

*A Time for Learning and for Counting:  
Egyptians, Greeks, and Empirical  
Processes in Plato's Timaeus*

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In the *Republic*, the motions of the heavenly bodies are understood to serve only as an insufficient example for "real astronomy" which is independent of all the irregularities observable in the sky:

Then don't you think that a real astronomer will feel the same when he looks at the motions of the stars? He'll believe that the craftsman of the heavens arranged them and all that's in them in the finest way possible for such things. But as for the ratio of night to day, of days to a month, of a month to a year, or of the motions of the stars to any of them or to each other, don't you think that he'll consider it strange to believe they're always the same and never deviate anywhere at all or to try to in any sort of way grasp the truth about them, since they're connected to body and visible? . . . Then if, by really taking part in astronomy, we're to make the naturally intelligent part of the soul useful instead of useless, let's study astronomy by means of problems, as we do geometry, and leave the things in the sky alone. (530a-c, Grube's translation, revised by Reeve)

While the motions of the planets are considered to be irregular and thus not rational in the *Republic*, so that learning requires abstracting from these motions, the *Timaeus* seems to paint quite a different picture of the heavenly revolutions:

The motions akin to the divine part in us are the thoughts and revolutions of the universe; these, therefore, every man should

follow . . . and thereby win the fulfilment of the best life set by the gods before mankind both for this present time and for the time to come. (90c-d Cornford's translation)<sup>1</sup>

Rather than abstracting from the motions of the universe in order to be able to retreat to the realm of reason, our thoughts should now imitate the motions of the universe so as to achieve the most excellent life.<sup>2</sup> Moreover, in the *Timaeus*, Socrates wants to see the ideal state, summarized at the beginning of the book, in *motion* (*kínoumena*, 19b-c), a wish that Critias' recounting of the Egyptian tale of Ancient Athens is meant to fulfil.

These quotes and citations already indicate that in the natural as well as in the human realm the status of at least certain kinds of empirical motions has changed significantly between Plato's middle and his late period.<sup>3</sup> But before we investigate how Plato can conceive of empirical processes as being indeed in accord with reason in the *Timaeus*, we should first have a closer look at his understanding of rationality.

In the middle Plato, empirical processes seem to be irrational since rationality is a feature of the realm of being and thus of the purely intelligible world. Empirical things are seen to possess a fairly limited rationality: they are rational in so far as they participate in the Forms and thus in the realm of being, but irrational precisely in so far as they undergo change and thus belong to the realm of becoming. Consequently, the quote from the *Republic* takes the motions of the planets—processes of empirical things—as belonging to the realm of becoming, and thus as neither rational themselves nor available for rational understanding.

But what does Plato understand by rationality in the *Republic* and in his other works of the middle period? According to the Divided Line passage, the

1 Francis M. Cornford, *Plato's Cosmology: The Timaeus of Plato* (1957; Indianapolis: Hackett, 1997). Cf. also *Leuis VII*, 820e-822d, where the Athenian Stranger points out that the moon, the sun and the other heavenly bodies only seem to wander while really they always move in a circle along one and the same path. Cf. also Elena Cavagnaro, "The *Timaeus* of Plato and the erratic Motions of the Planets" in Tomás Calvo and Luc Brisson, eds., *Interpreting the Timaeus-Critias* (Sankt Augustin: Academia Verlag, 1997), pp. 351-362.

2 The account of birds as coming to be from men studying the heavens in 91d-e is not speaking against this as it a) rather vaguely refers to the object of study as the "high up things" (*metērologikēn*) and b) points out that birds descend from those men "who studied the heavens but imagined in their simplicity that the *swart* evidence in these matters comes through the eye" (Cornford's translation, my italics). Even if this passage is indeed referring to men dealing with the heavenly bodies, we do not have to assume that the surest evidence comes through the eye, only that the visible motions are indeed exhibiting *rationality*, which is not at all denied by this passage; cf. also *Timaeus* 47a-c.

3 That this does not encompass all empirical motions can be seen from the discussion of necessity in the *Timaeus*, which deals with the undetermined errant cause and chaotic motions "before" creation (48a ff).

objects of knowledge, and thus what can be rationally grasped, are Forms and, in principle, mathematical objects (*Republic* 509d ff).<sup>4</sup> Forms, as can be best seen from the *Phaedo*, are uniform (*monoeides*), and always remain the same and in the same way (*aei kata tauta kai hōsautōs echei*). They are thus also unchanging, as that which always is in the same condition is not compound, and it is only compounds that are subject of change; for what is compound dissolves into its constituents again (so, for example, *Phaedo* 78c-e and 80b).<sup>5</sup> Complete uniformity is the basis for stability. Only that which is always the same, which is without any differences, completely simple and thus stable is considered as conformable to reason. This obviously has to lead not only to the exclusion of the necessarily complex empirical things from the realm of what can be rationally understood, but, of course, also to the exclusion of empirical processes.

The attempt to rationalize empirical processes in the *Timaeus* thus already presupposes a certain change of Plato's notion of rationality. The *Sophist* shows that even the most basic Forms are necessarily complex; identity essentially includes difference (254c-259d).<sup>6</sup> The paradigm of rationality is sketched as the systematic relation of different Forms. This understanding of what is rational provides a necessary basis for giving an account of empirical things and processes.<sup>7</sup> However, while the complexity of Forms can account for complex empirical things, it does not seem to be sufficient to explain the complexity of processes. As we will see, a mediator is required to transfer the unity and thus the rationality of the complex but unchanging Forms to

4 Though geometry and other mathematical disciplines do not go back to the real beginnings, in contrast to dialectic, i.e., Plato's philosophy of the Forms, Glaucon and Socrates agree that in principle mathematical objects could be objects of mere reason: ". . . because they [those who study the so-called sciences] do not go back to a genuine principle, but proceed from hypotheses, you don't think that they understand them [the objects of these sciences, i.e. mathematical objects], even though, given such a principle, they are intelligible" (511c-d, Grube's translation, revised by Reeve).

