

Timaeus

TIMAIOS

Plato

translated by David Horan

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SOCRATES: One, two, three... But my dear Timaeus, where is the fourth of our banqueters from yesterday¹ who will now provide the feast?

TIMAEUS: Some illness has befallen him, Socrates, for he would not have missed this gathering deliberately.

SOCRATES: Then you and your friends here have the task of supplying the part of the absentee.

TIMAEUS: Entirely so, and indeed we shall do our best not to be found wanting, since it would not be right if those of us who are left did not repay you lavishly when we were entertained with such fitting hospitality yesterday.

SOCRATES: Now, do you remember what I assigned you to speak about and what the topics were?

TIMAEUS: We remember some of them, but since you are here you will remind us of the others. Better still, if it's not a problem for you, go over them again briefly from the beginning so that we can be more sure of them.

SOCRATES: So be it. I believe the discussions I was involved in yesterday were mainly concerned with the political system, what kind seemed best to me and what sort of men constitute it.

TIMAEUS: And what you said, Socrates, seemed very reasonable to us all.

SOCRATES: Didn't we first separate people engaged in farming or any other skills within the citizen-body from the warrior class?

TIMAEUS: Yes.

SOCRATES: And so, based upon their nature, we assigned each a single occupation appropriate to themselves, one skill to each. We said that those who must fight on behalf of everyone else were the only ones who should be guardians of the city. And if anyone from outside, or even from within, should proceed against it with ill intent, they should judge them gently if they were our own subjects and natural friends, and harshly if they encounter them in battle among our enemies.

TIMAEUS: Absolutely.

SOCRATES: Indeed, I think we said that something in the nature of the soul of the guardians must be both especially spirited but also philosophic at the

same time so that it may be appropriately gentle or harsh to either party as required.

TIMAEUS: Yes.

SOCRATES: What of their education? Aren't they to be educated in music and gymnastic and in all subjects proper to guardians?

TIMAEUS: Entirely so.

SOCRATES: Yes, and it was said, I think, that those who have been educated in this way would never regard gold or silver or anything else as their own private possession, but, like soldiers who receive their guardians' pay from the people they protect, in measure appropriate to sound-minded men, they would spend it communally and live shared lives together, careful to ensure excellence in all their affairs whilst holding themselves aloof from other pursuits.

TIMAEUS: We said all that too.

SOCRATES: What is more, we also mentioned women, and said that their natures would be formed like the men's, and all the responsibilities would be allocated to all the women on a shared basis, whether they related to war or to everyday life.

TIMAEUS: That too was stated.

SOCRATES: Now, what did we say about the procreation of children? Or is that easy to remember because what we said was so unusual? We proposed that all wives and children should be common to everybody, and we contrived that no one would ever recognise their own particular offspring, but they would all consider everyone else as their relatives, regarding them as brothers and sisters if they were within the appropriate age range, as parents and grandparents if they were older, and as children and grandchildren if they were younger.

TIMAEUS: Yes, and as you say, that is easy to remember.

SOCRATES: But, of course, you also recall how they were to be born with the most excellent natures possible. We said that the male and female rulers must secretly arrange the marriage unions so that bad men and good men are

assigned, by some lottery, exclusively to women of their own kind. No controversy would be created by this since they would assume that chance was responsible for the outcome.

TIMAEUS: We remember.

SOCRATES: What is more, we actually said that the offspring of good people should be reared, whilst the offspring of bad people should be secretly handed over to another city. However, as they grow up, the rulers should be ever watchful to take the deserving ones back again, and let the undeserving ones among their own number take the place of those who have returned.

TIMAEUS: So we said.

SOCRATES: So, dear Timaeus, now that we have gone over the main points once more, have we now recounted exactly what was said yesterday or is there anything we still need to say because it was omitted?

TIMAEUS: Not at all, Socrates, these were the very things that were said.

SOCRATES: After all that we have recounted about the political system we have described, I would like you to hear the sort of feeling I have about it. Well, the feeling is something like this. It is as if someone who has seen beautiful animals, either in a picture or actually alive but remaining at rest, were to develop a desire to see them moving and also competing in a contest which seemed suited to their nature. I, too, feel just the same about the city we described. I would gladly listen to someone telling a story of contests the city engages in as it struggles against other cities, how it enters into war in the proper spirit and, in the conduct of the war, exhibits towards the various cities the qualities appropriate to its education and nurture both in its actions and negotiations, in what it does and in what it says. Now, in all this, Critias and Hermocrates, I have come to realise that I myself am quite unable to sing the praises of these men and this city adequately. In my own case, this is no wonder, but I have also come to have the same opinion of the poets, both ancient and modern. It is not that I disrespect poets as a class, but it is obvious to everyone that the imitative folk will imitate whatever they have been brought up in most easily and excellently. However, anything that lies outside their own upbringing is difficult for them to imitate well in action, and even

more difficult in words.

SOCRATES: And I believe the sophists as a class, for their part, are very experienced in long speeches and other fineries. Yet, because they wander from city to city and have no city of their own, I fear that they may somehow misunderstand men who are at once both philosophers and statesmen, and all that such men would be able to do and say as they engage actively in war and fight battles or communicate verbally with others. What is left then is the class with your disposition, which, by nature and upbringing, possesses both characteristics simultaneously.

SOCRATES: Indeed, Timaeus here is from Locri, the best governed city in Italy, and he is superior to any man there in property and family connections. He has been involved in the highest offices and honours of that city, and he has also, in my opinion, reached the very pinnacle in matters of philosophy. And I presume everyone in this city knows that Critias is no amateur in the matters we are discussing. As for Hermocrates, we must believe the many witnesses who say that he is competent in all these matters, both by nature and by his upbringing.

SOCRATES: Now, this is what I had in mind yesterday when you asked me to speak about the political system in general, so I agreed readily since I knew that no one would present a better account of the next topic than yourselves, if you were willing. Indeed, you are the only men today who could engage the city in some suitable war and display all the qualities appropriate to it. So when I had finished speaking on my assignment, I, in turn, assigned you the topics I am now describing. So, having considered this together among yourselves, you have now agreed to pay me back with a feast of words. Here I am then, adorned for the occasion, and more ready than anyone to receive your gift.

HERMOCRATES: Yes indeed, Socrates, just as Timaeus here says, we shall not be short of enthusiasm, nor have we any excuse whatsoever for not doing as you ask. Accordingly, we considered these very issues as soon as we left here yesterday and arrived at Critias' guest quarters where we are staying, and even before that, on the road. In fact, he told us a story which he heard long ago. Tell the story to Socrates now, Critias, so that he can help us decide whether it

is relevant to our assignment or irrelevant.

CRITIAS: That's what I must do if our third companion, Timaeus, also agrees.

TIMAEUS: I certainly agree.

CRITIAS: Then listen, Socrates, to a story which is strange and yet entirely true, as Solon,² the wisest of the Seven Sages, once declared. He was a kinsman and close friend of our great-grandfather Dropides, as he himself also says many times in his poetry. Dropides then told it to Critias, our grandfather, and the old man, in turn, used to recount it to us. The story recounts that the ancient deeds of this city of ours were wonderful and great, but they have been obliterated by time and the destructions of humanity. It would be appropriate for us to recall one of these deeds now, the greatest of them all, in order to show our gratitude to you and, at the same time, to praise the goddess rightly and truly on her festival,³ as though we were singing a hymn.

SOCRATES: That is all very well, but what was this ancient deed of this city of ours, a deed no longer mentioned, which Critias recounted on the authority of Solon as actual fact?

CRITIAS: I'll tell you an ancient tale which I heard from a man no longer young. Indeed, Critias was then, as he said, already close to ninety years old, while I was, at the most, ten. It happened to be the children's day of the festival of Apaturia,⁴ and the traditional event of the festival was also held as usual for the children, at which our fathers arranged a recitation contest for us. Many poems by many poets were recited, but since Solon's poems were new at the time, many of the boys chanted them. One of the clansmen said – either because he believed it or even to pay a compliment to Critias – that he thought that Solon was the wisest of men in every respect, but also, in view of his poetry, the noblest of all poets. Then the old man – yes indeed, I remember it so vividly – was very pleased, and he smiled and said,

CRITIAS: "Amynander, if Solon had not treated poetry as a distraction but had worked at it as others do and completed the story which he brought here from Egypt, and had not been forced to neglect it due to the conflicts and the other problems he found here when he returned, then in my opinion neither

Hesiod nor Homer nor any other poet would ever have been more famous than he."

CRITIAS: "What was the story, Critias?" he asked.

CRITIAS: "It concerns the greatest deed this city has ever performed," he replied. "It deserves to be its most renowned achievement, but through lapse of time and the destruction of those who were involved, the story has not survived here."

CRITIAS: "Tell it from the beginning," he said. "What story did Solon tell, and how did he hear it and who told him it was true?"

CRITIAS: "In the Egyptian Delta," Critias said "near where the stream of the Nile divides at its estuary, there is a region called the Saïtic, and the largest city of this region is Saïs. King Amasis came from there. The god who founded the city is called Neith in Egyptian, and those people say this is Athena in Greek. They are great lovers of Athens and they claim to be related to us in some way. In fact, Solon said that when he travelled there they held him in great respect. And what's more, on one occasion, when he put a question about ancient times to the priests with most experience of such matters, he discovered that, in a sense, neither he nor any other Greek whatsoever knows the slightest thing about them. Once, Solon wanted to draw them into a discussion about antiquity, so he began to relate the most ancient stories from Athens, about Phoroneus, who is said to be the first man, and about Niobe. And he went on to tell the story of the flood and how Deucalion and Pyrrha survived it,⁵ and the family histories of these people, and he tried to estimate the time periods by recalling the exact number of years since the events he described.

CRITIAS: "Then, one of the priests, who was a very old man, said, 'O Solon, Solon, you Greeks are ever children! There is no Greek who is an old man.' When he heard this, Solon asked: 'How can you say this?'

CRITIAS: "'You are all young in soul,' the priest said. 'Your souls do not possess a single doctrine heard of old, or any teaching grey with age. The reason is as follows. There have been, and will be, many destructions of humanity by various means, the most significant being by fire and water, the lesser kinds by myriad other means. In fact, you Athenians also have the story

of how Phaethon, the child of the Sun, once harnessed his father's chariot, but because he was not able to drive it along the path of the Sun, he brought fire upon the Earth and was himself killed by a thunderbolt. Now, this is told in the form of a myth, but the truth is that there is an alteration of the motion of the heavenly bodies travelling around the Earth, and at regular long intervals destruction is wrought upon the Earth's surface by an enormous fire. When this happens, those who live in mountains or high places or dry places suffer greater destruction than maritime or river-dwelling folk.

CRITIAS: "The Nile, which is always our saviour, also saves us from this difficulty on such occasions by its rising. But whenever the gods flood the Earth with water to purify it, the shepherds and herdsmen in the mountains are saved, while those who dwell in your cities are swept out to sea by the rivers. However, in this land of ours, water does not pour down on the fields from above – not then, not ever – but on the contrary, it all comes up naturally from below. That's the reason why the records preserved here are said to be most ancient of all. The truth is that in all places where excess heat or cold do not prevent it, there is always a human race, sometimes in greater numbers, sometimes in lesser. And whatever events we hear about in your country or in ours, or anywhere else, that are somehow noble or significant or special in some other way, have all been written down in the temples here from ancient times and preserved.

CRITIAS: "But in the case of yourselves and the other cities, as soon as you have been equipped with writing and whatever else a city requires, every time, after the usual cycle of years, the flood from Heaven arrives once more, bearing down upon you like a plague, leaving only the illiterate and uncultured among you, so that you become like children all over again, with no knowledge of events of ancient times, either here or among yourselves. Take the genealogies you have just recounted about your own people, Solon. These are little better than children's stories. In the first place, you remember only one flood, though many occurred before that, and then you do not realise that the noblest and most excellent race in the history of humanity once lived in your own country. You and your entire city are descended from this race, from a small remnant of their seed, but you are unaware of this because, for many generations, those who survived left no written records when they

died. But there was once a time, Solon, before the greatest ever destruction by water, when the city that is now Athens was better than any in war, and supremely well governed in every respect. Its deeds were reputed to have been the noblest, and the conduct of its affairs the fairest of any city we have heard of under Heaven.'

CRITIAS: "When he heard this, Solon said he was amazed, and in all earnestness he asked the priests to recount everything about the ancient citizens of Athens, precisely and in due order. The priest replied, 'No one will grudge you this, Solon, so I shall tell you the story for your sake and for the sake of your city, but especially in gratitude to the goddess who has adopted, nurtured and educated your city and ours. Your city was first by a thousand years, taking your seed from earth and Hephaestus, while our city here came later. The civilisation here is recorded in our sacred writings as being eight thousand years old. So I shall be giving you a brief overview of your citizens from nine thousand years ago, their laws, and the most splendid of the deeds they performed. But we shall go over everything in detail and due order some other time at leisure when we access the actual records.

CRITIAS: "Now, compare your laws with ours, for you will find many examples of your ancient laws in operation here today. Firstly, the priestly class is kept apart from the others. Then, the class of manufacturers works by itself and does not mix with another, and the same applies to herdsmen, hunters and farmers. What's more, the warrior class here, I presume you have noticed, is kept apart from all the other classes, as they are enjoined by law to be concerned with nothing except military matters. And even the style of our armour is based on shields and spears which we were the first people in Asia to adopt, as the goddess instructed us in this, just as she first instructed you in your region.

CRITIAS: "Furthermore, I presume you observe the extent to which tradition in Egypt has been concerned, from the very outset, with wisdom and the Universe, discovering everything right down to prophecy and medicine for health by applying those divine considerations to human concerns, and mastering all other learning that derives from these. Now, this is, in fact, the overall structure and regulation which the goddess devised at the time she first

founded your city, selecting the place in which you were born because she saw that the temperate climate there would produce the wisest men. Seeing that the goddess was a lover of war and a lover of wisdom, she chose the place likely to produce men who were most akin to herself, and there she first founded a city where you dwelt, adopting such regulations as these. Indeed, you were even better regulated, having surpassed all other peoples in every kind of excellence, just as you would expect from a people born from and educated by the gods.

CRITIAS: "Now, the numerous great deeds of your city that are recorded here are a wonder, but there is one which surpasses them all in importance and excellence. For our records tell how great a power it was that once surged forth from the Atlantic Ocean and proceeded violently against all of Europe and Asia at the same time, a power which your city stopped. In fact, the ocean in the area was navigable then, and there was an island in front of the strait which your people tell me they call the Pillars of Heracles.⁶ This island was bigger than Africa and Asia together, and it was possible in those days for travellers to get from there to the other islands, and from the islands to the entire adjacent continent which surrounds that real ocean. For these places that are inside the strait we are speaking of resemble a harbour with a narrow entrance, but the ocean outside is a real ocean, and the land that surrounds it may truly and correctly be termed a continent.

