Thus the accounts of the mythographers are not based on observation, nor are they based on dialectical deduction. The mythographers form a class distinct from both metaphysicians and natural philosophers.

and its opinion is to be sought in matters of cult where rational thought cannot provide equally valid advice. It would be very difficult to say, given the prominence of the Delphic oracle in Socrates' life, that Plato is being ironic when giving the oracle this authority. Thus in the *Republic* and in the *Timaeus* Plato says that there are domains outside the realm of philosophical reasoning which can be grasped by us only through revelation.

While Plato emphatically denies the truth of the accounts of the *physiologoi*, he is much kinder to the traditional mythology (*Laws* 886d). In this passage he echoes the strong misgivings found in the *Republic* about the unjust conduct of the gods, alluding specifically to the castration of Ouranos by Kronos, but he ends up saying that the old accounts, even though they might not benefit the audience that receives them, should be told in their original form because that is the way in which the gods desire them to be told. Some *physiologoi* did incorporate the traditional gods into their accounts, sometimes giving the names of the gods to the forces in their own systems (e.g., Heraclitus, Empedocles). Plato, on the other hand, keeps the traditional accounts of the gods separate from cosmology. He respects, and to a large degree accepts, the received tradition as a sort of revelation that cannot be disputed. This is a controversial claim, as Plato is well remembered for his extreme attack against Homer and Hesiod in the *Republic*, arguing along Xenophanean lines that accounts that have the gods acting unjustly are certainly false. But evidence from the *Timaeus* and the *Laws* suggests a different view. While the *Timaeus* does fully replace the accounts of the *physiologoi*, it

does not fully replace traditional mythology, but complements it. Accordingly, claims that the *Timaeus* stands in wholesale opposition to traditional mythology need cautious and more nuanced formulation.

The *Timaeus* is devoted to providing a morally and metaphysically correct cosmology, one that can do the most good for the souls of those who study the subject. In other dialogues Plato expresses skepticism about the value of cosmological studies (*Phaedo* 96-99), and even in the *Timaeus* itself he downplays the significance of cosmology. At 68e-68a he says that there are two forms of cause, the divine and the necessary, that the divine cause is the one “for which we must search in all things if we are to gain a life of happiness (*heneka eudaimonos biou*) to the extent that our nature allows,” and that we search for the necessary cause for the sake of discovering the divine cause. There is no suggestion here, and certainly not elsewhere in Plato's works, that one cannot search for the divine cause of things without searching or having searched for the necessary cause. Indeed the method of the *Timaeus* shows a movement in the opposite direction: Timaeus first establishes his metaphysical principles, and only then moves on to looking at the cosmos. As for the individual who examines the cosmos without looking beyond to the divine cause, his examination can provide at best “a moderate and sensible diversion (*phronimos paidia*)” (59d). This approach to the study of the cosmos is the same as Plato's approach to other areas of knowledge: to have moral value one must look beyond to the metaphysical source.

But it is not just in order to offer a metaphysical alternative to the accounts of the

physiologoi that Plato undertakes such a careful study of the cosmos. Plato finds great value in the study of the cosmos itself, and uses the work to communicate mythologically what could not be given in rational discourse. To gain insight into how Plato values the study of the cosmos, we turn to the discussion of “real” astronomy in the *Republic*. In this dialogue, Plato discusses astronomy in the context of the education of his guardians, so the focus is on how the study of astronomy can give the guardian better metaphysical understanding. Plato teaches that the greatest value of astronomy is not found in making precise calculations about the location or trajectory of specific stars, but in contemplating the eternal paradigms of motion of which the stars are instantiations. For Plato, astronomical objects fall short of real motions just as diagrams fall short of real mathematical objects. Studying the stars without grasping the paradigm they represent would be like studying a diagram of a triangle without grasping the theoretical truths about triangles. Thus the real motions would be analogous to real mathematical objects (Mourelatos 1980: 36).¹⁵ In order to understand the *Timaeus* we should expand the recommendations made by Plato in the *Republic* for the study of astronomy to cover the entire investigation into nature: the greatest value of science is not in making predictions or giving mechanical explanations, but in finding in particulars beauty, goodness and form.

Plato's cosmos is not morally uplifting only because he puts a god at the head of it;

¹⁵ Although at first glance this might seem like an alien notion, it is in fact rather akin to Newtonian mechanics, where one considers the principles of motion in an idealized environment that would never obtain in the world. Just as there is no perfect spherical object in nature, there is no perfect spherical motion.

for Plato, every bit of his description has moral and metaphysical validity. His descriptions are both literally and metaphorically true. An example from the *Timaeus* of something that is both literally and metaphorically true is found at 44d, where Plato discusses the round human head being the most divine part of us, its shape being that of the cosmos. Saying that the head is round fits the observable phenomena, and also has further significance: our rational potential is expressed by the roundness of the head. For the sake of contrast, we can fabricate a myth Plato might have told that is metaphorically but not literally true, such as the following: in a distant land there is a race of men whose heads are pyramidal in shape, and the pyramidal shape signifies that their intellect, housed in the head, points upwards, beyond the world of becoming. In both myths, that from the *Timaeus* and our fabricated one, the shape of the head signifies something known to be true through dialectical reasoning (i.e., the nature of the intellect), but only in the former myth does the shape of the head correspond with observation.