5 The same thought is expressed by the demiurge when he tells the minor gods that "anything that is bound together is liable to being undone . . . This is the reason why you, as creatures that have come to be, are neither completely immortal nor exempt from being undone." However, he promises them that "you will not be undone nor will death be your portion, since you have received the guarantee of my will—a greater, more sovereign bond than those with which you were bound when you came to be" (41b, Zeyl's translation with alterations), and a similar guarantee seems to hold for the world as a whole.

6 Even if one does not share the assumption that the *Sophist* was written before the *Timaeus*, as I do following Cornford, Ledger and others, both dialogues clearly belong to Plato's late phase, as, among other things, stylistic results have shown. Thus the thoughts of the *Sophist* can in any way be seen to be in the background of the *Timaeus*, as the employment of the prominent three concepts from the *Sophist*, Being, Sameness, and Difference, for the construction of the World Soul in the *Timaeus* demonstrates.

7 Processes always require a prior and a later stage, location, etc., and are thus necessarily complex.

empirical processes. The mediator needed to confer rationality on empirical processes has to be created itself—if it were uncreated it could only belong to the realm of unchanging Forms or to the chaotically and thus irrationally moved receptacle within the picture of the *Timaeus*; yet at the same time this mediator has to be as similar to reason as possible, otherwise it could, according to Plato's isomorphic background assumption, not bestow rationality. The mediator Plato entrusts with this task in the *Timaeus* is time, or so I want to argue in the following. Let us thus first look at the explicit introduction of time in the *Timaeus*:

Ὡς δὲ κινήθην αὐτὸ καὶ ζῶν ἐνόησεν τῶν αἰδίων θεῶν γεγονὸς ἄγαλμα ὁ γεννήσας πατήρ, ἠγάσθη τε καὶ εὐφρανθεὶς ἔτι δὴ μάλλον ὁμοιον πρὸς τὸ παράδειγμα ἐπενόησεν ἀπεργάσασθαι. καδάρτερον οὖν αὐτὸ τυγχάνει ζῶν αἰδίων ὄν, καὶ τὸδε τὸ πᾶν οὕτως εἰς δύνανται ἐπεχρήσατο τοιοῦτον ἀποτελεῖν. ἡ μὲν οὖν τοῦ ζῶντος φύσις ἐτύγχανεν οὕσα αἰώνιος, καὶ τοῦτο μὲν δὴ τῷ γεννητῷ παντελῶς προσέπειται, οὐκ ἦν δυνατόν· εἰκὼ δ' ἐπενοῦσε κινήτων τινα αἰῶνος ποιῆσαι, καὶ διακοσμηῶν ἅμα οὐρανὸν ποιεῖν μένοντος αἰῶνος ἐν ἐνὶ κατ' ἀριθμὸν ἰσοῦσαν αἰώνιον εἰκόνα, τοῦτον οὖν δὴ χροῖον ὀνομάξαμεν. ἡμέρας γὰρ καὶ νύκτας καὶ μῆνας καὶ ἐνιαυτούς, οὐκ ὄντας πρὶν οὐρανὸν γενέσθαι, τότε ἅμα ἐκείνῳ συσταμένῳ τὴν γένεσιν αὐτῶν μηχανώσασθαι· ταῦτα δὲ πάντα μέτρον χροῖου, καὶ τὸ τ' ἦν τὸ τ' ἔσται χροῖου γεγονότα εἶδη.

Now when the father who had begotten the universe observed it set in motion and alive, a thing that had come to be as a shrine for the everlasting gods, he was well pleased, and in his delight he thought of making it more like its model still. So, as the model was itself an everlasting Living Thing, he set himself to bringing this universe to completion in such a way that it, too, would have the character to the extent that was possible. Now it was the Living Thing's nature to be eternal, but it isn't possible to bestow eternity fully upon anything that is begotten. And so he began to think of making a moving image of eternity: by bringing order to the heavens, he makes an everlasting image of eternity remaining in unity, (an image) moving according to number; this is, of course, what we have named 'time'. For before the heavens came to be, there were no days or nights, no months or years. But now, at the same time as he framed the heavens, he devised their coming to be. These all are parts of time and *was* and *will be* are forms of time that have come to be. (37c6–e5, Zeyl's translation with alterations)

Time is introduced, according to our quotation, in order to make the universe even more similar to the model. Since what is contemplated by the demiurge is an *increase* of similarity (*mallon homiote*), there are obviously other features of the world that ensured a certain amount of similarity already, for instance, the oneness of the world is the adequate expression of the uniqueness of the model (31a–b). But it is only the similarity brought about by the introduction of time that will turn out to be relevant for the assessment of the rationality of processes in the created world. So to what extent is the similarity between the model and the world heightened by time?

The world becomes more similar to the model by having the model's eternity conveyed to it by time. But since eternity cannot be fully bestowed on something created, all that can be accomplished is the creation of time as an *image* of eternity. This image is brought about as the order of the heavens. What kind of order time is meant to be becomes clear when we look at what exactly time confers on the world by imitating eternity. Eternity is "remaining in unity," which is taken up by the image "moving according to number." The image is moved since it is an image in the realm of becoming; so remaining or abiding in the model corresponds to moving in the world of becoming. And the way to imitate the unity of eternity in the realm of becoming is by having this motion proceed according to numbers. The simple unity of the model is transformed into the complex unity of a process, which is granted by a rule, a rule that is numerically graspable.

Thus, time is to be understood as an order that works according to numbers. It is the numerically ordered motions of the heavens. This connection between motions and numbers called time shows that nature and its changes are compatible with certain intelligible structures, namely with numerical structures; it is thus established that these processes are in accord with reason. The immediate expression of this rationality of processes is their regularity, a feature that stands in contrast to the random motions and changes in the receptacle "before" creation<sup>8</sup> and that we saw clearly missing in the account of empirical processes given by the middle Plato.