CRITIAS: "Now on this island of Atlantis, a great and wonderful kingly power was established which ruled the entire island, many other islands and part of the continent. What's more, even within the straits, they ruled Africa as far as Egypt, and Europe as far as Tuscany. This entire kingdom once constituted itself as one united force, and tried in a single onslaught to enslave your land and ours, and indeed the entire territory inside the strait. It was then, Solon, that the power of your city shone forth before all mankind in excellence and strength, as it stood pre-eminent above all in nobility of spirit, as well as skill in military affairs. For a time it led the forces of the Greeks, but when the others had given up, it had to stand alone facing extreme danger, triumphed over the invaders, set up a monument, saved from slavery those who had not yet been enslaved, and ungrudgingly freed all the others who dwell inside the Pillars of Heracles.

CRITIAS: "Sometime later there was a huge earthquake and deluge, and there came a single grievous day and night in which your entire warrior class was suddenly swallowed by the Earth, and the island of Atlantis, in like manner, sank beneath the sea and disappeared. Because of this, the sea in those parts has now become impassable and unnavigable, since it is blocked, just below the surface, by mud which was left by the island as it sank."

CRITIAS: Now, Socrates, you have heard a shortened version of the account given by old Critias based on what Solon had heard. However, yesterday when you were talking about the political system and the men you mentioned, I was amazed to be reminded of the very details I have recounted just now, as I realised that, miraculously, by some chance, your account was in broad agreement with what Solon had recounted. I was reluctant to say anything immediately, because it was a long time ago and I did not remember the story well enough. So I decided that I would first need to recollect everything properly for myself, and then tell the story. Accordingly, I quickly agreed to your assignments yesterday, being of the view that the biggest task in all such situations is to deliver a speech which fits the purpose, and that we were well equipped for this. So it was, as Hermocrates said, that as soon as I left here yesterday, I told these men the story I had remembered, and after I left them I went back over it during the night and remembered almost everything. Well, I tell you, as the saying goes, the lessons of childhood have an amazing grip on the memory. In fact, I do not know if I would be able to recall to memory everything I heard yesterday, and yet I would be completely surprised if any detail of that story which I heard so long ago has escaped me. I heard it with so much pleasure and delight at the time, and the old man taught me so enthusiastically because of my constant questioning, that it has become like burnt-in impressions of indelible writing abiding within me. And, in fact, I recounted these very details to our friends here first thing this morning so that they too would be well provided with stories to tell.

CRITIAS: So, Socrates, I am now ready to explain the reason why I have related all this, not just in summary only, but in detail, just as I heard it. We shall now transpose the citizens and the city which you described to us yesterday as a myth to a true situation by locating that city here, as if it were our city, Athens, and those citizens whom you imagined, we shall declare to be

our true ancestors whom the Egyptian priest described. The two stories will harmonise completely, and we shall strike no discordant note in declaring that your citizens are the Athenians of ancient times. Working together and with each taking a part, we shall all endeavour, as best we can, to present an appropriate response to the tasks you assigned us. Well then, Socrates, you must consider whether this account of ours accords with your intention, or we should look for another instead.

SOCRATES: Why, Critias, what account would we choose in preference to this one, when it is so especially appropriate to the festival of the goddess because of its connection to her? And the fact that it is no invented story, but a true account, is all important, I presume. How and from where shall we ever find alternatives if we let these go? It's impossible. So you must speak, and good luck with it, while I must now remain quiet and take a turn at listening, in contrast to my speaking role yesterday.

CRITIAS: Behold the order of the feast we have arranged for you, Socrates. It seemed to us that Timaeus should speak first since he is the best astronomer among us, and has made it his principal task to understand the nature of the Universe. He will begin with the creation of the Universe and conclude with the nature of human beings. After this, I shall proceed as if I have received human beings from Timaeus created in his story, and from you some who have been specially educated, and bring them before us as if before judges, in accordance with Solon's account and his law, and make them citizens of this city of ours, since they are, in fact, the ancient Athenians whose disappearance was revealed by the record of the sacred writings. From then on they should be referred to as Athenians, our fellow citizens.

SOCRATES: It seems that I am going to be repaid, fully and magnificently, with a feast of discourse. Apparently, it is your turn to speak next, Timaeus, once you have invoked the gods in the customary manner.

TIMAEUS: Well, Socrates, that is just what anyone with even a little sound-mindedness does before they embark upon any undertaking, great or small. They always, I presume, call upon God. And we who are somehow going to make speeches about the Universe, how it has been generated or whether it is actually ungenerated, if we are not to go entirely astray, must call

upon the gods and goddesses and pray that everything be spoken acceptably to them in particular, and less importantly, to ourselves. Now, let that be our invocation to the gods, but we must also invoke that which is ours so that you may learn easily, and I may expound my thoughts on the subjects before us as best I can.

TIMAEUS: In my opinion, we must certainly make this distinction first. What is 'that which always is' and has no becoming, and what is 'that which is always becoming' but never is? Now, the former, being ever the same, is comprehended by the activity of nous, together with an account, the latter by opinion, together with sense perception devoid of an account. It comes into being and passes away and never actually is. Again, all that comes into being must come into being from some cause, for it is impossible for anything to be generated without a cause. Now, whenever a craftsman, looking always to the unchanging, refers to something like this as his model, he will reproduce its form and character, and all that he fashions in this way will necessarily be beautiful, but if he looks to something that has come to be and uses a generated model, the product will not be beautiful.

TIMAEUS: Now, there is something which must be considered first about the entire Heaven or Universe. In fact, let's call it by whatever name it most readily accepts. This is a fundamental question that must be considered at the outset in relation to anything, whether it always was, with no beginning in generation, or whether it has come to be, having originated from some beginning. It has come to be, for it is both visible, tangible, and it has a body, and all such things are perceptible, and perceptibles are grasped by opinion and the senses, and, as we saw, come into being and are generated. What's more, we say that a thing which has come to be has, of necessity, come to be through some cause. Now, to discover the maker and father of this Universe is a task indeed, and, having discovered him, it is impossible to describe him to everyone.

TIMAEUS: In any case, there is a question we must consider once more in relation to the Universe. With respect to which of the models did its artificer fashion it? Was it with respect to that which remains the same and unchanging, or with respect to a generated model? If, indeed, this Universe is

beautiful and the craftsman is good, then clearly he looked towards the everlasting; otherwise, if that's not the case, although no one may legitimately say this, then he looked towards a model which has come to be. It is surely obvious to everyone that the model was everlasting, since the Universe is the most beautiful of created things, and the craftsman is the most excellent of causes. So, having come into being in this way, it has been made to resemble that which is comprehended by reason and intelligence, and remains the same. Furthermore, since this is the case, it is entirely necessary that this Universe be an image of something.

TIMAEUS: Now, on every subject it is most important to begin at the natural beginning. So, there is a distinction we must make in relation to an image and its model. Accounts are also akin to the very subjects they expound, so accounts of anything stable and certain and discernible by nous will be fixed and unchanging, and such accounts must be irrefutable and incontrovertible, and insofar as this is possible, appropriate for accounts, they should not fall short of this. However, accounts of something copied from that model, something which is therefore a likeness, are likely accounts, and stand in a relation to the other accounts; as being is to becoming, so too is truth to belief. Therefore, don't be surprised, Socrates, if in many cases on numerous subjects such as the gods or the creation of the Universe, we prove unable to furnish accounts that are entirely and in every way consistent with themselves and exact. Indeed, if we can offer an account that is as likely as any other, we should be content, remembering that I who speak, and you who judge, possess a human nature, and so, accepting the likely story about these matters, it is appropriate to seek nothing beyond that.

SOCRATES: Excellent, Timaeus. Indeed, as you say, we must accept it unreservedly. We have enthusiastically accepted the prelude from you in wonder, so please proceed now to the main theme.

TIMAEUS: Well, let us state the reason why becoming and the Universe were constructed by the artificer.

TIMAEUS: He was good, and in the good no envy ever arises about anything, and being devoid of envy he desired that all things be as much like himself as possible. We would then be absolutely right to accept from men of

understanding that this is the supreme source of becoming and of the Universe. For the god desired that all be good and, as far as possible, nothing be imperfect. He therefore took everything that was visible, which was not at rest but moving discordantly and randomly, and he led it from disorder to order, regarding order as entirely superior to disorder. But it was not then, nor is it now, lawful for the supreme to enact anything except the supremely beautiful. So, on reflection, he discovered that in the realm of whatever is naturally visible, nothing that is made without nous is, on the whole, ever better than something which possesses nous, and furthermore, that nous cannot be present in anything in the absence of soul. Based on this reflection, having placed nous in soul, and soul in body, he constructed the Universe so that, once completed, it would naturally be as beautiful and excellent a piece of work as was possible. Accordingly, based upon the likely account, we must state that this Universe is a living creature with soul and nous that has, in truth, come into being through the providence of God.

TIMAEUS: This being the case, we should go on to state the next topics. In the likeness of which of the living creatures did the maker construct the Universe? Let us not degrade it to something which, by nature, is a part, for that is incomplete, and the likeness of something incomplete would never be beautiful. Instead, we propose that the Universe resembles, more than anything else, whatever all other species and classes of living beings, individually or on the basis of kinds, are parts of. In fact, that Universe contains within itself all living things that can be discerned by nous, just as this Universe contains us and all creatures which can be discerned by sight. The god wished the Universe to resemble the most beautiful and entirely perfect of all that nous perceives, so he constructed a single, visible, living creature containing within it all creatures that are by nature kindred to it.

TIMAEUS: Have we been right to speak of one single Universe, or is it more correct to refer to many, indeed an unlimited number? If, in fact, it is to be crafted in accordance with the model, there will be one. For that which encompasses all living creatures discernible by nous could not ever be one of a pair. If it were so, an additional living being would be needed to embrace both of these, and the two would be parts of this living thing. It would then be more correct to say that the Universe resembles not the two creatures, but the

creature which contains them both. Therefore, so that it would resemble the all-perfect creature in respect of its uniqueness, the maker, accordingly, did not make two or infinitely many universes; rather, this only begotten Heaven has come into existence, and it is one, and one it shall be hereafter.

TIMAEUS: Now, whatever has come to be must have bodily form and be visible and tangible, but nothing could ever have become visible without fire, or tangible without something solid, nor solid without earth. Hence, as he began to construct the body of the Universe, God made it from fire and earth. Now, it is not possible for two things to be combined well on their own without a third, for some bond is required between the two to draw them together. The very best bond is that which, as much as possible, makes itself and the conjoined entities one, and it is proportion that, by nature, best accomplishes this. So, whenever the middle item of three numbers or volumes or power is such that the first is to the middle as the middle is to the last, and again, that the last is to the middle as the middle is to the first, then the middle becomes first and last, and the last and first for their part both become middles. Accordingly, it follows, of necessity, that they all turn out to be the same, and since they have all become the same as one another, they will all be one.⁷

TIMAEUS: So then, if the body of the Universe had to come into being having surface but no depth, a single mean would have sufficed to bind its constituents together with itself. But now, since it has a solid structure, and solids are never conjoined by one middle term but by two, God therefore placed water and air between fire and earth, and insofar as it was possible he arranged that they have the same proportion to one another, so that as fire is to air, air is to water, and as air is to water, water is to earth.⁸ These he bound together and constructed a visible and tangible Heaven. And, for these reasons and from such constituents as these – four in number – the body of the Universe was generated, having been harmonised by proportion and endowed from these with affection, so that having come to sameness with itself, it was rendered indissoluble by anyone except the one who conjoined it.

TIMAEUS: Now, the construction of the Universe actually consumed each one of these four elements entirely. For the artificer constructed it from all of

the fire and water, and also the air and earth, not one part, or power, of any of them being left outside of it. He decided this for the following reasons: firstly so that it would be as whole and perfect a living being as possible, made from perfect parts; in addition to this, it was to be one, since there would be nothing left over from which something else of this kind could be generated. It was also to be free from old age and disease, as he realised that if a composite body is surrounded by heat or cold, or any powerful forces outside it, they attack it and bring it to an untimely end, and by inducing disease and old age they make it waste away.

TIMAEUS: So, for this reason, and based upon this consideration, he fashioned it whole, composed of all these wholes – one, perfect, ageless and incorruptible – and he gave a shape to it that was appropriate and belonged to its nature. The shape, which contains all other shapes within itself, was appropriate for the living being that is going to embrace all other living beings within itself, so he turned it to make it circular, a spherical shape having all of its extremities equidistant from its centre. This is the most perfect of all shapes and the one most uniform with itself, and uniformity he regarded as infinitely better than non-uniformity. And so, he polished it all smooth and round on the outside for many reasons.

TIMAEUS: It had no need of eyes, for there was nothing to be seen outside it, nor hearing, for there was nothing to be heard. There was no air around about it which it needed to breathe, nor did it require any organ by which it might receive food into itself, or indeed expel it again once it had been digested. In fact, nothing went out or came in from anywhere, for there was nothing. Indeed, it was contrived by design so as to provide its own food from its own waste, and to experience everything within itself and enact everything by itself, because he who assembled it thought it would be better for it to be self-sufficient rather than being dependent on others. He did not think it necessary to attach hands to it when they were not needed to grasp with or to ward off anything, nor feet neither, nor any support to stand upon, for he assigned it a movement natural to its body, the most reasonable and intelligent of the seven kinds of motion. Accordingly, he caused it to move by revolving in a circle, leading it around in the same way, in the same place, within itself, and he took all the other six motions away and fashioned it without their

wanderings.⁹ Seeing that it did not need feet for this circular motion, he brought it forth without legs or feet.

TIMAEUS: This was the entire thinking of the god who is always about the god that was soon to be, and based on this thinking he made it smooth and uniform, everywhere equal from the centre, a complete perfect body composed of perfect bodies. He placed soul in the middle of it and stretched it through the entire body, and even covered the outside of the body with it, and established one single, solitary, round Heaven revolving in a circle. It was able, because of its excellence, to interact with itself, having no need of any other as it was acquaintance and friend enough to itself. For all these reasons, what he created was a blessed god.

TIMAEUS: But although we are now endeavouring to speak of the soul after our description of the body, the god did not, accordingly, contrive that the soul be younger, for when he combined them he would not have allowed the elder to be ruled by the younger. But we, with our accustomed degree of casualness, speak in this somewhat random fashion. In fact, he constructed the soul to be elder and prior to the body in birth and in excellence, its mistress and ruler.

TIMAEUS: He made the soul from the following constituents and in this manner. From being that is undivided and ever the same, and being which, by contrast, comes into existence apportioned to bodies, he formed a third intermediate form of being from both of them. From the nature of same and other, in like manner, he made a third intermediate form between their undivided form and their form as apportioned to bodies. He then took these three mixtures¹⁰ and mixed them all into one, and as the nature of other was difficult to mix, he blended it with same by force. Then, having mixed this, with the help of Being, and made one from the three, he apportioned this whole once more into as many parts as was fitting, each part being a mixture of same, other and being.