Even though the *Timaeus* is designed to save the phenomena, it also shows a student of nature how to use the study of nature in the most proper way: to gain metaphysical knowledge. The whole world can be a means to achieving this transcendent end.¹⁶ By focusing so heavily on the transcendent aspect of his account and qualifying his claim of literal truth, newly observed objects that contradict previously held assumptions would not cause any concern for Plato. Any newly observed objects or processes would simply be considered previously unknown material causes that work together with the

¹⁶ As can every area of study, as I hope to show in the following section.

Good, the true, dialectically known cause.

The *Timaeus* also communicates through mythic imagery what cannot be explained through a normal discourse. Recalling what is said in section 4 about the Sun analogy and the *Phaedrus* myth, we see a similar situation at *Timaeus* 37c-38b, the birth of time. Prior to this section we have already witnessed the activity of the Demiurge, and in natural language activity is understood as taking place in temporal succession. The Demiurge is a craftsman who has created the cosmos in a way analogous to a mortal craftsman; but his act of creation is also of an entirely different order. The way in which the Demiurge is related to his creations is best explained through the symbol of temporal activity, but evidently it is an act of creation that stands outside of time as we perceive it. Only through a mythological symbol can we gain insight into the true nature of the Demiurge's activity.

Section 6: Intellectual rivals

It would appear that Plato is in a sense using cosmology for his own ends, subverting the tradition of the *physiologoi* to promote his own moral and metaphysical doctrine. This is quite in line with Plato's practice, and it is seen in other areas as well. To illustrate this point I look at three important areas of Greek intellectual life, medicine, cosmology, and rhetoric. The first two areas, medicine and cosmology, are directly relevant to the *Timaeus*; the last, rhetoric, is useful as representing a similar case that is dealt with in other dialogues.

In the *Gorgias* Plato engages in a long discussion of the differences between sophistry and philosophy, arguing that sophistry is a lesser art, inasmuch as it deals only with surface qualities. It is useful in discussions with the ignorant, discussions aimed at persuasion, not at truth. In the *Phaedrus* the whole dialogue is supposedly inspired by a speech of Lysias. Lysias was a renowned speechwriter, but Socrates taking issue with Lysias' speech, offers a response that is rhetorically no less elegant, yet is also philosophically correct. The philosophically correct speech fulfills what Marina McCoy (2008: 167) sees as the Platonic standard for good rhetoric, that it acts "as philosophical *psychagogia*, the leading of souls towards the forms." Gorgias sees rhetoric as a neutral skill like boxing that can be used or misused: it is sometimes appropriate to harm someone, sometimes it is not. But boxing affects the body, speech affects the soul. In combat or a contest it might be right to make one's opponent's body worse, but never to make his soul worse. The soul should always be orientated towards the transcendent, just

as accounts of the cosmos should be. In both the *Timaeus* and the *Phaedrus* Plato identifies his opponents in Greek intellectual life and attempts to outdo them at their own craft. He faults his opponents for ignoring truth and piety, and he gives a response that does display truth and piety, a response that can be judged to be no less admirable by his opponents' standards.

We have already seen how Plato thinks that the *Timaeus* is superior to the accounts of the *physiologoi* in terms of metaphysical truth, but here I present what I believe is an example of Plato outdoing his predecessors on their own terms. It is safe to say that Plato's attitude towards atomic theory in the *Timaeus* is not at all out of place with his treatment of other predecessors. He takes what he judges to be good and orients it towards his own ends. In spite of his notorious hostility to Democritus,¹⁷ Plato far from rejecting the atomic theory, incorporates it into his cosmology and, as Vlastos argues, goes "further, much further along the same road". Vlastos is referring to the fact that "the indivisibles of (Plato's) physics were still more remote from the bodies of sense-experience (than those of Democritus'): they were not even bodies, but only surfaces of bodies. His atoms are two-dimensional" (2005: 69). Plato drives home the point that he is working at the same advanced theoretical level as his opponents, and that working at such a level does not demand anti-metaphysical or impious conclusions.