Time is not only the numerical order of the motions of the heavens, it also allows us to understand other processes as being ordered and thus as rationally graspable. Now, which are the processes in the world that the late Plato assumes to be and is able to show as rationally understandable? The processes the *Timaeus* puts forward as being in accord with reason are on the one hand those in the realm of cosmology, and on the other hand cultural developments, hence processes in the human as well as in the natural realm.

We saw above that processes in the domain of becoming (though we did not determine whether they are human or natural) can be understood as rational

8 Where we can neither identify *what* is moving (cf. 49d–50a) nor the course of a motion, e.g., as distinct from another motion.

thanks to time mediating between the rational structures of the model and the world. Now if there can only be one such mediator, then it has to be effective in both realms that Plato puts forth as allowing for rational processes, human and natural. In this case it will also be a unifying basis for the two main realms of becoming under investigation.

The only mediator we have looked at so far was time. But we do indeed find two other functions of ordering in the *Timaeus*, geometrical and arithmetical functions. However, the former is exclusively used as a principle for the *ordering of matter* (cf. 53b–57d), while the latter is employed for two different tasks: first, numerical proportions forge the connections between the four elements in such a way that they hold together in one World Body without dissolution (31b–32c). The second task of arithmetical proportions is the composition of the World Soul—Being, Sameness, and Difference as the ingredients of the World Soul are mixed, and this mixture is divided in a proportion following the powers of two and three (35a–36b). Like the geometrical function of ordering, these two arithmetical functions are certainly responsible for the rationality of some features of the world of becoming, but they have nothing to do with the ordering of *processes*. For processes, no other mediator for rationality can be found in the *Timaeus* apart from time. Hence, it seems to be clear that at least in the Platonic picture time has to account for the regularities of changes in nature as well as in culture, showing thus that both realms can be understood as being conformable to reason.

But can time indeed grant regularity in both cases? And if so, how? Let us start with examining time's role in nature first as it can be derived immediately from the quote above. The "instruments of time" (41e6), i.e., the revolutions of the stars and planets, equip the universe with motions that are standards in so far as they are regular and accessible from everywhere—one of the orbits is even furnished with light, which can not only serve as a "conspicuous measure of their [the planets'] slowness and quickness" (39b), but also enhances the accessibility of the regular motions by being everywhere visible. This accessibility of the standard motions allows us observers to compare all other regular processes with them.

Furthermore, as a result of the regularity and circularity of the heavenly motions, we gain what Plato calls "parts of time," temporal measurement units like days, nights, months and years. Thus, we can connect the regular circular motions with the number series and assign it to a linear succession. This in turn allows us not only to compare all natural processes to the standard motions, but also to use these heavenly motions to *measure* other natural motions, i.e., to connect the natural motions with numbers in a systematic way. The numerically ordered motions of the heavens thus pass on their regularity to other motions. Time as an image "moving according to number" thus shows that the demiurge has bestowed one and the same kind of rationality on all of nature since all

processes in the natural world can be brought under one measure—expressed as days, nights and so on.

While the circularity of the heavenly motions allows us to gain units of measurement from a continuous process—the return of the planets to their starting point of motion allows us to mark off a unit—the regularity of the motions secures that we will always gain the same unit and thus can measure and hence compare different motions that take place at different times.<sup>9</sup> Thus the instruments of time grant universal comparability of processes and allow us humans to understand the changes of the whole natural world as ordered—its order is bestowed by the demiurge with the help of time. We can, for instance, determine how long a flood lasted (e.g., 40 days), whether it is as long as, shorter or longer than another process (e.g., the flood described in *Genesis*), and whether it happened before, after or simultaneously with some other event (e.g., whether Noah or the ancient Athenians had to fight with the waters first). Even more, time not only allows us to connect numbers and motions (and thus to understand motions as ordered), one of its tools, the sun in its motion, first of all allows us humans also to learn how to count (cf. 39b). So it is clear that in the picture of the *Timaeus*, the rationality of the natural processes is not something that we as observers are projecting onto the world. Rather it is time that mediates number to the world, thus establishing the rationality of the regular processes in the world, as well as enabling us to develop our rational ability further by bestowing us with "a share in number."

Looking at the realm of nature, we saw how time establishes the order of the natural processes as an order of before and after, which we can further determine with the help of the parts of time.<sup>10</sup> This temporal structure is the basis for an ordered linear succession.<sup>11</sup> But what about the rationality of

9 Phenomenologically, days, nights, months, and years are actually not straightforwardly regular units, since, e.g., the length of day and night is not equal during the year, as Plato complains about in the quote from the *Republic* given at the beginning. The way to understand them as fully regular would require conceiving of a regular change of a change, which neither Plato nor Aristotle can do. Nevertheless, Plato posits their regularity as the basis for rationalizing empirical processes. Cf. 39b–d, where we are told for example that "ὅτι μὲν οὐδὲν ἡμέρα τε γέγονεν οὐτως καὶ διὰ ταῦτα, ἢ τῆς μᾶζ καὶ φρονιμωτάτης κοκλήσεως περίοδος" ("thus night and day came into being as the period of the single and most intelligent revolution").

10 We can compare this order established by time in the realm of nature with the help of the regular and visible motions of the planets to what McTaggart calls the order of the B-series, the order of before and after, adequate for the understanding of a mere succession.

11 It is also one condition for what we can call, using Aristotelian terminology, the causality afforded by efficient causes—the notion of a necessary succession such that because of what has happened before, what happens afterwards takes place. However, it is only a condition if cause and effect are not taken to be temporally simultaneous, but rather the first is seen as temporally preceding the second.

processes in the human realm? Is the order of before and after and the notion of a linear succession enough to establish that also this realm is conformable to reason?