TIMAEUS: He began to divide it as follows. First, he separated one part from the entire; after this he separated a part double the first; and next a third, which was one-and-a-half times the second and three times the first; a fourth part, double the second; a fifth, three times the third; a sixth, eight times the

first; and a seventh, twenty-seven times the first. After this, he filled up the double and triple intervals, cutting off further sections of the mixture and placing these in between them, so that in each interval there were two means – one exceeding its extremes and being exceeded by them by the same portion, the other exceeding one extreme and being exceeded by the other extreme by an equal number.¹¹ These connections gave rise to intervals of $3/2$, $4/3$ and $9/8$ between the previous intervals. All the $4/3$ intervals were filled up by the $9/8$ intervals, leaving a portion of each of them, and the interval associated with this remaining portion had the numerical relation $256/243$. What's more, the mixture from which these were cut was at that stage entirely used up in the process.

TIMAEUS: He then cut this entire compound along its length into two, and situated the middles of each together like the letter χ (chi), bent each into a circle and attached each to itself and to the other one at the point opposite to where they overlap, included them in that kind of motion which turns around uniformly in the same place, and made one of the circles inner and the other outer. The outer movement he designated as the movement of same, the inner as the movement of other. He set the movement of same revolving sideways and to the right, and that of other diagonally and to the left, and he granted supremacy to the movement of same and similar, for he left it one and undivided. However, he divided the inner circle six times, producing seven circles based on the double and triple intervals, there being three of each. He commanded the circles to go in opposite directions to one another, three at similar speeds, four at speeds dissimilar to one another and to the other three, but their movements were proportional.

TIMAEUS: When the entire construction of the soul had been completed in accordance with the reasoning of the one who constructed it, he then fashioned within it all that has bodily form, and having brought both together, he fastened them centre to centre. And soul, being woven entirely throughout the Heaven from centre to extremity, enfolding it in a complete circle on the outside and revolving in itself, initiated a divine beginning of unceasing and intelligent life for all time. Now, while the body of the Heaven had come into existence and was visible, soul, for its part, was invisible, partaking of reason and harmony, the best of created things created by the

very best of all that is eternal and known by nous.

TIMAEUS: Now, since soul is blended from these three components (the natures of same, other and being), is divided and combined proportionally, and circles back upon itself, then whenever it touches upon something whose being is scattered, or something whose being is undivided, it is moved throughout its entire self, proclaims what precisely that is the same as, and what it is different from, and also the sense, manner and occasion that each is so and is characterised as such, either in relation to things that come to be, or in relation to the unchanging and eternal. And the account which arises, being equally true, whether it concerns that which is other or same, is borne along without utterance or sound in that which is moved by itself. Whenever it arises concerning perceptible things, and the circle of other, running true, announces it through the entire soul, opinions and beliefs arise which are certain and true. But whenever, in contrast, it arises concerning the things of reason, and the circuit of same, running well, makes these things known, nous and knowledge are the necessary outcome. If anyone should ever say that these two arise in anything other than soul, he will be speaking entirely contrary to the truth.

TIMAEUS: When the father who brought it into being realised it was moving and living, a delight created for the everlasting gods, he too was delighted, and in his rejoicing he decided to make it even more like its model. Now, since the model is an everlasting, living creature, he also undertook, accordingly, to render this Universe as much like that as possible. Now, in fact, the nature of the living creature was everlasting, and it was not actually possible to completely impart eternity to the created entity, so he decided to make a moving image, and as he ordered the Heaven, he made an everlasting image of eternity abiding in unity, moving according to number, an image we have called time, for there were no days or nights, months or years, before the Heaven came to be. Then, at the same time as the Heaven was constructed, he arranged the creation of these. All of these are but parts of time and 'was' and 'will be' are forms of time which have been generated, although we do not notice this and apply these incorrectly to everlasting being. We do indeed say 'was', 'is' and 'will be', when 'is' alone is appropriate to it according to the true account, while it is more fitting to say 'was' and 'will be' of generation which

unfolds in time, for both of these are movements. It does not belong to what is always the same and unmoving to become older or younger in the course of time, nor to have ever come into being, nor to have come into being now, nor to be about to exist in future. And, in general, nothing that generation attaches to motions in the sensory realm belongs to it, for these have come into being, forms of time, time which imitates eternity and revolves according to number. What's more, we even say such things as, "what has come to be 'is' what has come to be", and "what is coming to be 'is' coming to be", and again, "what will come to be 'is' what will come to be", and "what is not 'is' what is not", but none of these statements are accurate. Perhaps, though, it is not the right time now for a precise discussion of these issues.

TIMAEUS: In any case, time came into being along with the heavens, so that having been generated simultaneously they would also be dissolved simultaneously, if they were ever dissolved, and it was based on the model of the eternal nature so that it would be as much like it as possible. For, indeed, the model is through all eternity, while the Heaven, for its part, having come into being, is, and will be, throughout all time.

TIMAEUS: Based on such reasoning and consideration of the god about the creation of time, in order that time might come into being, the Sun, Moon and five other stars, which are called wanderers,¹² were generated to define and protect the numbers of time. Having made the bodies of each of these, the god placed them in the orbits in which the circuit of other was moving – seven bodies in seven orbits. The Moon he placed in the first orbit around the Earth, the Sun in the second above the Earth, the Morning Star too,¹³ and the one said to be sacred to Hermes¹⁴ he set moving in circles at an equal speed to the Sun, but allotted a power opposite to it so that Sun, Mercury and Venus alike overtake and are overtaken by one another. As for the other planets, if someone were to recount everything about them and the reasons he established them, the story, though a subsidiary one, would prove to be a greater task than our main undertaking. Indeed, all this may perhaps get proper attention later, at our leisure.

TIMAEUS: In any case, when each had occupied its own proper course as needed to help in the production of time, these bodies were bound with bonds

of soul and became living creatures and learned their assigned duties, each moving in actual accord with the sideways motion of the circuit of other, which revolves within the circuit of same and is ruled by it, some traversing a greater circle, some a lesser, those in the lesser circle revolving faster, those in the greater revolving more slowly. Due to the motion of same, those which went around fastest seemed to be overtaken by the slowest, though they actually overtook the slowest. For the movement of same, which is the swiftest of all motions, turned all their circles in a spiral due to their divided, and also opposite, forward motion, and it made that which moves away from itself most slowly seem closest to it in speed.

TIMAEUS: So that there might be some obvious measure of their relative slowness or swiftness, and so that the eight courses might proceed, the god kindled a light in the second of the orbits from the Earth, a light we now call the Sun, so that it would shine with all its might through the entire Heaven, and all deserving creatures would have a share in number, having learned it from the revolutions of same and similar. So this is how and these are the reasons why day and night, the revolution of the single most intelligent circuit, have come into being. However, when the Moon traverses its own circuit and overtakes the Sun, a month is generated, and whenever the Sun completes its own circuit, a year is generated. Men, save a few of them, have not understood the periods of the other planets, nor have they named them, nor have they measured them against one another through numerical investigation. Consequently, they do not really understand that the numerous, complex and wonderfully intricate wanderings of these planets actually constitute time. Yet it is possible, nevertheless, to understand that the perfect number of time fulfils the perfect year, when the speeds with respect to one another belonging to all eight orbits are concluded simultaneously and they have attained completion as measured by the circuit of same, and similarly moving. So, based on these principles and for these reasons, the stars came into being, those which have their turnings and proceed through Heaven, so that this Universe might be as much like the perfect, intelligible creature as possible in its imitation of the eternal nature.

TIMAEUS: Now, in other respects, including the creation of time, the Universe was already fashioned very like the model it was imitating. However,

it was still unlike it in one respect, as it did not yet contain, generated within itself, all the living creatures. He set about this remaining task by moulding the Universe towards the nature of the model. In the same way that nous beholds how many and what kind of forms are contained in that actual living being, he decided that this Universe too should possess such kinds as these, in such numbers. Now, there are four kinds, one the heavenly race of gods, another winged and airborne, a third type dwelling in water, and a fourth traversing dry land on foot.

TIMAEUS: The form of the divine race he made mostly from fire so that it would be the brightest and most beautiful to behold, and to make it resemble the Universe, he made it well rounded. He placed it in the intelligence of the dominant circuit to follow that path, and distributed it around the entire Heaven in a circle, to be a true adornment to it, embroidered over the whole. He assigned two movements to each, one an unchanging movement in the same place, always thinking to itself the same thoughts about the same things, the other a forward motion dominated by the revolutions of same and similar.¹⁵ They are devoid of the other five motions and are at rest, so that each of them may become as excellent as possible.¹⁶ From this cause, all the un-wandering stars have come into being – divine, everlasting creatures which abide forever, revolving in the same way in the same place. But those that turn back and keep wandering in this fashion have come into being in the manner we described before. And Earth, our nurse, packed about the axis stretching through the Universe, he devised as guardian and artificer of night and day, the first and eldest of all the gods that have come into existence within the Heaven.

TIMAEUS: As for the dances of the gods themselves and their juxtapositions with one another, the backward revolutions of the circuits upon themselves and their advances which are in line with each other during conjunctions, and how many are behind and what each is hidden by, both from themselves and from us so that when they reappear they send terrors and portents of things to come to men who are not capable of reasoning..., to describe this without a visible model of the movements would be a vain task. Rather, we should be satisfied at that and let our discussions about the nature of the visible and generated gods come to an end.

TIMAEUS: To describe and understand the origin of the other divinities is beyond us, so we must believe those who have already spoken and who claim to be the offspring of the gods, and presumably know their own ancestors very well. Now, it is impossible to disbelieve the children of gods even though they speak without any probable or compelling evidence; yet they speak as though they are describing family matters, so we should follow custom and believe them. Accordingly, let us accept their version of the generation of those gods and let us describe it. Ocean and Tethys were born children of Earth and Heaven, and from these were born Phorcys, Cronus and Rhea, and all their companions. From Cronus and Rhea came Zeus, Hera, and all those we know by report as their brothers and sisters, and a further generation born from these.

TIMAEUS: In any case, when all the gods had come into being, both those who wander about conspicuously and the ones who appear only as often as they wish, he who had generated this Universe spoke to them and said, "Gods of gods, works of which I am the maker and father, what I have brought into being is indissoluble unless I so desire. Now, anything that is bound together can indeed be dissolved, but only bad would wish to dissolve something which has been beautifully harmonised and is in good order. Since you have come into being, you are not truly immortal or entirely indissoluble, and yet there is nothing which will dissolve you, nor will the fate of death befall you, because in my will you have an even greater and more powerful bond granted you than those by which you were bound together at birth. Therefore, understand the declaration I am now making to you. There are three types of mortal creatures yet to be created. If these are not brought into existence, the Heaven will be incomplete for it will not have within itself all types of creatures, and it must have these if it is to be complete in an adequate manner. But if they were brought into being and partook of life through my agency, they would be equal unto gods. Therefore, so that they may be mortal and this Universe truly universal, betake yourselves, as is natural to you, to the production of living creatures, imitating the power by which I brought you into being.

TIMAEUS: "Now, I shall begin by sowing the seed and handing over to you the part of the creatures which rightly shares the same name as the immortals, the part which is called divine and which rules supreme in those who desire

always to follow justice and yourselves. You must do the rest – make the living creatures by weaving the immortal with the mortal, give them birth, nourish them and make them grow, and when they perish, receive them back again."

TIMAEUS: The maker of the Universe said this and went again to the mixing bowl in which he had previously mixed and blended the soul of the Universe. He poured in the remainder of the former mixture, blending it in somewhat the same manner, but it was no longer pure in the same way as before, but second or third in degree of purity. When he had compounded the entire, he divided it into souls equal in number with the stars, allocated each soul to its particular star, and, having mounted them as though in a chariot, he showed them the nature of the Universe and told them the laws of destiny: that the first birth would be arranged the same for everyone so that no one would be disadvantaged at his hands; that they should be dispersed to the instruments of time appropriate to each to grow as the most god-revering of creatures; and the nature of humanity being twofold, the stronger would be the kind which should hereafter be called man. Once the souls were, of necessity, implanted in bodies, and there was a process of addition and removal of portions of their bodies, in the first place an innate sense perception would necessarily arise in all, produced from forceful impressions; second would be love mixed with pleasure and pain, and, in addition to these, fear and desire and all that follows in their train, and whatever stands in natural opposition to these. If they should conquer these they would live justly, but if conquered by them, unjustly. Whoever lived well during his assigned period of life would journey again to his native home, which is his kindred star, to live a happy life in conformity with his nature. But if he should fall short of this, he would transform into a woman's nature in his second birth. And if in this form he still does not desist from wrongdoing, as is the manner of his corruption so also is his transformation into an animal nature that resembles his evil tendency. He will not cease from these painful transformations until he draws into the circuit of same and similar that is within himself, the vast accretion composed of fire and water, earth and air, which has grown about him of late, has conquered its turbulence and irrationality by reason, and returns again to the form of his original and most excellent condition.

TIMAEUS: When he had prescribed all these laws for humans so that he would be blameless of their future evil doings, he sowed some of them in the Earth, some in the Moon, and some in the other instruments of time. But when the sowing was complete, he handed over the making of mortal bodies to the young gods, and, as well as that, the fashioning of all the parts of human souls that still had to be added, and all that goes along with them. And they were also to govern this mortal creature and guide it as beautifully and excellently as they could, unless it should become a source of evil to itself.

TIMAEUS: He who had decreed all this remained as usual in his own accustomed state, and as he so remained, the children understood the direction of their father and obeyed it. They took from him the immortal beginning of the mortal creature, and imitating their own artificer, they borrowed portions of fire, earth, water and air from the Universe, intending to return these again. What they had taken they bonded together into a unity, not with the indissoluble bonds with which they themselves had been conjoined, but fusing them together with myriad tiny invisible pegs. Fashioning each body as a unity from all the elements, they bound the circuits of the immortal soul within the inflowing and out-flowing body. These orbits, which were bound within an enormous stream, neither dominated it nor were dominated by it, but they brought about and suffered violent motion. So the entire creature was moved, and it advanced, randomly and irrationally, in any way at all, exhibiting all six types of movement at once as it progressed forward and backward, and then right and left, down and up, as it went wandering in all six directions. The surge which poured in and gushed out and brought nutriment was mighty indeed, but greater yet was the disturbance to each wrought by all the impinging sensations when the body happened to collide with fire from something external and alien, or with a hard lump of earth or smooth sliding waters, or was carried away by a storm of winds borne by the air. And the movements caused by all these, being borne through the body, fell upon the soul. Indeed, on account of all this, such movements were called sensations thereafter and are still so called today.¹⁷ Furthermore, at that particular time these were the source of the greatest and most varied movement, and along with the constantly flowing stream they moved and shook the revolutions of the soul violently, completely blocked the revolution

of same by flowing against it, and prevented it from ruling and proceeding. And what's more, they threw the revolution of other into confusion, turning each of the three double and triple intervals and the $3/2$, $4/3$ and $9/8$ middle terms and connections in all directions, and although they could not be entirely undone save by their maker, they caused all manner of fractures and deformations of the circles so that they moved along, but barely holding themselves together, borne irrationally, sometimes in opposite directions, sometimes sideways, sometimes upside down.