We see a similar situation when looking at medicine, which has a prominent role in the *Timaeus*. The most discussed Platonic allusion to the medical art is at *Phaedrus* 270c-d, where Socrates recommends that his interlocutor gain knowledge of the whole (to

¹⁷ See Mi-Kyoung Lee (2005: 185) for differing views on Plato's alleged hostility towards Democritus.

holon) before making an analysis of the part, and attributes this method to Hippocrates.¹⁸ Plato seems to be giving a strong endorsement of Hippocrates, and the Hippocratic corpus supports the view that the doctors focused on the whole to heal the part.¹⁹ But if we turn to the *Charmides*, we see that Plato does not completely accept the Hippocratic method of investigation. At 156d-57c of that dialogue Plato uses Socrates' account of his meeting with a Thracian doctor to criticize and expand upon the Hippocratic teaching that one must heal the whole body in order to heal the part. Immediately prior to the account of the meeting, Socrates has convinced his interlocutor of the Hippocratic position, and he then proceeds to tell of the Thracian doctors who serve the god Zalmoxis. One of these doctors had explained to Socrates how the Greeks were mistaken in their medical practice, because in order to cure the whole man one must cure the soul as well. The soul, as the most important part of a man, is the root of health and disease, and can be cured by the use of *kaloi logoi*. We can see here that Plato adds to the Hippocratic practice an extra dimension that it lacked. The Hippocratics look only to the body, not the soul, the transcendent element within us.

Returning to the *Timaeus*, I give two examples of Plato simultaneously drawing on and criticizing his predecessors. John Edward Sisko (2006: 5) argues for a strong Italian influence on the *Timaeus* in its medical theory, citing the influence of the pseudo-

18 There has been dispute over how to interpret *to holon* from antiquity to the present day. The two common positions are that *to holon* refers either to “the universe” (Galen is an example of this position) or to “the whole body” (Hermeias) (Tesokourakis 1993: 162). The question is not of vital importance for the present context.

19 Some have gone so far as to pinpoint the Hippocratic work Plato is here referencing. Japp Mansfeld (1980: 356) argues that Plato's method refers “beyond reasonable doubt” to *Airs, Waters, Places*.

hippocratic *Peri diaites* (*On Regimen*), a treatise that reflects doctrine of the Sicilian school of medicine. In *On Regimen* the human soul is a copy of the heavens in as much as both the soul and the heavens have circuits (*periodoi*, an unusual use of the word found both in this treatise and in the *Timaeus*). These circuits in the soul must be permitted to flow freely, not too fast or too slow, otherwise we will make poor decisions, have trouble with perception, etc. (Sisko 2006: 8-9). This idea of analogous circuits is quite similar to the account of the circuit of the Same and the Different in the *Timaeus*, introduced at 36c to explain the motions of the fixed and wandering stars. Plato later (*Timaeus* 42-43) uses these circuits of the Same and the Different within us to explain psychological activity. But despite this similarity Plato would doubtless take offense at the implication of the earlier teachings, that the soul is essentially material. The *Charmides* passage discussed above shows that the practice of the medical doctors to treat psychological ailments with diet and exercise is misguided. Hence at *Timaeus* 90c-d Plato recommends astronomy as therapy for the soul, saying that “we should redirect the revolutions of our head that were thrown off course around the time of our birth, by coming to learn the harmonies and revolutions of the universe.” For Plato, reestablishing proper order for the soul is accomplished by a more transcendent activity.

The second example comes from *Timaeus* 85a-b. In this section Plato discusses epilepsy and broadly accepts the conclusions of the Hippocratic author, that the disease is caused by an imbalance of bodily humors, rather than by divine interference.²⁰ However,

20 Francis M. Cornford (1937: 341): Plato agrees with the Hippocratic author that epilepsy “is an affection of the brain and caused by plegm, to which Plato (or his source) adds a mixture of black bile.”

he takes issue with one of the Hippocratic author's conclusions, that the disease should not be called "sacred," arguing that "because it is a disease of the sacred substance (*hieras phuseôs*), it is most justly termed the sacred disease." That is, the seat of intellect in our bodies is our sacred part, as that part of the body shares in divine activity more than any other. One could interpret this passage as a flip remark, a learned wink to those familiar with medical theory. But I believe there is a much deeper significance concealed therein. In a way, this exchange between Plato and his predecessor is paradigmatic of the entire project of the *Timaeus*.

Conclusion

One of the most important features of Plato's mythological project in the *Timaeus* is immunity from refutation by *physiologoi*. He does not want any of his moral positions, which he has based on metaphysical principles, to be challenged by observable phenomena. Plato would not think that modern science could challenge the moral truth of his *eikôs mythos* any more than the observational data of his own day could challenge the moral truth of the *Phaedo* myth. Even if someone formulated a new account that is more *eikôs* than the one given in the *Timaeus*, for instance an account using observational data that was not available to Plato, then at most Plato would be forced to admit that the *Timaeus* should be considered to be in the same category as his other myths, and no less morally true than it was when it appeared to accord with observation.