As was mentioned in the beginning, Plato's notion of rationality changed from the middle to the late works, in such a way that what counts as being rationally understandable need no longer be thought of as being absolutely simple but might involve complexity. The feature of rationality that stayed the same, though, is stability; nothing can be rationally understandable without the basic structure staying the same in one way or other. Stability is given in nature due to the regularity of the motions of the heavens, since the rule of their motions is stable and unchanging. So, for example, the motion of a particular planet will always cover a certain section  $x$  on its revolution before the next section  $y$ . However, this feature seems to rule out the realm of human action from being considered as rational since the sequence of human events is not stable in this way: from a certain event  $x$  we cannot always infer what will come after it, the next event that will take place could be  $y$  or  $z$ , or yet something else. But does this mean that time cannot operate as a mediator between the model and the world of human processes?

We saw above that time proved to be the only mediator for the rationality of processes in the *Timaeus*. So if time is not mediating, it seems that the realm of human actions cannot be understood as being rational at all. In order to find out whether Plato does indeed assume processes in the cultural realm to be rationally graspable and, if so, how time is involved in their being rational, let us first have a quick look at the human processes presented in the *Timaeus*.

The main human processes discussed are the sequences of historic events in the development of different societies contrived by Plato: of Atlantis, of Athens, and of Egypt. The development of the first one is dealt with in more detail in the *Critias*, so we will concentrate here on Plato's Egyptians and Athenians and their account of history. Plato's Solon, representing the attitude of the Greeks of his and Critias' time, reports Greek history as a succession of individual events, a succession of destruction and reconstruction:

καὶ ποτε προσηγαγείν βουληθεῖς αὐτοὺς περὶ τῶν ἀρχαίων εἰς λόγους, τῶν τῆδε τὰ ἀρχαιότατα λέγειν ἐπιχειρεῖν, περὶ Φορωνέως τε τοῦ πρώτου λεχθέντος καὶ Νιόβης, καὶ μετὰ τὸν κατακλυσιμὸν αὐτῶν Δευκαλίωνος καὶ Πύρρας ὡς διεγένοντο μυθολογεῖν, καὶ τοὺς ἐξ αὐτῶν γενεαλογεῖν, καὶ τὰ τῶν ἐτῶν ὅσα ἦν οἷς ἐλεγεν περιρᾶσθαι διαμνημονεύων τοὺς χρόνους ἀριθμεῖν.

On one occasion, wanting to lead them [the Egyptians] on to talk about antiquity, he [Solon] broached the subject of our own *most*

*ancient* history. He started talking about Phoroneus—the *first* human being, it is said—and about Niobe, and then he told the story of how Deucalion and Pyrrha survived the flood. He went on to trace the *pedigree of their descendants*, and tried to *compute their dates by calculating the numbers of years* that had elapsed since the events of which he spoke. (22a–b, Zeyl's translation with alterations, my italics)

Like a sequence of natural phenomena, Greek history, according to Solon's account, seems to be structured solely by before and after,<sup>12</sup> there is the first human being and his companion Niobe, and then there are the only survivors of the flood, Deucalion and Pyrrha,<sup>13</sup> who are in turn succeeded by their descendants. As the words in italics show, Solon's connection of the events of the Greek past is established by counting: by the calculation of years that have passed, and by the enumeration of the family tree of the descendants of the only survivors of the flood. So the rationality of this account is granted by the temporal structure of before and after, which forms the basis for an ordered succession, here the succession of parents bringing about their children.<sup>14</sup> Thus, along the lines of the Greek account, we should find in history the very same rationality as in the natural realm, also mediated by the same temporal structure; and the human share in number bestowed to us by the motions of the sun is what allows us to give an account of it.

However, in the reply of an old priest to Solon's account of Greek history we are shown how the Greek treatment of human history leads to severe problems:

ἰΩ Σόλων, Σόλων, Ἕλληγνες ἀεὶ πατρίδες ἐστέ, γέρον δὲ Ἕλληγν οὐκ ἔστιν· . . . ἂνέοι ἐστέ, ἰεπεῖν, ἰτάς ψυχὰς πᾶντες· οὐδεμίαν γὰρ

12 However, in contrast to the recurring phenomena in nature, we are dealing with individual events in the human realm.

13 Solon does not clarify the relation between Phoroneus and Niobe on the one hand and Deucalion and Pyrrha on the other. Both couples are reported as the first human beings in different sources. Nevertheless, Phoroneus as the forefather of the Pelasgian race could be seen as living before Deucalion who is the ancestor of the more recent Hellenic race; cf. Brill's New Pauly and also Proclus, *Commentary on Plato's Timaeus*, translated with introduction and notes by Harold Tarrant (Cambridge: Cambridge University Press, 2007), p. 101. This vagueness in Solon's account might be an indication of Plato that the Greeks have some information about some of their ancestors that lived before one of the floods. However, as these pieces of information were not properly stored (see below), they do not know how to incorporate them exactly in their account of history; cf. also *Critias* 109d–110b where it is pointed out that the Greeks of Solon's and Critias' time have preserved the names of the ancient Athenians, but not their deeds, which would be what really matters.