TIMAEUS: Just as whenever someone is propped upside down, his head on the ground, his feet pressed against something, in that predicament what is right for the person will appear as left to his observers, and what is left for him will appear right for them. So when the circuits are undergoing this experience, and others like this, in an intense manner, whenever they happen upon something external of the class of same or of other, they then declare it to be same as something or other than something, in direct opposition to the truth, having become false and devoid of intelligence, without even one orbit ruling and leading among them at that time. Indeed, should some sense impressions, carried from outside to the orbits of the soul and impinging on them, draw the entire vessel of the soul along with them, then although the orbits seem to be dominating themselves, they are being dominated by the senses. And, indeed, because of all these experiences, the soul now, as in the beginning, becomes devoid of nous at first whenever it is bound within a mortal body. But whenever the stream which brings growth and nourishment lessens its influx, and the orbits become calm again, traverse their own paths and become more stable with the passing of time, then at that stage the orbits are kept in line with the course of the natural motion of each of the circles, they proclaim other and same correctly, and cause their possessor to become intelligent. And, indeed, if some right nurture should also play a role in his education, he becomes completely unblemished and sound, having escaped the worst possible disease. However, if he neglects this, he limps his way through life and returns once more to Hades, incomplete and devoid of intelligence.

TIMAEUS: Of course, this all happens later on. However, we must deal more precisely with the issues before us now, and issues prior to these concerning

the generation of the body part by part, and of the soul too, and the reasons and intentions of the gods in producing them. This we must recount in detail, holding to the most likely account and proceeding on that basis.

TIMAEUS: Now, there are two divine revolutions which imitate the round shape of the Universe, which is spherical, and they bound these within a spherically shaped body which we now call the head. It is our most divine part, and it rules over all else within us, and to this the gods granted the entire body which they had assembled to be its servant, realising that it would be involved in every kind of motion that would ever be. They gave this chariot and means of transport to the head so that it would not go rolling about the Earth with its various hills and hollows, unable to get over the one or out of the other. On account of this, the body is tall and has grown four flexible and extensible limbs devised by the god for conveyance. Assisted and supported by these, the body is capable of traversing all terrains, bearing aloft the dwelling place of that most divine and sacred part of us. So that is how and why legs and feet have been attached to everyone. And regarding the front of the body as nobler and more fitted for leadership than the rear, the gods assigned most of our movement to be in that direction. So it was necessary for the front of the human body to be distinct and different. Therefore, they first put the face in position on that particular side of the vessel of the head, affixed onto it the organs for complete providence of the soul, and assigned the role of leadership to that natural front.

TIMAEUS: The first of the organs fabricated were light-bearing eyes which they fixed in place for the following reason: they contrived to create a body from fire which does not burn but provides a gentle light, kindred to the light of each day. So they caused the pure fire within us, which is brother of this light of day, to flow through the eyes, and they compressed the whole eye, but especially the centre, to be smooth and dense so as to retain all the coarser fire and filter through only this kind of pure fire by itself. Then, if ever there is daylight surrounding this stream of vision, like meets with like, joins together and establishes a single kindred body along a straight line from the eyes to wherever the stream from within is obstructed by the outside objects on which it impinges.

TIMAEUS: Because the entire body is similar, the effects are similar throughout. So once this body of light touches something or is touched by something, it transmits motions from these through the entire body as far as the soul and furnishes perception, and we call this 'seeing'. But when the kindred fire goes away at night, the stream of vision is cut off, for when it travels out into something dissimilar it is altered and extinguished, no longer merging with the adjacent air since it contains no fire. So it stops seeing, and, what's more, it becomes an inducement to sleep. For the eyelids, devised by the gods as the natural protector of vision, confine the power of that fire within whenever these are closed. This dissolves and equalises the inner movements, and once these are calmed, peace arises, and when there is great peace there falls an almost dreamless sleep. However, if any significant movements of any sort remain in any location, they produce images which are like these movements in type and quantity, images which are copied within and are remembered externally upon awakening.

TIMAEUS: Now, there is no particular difficulty in understanding the production of images in mirrors or anything smooth and reflective. For all such images necessarily make their appearance from the communion of the inner and outer fire with one another, and then, whenever this in turn unites on the smooth surface and is transformed in different ways, and the fire from the reflected face coalesces with the fire of sight on the smooth and bright surface, left then appears to be right because opposite parts of the beam of sight make contact with the corresponding parts in a manner contrary to the normal manner of contact. However, right appears as right and left as left whenever light changes side in the process of merging. This happens when the smooth surface of the mirrors is raised on each side, and the right part of the beam of sight is repelled to the left and the left to the right. When the same mirror is turned lengthwise to the face, it makes all appear upside down by repelling the bottom of the beam to the top, and the top to the bottom.

TIMAEUS: Now, all these are contributory causes which the god employs as servants in perfecting the most excellent form that is possible. But they are regarded by most people not as contributory causes, but as the cause of everything – cooling and heating, solidifying and melting, and all such processes. Yet these are unable to think or reason to any end. For we must

declare that among things that are, it belongs to soul alone to acquire nous, and this is invisible, while fire, water, earth and air are all visible bodies. And the lover of nous and knowledge first needs to investigate the causes which belong to the intelligent nature, and secondly, those causes which are moved by others, and of necessity become a source of motion to other objects. We too should act in accordance with these principles. We must, indeed, describe both types of causes, yet distinguish those which, in consort with nous, are artificers of beauty and good from those which, being bereft of intelligence, consistently bring about randomness and disorder.

TIMAEUS: Let that be enough about the ancillary, contributory causes for which the eyes have been assigned the power they now possess. However, along with this we must also state the greatest of their beneficial effects, the reason the god gave them to us. According to my account, sight is responsible for the greatest benefit to us, because not one of the accounts we are relating about the Universe would ever have been spoken without seeing the stars or the Sun or the Heaven. But now that day and night have been seen, months and the annual cycle too, and equinoxes and solstices, number has been devised, and the concept of time and the investigation of the nature of the Universe have been given to us. From this we have acquired philosophy in general, and no greater good has ever or will ever come to mortal creatures as a gift from the gods than this. So I declare this to be the greatest good of eyes. As for the other lesser sights, why should we praise benefits for which someone who is no philosopher, weeping in vain,¹⁸ might lament if he lost the sight of them? Rather, let us declare for the following reasons that sight is the cause of this benefit. Sight was invented and bestowed upon us by the god so that we, beholding the revolutions of nous in the Heaven, could apply them to the orbits of thinking within ourselves, for these, though troubled, are kindred to those untroubled revolutions. And, indeed, by learning these thoroughly and properly in accord with their nature, we could stabilise the wandering motions within ourselves by imitating the entirely stable orbits of the god. And in the case of sound and of hearing, the account is the same; they were bestowed by the gods for the same reasons and with the same intentions as they gave sight. Indeed, speech too was instituted for these very purposes, and it contributes the greatest portion thereto, and so too does any music which works through

sound and hearing, and is given for the sake of harmony. Harmony, whose movements are kindred to the orbits in our own soul, has been given by the Muses to those who resort to them intelligently, not for the irrational pleasure thought to be so useful nowadays, but as an ally against the inharmonious orbit of the soul which has arisen in us, to bring it to order and concord with itself. Rhythm, too, was given to us for the same reasons, by the same gods, as an aid, because of the unmeasured condition and lack of grace which, for the most part, prevails in us.

TIMAEUS: Now, everything we have said so far, with few exceptions, has expounded the productions of nous.¹⁹ However, we must also set alongside it an account of what comes into being through Necessity. For the generation of this Universe originated indeed in a mixture produced from the combination of Necessity and nous. Nous ruled over Necessity by persuading it to lead most of what comes into being towards the very best. And so, this Universe was constructed in this way and on these principles in the beginning, through the subjugation of Necessity by intelligent persuasion. Therefore, if anyone is to state truly how the Universe came into being, based on these principles, he must include also the form of the wandering cause and how it is naturally involved. So, we should retrace our steps once more, and, adopting a different and appropriate fresh starting point from these themselves, we must now begin again from the beginning, based on these factors just as we did before.

TIMAEUS: We should look to the nature itself of fire and water, and also air and earth, before the generation of the Heaven and the condition they were in prior to that. For, to this day, no one has yet disclosed their origin, but we speak as if we know what precisely fire and each of the others is – proposing that they are the principles and letters of the Universe – when to a man of even a little intelligence it is probably not appropriate even to liken them to syllables. So let our statement on the matter be as follows: we should not speak now of the beginning of all things, or the beginnings, or the way we think about them, for no other reason than the difficulty of presenting our opinions based upon the present manner of exposition. Nor should you believe that I need to address this topic, nor would I, for my part, be able to persuade myself that I would be right in attempting to burden myself with such a task. So, paying special heed to our initial statement about the capability of the likely

accounts, I shall endeavour to give an account no less likely than before – indeed, more so – from the beginning about each and everything.

TIMAEUS: Clearly we should now begin again, once we have called upon the god, our saviour, at the very outset of our deliberations, to see us safely out of an unusual and unaccustomed exposition to the doctrine of things probable. In any case, our fresh start concerning the Universe should be more elaborate than before, for we distinguished two forms then, but now we must present a third kind. Two were sufficient for our previous descriptions, one designated as a sort of a model discernible by nous and ever the same, while the second was a copy of the model, involved in becoming, and visible. We did not distinguish a third kind at the time as we thought it enough to have these two, but now the argument seems to compel us to try to manifest a difficult and obscure form in words. What should we understand its power and nature to be? This in particular – it is the receptacle of all coming into being, like its nurse.

TIMAEUS: Now, although the truth has been spoken, a clearer statement about it is still required, but it is difficult to do so, particularly because it is necessary for the sake of this to raise a preliminary problem about fire and its accompaniments. It is difficult in the case of each of these to state what sort should actually be called water rather than fire, and what sort should be referred to as anything in particular rather than as everything individually, in such a manner as to employ language which is trustworthy and certain. How, then, may we speak about them in a likely manner, and in what way, and what can we say about them when faced with this problem? First, we see what we now call water being condensed and becoming stones and earth, or so we think, and when melted or dispersed, the same substance in turn becomes wind and air, and air when burned becomes fire. When this is combined once more and the fire is extinguished, it returns again to the form of air, and air comes together again, becomes dense and forms cloud and mist, and by compacting these even more we get flowing water, and from water we go on to get earth and stones. And their coming into being appears to be a cycle where they interchange with one another in this way.

TIMAEUS: Accordingly, since none of these ever appears the same, which of them can a person firmly assert to be 'this something or other' and not something else, without embarrassing himself? It is not possible, and by far the most cautious approach when making assertions about these is to speak as follows: whatever we observe continually becoming in different ways at different times – fire, for instance – we should consistently refer to²⁰ not as 'this' but as 'like this'; and we should not refer to water as 'this' but always as 'such as this'; nor ever refer to anything else as something possessing fixity by using the terms 'this' and 'that' and presume that we are pointing to anything. For they take flight and do not wait for the 'this' and the 'that' and the 'thereby', and whatever expressions indicate that they are constant. So we should not use these terms about them, but in relation to each of them, and all of them together, we should describe them as 'such as this, ever recurring alike'. And, indeed, we should call fire that which is such as this throughout, and so for all things that involve coming into being. But we should refer only to that in which each of these makes its appearance and into which each dissolves again thereafter, by using the terms 'this' and 'that'. However, anything with some sort of quality, be it hot or white, or any of the opposites, or anything derived from these, should be referred to by none of these terms.

TIMAEUS: But I must make an effort to explain this anew even more clearly. Indeed, if someone, having moulded all manner of shapes out of gold, were to keep on remoulding each shape into all the others without stopping, and someone were to point to one of them and ask what it is in truth, the safest answer is gold. But the triangle, and all the other shapes arising in it, we should never refer to as 'these' as if they were things that are, for they change even as we make the assertion. Rather, we should be content if they deign to accept the cautious designation 'such as this'. Then we must also give the same account of the nature of the recipient of all these bodies; we must assert that it is always the same, since it never departs at all from its own capacity. For it is always receiving everything, but it never adopts a shape similar to the things which enter into it in any way at all. There it lies, the natural recipient of all impressions, moved and shaped by the things that enter it, seeming to change from time to time because of these. What enters it and leaves it are imitations of the things that are always, modelled upon them in some manner which is

hard to describe and extraordinary, which we shall deal with on another occasion.

TIMAEUS: Leaving that aside, we must now conceive of three kinds: that which comes into being; that in which it comes into being; and the original, in the likeness of which that which comes into being grows. What's more, it is appropriate to liken the recipient to a mother, the original to a father, and the nature arising between these to an offspring. And we must also understand that if the recipient of impressions is to display all the varieties of embellishment, this entity in which the impressions will be set would need to be well prepared, and this will not occur unless it is devoid of all of those characteristics which it is about to receive from elsewhere. For if it were similar to anything that entered it, then whenever something of an opposite or completely different nature entered and was received, the receptacle would present a bad likeness as its own feature would intrude. Therefore, that which receives all forms into itself must also be devoid of all qualities, just as skilled perfumers contrive firstly to do just this, making the oil which will receive the scents as odourless as possible. And whoever turns his hand to moulding shapes in some soft material allows no shape at all to be present beforehand, but they even it out first, and render it as smooth as possible. In the same way, it is fitting that whatever will continually, throughout its entire self, receive the likenesses of all that is known by nous, and is always, should also be naturally devoid of all forms. So, then, the mother and receptacle of what is generated, visible and in every respect perceptible, should not be called earth or air or fire or water, or anything that they produce or that from which they arise. Yet, we shall not deceive ourselves if we say it is an invisible and shapeless form, all-receiving, participating in a most baffling way in that which can be known by nous, and hard to understand. Insofar as it is possible to arrive at its nature from our previous deliberations, it would be most correct to describe it as follows: the part that has become fiery appears at the same time as fire, the moistened part as water, and as earth and air also, to the extent that it receives imitations of these.

TIMAEUS: And yet, we must investigate this further through argument by making distinctions about these. Is there such a thing as fire just by itself, and everything that we constantly refer to in this way, each as things in themselves?

Or is it only what we look at, and anything else we perceive through the body, that possesses this sort of truth, and is there nothing else besides these in any sense whatsoever? And do we speak idly every time we declare that there is a form of each, discernible by nous? Is this, in the end, nothing but a word? Now, it would be appropriate neither to dismiss the present issue by asserting that this is how matters stand without any deliberation or judgement, nor should we insert another lengthy, secondary topic into an already lengthy discourse. Yet, if it proved possible to make a significant distinction quite briefly, that would be most appropriate to our purpose. So, I cast my own vote as follows: if nous and true opinion indeed represent two kinds, then, definitively, there are these forms, just by themselves, incapable of being perceived by our senses, known by nous alone. However, if, as it appears to some, true opinion does not differ at all from nous, then by contrast, everything that we perceive by means of the body must be designated as most certain. Well, we must declare that these are two, because they have arisen independently and have dissimilar characteristics. One of them is engendered through instruction, the other through persuasion; one always arises along with a true account, while the other is devoid of an account; and one is unmoved by persuasion, while the other is amenable to persuasion. Indeed, all men may be said to partake of opinion, but only the gods and some small class of humanity partake of nous.