Plato offers the *Timaeus* as a response to those who reject the gods by claiming they can explain the cosmos using a physicalistic model, countering his opponents by giving an account that is just as likely, yet one in which the gods have a prominent place. He does *not* attempt to expand his argument by saying that the observational phenomena prove divine agency in the workings of the cosmos. One might think that this is a weakness or limitation in Plato's undertaking; in fact it is its greatest strength. Were he to make such a move and use observational data to argue for the existence of eternal things, then these arguments would be threatened by new observations that contradict previous assumptions about the physical universe.

Without the *eikôs* qualification of the *Timaeus*, this dialogue would be the easiest

to challenge from a modern perspective, the easiest to reject out of hand because many of its claims are verifiable by means of physical observation. Plato thereby avoids conflicts with modern science that the *physiologoi* could not. Even the ancient atomic theory, often hailed as the greatest achievement of ancient physics, can today at most be seen as a brilliant forerunner; no one would look to this theory to improve contemporary particle physics. Philosophers today still look to Plato to gain insights into contemporary problems in epistemology, ethics, language, and metaphysics, precisely the areas of inquiry Plato considered most important, and in which knowledge is possible.

Bibliography:

- Brisson, Luc. 1998. *Plato the Mythmaker*. Translated by Gerard Naddaf. Chicago.
- Burnyeat, M.F. 2009: 167-186. "Eikôs muthos." In *Plato's Myths* Ed. Catalin Partenie. Cambridge.
- Cornford, Francis M. 1937. *Plato's Cosmology*. Indianapolis, IN.
- Dillon, John. 1989. "Tampering with the Timaeus." *The American Journal of Philology*, 110.1: 50-72.
- Gerson, Lloyd P. 2005. "Plato on Understanding." *The Southern Journal of Philosophy* 43: 213-239.
- Guthrie, W.K.C. 1952. *Orpheus and Greek Religion*. Princeton.
- Lee, Mi-Kyoung. 2005. *Epistemology After Protagoras*. Oxford.
- Lloyd, G.E.R. 1999. *Magic, Reason and Experience*. London.
- Mansfeld, Japp. 1980. "Plato and the Method of Hippocrates." *Greek, Roman and Byzantine Studies*, 21.4: 341-362.
- McCoy, Marina. 2008. *Plato on the Rhetoric of Philosophers and Sophists*. Cambridge.
- Morgan, Kathryn A. 2000. *Myth and Philosophy from the Presocratics to Plato*. Cambridge.
- Morgan, Kathryn A. 2010: 267-285. "Narrative Orders in the *Timaeus* and *Critias*." In *One Book, the Whole Universe: Plato's Timaeus Today* Ed. by Richard D. Mohr. Las Vegas, NV.
- Mourelatos, Alexander P.D. 2010: 225-247. "The Epistemological Section (29b-d) of the Proem in Timaeus' Speech." In *One Book, the Whole Universe: Plato's Timaeus Today* Ed. Richard D. Mohr. Las Vegas, NV.
- Mourelatos, Alexander P.D. 1980: 33-74. "Plato's 'Real Astronomy': Republic VII. 527D- 531D." In *Science and the Sciences in Plato* Ed. John P. Anton. Delmar, NY.

- Patterson, Richard. 1985. *Image and Reality in Plato's Metaphysics*. Indianapolis, IN.
- Rhill, T.E. 1999. *Greek Science*. Oxford.
- Rowe, Christopher. 2009: 134-147. "The Charioteer and His Horses: an Example of Platonic Myth-making." In *Plato's Myths* Ed. Catalin Partenie. Cambridge.
- Sedley, David. 2007 *Creationism and its Critics in Antiquity*. Berkeley, CA.
- Sisko, John Edward. 2006. "Cognitive circuitry in the Pseudo-Hippocratic Περὶ διαίτης and Plato's *Timaeus*." *Hermathena* 180:5-17.
- Taylor, A. E. 1928. *A Commentary on Plato's Timaeus*. Oxford.
- Turnbull, Robert G. 1980: 75-102. "The Later Platonic Concept of Scientific Explanation." In *Science and the Sciences in Plato* Ed. John P. Anton. Delmar, NY.
- Tsekourakis, Damianos. 1993. "Plato's *Phaedrus* and the Holistic Viewpoint in Hippocrates' Therapeutics." *Bulletin of the Institute of Classical Studies* 38:162-173.
- Vlastos, Gregory. 2005. *Plato's Universe*. Las Vegas, NV.
- White, Nicholas P. 1992: 277-310. "Plato's Metaphysical Epistemology." In *The Cambridge Companion to Plato* Ed. Richard Kraut. Cambridge.

Translation Credits:

- Plato's Euthyphro, Apology, Crito, Phaedo, Phaedrus*. 1914. Translated by Harold North Fowler. Harvard.
- Plato's Timaeus*. 2000. Translated with Introduction by Donald J. Zeyl. Indianapolis, IN.