14 An extreme version of this can of course be found with the register of lineage in the books of Moses.

ἐν αὐταῖς ἔχετε δι' ἀρχαίαν ἀκοιὴν παλαιὰν δόξαν οὐδὲ μάθημα  
 χροῦν πολλὸν οὐδὲν . . . τὰ γούν νυνδὴ γενεαλογηθέντα, ὃ  
 Σόλων, περὶ τῶν παρ' ἑμῶν ἃ διήγηθες, παίδων βραχὺ τι διαφέρει  
 μῦθων, οὐ πρόωτον μὲν ἕνα γῆς κατακλυσμὸν μὲννησθε πολλῶν  
 ἔμπροσθεν γεγονότων, ἔτι δὲ τὸ κάλλιστον καὶ ἀριστον γένος  
 ἐπ' ἀνθρώπους ἐν τῇ χώρᾳ παρ' ἑμῶν οὐκ ἴστε γεγονός, ἐξ ὧν σύ  
 τε καὶ πᾶσα ἡ πόλις ἔστυν τὰ νῦν ἑμῶν.<sup>κ</sup>

'Oh, Solon, you Greeks are ever children; in Greece there is no such thing as an old man . . . You are all young in soul,' he said, 'your souls are devoid of beliefs about antiquity handed down by ancient tradition. Your souls lack any learning made hoary by time . . . the account you just gave, Solon, of your people's lineage is just like a nursery tale. To begin with, your people remember only one flood, though there were many earlier; and moreover, you do not know that the bravest and noblest race in the world once lived in your country. From a small remnant of their seed you and all your fellow-citizens are derived' (22b–23c, Zeyl's translation with alterations).

The Greeks are missing *doxa* about the past, we are told, they have not learned anything from ancient times; they lack *mathēma*, things learnt, *chronō politon*, which have become hoary by time. Accordingly, they are like children. What they give as a true account of the past, what Solon tells about the Greek history, is really just a nursery tale children tell and think to be true.

From the Egyptian perspective, which in the *Timaeus* seems to be the perspective of the wise grown-ups, the Greeks have not *learned* anything from the past. So the Greeks' report of history, their counting of events, seems to miss the specific human form of rationality—learning. But what is it exactly that went wrong with the Greeks, why do they lack learning from the past? In order to learn from history, we have to look back to the past with a view in mind of what we want or do not want in the future. So we evaluate the past events in history and then choose those appropriate as aims or basic structures for our aims for the future. Looking back to evaluate the past and using the past to plan for the future, however, requires certain temporal structures. Accordingly, also this rationality of the human realm is dependent on the mediator time. But the temporal structures on which learning is based are different from the ones we reconstructed for the natural realm. Learning requires, first, the possibility that human beings use their experience with past actions for shaping present and future processes. This means that events of the past are understood only as a *reservoir* of possibilities, which humans can use in order to achieve an aim in the future—leaving open different possible futures that might ensue from a

specific past.<sup>15</sup> Second, not only events in the past can influence human actions in the present, but also aims envisaged for the future. I can choose different possible actions to pursue according to different results that I want to reach in the future. As my action in the present is directed towards a goal in the future, the direction of influence runs not only from what happens before to what happens afterwards, but to some extent also goes the other way round; for short, we can talk about a bidirectional temporal structure.<sup>16</sup>

That time can be gone through in different directions and itself leaves open the possibility of different events following a given event *x* is a necessary (though, of course, not sufficient) condition for learning. For only if an event *x* does not necessarily lead to one single event *y*, but allows for different continuations, is it possible for us humans to deliberate which event *y* or *z* has led to better results in the past. Accordingly, we can take *y* or *z* as an aim for our future and adapt our present actions to this aim.<sup>17</sup>

Learning from the past, on the individual and on the collective level, leads to a greater stability within the realm of humans, for human processes can thus be better planned and will become more regular. And it is this potential of establishing stability within the human realm, provided by the "bidirectional" temporal structure, that Plato's Greeks do not seem to take advantage of. Their mere counting of the past does nothing to make human actions more rational since, in contrast to learning, it does not affect human actions at all.<sup>18</sup>

That Plato, too, sees a different temporal structure as a basis for the rationality within the human realm can be seen from the fact that he introduces not only "parts" of time, which we saw at work in the natural realm, but also

<sup>15</sup> That the human realm is not determined to the same degree as the natural realm in Plato seems to be clear, not only because it enables him to account for learning, but also because Plato, in contrast, e.g., to Hesiod, does not mention agriculture in his account of human history here. Agriculture, however, is probably the one area within the human realm most dependent on the cycles and changes of nature; so he couldn't leave it out if he conceived of nature as fully determining the realm of humans. Plato does not use agriculture as a bridge between nature and culture here, not because he wants to keep this indeterminacy in the human realm as something positive, but rather because he considers it as a serious problem for the rationality of our actions, which must be attended to and countered by learning. Cf. also Samuel Scolnicov, "Freedom and Education in Plato's *Timaeus*," in Calvo and Brisson, eds., *Interpreting the Timaeus-Critias* (Sankt Augustin: Academia Verlag, 1997), pp. 366–370.

<sup>16</sup> We can compare this notion of time to McTaggart's A-series, though the emphasis here is not so much on the change of position of an event in a series—this is the crucial feature for McTaggart: what was future becomes present and will be past—but on the fact that there is no unidirectional influence from the past to the future.

<sup>17</sup> This structure is necessary even if, following only reason, there is *only one right aim* to choose for the future.

<sup>18</sup> This does not mean, of course, that counting and the order of before-and-after would not play a role at all within a bidirectional temporal structure and thus for the Egyptians; the problem is that the Greek's *merely* count the past.