TIMAEUS: Since this is how matters stand, we must agree that the form which is always the same is one, ungenerated, undecaying, neither receiving anything into itself from anywhere else, nor entering into anything else anywhere, invisible and imperceptible. Nous has been assigned the task of investigating this. The second bears the same name as that and is similar thereto – perceptible, generated, constantly being moved, coming into being in some location, then perishing out of that place once more. It is apprehended by opinion accompanied by sense perception. The third kind is space, which is always, not accepting destruction, providing a basis for everything that comes into being, itself apprehended without involving the senses by some spurious reasoning difficult to believe in. This, indeed, we look towards and we engage in dreams, declaring that whatever is must presumably be in some location and occupy some space, and whatever is not, somehow

either on Earth or in Heaven, is nothing. On account of this dreaming, we become unable, on awakening, to make these distinctions and others akin to them, even in relation to the unsleeping and truly subsisting nature, and to state the truth that in the case of an image, since it does not itself even possess the very thing it has been fashioned after, but always bears an appearance belonging to something else, it is appropriate for these reasons that it come into being in something different, clinging onto being in some way or other lest it be absolutely nothing. However, in support of what actually is, the precise and true account states that as long as one thing is different from another, neither can ever come into being in the other so that they simultaneously become one and the same, and two.

TIMAEUS: So let this concisely argued account be the one that receives my vote. There is being, space and becoming, these three, even before the Heaven comes into being. And yet the nurse of becoming, rendered watery and fiery, and receiving the forms of earth and air and adopting whatever other characteristics are a consequence of these, presents a variegated appearance. And because of being filled with powers that are neither similar nor equally balanced, no part of it is equally balanced. Rather, being swayed irregularly in all directions, it is shaken by those powers, and, as it moves, it in turn shakes them once more. And as they move, borne continually in one direction or another, they are separated, just like materials shaken and sifted by sieves and instruments for purifying grain; the dense and heavy components go one way, while the loose and light components are carried to a different place and settle there. The four kinds were then shaken in this way by the receptacle, itself moving like an instrument for shaking, separating the most dissimilar as far apart as possible from one another, while forcing the most similar together into the same place. And so it was that these different kinds each occupied a distinct space, even before the Universe organised from them had come into being. Indeed, prior to this they all behaved in an irrational and unmeasured manner. However, when the Universe was brought to order, fire, water, earth and air did possess some traces of themselves, and yet they were entirely in the sort of state that anything is likely to be in when god is absent from it. Such being their nature at the time, the god first gave them a structure by means of forms and numbers. Let this, above all, be our constant assertion: the god

constructed them to be as beautiful and excellent as possible, but this was not their previous condition. But now I must attempt to show you the structure of each of them, and their origin, by means of an unfamiliar account. And yet, since you have been involved in the courses of education that I must draw upon to demonstrate my assertion, you will follow me.

TIMAEUS: Now, in the first place, fire and earth, water and air are bodies, as is obvious to everyone I presume, and the form of every body also possesses depth. And it is absolutely necessary that depth, in turn, be contained by a flat surface, and any straight-sided flat surface is constructed from triangles. All triangles originate from two triangles, each of which possesses a single right angle while the others are acute. One of them has half a right angle on either side, divided by equal sides, while in the other case the portions of the right angle are unequal, apportioned by unequal sides.²¹ So, proceeding on the basis of the likely account, accompanied by necessity, we propose this as the origin of fire and the other bodies, but any origins still higher than these god knows, and so do any men who are dear to him. So we need to state what the most beautiful bodies would be, four in number, dissimilar to one another, and yet capable of arising from one another in some cases when they are broken apart. For once we accomplish this, we are in possession of the truth concerning the generation of earth and fire and whatever lies between them in a proportion. Indeed, we shall not concede to anyone that there are visible bodies more beautiful than these anywhere, each based upon a single kind.

TIMAEUS: So we must be eager to construct the four types of bodies that excel in beauty, and to declare that we have sufficiently understood their nature. In the case of the pair of triangles, there is only one type of isosceles triangle but an unlimited number of scalenes. Therefore, we must proceed to select the most beautiful from this unlimited number if we intend to begin methodically. Yet if anyone can declare that he has chosen something more beautiful for the construction of these bodies, he will be victorious, not as an enemy but as a friend. And so, passing over the others, we propose one of the numerous triangles as the most beautiful, the one from which the equilateral triangle is constructed as a third. The explanation for this is a longer story, but if anyone refutes this and discovers that it is not the case, the prize is his, as a friend.

TIMAEUS: So we shall select two triangles from which the bodies of fire and of the others have been devised. One is the isosceles, while the other has a long side that is always triple the short side when they are squared. However, something stated earlier in an imprecise manner should now be made more definite, for when it appeared that the four kinds all underwent generation from one another and into one another, the appearances were incorrect. The four kinds do indeed arise from the triangles we selected, and while three are constructed from the one that has unequal sides, the fourth one alone is constructed from the isosceles. So it is not possible for them all to be generated from one another when they are broken apart so that a few large kinds are produced from numerous smaller kinds and vice versa. Only three of them can do this because they arise naturally from a single triangle, and, by breaking up the larger bodies, numerous smaller bodies can be formed from the same triangles as the bodies take on the shapes appropriate to themselves. Then again, the small bodies, when dispersed into their constituent triangles, would give rise to another large single form once they constitute a single number belonging to a single volume.

TIMAEUS: Now, that is enough said about their generation from one another. Next, we should explain what the form of each of them is like and the numbers that come together to constitute it. Now, we begin with the construction of the first and smallest form. Its element of composition is the triangle having its hypotenuse double the shortest side in length. If a pair of such triangles is placed along a diagonal, and this is done three times, with the diagonals and the short sides fixed to the same point as though it were a centre, then from these, six in number, a single equilateral triangle is produced. And when four equilateral triangles are combined based on three flat angles coming together, a single solid angle is produced, the one that comes next after the most obtuse of flat angles.²² And when four such solid angles have been completed, the first solid form that apportions the entire surface of a sphere into equal and similar parts is constructed.²³

TIMAEUS: The second is composed of the same triangles but arranged into eight equilateral triangles which produce a single solid angle from four flat angles, and when six solid angles like this have been generated, the second solid form is, in turn, brought to completion. The third is composed of one

hundred and twenty of the elemental triangles combined together. It has twelve solid angles, each bounded by five flat equilateral triangles, and twenty faces consisting of equilateral triangles. Now, this elemental triangle was released from duty once it had produced these three forms, and the isosceles triangle then produced the fourth kind when it was assembled in groups of four, with their right angles joining at the centre to form a single equilateral quadrangle.²⁴ And six such surfaces when brought together produced eight solid angles, each consisting of three flat right angles, and the shape of the assembled body was the cube with its six flat equilateral quadrangular faces. One construction still remained, the fifth, and God used this in order to embroider shapes upon the Universe.²⁵

TIMAEUS: Now, suppose someone considering all this with due measure were to become perplexed over whether we should say there are an unlimited number of universes or that there is some limit. He would regard the opinion that the number is unlimited as belonging to someone who is actually inexperienced on issues about which he should be experienced, but, on the other hand, the question of whether it is in truth ever appropriate to say that there is naturally one universe or five, if he were to stop there, would provide more reasonable grounds for perplexity. Now, our approach, based upon the likely account, reveals that it is by nature a single god, but someone else, in view of some other considerations, may form different opinions.

TIMAEUS: Now, we should dismiss this fellow and allocate the four types that have been generated to fire, earth, water and air. So let's assign the cubic form to earth, since earth is the most immobile of the four types and it is the most malleable of bodies, so it is especially necessary that this be the sort that has the most stable bases. And of the two triangles we proposed at the outset, a base made from the one with equal sides is naturally more stable than a base made from the one with unequal sides; and in the case of the equal-sided surfaces constructed from either triangle, the square is necessarily more resistant to motion than the equilateral triangle, both as a whole and according to its parts. Therefore, we shall preserve the likely account by assigning this form to earth, and of those that remain the hardest to move is assigned to water, the easiest to move to fire, and the intermediate kind to air. Again, the smallest body is assigned to fire, the largest to water, and the intermediate to

air; and the sharpest again to fire, the second sharpest to air, and the third sharpest to water. Now, in all these cases, the one that has the fewest bases is necessarily the most mobile by nature, since it is the most incisive and the sharpest of them all in every respect, and also the lightest since it is composed of the fewest identical parts. The second lies in second place based on these same factors, while the third lies in third place.

TIMAEUS: So, in accordance with the correct and likely account, let the solid form that constitutes a pyramid be the element and seed of fire, and we may say that the second in order of generation belongs to air, and the third to water. Now, we need to realise that these are all so small that an individual particular of each kind is invisible to us due to its extreme smallness, and yet, when a large number are aggregated together, their bulks are visible. As for the proportions associated with their multiplicity, movements, and their other capacities, insofar as the nature of Necessity allowed under willing persuasion, we must realise that God fitted them together entirely in due proportion once he had precisely perfected them in this comprehensive manner.

TIMAEUS: Now, from all that we have said earlier about the kinds, they would be most likely to behave as follows. Earth, on encountering fire and being broken apart by its sharpness – regardless of whether it is in fire itself when it gets broken up, or in a mass of air or water – would travel along until such time as it somehow meets up with its own parts, which, once fitted together with themselves, become earth again, for they could never have adopted any other form. Water, when broken apart either by fire or air, is capable of combining to constitute one body of fire and two of air, while the components of air, when a single portion is broken up, would become two bodies of fire. And again, when a little fire is surrounded by a lot of air or water, or even by some earth, and is in motion within them, does battle, gets defeated and is shattered, two bodies of fire combine into a single figure of air. And if air is defeated and broken in pieces, one whole figure of water will be compounded from two and a half of air.

TIMAEUS: In fact, we may consider them again as follows. Whenever one of the other types is surrounded by fire and is cut by its sharp corners and edges, it stops being cut once it recombines into the nature of fire. For in each case, a

kind that is the same and similar is unable to effect any change in or be affected by anything that is the same as itself and has similar characteristics. However, as long as it transforms into something else, as a lesser contesting against a stronger, its dissolution is unceasing. And furthermore, whenever a few smaller units, being surrounded by many that are larger, are broken apart and quenched, then, if they recombine and adopt the form of the dominant units, their quenching ceases and air arises from fire, or water from air. But if, as they are going in this direction, one of the other kinds comes upon them and attacks them, there is no end to their dissolution until they are either completely broken up by the pressure and take flight towards their kindred, or they are overcome, and out of the multiplicity constitute a unit like unto their conqueror and abide thereafter as its neighbour. And, indeed, during these processes they all exchange their locations, for although the vast bulk of each kind is set apart in its own place because of the motion of the receptacle, those that are in the process of becoming unlike themselves, but like others, are borne by the shaking towards the place belonging to the kinds they are becoming like.

TIMAEUS: Now, it is through such causes as these that the unmixed and primary bodies have arisen, and yet the different types that exist within the forms of these four must be attributed to the construction of the two elementals. This initially produced a triangle in each case that was not of one size only; rather, some were smaller, some larger, and the number of different sizes corresponded to the number of different types among the four kinds. And so, as they combine with themselves and one another, their diversity is unlimited, a diversity that must be contemplated by anyone who intends to have recourse to the likely account in relation to natural phenomena.

TIMAEUS: Now, if there is not some agreement on the origin of motion and rest and the manner in which they arise, our subsequent reasoning would be much impeded. And although something has been said about them already, the following should still be added. Where there is uniformity, motion is never inclined to arise. For it is difficult, impossible really, that there be something moved without that which moves it, or for something to be a mover without something that is moved. In the absence of these there is no movement, yet it is impossible for them ever to be uniform. So, accordingly, we should always

propose that there is rest in uniformity, and motion in non-uniformity. And, furthermore, the cause of the non-uniform nature is inequality.

TIMAEUS: We have, indeed, described the origin of inequality, but we have not said precisely why there is not a cessation of their motion and mutual interchange once each of the four has been separated according to their kinds. We shall resume our account of this topic now. Since the circuit of the Universe encompasses these four kinds, and, being circular, is also inclined by nature to revert towards itself, it compresses them all and tends to allow no empty space to remain. Therefore, fire has indeed penetrated everything else to the greatest extent, air to the second greatest extent since it is by nature second in degree of fineness, and so on for all the others. For those formed from the largest components leave the most empty space in their structure, while the smallest leave the least. So the coming together, or compression, forces the smaller into the spaces in the larger. Now, when the smaller are placed alongside the larger and the lesser split the greater apart, or the larger force the lesser to combine, they are all borne in one direction or another towards their own locations, for as each changes in size, it also changes the position of the location that belongs to it. In this way, and on account of all this, the generation of non-uniformity is always preserved, and it continually produces the unceasing alteration of these bodies, now and in the future.

TIMAEUS: As well as this, we need to realise also that numerous types of fire exist, flame for instance, and also that which is emitted by flame which does not burn and yet provides light to the eyes, and also that which remains in the glowing embers when the flame is extinguished. The same goes for air, the brightest is referred to as ether, the murkiest as mist and darkness, and there are other forms without names, generated through the inequality of the triangles. The forms of water are first divided in two, one form of it is liquid, the other liquefiable. Now, the liquid form, because it partakes of the kinds of water that are small and unequal, is readily moved, either just by itself or by something else, due to the non-uniformity and the characteristic associated with its shape. However, the one composed of large and uniform kinds is more immobile than the liquid, and since it is rendered solid by its uniformity, it is heavy. Yet if it is penetrated and broken apart by fire, it loses its uniformity, and once this is undone it is more inclined towards motion, and once it

becomes mobile it is extended out upon the earth under the pressure of the surrounding air. Each of these processes has acquired a name. 'Melting' is the disintegration of the bulk, and 'flowing' is the spreading upon the earth. But when the fire is expelled from there again, it does not emerge into a void; the surrounding air is pressurised, and it compresses the still mobile liquid mass into the positions that belonged to fire, thus mixing it together with itself. And once this is compressed it acquires its uniformity again, and since fire, the artificer of its non-uniformity, has withdrawn, it reverts to sameness with itself. Being quit of fire is termed 'cooling', while the contraction that follows its departure is termed 'being in a solid state'.

TIMAEUS: Now, of all these liquefiable kinds of water, as we have called them, the most dense arises from the finest and most uniform components. It is of one form only, glistening and yellow in colour, a most revered possession – gold, filtered through rock and solidified, while the offspring of gold, which is very hard and black due to its density, is called adamant. The kind whose parts bear the closest resemblance to gold has more forms than one. In density, it is in a way more dense than gold and it contains a small, fine portion of earth, and so it is harder, yet in another way it is lighter since it contains larger interstices within itself. This compound is copper, one form of the bright and solid types of water. But as the two components of the mixture age, they separate from one another again, and the earth that is in the mixture appears on the surface and is called rust.

TIMAEUS: It should no longer be a complex matter to work out the features of the other substances of this kind whilst adhering to the structure of likely stories. In this regard, whenever someone, for the sake of relaxation, laying aside discussions concerning things that always are, gives consideration to likely accounts concerned with becoming, and derives a pleasure he will not later regret, he would be introducing a measured and sensible pastime into his life. So, having indulged in this just now, dealing with the same issues, we shall proceed with the likely accounts that follow this in due order in the following way. Water that is mixed with fire and is fine and liquid is called liquid due to its motion and the course it takes as it rolls along the ground. Now, it is also soft because its bases are yielding, being less stable than those of earth, and whenever it separates off from fire and air, and is on its own, it becomes more

uniform and is compressed into itself by the emerging substances, and it is solidified in this way. When this happens to it well above the earth it is hail, when on the earth it is ice, and when it happens to a lesser extent and it is still half-solidified, it is snow when above the earth, and when it is compacted from dew upon the earth it is called frost.

TIMAEUS: Now, most types of water are mixed with one another, and because this category in general is filtered through the plants of the earth, they are called juices. Although each involves dissimilarity on account of the intermixtures, and while the differences give rise to numerous kinds that are nameless, four types containing fire are particularly evident and these have received names: wine, that can heat the soul as well as the body; an oily sort that is smooth and splits the beam of sight and so appears glittering and bright to behold – resin, castor oil, oil itself and any others with the same capacity. There is one that can relax the passageways of the mouth back to their natural condition, and by this capacity furnishes sweetness; it is generally referred to as honey. The last kind corrodes the flesh by burning; it is a foamy sort secreted from all other juices and it is called sour-juice.

TIMAEUS: As for the forms of earth, that which is filtered through water becomes a strong material in the following manner. Whenever the water that is mixed in with it is broken up in the commingling process, it transforms into the figure of air, and once it has become air it rises up to its own region, but there isn't a void above them, so the air in the vicinity is pressurised. And since it is heavy, it presses down and pours around the mass of earth, squeezes it intensely and compresses it into the positions from which the newly formed air had arisen. And earth, when compressed by air, constitutes stone that is indissoluble in water. The superior kind composed of equal and uniform parts is transparent, while the opposite applies to the inferior kind. The one from which all the moisture has been forced out by the rapid action of fire, and is a more brittle compound than the other, is the kind to which we have given the name 'potters' clay'. And on occasion, when some moisture is left behind and the earth has been melted by fire and then cooled down, the black-coloured substance constitutes [lava] stone. Similarly, there are two more that are extracted from the mixture containing a great deal of water. They are composed of finer particles of earth and are salty, and being semi-solid they are

soluble once more in water. One is soda, which can cleanse us of oil and earth, while the other is salt, which blends well in the interactions associated with sense perception of the mouth, and, according to tradition, is beloved of the gods. The compounds of both earth and water that can be dissolved by fire but not by water are compacted in that way for the following reason. A mass of earth is not broken up by fire or air, since their particles are naturally smaller than the structure of its interstices. So they pass through the considerable open spaces without exertion, leaving the earth undissolved and rendering it indissoluble. However, since the particles of water are naturally larger, they make their way through by force, loosening the earth and breaking it apart. So earth that is not forcibly solidified in this way is dissolved only by water, yet when it has been so solidified, it is dissolved by nothing but fire, for no way is left for anything to enter it except fire.

TIMAEUS: Water, for its part, when compressed with extreme force, is dispersed by fire alone, but if the force of compression is weaker, it is dispersed by both fire and air. Air acts upon the interstices, fire upon the elemental triangles. And when air is forcibly solidified, nothing dissolves it except by acting upon its elemental triangles, and when the solidification is not forceful, only fire can break it apart.

TIMAEUS: In the case of the mixed bodies composed of earth and water, as long as water occupies its interstices and these are forcibly pressed together, the particles of water arriving from outside, having no way of entering, flow around it leaving the entire mass intact. Yet the particles of fire entering the interstices of the water and acting upon it – fire acting on water as water acted upon earth – constitute the sole causes whereby the compound body is broken apart and flows. Some of these, the entire category associated with glass and any stones that we call liquefiable, happen to have less water than earth. Others – all materials that are wax-like or useful as incense – have, for their part, more water.

TIMAEUS: Although the variegated forms originating from the commonalities in the shapes and their transformations into one another have been presented quite well at this stage, we should nevertheless attempt to indicate the causes by which the characteristics they possess have arisen.

Firstly, the characteristics we are discussing throughout must be perceptible, even though the origin of flesh and its accompaniments, and of the mortal part of soul, have not yet been described. In fact, it is not possible for these to be adequately discussed without reference to those characteristics that are amenable to sense perception, or to discuss the characteristics without reference to the senses, while it is nigh impossible to treat of both at the same time. So, we should first make assumptions about one or the other of them, and then return to those assumptions hereafter. So, let us initially make an assumption about whatever is relevant to body and soul, so that, having described the various kinds we may next speak of their qualities.

TIMAEUS: Now, let's first look at why we refer to fire as hot by considering the splitting and cutting we notice it bringing about in our bodies. Indeed, we all perceive that the effect is a piercing one, yet we must deduce the fineness of the edges, the sharpness of the angles, the smallness of the particles and the rapidity of its motion, all of which render it intense and incisive, always cutting acutely into whatever it encounters. We deduce this by remembering the origin of its shape, whereby this substance and no other, by splitting our bodies and cutting them up minutely, is likely to provide the characteristic we now call heat and its name too.²⁶ Although what is opposite to these is obvious, it deserves to be described anyway. Now, when the liquids consisting of larger particles surrounding the body make their way in, they force the smaller particles out, but are unable to settle into the positions thus vacated. They compress the moisture within us, rendering it immobile and solid due to the uniformity and the pressure, whereas it had previously been non-uniform and mobile. But anything that is unnaturally contracted naturally resists the process by pushing back in the opposite direction. This resistance and shaking is called shuddering or shivering, while the entire effect as a whole, and that which brings it about, has the name 'cold'. 'Hard' designates anything to which our flesh yields, while 'soft' designates anything which yields to the flesh, and they are also designated in this way with respect to one another. Whatever rests upon a small base tends to yield, and whatever is constituted of square bases is the most rigid form, since it is established firmly, and anything compressed to an extreme density would also be especially resistant.

TIMAEUS: The nature of heavy and light may be presented most clearly by considering them along with the expressions 'up' and 'down'. Indeed, it is not at all correct to regard the Universe as naturally divided into two distinct opposite regions; 'down' being the one towards which anything with any bodily bulk is borne; 'up' being the direction in which everything moves against its will. For since the entire Heaven has a spherical form, any extremities are situated at an equal distance from the centre, and these by nature must be extremities in the same way, while the centre, being situated at an equal distance from all the extremities, must be regarded as being in the opposite position to all of them. Now, since the world is naturally like this, which of the locations we have described may be designated as 'up' or 'down' without being regarded, quite rightly, as using a name that is not appropriate? For the central location within it is not rightly described as either 'up' or 'down'. No, it is just in the centre, while the periphery is obviously not the centre, nor does any part thereof differ in its relationship to the centre, nor to any of the points on the opposite side. But what sort of opposing names may be applied to something that is similar in every respect, and in what way might it be properly described? Indeed, even if a solid body were equipoised at the centre of the Universe, it would never be borne towards any particular extremity since they are all similar in every respect. No, even if someone were to proceed around it in a circle, repeatedly standing with his feet in opposite situations, he would refer to the same point on it as both 'up' and 'down'. Indeed, as we said just now, the whole is spherical in form, so it is not sensible to describe one location as 'up' and another as 'down'. As for the origin of these names and the actual circumstances to which they apply, by reason of which we are accustomed to refer to the entire Universe by dividing it in this way, these issues we must agree upon by making the following supposition. Suppose someone in the region of the Universe that is assigned predominantly to fire, where most of it gathers and towards which it is borne, were to stand up there and had the ability to take portions of fire, place them on a scale and weigh them, raising the beam and dragging the fire forcibly into the dissimilar region of air, a lesser quantity of fire obviously would be forced more easily than a greater. For if two things are raised aloft by a single effort, the lesser must presumably go along with the force to a greater extent, and the greater to

a lesser extent as it resists the process. So, the large volume is said to be heavy and to be borne downwards, while the small one is said to be light and borne upwards.

TIMAEUS: Well, we need to discover ourselves doing the very same thing in our own region. Indeed, when we stand upon the earth, weighing earthy substances and sometimes earth itself, we are dragging them forcibly and contrary to nature into the dissimilar region of air. In both cases they cling to their own kindred, but the smaller bulk co-operates with the compulsion more easily and is first to follow it into the dissimilar region. Accordingly, we refer to it as 'light', and the region into which we compel it as 'up', and the characteristics opposite to these as 'heavy' and 'down'. Consequently, these must behave differently relative to one another because the vast bulk of the four types occupy regions opposite to one another. Indeed, on comparing what is light in one region with light in the opposite region, heavy with heavy, down with down, and up with up, all sorts of direct or indirect oppositions and differences relative to one another will be discovered, some present, some coming into being. However, there is one factor to be kept in mind in all of these cases. The course towards what is kindred to each renders whatever transverse it, heavy, and the region into which something like this is borne, down. The other terms are applied to those that take the other course. So, let's declare that these are the explanations of those characteristics. As for roughness and smoothness, I presume that anyone would be able to discern their causes and relate them to someone else, for one is produced by hardness combined with non-uniformity, and the other by uniformity combined with density.

TIMAEUS: The most significant remaining issue concerning the experiences shared by the entire body is the cause of the pleasures and the pains in those processes we have already described, and in any cases where sense perceptions acquired through our body parts are also accompanied by pains and pleasures in the parts themselves. Now, we should come to an understanding of the causes of any effect, perceptible or imperceptible, by recollecting the distinction we made earlier between the mobile and the immobile nature. Yes, anything we intend to discover must be pursued in this way. Whenever an impression, even a slight one, is made upon anything that is mobile by nature,

it is transmitted around, one part bringing about the same effect upon the next until it reaches the thinking and proclaims the characteristics of whatever made that impression. While in the opposite case, where the object is unmoving, there is no outward motion, and the object alone is affected without moving anything else in its vicinity, so that the initial impression is not transmitted from one part to another, does not move into the living creature in its entirety, and renders the impression imperceptible. These considerations apply to bone and hair and any other predominantly earthy parts of our bodies, while the previous considerations apply mainly to parts concerned with sight and hearing because of the significant function of fire and air within them.

TIMAEUS: Now, we should think about pleasure and pain as follows. When a sudden, forceful impression contrary to our nature is made upon us, it is painful, while the sudden return once more to the natural condition is pleasant. Any impression that is gentle and gradual is imperceptible, but the opposite goes for the opposite impressions. Anything that happens easily is undoubtedly perceptible, and yet it does not involve pain or pleasure – experiences associated with the beam of sight itself, for instance, which, as we said previously, constitutes a body that coalesces with our own in the daytime. For cuts and burns, and whatever else the beam of light undergoes, do not produce pain or pleasure either when it returns once more to the same configuration. Yet there are significant and detailed sense impressions corresponding to whatever affects it, and to anything that it impinges upon or comes into contact with, for there is no force whatsoever involved in its dispersal or reconstitution. However, bodies composed of larger particles yield with difficulty to whatever acts upon them, transmit the effects throughout their entirety, and involve pleasures and pains; pains when they are being altered from their normal state, pleasures when they are being established once more in their original condition. In cases where they undergo gradual depletion and emptying but the refilling is sudden and extensive, the emptying process is imperceptible and the filling process is perceptible, and this induces no pains in the mortal part of the soul, only enormous pleasures. An obvious example is our experience of pleasant odours. But cases in which they are suddenly altered from their usual condition, and re-established only gradually

and with difficulty in their own original state, bring about outcomes completely opposite to the previous cases. This is evident in circumstances in which the body is cut or burned.

TIMAEUS: Although the experiences common to the body as a whole and any names bestowed upon whatever produces them have been described fairly well, we should still attempt to explain, if we can somehow do so, what happens in various parts of our bodies, the associated effects, and furthermore the causes involved in their production. First, we should clarify as best we can whatever we omitted from our earlier discussion about tastes – namely, the particular experiences that involve the tongue. These experiences appear to originate, as indeed do most others, from certain constrictions and expansions, and, additionally, they rely more than the others upon roughness and smoothness. For any earth particles that enter in around the veins that act like probes for the tongue, extending as far as the heart, fall upon the moist, soft flesh, get dissolved, constrict the veins and dry them up. These appear harsh to us if they are particularly rough, dry if they are less rough. But anything that cleanses these veins, and anything that rinses the region of the tongue, is referred to as bitter when it exceeds the measure of its activity so that it attacks and melts away the substance of the tongue itself. Soda has this sort of effect, while those that are milder than soda and exercise their cleansing effect in due measure appear salty to us and more agreeable in the absence of that bitter roughness. Those which combine with the heat of the mouth and are rendered smooth become inflamed along with it, and in turn burn the very thing that warmed them up. Then, being carried upwards by their lightness towards the sense organs in the head, they cut apart whatever they impinge upon, and because they possess these powers, all such substances are called pungent. Those particles that have become thin through decay sink down into the narrow veins and are duly proportioned to particles of earth and air that are in there already, so that they set them moving around one another and stir them up. Being stirred up, they form an enclosure, and as one kind of particle sinks into another they produce hollows stretched around the particles that enter. So when a hollow of moisture, earthy or pure, is stretched about air, it forms watery vessels of air. Those enveloped by pure water are transparent and are called bubbles, while in cases where the moisture is earthy so that it moves and

rises in a mass, we use the terms foaming and fermentation, and that which causes these experiences is called acid.

TIMAEUS: An effect opposite to all those we have been describing is produced by an opposite cause. Whenever the configuration of the particles entering into liquids has a natural affinity with the normal condition of the tongue, smoothes it out and covers over its roughness, contracts the parts that have been unnaturally dilated, relaxes those that have been unnaturally constricted and settles them all as much as possible into their natural condition, anything of this sort constitutes a pleasant and agreeable remedy for those violent experiences, and is called sweet.

TIMAEUS: Well, that is enough on this topic. Now, in the case of the power that belongs to the nostrils there are no distinct forms, for all of the smells are half-breeds and no single form proves to possess symmetry corresponding to any smell. Rather, the veins within us that are involved in these processes are more narrowly constructed than the kinds of particle belonging to earth and water, and are wider than those of fire and air, so no one has ever perceived a scent from any of these four. No, odour arises from the moistening, decaying, liquefaction or evaporation of substances. Indeed, odours arise at the intermediate stage when water is being transformed into air or air into water, and they are all smoke or mist. The one proceeding from air to water is mist, while the one proceeding from water to air is smoke. Therefore, all odours are less dense than water and yet more dense than air. This is most evident when someone impedes the inward breath and then draws his breath forcibly, for when he does this no accompanying odour whatsoever is filtered through, and the breath alone enters in, devoid of odours. Now, the varieties of scents fall into two categories which are without names, and consist neither of numerous forms nor of a simple few. Rather, we should speak only of an immediate, distinct, twofold division into the pleasant and the painful: one roughens and does violence to the entire vessel that lies between our navel and the top of our head, while the other soothes this same region and lovingly restores it once more to its natural condition.