"forms" of time, "was and will be" (cf. the quotation above, 37e5). "Was and will be," and thus past and future, are not simply reducible to the parts of time. In the passage following the introduction of the forms of time, Plato does not develop the notion of the forms of time any further since his primary concern there is not to examine one or the other temporal notion, but rather to keep the eternal model free from any notion of temporality. And so one could think *prima facie* that "was" and "will be" also establish only a single direction, very much as we find it with the unidirectional succession of natural events. However, Plato's remark about the model neither growing older nor younger in 38a2 indicates that in the realm of past, present and future both directions are possible in principle. Thus, Plato introduces the bidirectionality which we saw to be a crucial feature of the temporal structure enabling learning. And he develops this temporal structure further with the help of the example of the Egyptians at the beginning of the *Timaeus*.<sup>19</sup>

We have already seen a glance of this in the Egyptian priest's reply to Solon above. But Plato gives us a fuller account of the Egyptian way to use this temporal structure in order to learn and thus to make human history rational.<sup>20</sup> This does not mean that the Egyptians know in any way of the structure of time just sketched. It just means that the Egyptians act in a way that uses the potentiality of this structure. And this can be seen, for a start, from the fact that Plato's Egyptians select the best actions from the past: "Now of all the events reported to us, no matter where they've occurred—in your parts or in ours—if there are any that are noble or great or distinguished in some other way, they've all been inscribed here in our temples and preserved from antiquity on" (23a, Zeyl's translation, my italics). The Egyptians obviously evaluate the past—they look for those events that they judge to be noble, great or distinguished. And they make sure that these events are well kept by inscribing them in the temple.<sup>21</sup>

19 It would need a separate paper to sketch how these temporal structures are related to Plato's notion of history. For some thoughts on the later, see, e.g., Arthur Lovejoy and George Boas, *Primitivism and Related Ideas in Antiquity* (1980; Baltimore: The Johns Hopkins University Press, 1997) and Thomas Cole, *Democritus and the Sources of Greek Anthropology* (Cleveland: American Philological Association/Western Reserve University Press, 1967).

20 For the Egyptians of the *Timaeus* there is an additional incentive to learn from the past, since the laws from the very beginning of human history in Greece actually derive from the goddess Athena directly (24c–d). So to preserve the past in this case also allows the whole society to be in contact with the divine order, just as the individual human being in *Timaeus'* account is close to the gods before birth and can get back to this starting point through learning how to master what is irrational within himself (42b–42d).

21 Cornford translates *graphô* as "write down," Zeyl as "inscribe." Given the context, and the stress that is laid also in the following few pages on preservation, I favor Zeyl's translation and even think that *graphô* here may be understood as making an inscription in stone (for this usage of *graphô* cf. Liddell and Scott, entry II, 2: "inscribe, eis stêlên") as the element that might preserve the inscription for the longest time possible; cf. also Proclus, *Commentary*

We've sketched above the temporal structure that allows for treating the past as a reservoir evaluated for possible plans in the future. This evaluation of the past is now presented as the incentive to build up a common memory of past happenings. For if the past is assessed for possible future applications and thus parts of it are understood as valuable for the present and future, the question how to preserve the past best will become important. A common memory provides the Egyptians with a considerable reservoir of possible actions, and its evaluation grants orientation not only for individual learning and actions, but also for learning on the collective level.

And the Egyptians do learn on the collective level on the basis provided by their common memory—by keeping records of what is best, the Egyptians know of the best race that has ever lived and its outstanding constitution: "The city that is Athens today not only excelled in war but also distinguished itself by the excellence of its laws (*eunomôtatê*) in every area. Its accomplishments and its social arrangements (*politetai*) are said to have been the finest of all those under heaven of which we have received report" (23c–d, Zeyl's translation). The Egyptians take over these best institutions, they learn collectively by re-enacting these laws. Accordingly, Solon can find many *paradigmata* of the institutions of ancient Athens in "today's" Egypt (24a). We can see how laws bring about stability and thus rationality in a society, if we understand them as rules that regulate the relations and actions between humans by promoting what a society considers as good, and by determining the boundaries of what is considered to be an acceptable action. For, thus understood, laws determine which kind of actions are permitted to occur, and which ones are promoted by society and are thus likely to occur; they establish a common frame for evaluating actions for society, and, accordingly, a certain degree of stability.

The stability established by the laws and political institutions which manifested themselves as best in human history and were taken over by the Egyptians are indeed also *objectively* rational to the highest degree. This Plato clearly indicates by having Socrates, through 'mere' acts of reason, come up with a very similar model—that's how the *Timaeus* is connected with the discussion

on Plato's *Timaeus*, p. 69, where an inscription on pillars is discussed. The good events are inscribed in the temples, we are told, and preserved (*soôsmena*). Susemihl translates the *kai* between *gogrammena* and *soôsmena* as "von alters her in den Tempeln aufzeichnet und bleibt also erhalten" (my italics), so his translation makes it explicit that because of the inscription the events get preserved. Having inscribed the noble past events in stone might also be a way the Greeks could have saved their history in spite of natural catastrophes. For there is at least a chance that the inscribed stones might survive a flood or fire, so that once the culture has regained the "necessaries of civilisation" (23a), the people might be able to connect to the achievements of their ancient culture via these inscriptions. Laws III, however, seems to give an account of the destruction of civilisations that would not allow for such a line of thought.

of an ideal state in the *Republic*, or some analogue of the *Republic*.<sup>22</sup> Moreover, these best laws also provide the Egyptians with the possibility of acquiring all the different sciences by fostering *phronesis* right from the very beginning:

Again, as for wisdom (*phronesis*), you see what great care the law has bestowed upon it here from the very beginning as concerns the order of the world, deriving from those divine things the discovery of all arts applied to human affairs, down to the practice of divination and medicine with a view to health, and acquiring all the other branches of learning connected therewith. (24b–c, Cornford's translation with alterations)

In Plato's account even the possibility of the sciences for humans rests on a certain temporal structure since it is the bidirectional structure that allows for the establishment of legislation promoting learning and the sciences. The latter seem to include also the sciences of the planets,<sup>23</sup> whose motions as natural processes are ordered merely according to a temporal before and after. Learning about their behaviour, however, is only possible for humans on the basis of the bidirectionality of time.<sup>24</sup>

The sciences thus established allow the Egyptians to give a rational account of natural catastrophes, for instance, that the great conflagration is caused by a recurring deviation of heavenly bodies. The Greeks, on the other hand, can only give one of their child-like versions of this event—they report it as Phaethon's unfortunate journey in his father's chariot (22c–d). Even an event that as such is only structured by temporal unidirectionality cannot be rationally accounted for by the Greeks, since learning and thus properly understanding this event is only possible on the basis of a different temporal structure. This will become yet clearer by looking in somewhat more detail at the failure of the Greeks; we will start with the points that they are missing in their account of history.