TIMAEUS: The third part of sense perception within us, the one concerned with hearing, should be investigated, and the causes of the experiences

associated therewith should be stated. Now, we may propose, in general, that sound is an impact transmitted by the air through the ears, brain and blood as far as the soul, and that hearing is the motion produced by this, a motion beginning in the head and ending in the region around the liver. If the motion is rapid the sound is high-pitched, if slow it is low-pitched, if it is uniform the sound is even and smooth, and in the opposite case it is harsh. If the motion is extensive, the sound is loud, and in the opposite case it is faint. However, the factors involved in the concord of sound must be dealt with in later deliberations.

TIMAEUS: Well, there remains a fourth kind of sense perception, and it is necessary to subdivide this since enormous variations are included within it, which we refer to collectively as colour, a flame emanating from bodies, having particles proportionate to the beam of sight so as to bring about perception. And in the earlier accounts the causes that generated the visual beam were simply stated. Therefore, it would be most reasonable and appropriate to present a suitable account dealing with colours as follows. Particles borne from the various objects and impinging upon the beam of sight may be smaller, larger, or indeed equal in size to the particles belonging to the visual beam itself. Now, those that are equal in size are imperceptible, and, indeed, we say they are transparent. The larger and the smaller constrict the beam in one case, and disperse it in the other, and these are related to the particles that warm and cool the flesh, the astringent ones associated with the tongue, and those we referred to as pungent due to their warming effect. White and black constitute identical experiences to these, but in a different medium, and for these reasons the phenomena appear different. Therefore, they should be referred to accordingly – that which disperses the beam of sight is white, and its opposite is black. And when the more rapid motion belonging to a different kind of fire impinges upon the beam of sight and disperses it right up to the eyes, forcibly compressing and cutting the very passageways of the eyes themselves, it causes a volume of fire and water, which we call a tear, to pour out of them. This more acute motion, being itself fire, encounters fire coming from the opposite direction which leaps out as if coming from a flash of lightning, while the incoming fire is being extinguished in the moisture, and in this turmoil a whole variety of colours is generated. We refer to the effect as

dazzling, and we call whatever brings this about bright and glistening.

TIMAEUS: The kind of fire that is intermediate between these other two is not glistening, despite reaching the moisture of the eyes and mixing with it, and the beam of fire shining through the moisture with which it is mixed produces a blood colour that we call red. Bright mixed with red and white becomes orange, but it would not be sensible to state the extent of the measure involved in these, even if we knew it, since we would not be even moderately capable of proposing any necessity or any likely account thereof. And yet, red mixed with black and white is purple, or it is violet whenever these components are burned and more black is mixed in with them. Orange arises from a mixture of yellow and grey, while grey comes from white and black, and ochre from white mixed with yellow. White mixed with bright and steeped in an intense black produces a dark blue colour, and dark blue mixed with white is light blue, while orange mixed with black is green. As for the other colours, it is fairly obvious from these examples what mixtures they should be attributed to if we are to preserve our likely account. Yet if someone were to put these matters to the test through practical investigation, he would be acting in ignorance of the distinction between human and divine nature. God has sufficient knowledge and power to combine the many into one, and then again, to separate the one into many, but no human being is now, or ever shall be, adequate to either of these undertakings.

TIMAEUS: So, at this stage, all these have developed in this way out of necessity. The artificer of the most beautiful and best of whatever comes into being took these over when he was bringing the self-sufficient and perfect god to birth, employing the causes associated with these as subservient, while he himself fashioned the good in whatever comes into being. Therefore, we should distinguish two kinds of cause, one necessary, the other divine, and we should seek the divine in all things for the sake of attaining a life that is as happy as our nature will admit. And we should seek the necessary for the sake of the divine, reckoning that without these necessities, those divine objects, our serious concern, are incapable of being discerned on their own, nor can they be apprehended or shared in at all.

TIMAEUS: Now that the two kinds of cause have been duly separated and lie before us like materials for a carpenter, we must weave the remaining account together from these two. Let's briefly go back again to the beginning, proceed quickly from there to the stage we have just arrived at, and attempt to give a conclusion to our story at that stage, a crown befitting all that has gone before. Indeed, just as we said at the outset, these were all in a disorderly state when the god engendered symmetry in each of them, each in relation to itself and all in relation to one another, to the extent that, and in the manner that, it was possible for them to be proportionate and symmetrical. For at that time nothing had a share in these proportions save by chance, and there was nothing at all worthy of being called by the names we now use, such as fire or water or any of the others. Rather, he first set all of these in order, then constructed this Universe from them, a single living being containing within itself all living beings, both mortal and immortal. He himself became the artificer of the divine beings and he commanded his own offspring to undertake the creation of the mortals. And they, imitating their father, received the immortal beginning of soul, then fashioned a mortal body in a globe around it and bestowed the entire body as its vehicle, and also built another form of soul in the body – the mortal form. This contains fearsome, necessary experiences within itself; first, there are pleasures, the greatest lure to evil; then, there are pains, taking flight from the good; there is also rashness, and fear, two unintelligent advisers; anger that is so hard to appease; and hope, so easily led astray. Mixing these together with irrational sense perception, and a love that will turn its hand to anything, they compounded the mortal kind of soul in a necessary manner. And fearing that these might pollute the divine part, unless this was absolutely unavoidable, they housed the mortal part of soul separately from that in a different dwelling place in the body, by constructing an isthmus and a boundary between the head and the chest, the neck, which they put in place so as to keep them separated.

TIMAEUS: Then they fastened the mortal kind of soul within the chest, or thorax as we call it, and since one part of this is naturally better and another part worse, they built the vessel of the thorax, making a division therein as if they were separating the men's quarters from the women's by placing the midriff as a barrier between the two. Then they housed the part of the soul

that partakes of courage and spirit, the part that is fond of victory, closer to the head between the midriff and the neck, so that it could hearken to reason, and share with it the task of forcibly restraining the tribe of desires on occasions when they would not willingly consent in any way to obey the injunction of reason issuing from the Acropolis. So, in the sentry house they situated the heart, a knot of veins and a fountain for the blood that is borne relentlessly through all the limbs. Consequently, whenever the force of spirit boils up because reason proclaims that some unjust action is affecting them from the outside, or even from the internal desires, every sensible part of the body rapidly becomes aware of the exhortations and threats communicated through all the narrow veins, heeds them and follows them unreservedly, and, accordingly, the very best part is allowed to rule among them all.

TIMAEUS: Considering the pounding of the heart, due to expectation of terrors or the awakening of spirit, and anticipating that this sort of swelling of the spirited parts was going to arise through fire, they devised a protection for the heart by implanting the structure of the lung. First and foremost this is soft and bloodless, and it also has cavities bored through it like a sponge so that it may receive air and liquid, have a cooling effect, and provide respite and ease amid the burning heat. Accordingly, they cut the channels of the windpipe as far as the lungs, and wrapped the lungs around the heart like a buffer so that when spirit bursts forth within the heart, it would pound against something yielding and be relieved, and being less troubled it would be more able to join with spirit in the service of reason.

TIMAEUS: As for the part of the soul that is desirous of food and drink, and whatever else is held to be lacking on account of the nature of the body, that part they housed in between the midriff and the boundary near the navel, occupying the entire region, building there a sort of feeding trough for the nourishment of the body. And there they tethered this part, like a conjoined wild beast that needed to be nourished if there was ever going to be a mortal race. So they allocated this location to it so that, grazing constantly at the feeding trough, housed as far away as possible from the part that deliberates, producing the least possible commotion and noise, it would allow the supreme part to deliberate in peace about what best serves the individual and the entire community. And they realised that it was not going to understand

reason, and even if it were somehow to attain some appreciation thereof, it would not be in its nature to be concerned about any words, but would be utterly enchanted night and day by images and phantoms. God, seeking to exploit this particular weakness, assembled the structure of the liver and placed it in that very dwelling place, arranging that it be dense, smooth and bright, possessing both sweetness and bitterness. It was intended that the power belonging to the concepts emanating from nous, moving in the liver as if in a mirror that receives impressions and produces visible images, would strike fear into the appetitive part. So, whenever this power makes use of a kindred portion of the liver's bitterness, bears down upon it strongly and threateningly, and rapidly spreads the bitterness over the entire liver, it projects bilious colours, contracts it and makes it all shrivelled and rough. What's more, it also bends the lobe of the liver from its proper state, constricts it, blocks and closes its ducts and apertures, and brings about pain and nausea. And yet, when some breath of gentleness emanating from mind paints pictures of an opposite sort, it provides respite from the bitterness by refusing to set in motion or even to touch the nature that is opposite to itself. Then, making use of the very sweetness that is natural to the liver, it restores all its parts to their proper, smooth and free condition, and renders the part of the soul housed in the region of the liver kind and gentle, spending the hours of night in due measure by having recourse to prophecy whilst sleeping, since it does not have a share in reason or intelligence.

TIMAEUS: Indeed, those who fashioned us, remembering the injunction of their father when he directed them to make the mortal race as excellent as possible, even corrected the degenerate part of us in this way by establishing the prophetic power in the liver so that it would have some contact with truth. And there is sufficient indication that God has bestowed prophecy upon unintelligent humanity from the fact that no one in possession of nous attains to God-inspired true prophecy, but only someone whose power of intelligence is fettered in sleep or who is disturbed by disease or some frenzy. Rather, it is the role of the intelligent person to recollect and reflect upon the utterances from the prophetic or frenzied state, waking or dreaming, and upon any visions that were seen, and to decide by reasoning how and for whom these all indicate some present, past or future good or evil. However, it is not a task for

the person who still remains in the prophetic state to judge the visions and utterances originating from himself. No, it has been well stated of old that it belongs only to the sound-minded person to know himself and do what is his own. Hence, it is the custom to set a group of interpreters as judges over the God-inspired prophecies, interpreters whom some refer to as prophets in their own right, being totally unaware that these people are interpreters of the enigmatic utterances or visions, and may not rightly be called prophets, but interpreters of those who engage in prophecy.

TIMAEUS: So then, it is for the sake of prophecy that the liver has a nature of this sort and is located in the place we have described, and, while each creature is still alive, such an organ as this retains more vivid indications, but when deprived of life it becomes blind and its prophecies are too obscure to indicate anything definite. Furthermore, it is for the sake of the liver, in order to keep it always bright and clean, that the organ next to it has the composition it has and is positioned to the left, like a cloth supplied for a mirror, always lying ready by its side. So, whenever any impurities arise in the region of the liver due to bodily diseases, they are all purified and absorbed by the loose texture of the spleen, since its fabric is porous and devoid of blood. Accordingly, as it fills up with impurities, it waxes large and it festers, but then again, once the body has been purified, it reduces in size and subsides to its former condition.

TIMAEUS: As for the soul, the extent to which it is mortal and the extent to which it is divine, and how, in what company, and for what reasons these two parts are housed separately, we could only ever insist that what we have asserted is true if God were to confirm it. But we should dare to assert, even at this stage, that what has been said is likely, and will prove more so on further investigation, so let that be our statement. Well, the topic that follows from these should be pursued on the same basis. This concerns the manner in which the rest of the body came into being. It would be most appropriate to attribute its construction to reasoning of the following sort. The race of gods who framed us knew that we would show a lack of restraint with regard to food and drink, and would consume them greedily beyond due measure or necessity. So, to prevent our rapid destruction through diseases, and avoid the immediate demise of the still immature race of mortals, they anticipated these problems and put in place the receptacle we call the abdomen to retain the

excess food and drink. They twisted the structure of the entrails around inside this so that food would not pass through so rapidly that it would immediately compel the body to need food once again, thus producing insatiable desire and rendering our entire race unphilosophic and uncultured due to gluttony, heedless of our most divine part.

TIMAEUS: In relation to bones, flesh and any substances of this sort, the following account applies. The origin of all these is the production of marrow, for whilst the soul is conjoined with the body, the bonds of life, bound fast in marrow, are the secure roots of the mortal race. And yet the marrow itself has come into being from other materials. For the god separated out those primary triangles that were unwarped and smooth and best able to produce fire, water, air and earth in a precise manner, and set each of these apart from their own kinds. Having mixed these with one another in due proportion, he devised a universal seed-mixture for the entire mortal race by fashioning marrow from them, and after that he planted therein the various kinds of soul and bound them fast. In his initial allocation, he divided the marrow immediately into shapes corresponding in number and type to the shapes that were to belong to the particular forms of soul. He moulded into a complete sphere the portion of marrow that was about to receive the divine seed into itself, as if it were ploughed land, and this he called the brain, implying that the head²⁷ was going to become the container for the brain once the construction of each living creature had been completed. Furthermore, he divided the portion of marrow that was to retain the remaining part of soul, the mortal part, into shapes that were both round and elongated at the same time, and yet he referred to them all as marrow. He also cast out fetters of the entire soul from these as if they were being thrown from anchors, and then fashioned all of this body of ours around the marrow after he had constructed a complete covering of bone to surround it.

TIMAEUS: He constructed bone as follows. He sifted out earth that was pure and smooth, kneaded it, soaked it in marrow, then placed it in fire, and after that he plunged it into water, again into fire, and then into water once more. So, by constantly transferring it in this way from one medium to the other, it was rendered indissoluble by either of them. Making use of this, he turned a sphere of bone around the brain of the creature and he left a narrow opening

in the sphere. He also moulded vertebrae out of bone to surround the marrow that runs through the neck and down the spine, arranging them vertically like pivots beginning from the head and running down the whole trunk. And so they preserved the entire seed by fencing it about with a stone-like enclosure, creating joints and making use of the quality of difference within these as an intermediate power, introduced for the sake of motion and flexibility.

TIMAEUS: Furthermore, he recognised the tendency of the bony material to be more brittle and inflexible than it should be, prone to become inflamed and then cool down again, thus developing gangrene and bringing rapid destruction to the seed within. On account of these tendencies, he devised the sinews and the flesh so that sinews would bind all the limbs together and would enable the body to bend and stretch by contracting and relaxing about the pivots, while the flesh was to be a barrier against heat and a protection against cold, and against falls too, because it would yield softly and gently to objects, just like garments of felt. It also contains warm moisture within itself that breaks out in sweat, providing a coolness of its own to the entire body by moistening it on the outside in the summer. Then again, in winter it uses this same fire to provide a measure of defence against the onslaught of the prevailing frost that surrounds it. Bearing this in mind, he who shaped us mixed water, fire and earth together, harmonised them, and compounded a ferment from acid and brine which he added to the mix, thus producing soft, succulent flesh. And he compounded the sinews from a blend of bone and unfermented flesh, a single substance with qualities intermediate between the two, to which he added a yellow colour. Hence, the sinews acquired the quality of being tighter and tougher than flesh but softer and more moist than bone. The god enclosed the bones and the marrow within these sinews, used them to bind the bones together, and then placed a covering of flesh over them all.