According to the old Egyptian priest, the Greeks do not remember the past before the last flood, they are not acquainted with the best people that have ever lived, and they are not aware that these best people were their own ancestors (cf. 22b–23c above). In contrast to the Egyptians, the Greeks are

missing a complete account of the succession of past events, which goes back far beyond the last flood to the founding of Athens and Sais some 9,000 and 8,000 years ago; they only grasp a short span. Moreover, the Greeks do not use the potentiality of bidirectional influences of past, present and future, since they have not developed anything from the past. They are thus foregoing the possibility of growing up mentally, "in soul." For the Egyptians, the Greeks are always children, since it is the process of learning that allows a culture to develop continuously without having to start anew with each generation—the Greeks are a culture kept in constant infancy.

Accordingly, the mere extension of the Greek account of the temporal succession of prior events does not help them to "grow up," if by accident this succession of events is completed again, as it is in the case of Solon learning about the Greek past happenings from the Egyptians. For, first, Plato shows that even from a complete account of a paradigmatic past the Greeks fail to learn anything. Critias knew about ancient Athens and Atlantis ever since he was a little boy without it having any influence on his life<sup>25</sup> or on the culture in which he lived. He simply takes the past events as a story, as a given piece of information of a historical succession. He is not looking back to these past events as a reservoir for future planning, evaluating some aspects of them as desirable (or exactly not desirable) future so that it would influence his present. Critias' mere re-counting as well as Solon's mere counting of past events misses the possibilities provided by a bidirectional structure and reduces their actions to such as could also be performed on the basis of a series of before-and-after. For mere counting and re-counting does not allow for assessing and re-enacting past events, which would have affected Critias' and Solon's present as a possible option for how to lead their lives; an effect that the sole counting of the past cannot have.

Second, the Greeks do not take care to preserve this past exactly because they do not take it as something from which to learn and thus as something of real importance for them. Solon fails to write it down.<sup>26</sup> And Critias only

<sup>25</sup> As Sarah Broadie pointed out in her paper "Descent and Reminiscence in the *Timaeus-Critias*" given at the Chicago Ancient Philosophy Conference "Philosophy and Religion in Ancient Greece," organized by the University of Chicago, the University of Illinois at Chicago and Northwestern University in Chicago, November 3–4, 2006.

<sup>26</sup> Solon's literary work gets qualified by two epithets in the context: one clansmen calls Solon the most noble (*eleutheriôtatos*) poet with regard to wisdom and poetry, and the old Critias himself is convinced that if Solon had written down this story neither Homer nor Hesiod would have been more distinguished (*eudokimôteros*), cf. 21d. A. E. Taylor, *A Commentary on Plato's Timaeus* (Oxford: Oxford University Press, 1928), ad loc. deals only with the first characteristic pointing out that it must be a compliment to Solon's style not his matter since "the political sentiment expressed in Solon's verse would not have improved if Solon had made poetical composition the main business of his life." And he regards the idea of Solon being potentially a worthy rival of Homer as "an absurd one; Solon really had no considerable poetical

<sup>22</sup> I do not want to take a stand here in the debate whether the beginning of the *Timaeus* is meant to summarize the *Republic* or only some similar sketch of a *polis*, since I think my account works under both interpretations.

<sup>23</sup> "Those divine things," cf. Cornford, *Plato's Cosmology*, p. 17 n. 2.

<sup>24</sup> We might think of astronomy, the science of the motion of the stars and planets, as a sort of learning genuinely different from the kinds of learning dealt with so far, since the former does not seem to affect our actions and how we lead our lives. That this is, however, not Plato's understanding of astronomy can be seen from passages like 90c–d, quoted at the beginning of this paper.



stores the Egyptian account of their past in his memory<sup>27</sup> as a story that he does not even bother to disseminate widely.<sup>28</sup> If Socrates had not come up with the sketch of a state similar to the one of the ancient Athenians, this account would probably have been lost with Critias' death (that's at least what the logic of the Critias character seems to suggest).<sup>29</sup>

Solon's and Critias' treatment of the Greek past also makes it clear that the failure of the Greeks to grow up is not just bad luck: it is not simply the case that the Greeks live in a region which undergoes natural disasters, where human culture is thus destroyed over and over again, while the Egyptians are blessed by living in a region that is safe from such catastrophes. Rather, it is also the attitude the Greeks have toward their history that prevents them from learning from their past on the collective as well as on the individual level.

While the Greeks of Critias' time serve as an example of failure in the *Timaeus*, the Egyptians are shown as a model for rationalizing processes in the

endowments." However, given the context of Critias' remark just sketched, it might actually be a judgement about content, not about any concrete political sentiment, as Taylor would have it, but rather about its *moral* value: If Solon had written down the account of ancient Athens, it would have allowed many more people to know about this morally excellent state, and perhaps some would have taken it seriously enough to let it influence their lives. Thus, Solon would have been noble and also most distinguished, as Homer and Hesiod are, not only because of the genuinely poetic qualities of their work, but also because of its educational value. Cf. also the discussion of the moral value of poetry in *Republic* X, especially 607a, where it is decided to accept hymns to the gods and eulogies to good people as the only kinds of poetry allowed into the ideal state. In the *Laws* VII, 817b-d, building up a state is compared to the work of tragedians: "We [the state builders] are poets like yourselves [the tragedians], composing in the same genre, and your competitors as artists and actors in the finest drama." Surely there the quality of the drama is judged according to content rather than to style.

27 In contrast to the memory discussed with the Egyptians, Solon and Critias do not know about the value of the past events, and do nothing to make these events *common* memory. Cf. also Critias' account of his memory in 266: he vividly remembers this story of his childhood "like the indelible markings of a picture with the colors burnt in," but he is not sure whether he could recall everything from Socrates' speech the day before, which sketched the politically and philosophically relevant structures from his childhood story.

28 Solon seems to have tried to write it down, but felt forced by political troubles to abandon completing it. He treated it, according to the old Critias, as a *parergon*, a by-work, not taking it seriously enough (cf. 21c-d).

29 Timaeus ends his speech at the beginning of the *Critias* by asking the god to grant him knowledge if he was mistaken in anything he said (106a-b). Critias, by contrast, starts his speech by pointing out how much harder his task is, since we all know human affairs so well that we will be able to criticize him much more easily than we could criticize Timaeus (107a ff). Not only has Critias not learned anything from his story for himself, he also only wants to make sure that he won't be criticized, rather than hoping for enlightenment through the criticism of others, as Timaeus seems to suggest in 54a. And finally, in the *Critias*, Critias' story drifts off into mere narration without any hint of its philosophically important structures, until it breaks off.

human realm based on making use of certain temporal structures. Built on what we called bidirectional temporal structures, the stability of processes—as manifested in actions that are planned and can thus be expected—is established in the human realm due to learning and, further, due to the institutionalization of good laws; one more reason why Plato might have moved on, as is often assumed, from the *Timaeus-Critias* to the *Laws*.<sup>30</sup>

However, while time is the mediator for rationality in the human as well as the natural realm, the temporal structures actually mediating seem to be independent of each other: the succession of before and after on the one hand, bidirectional influences of past, present, and future on the other. The unity of eternity, which is all "at once," the mere "is" (37e6-38a1), seems to be transferred to the world of becoming in two ways: in nature and with the Greeks it is stretched out in a succession of before and after, while for the Egyptians it is developed into "was" and "will be." Nevertheless, the explicit introduction of time in 37c ff. puts an emphasis on the connection of the two temporal structures: the one is bound to the forms of time, the other to the parts of time, but both to the one time.<sup>31</sup> And given that Plato does not assume different kinds of rationalities for different realms, but rather one uniform one, we should not expect more than one time mediating this rationality to empirical processes—one time with different aspects. The intrinsic connection between these two aspects of the one time can also be seen if we look back at the *Timaeus* quotation given at the very beginning (90c-d), where we are told to follow the motions of the universe. Primarily, our understanding should adjust to these motions (cf. 90d),<sup>32</sup> but since our actions are meant to be guided by our understanding, also our actions should adapt to the heavenly ones. For the fully developed rationality of humans will, according to Plato, approximate human actions to courses that are as stable and rational as the courses of the planetary motions are (this stability, though, is based on processes of learning and logic, and not immediately, as with the motions of the planets, on a natural aptitude). Accordingly, the threat of indeterminacy that a Platonist might fear coming in through actions based on bidirectional temporal structures is averted as these human actions should assimilate to those based on unidirectional temporal

30 After working out the temporal structures required for good legislation, he could move on to the legislation itself.

31 In the one passage where Plato does indeed seem to talk about times in the plural, 41e, the plural comes in because of the plurality of *organa* that provide different units of time and thus, speaking in an abbreviated manner, different times. Hence, the different "times" talked about in that passage are "times" that themselves are parts of the one unidirectional time.

32 Cf. Gabriela Corone, "The Ethical Function of Astronomy in Plato's *Timaeus*" and David Sedley, "Becoming like God' in the *Timaeus* and Aristotle," both in: Calvo and Brisson, eds., *Interpreting the Timaeus-Critias* (Sankt Augustin: Academia Verlag, 1997), pp. 327-339, 341-348.

structures. The fully educated will only be left with *one rational* choice, and hence the actions of a fully rational human being will be structured like the motions of a planet are: a certain *y* will reliably follow a given *x*. And the circularity of the heavenly motions is mirrored by the resumption of past paradigms in the present and future. However, in order for us humans to adjust our actions correctly to the regular processes of nature, we first have to use the full potential of the bidirectional structure of time. We have to take the detour via learning, as the Egyptians do. The seeming short cut of the Greeks also cuts short the rationality of human processes.\*

## Narrative Orders in the *Timaeus* and *Critias*

Kathryn A. Morgan

### Introduction

Considerable scholarly effort has been expended on the evaluation of the narratives of Plato's *Timaeus* and *Critias* and on the unfinished trilogy of which they may be a part. What does it mean when Timaeus says that his cosmology is an *eikós mythos* or *logos*, a likely account? What is the connection of the cosmology with the Atlantis narrative, which, despite its obvious resemblances to philosophical myth, is claimed to be absolutely true? How do the narratives relate to demands made in the *Republic* for ethically reformed poetic production? This essay does not pretend to present solutions to all the problems listed above and to the multitude of further perplexities that arises from them; it will, however, explore a complex of issues centering on the narrative form of the dialogues. My overarching question is: why is narrative necessary? This in turn comprehends further questions: what do we want out of narrative? Can it give us what we want and still remain philosophically respectable? How far do the *Timaeus* and *Critias* go towards meeting our desires? These narrative issues collide with the central physical and metaphysical problems of the *Timaeus*, whose cosmology is a narrative (or is it an analysis?) of what happens when the eternal is mapped onto the physical world, as the Demiurge models the cosmos—the ordered universe—on the eternal world of unchanging being. The narratology of the dialogues thus has philosophical significance, as the movement from paradigm to narrative at the beginning of the *Timaeus* mirrors and generates the account of the creation of the world as an imitation of the world of the Forms. Both the *Timaeus* and *Critias* result, as we shall see, from certain demands placed on narrative. Speakers are asked for certain kinds of accounts, and they spend

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