TIMAEUS: Now, whatever bones were most possessed of soul he fenced about with the least amount of flesh, while those that had least soul received most flesh, and that was extremely dense. And, indeed, he caused very little flesh to grow at the joining of the bones unless reason indicated some necessity that it be there. This was to prevent flesh from acting as an impediment to the bending of the joints, thus making the body stiff and hard to move.

Furthermore, lots of dense and extremely compressed flesh would be so hard that it would make perception difficult and render the mental faculties unretentive and dull. Because of this, the thighs and shins are fully endowed with flesh, and so is the area around the hips and the region of the upper arms and forearms, any other unjointed parts of our bodies, and any internal bones that are deficient in intelligence due to the paucity of soul in their marrow. The parts possessing intelligence are less endowed, except when he somehow fashioned flesh just for the sake of perception itself, like the structure of the tongue, but in most cases it is as I have said. Indeed, the nature that arises from necessity and develops along with it does not in any way allow dense bone and lots of flesh to be simultaneous with keen sense perception. For if these two qualities were actually willing to occur simultaneously, it would be best of all for the structure of the head to possess them, so that the human race, bearing upon itself a fleshy, sinewy and strong head, could attain a life twice or many times as long as the present one, healthier too, and more free from pain.

TIMAEUS: But it so happened that the artificers responsible for bringing us into existence, deliberating on whether they should produce a long-lived inferior race or a short-lived superior race, decided that the shorter, better life should be chosen unreservedly for everyone, in preference to the longer and inferior life. Accordingly, they covered the head completely with thin bones, but not with flesh or with sinews either, since it does not possess any joints. So, based on all these considerations, a more perceptive, more intelligent, but much weaker head was placed upon the body of every person. For these reasons, the god situated the sinews at the base of the head in a circle around the neck and glued them on by means of uniformity, and to these he attached the extremities of the jaws under the structure of the face. The rest of the sinews he distributed among all of the limbs, connecting them together joint by joint. And indeed, those who brought order to the features of our mouth arranged it as it now is, fitting it with teeth, a tongue and lips for the sake of all that is necessary and all that is most exalted, thus devising an inward passage with a view to the necessary, and outward passage with a view to the most exalted. Indeed, all that passes in bringing nourishment to the body is necessary, while the stream of words flowing outwards in the service of understanding is the most beautiful and exalted of all streams.

TIMAEUS: Furthermore, due to the excesses of the various seasons, it was not possible to leave the head only as bare bone, or, on the other hand, to let it become dull and unperceptive because it was overborne by a mass of flesh. So, from the fleshy material that was not dried up, an excessively loose film was separated out which we now refer to as skin. Because of the moisture around the brain, this skin combined with itself, grew in a circle and completely enveloped the head. Then the moisture emerging from the sutures watered it and closed it in at the crown, drawing it all together into a kind of knot, and the structure of these sutures became variegated due to the effect of the inner orbits and of the nutriment; the greater the conflict between the two orbits, the more sutures there were, the lesser the conflict, the fewer the sutures.

TIMAEUS: Now, the divine part²⁸ pierced this skin all around, and once it had been perforated, any pure moisture and pure heat in the liquid that emerged from it evaporated, while the mixed substance that the skin was also made from rose up on account of the movement, and stretched out at some length. It was as fine as the tiny piercings, yet because it was slow moving it was pushed back under the skin again by the external air that surrounded it, coiled around itself, and took root. So the hair grew on the skin due to these effects, kindred thereto because it was fibrous, yet harder and more dense due to the solidification that derived from the cooling process which cooled and compressed each hair as it separated from the skin. With this, our maker made the head woolly by making use of the factors we have described, intending that hair, rather than flesh, should be the cover for the area around the brain to ensure its safety, still providing sufficient shade in summer and shelter in winter without becoming an impediment that would prevent proper perception.

TIMAEUS: From the combination of sinew, skin and bone, dried out to form a single substance from all three, a hard skin developed, twined around the end of the fingers. Although it was produced by these three subsidiary causes, it was wrought nevertheless by an ultimate intentional cause with a view to subsequent generations, for those who framed us knew that at some stage women and the beasts would arise from men, and they also understood that many of the animals would require the use of claws or talons for numerous purposes. Therefore, as soon as humans came into existence, they gave them

traces of the structure of claws. So, based on this reasoning, and with these motives, they caused skin, hair and nails to grow at the extremities of the limbs.

TIMAEUS: Once all the parts and limbs of the mortal creature had developed into a natural unity, and it proved necessary for such creatures to spend their lives exposed to wind and fire, be wasted and depleted by these and perish as a result, the gods devised a means of helping them. By mixing various characteristics and kinds of perception, they brought about the development of a nature akin to human nature, a living being of a different sort. These are the domesticated trees, plants and seeds that have been trained by husbandry into the cultivated forms that we possess. Before that, there were only the uncultivated forms which are older than our cultivated varieties. Indeed, anything that partakes of life may justifiably and correctly be described as a living being,²⁹ yet that which we are speaking of now partakes of the third form of soul, the form that our account situated between the midriff and the navel, the form that has no involvement with opinion, reasoning or nous, but only with pleasant and painful sensations and their accompanying desires. For it is always completely passive, and its origin has not given it the natural ability to reflect upon and discern any aspects of itself by turning inwards, being concerned with itself, shunning external motion and having recourse to its own motion. So it is alive, and although it is a living creature it is stationary, rooted to the spot, stuck because it is bereft of motion of its own.

TIMAEUS: Now, once the superior beings had caused everything of this sort to grow as nutriment for us lesser creatures, they made conduits through the body itself, as if they were cutting channels in gardens, so that it would be watered by a sort of incoming stream. In the first place, seeing that the body has a twofold structure with a left side and right side, they cut two veins along the back to act as channels hidden beneath the conjunction of the skin with the flesh. They also brought these down along the spine, enclosing the reproductive marrow between them so that this would flourish to the greatest extent possible, and so that the influx of liquid that flowed so easily from there because of the downward course would provide uniform irrigation to the other regions. Then, having split apart the veins around the head, they intertwined them and sent them in opposite directions, so that those on the

left were bent to the right side of the body, those on the right, to the left. This, along with the skin, was to act as a bond between the head and the body since there were no sinews all around the crown of the head. What's more, it would also enable the experience of the sense impressions coming from either of the two sides to be fully revealed to the entire body.

TIMAEUS: At that stage they facilitated the transport of liquid in the manner we shall now describe, but it will be easier to see this once we have first come to an agreement on the following point. Anything composed of smaller particles repels the larger particles, while those composed of larger particles are unable to repel the smaller particles. Fire consists of the smallest particles of them all, so it passes through water, earth, air, and anything composed of these, and nothing is able to repel it. Well, we should bear the same principle in mind in relation to our own abdomen; it retains any food or drink that falls into it, yet it is unable to retain air or fire because these consist of particles that are smaller than its own structure. Therefore, the god made use of air and fire for the distribution of moisture from the abdomen to the veins by weaving a mesh, like a fish trap, having two ducts at its entrance, one of which he proceeded to weave once more into a forked structure. Then he extended cords of some sort from the ducts in a circle throughout the entire mesh as far as its extremities. He constructed everything within the mesh from fire; the ducts and the vessel he constructed from air.

TIMAEUS: He then took this structure and positioned it around the creature he had fashioned, in some such manner as follows. He let the part consisting of funnels down into the mouth, and since it had a twofold structure, he lowered one part into the lungs by way of the windpipe, and the other alongside the windpipe into the abdomen. He divided the first of these in two and gave each part alike an entrance through the channels of the nose, so that when the other channel through the mouth was not working, all of its streams would be filled up from this one. He caused the rest of the vessel that constitutes the fish trap to grow around the hollow part of the body and made it all flow together gently into the ducts, since these were made of air. And then he made the ducts flow back out again. Because the body is porous, the mesh sinks into it and emerges once more, while the rays of fire bound fast within it follow both movements of the air, and this does not cease as long as

the mortal creature holds together. And we say that the name-giver has called it inhalation and exhalation. And indeed, the overall process and its effect acts as a source of nourishment and life to our bodies by irrigating and cooling them. For whenever the breath passes in or out, the inner fire connected to it follows along, and as it continually moves back and forth it passes into the abdomen, seizes upon the food and drink, dissolves them, divides them into tiny particles, draws them through the passages in the same direction it is proceeding, pours them into the veins like water going from a spring into channels, and sets the currents of the veins flowing through the body as if they were flowing through a pipe.

TIMAEUS: But we should look again at the process of respiration and the reason why this occurs as it now does. It is as follows. Since there is no void into which any moving body would be able to enter, yet the breath does come out of our body, one consequence is surely evident to everyone. It does not emerge into a void but displaces whatever is adjacent from its position. But whatever is displaced continually drives out whatever is adjacent to itself, and on the basis of this cycle of necessity, everything is driven around again to the position from which the breath emerged, enters in, and fills it. Because there is no void, this all happens at the same time, like the revolving of a wheel. Therefore, once the chest and lungs exhale the breath, they are filled up once more by the air surrounding the body which is driven around and sinks in because the flesh is so soft. Then again, when the air is turned in the other direction and is coming out through the body, it pushes the breath around and inwards by way of the passage of the mouth and the nostrils.

TIMAEUS: We should presume that what is responsible for initiating these processes is this. In every living creature, the warmest of its internal parts are situated close to the blood and the veins which are like a fountain of fire residing within. This, of course, we likened to the mesh of the fish-trap, extending through the middle thereof and woven entirely from fire, while everything outside of that was made of air. Now we must accept that heat naturally proceeds outwards to its own region and towards its kindred. But there are two ways out, one emerging by way of the body, the other by way of the mouth and nostrils, so whenever it rushes one way it pushes the air around the other way, and when this is pushed around and falls into the fire it is

warmed, but when it travels outwards it is cooled. Now, when the heat is changing its location and the air currents proceeding by one of the exits become warmer, the warmer air tends to go back by way of that exit once more and travels towards its own kind, pushing the air using the other exit and driving it around. The same effect and the same response keep recurring, thus setting up a cycle that oscillates back and forth and brings about inhalation and exhalation.

TIMAEUS: What's more, this is how we should also go about explaining the effects of medical cupping instruments, the causes of swallowing, and the behaviour of projectiles that are discharged into the air and those that travel along the ground, also any sounds that are rapid or slow, and therefore appear sharp or dull, sometimes discordant in their movement due to the lack of uniformity of the motion they produce in us, sometimes concordant due to its uniformity. Indeed, the slower motions overtake the more rapid motions that precede them, as the rapid motions are coming to a halt and have already attained uniformity with those which the slower motions impart to them when they arrive later. As the slower overtake the quicker, they do not impose another motion and cause disturbance. Rather, they initiate a slower motion based upon the faster motion which is dying away, introducing uniformity and blending together a single experience consisting of sharpness and dullness. Consequently, while these provide some pleasure to the dimwitted, they delight the enlightened folk because they provide an imitation of divine harmony arising amidst the movements of mortal beings. And consider, in particular, all the flowings of water, the descent of thunderbolts and the wondrous drawing power of amber and lodestones. In none of these cases is there any attractive force. Rather, it will be evident to anyone who investigates them methodically that there is no void, that these entities push themselves around into one another, and while they are all being divided up and combined together, each changes its position and moves towards its own region, and by interweaving these processes with one another we get those wonderful phenomena.

TIMAEUS: As for the effect of respiration from which our account digressed, this has arisen on the basis of these principles and through those processes. As the fire cuts up the food by rising up inside us, following along with the

breath, it fills up the veins from the abdomen by the rising process which floods them with the minute particles from there. And so it is that the streams of nutriment have been set flowing throughout the whole body of every creature. The newly formed particles come from kindred substances, from fruits and vegetables, which the god caused to grow for our particular benefit to nourish us. These have taken on a variety of colours due to the commingling, yet the colour red is predominant throughout, a quality brought about by the cutting effect of fire and the impression it makes on liquid. Hence, the stream flowing through the body, the one we call blood, has the colour we have described. It is pasture for flesh and for the entire body, and each part draws liquid from there and replenishes any place that has been depleted. The process of replenishment and depletion takes place in the same way that the motion of everything in the Universe takes place, a motion that draws everything towards its own kindred. Of course, our external surroundings continually cut us up and break us apart, dispatching each form towards its own kind, while the contents of the blood, for their part, having been cut up inside us into small pieces and being surrounded by the structure of each creature as though by an enveloping Heaven, are compelled to imitate the universal motion. So each of the particles within the blood, being borne towards its kindred, replenishes once more the space that has been left empty.

TIMAEUS: Now, whenever more is going out than is coming in, all things decay, but when less is going out they grow. So when the entire structure is young and the elemental triangles of its constituents are still new, like fresh wood, the bond holding them together is strong, and yet the overall construction is soft since it has been newly formed from marrow and nourished with milk. So when the surrounding triangles come into it from outside, the ones that the food and drink are made from, these are older and weaker than its own triangles, so it overpowers these older triangles with the new ones, cuts them up, and makes the creature grow large by nourishing it with an abundance of substances similar to its own. However, when the root of the triangles is slackened because of numerous such contests fought against many opponents over a long period of time, they are no longer able to cut the entering triangles and assimilate them to themselves. On the other hand, they themselves are easily split apart by those triangles that are coming in from

outside. Every creature in this situation is overpowered and decays and the condition is called old age. And in the end, once the conjoining bonds of the triangles around the marrow endure no longer under the strain and are split apart, they in turn release the bonds of the soul, and once it is set free in accordance with nature, it flies away with pleasure. Indeed, everything contrary to nature is painful, while anything that arises naturally is pleasant. The same goes for death. When it happens as a result of disease or injury it is painful and violent, but when it comes with old age, an ending that accords with nature, it is the least painful of deaths, attended more by pleasure than by pain.

TIMAEUS: The origin of diseases is presumably obvious to everyone. For since the body has been constructed from four constituents – earth, fire, water and air – any unnatural excess or deficiency or any removal from their own place to somewhere alien causes disorder and disease. Furthermore, since there is more than one kind of fire and of the other constituents, the acquisition by the body of an inappropriate variety, and all phenomena of this sort, have the same effect. For when any of these arises or changes its location unnaturally, anything that was previously being cooled is warmed, what was dry becomes moist, the same goes for light and heavy, and everything changes in all sorts of ways. In fact, I maintain that only the addition or removal of same from same, on the same basis and in due proportion, will allow something to remain the same as itself, sound and healthy, while anything entering or leaving that strikes a discordant note by transgressing any of these requirements will engender a whole variety of alterations and countless diseases and corruptions.

TIMAEUS: Furthermore, since secondary structures have been established in the course of nature, a second means of considering diseases arises for someone who wishes to contemplate them. For marrow, bone, flesh and sinew have been compounded from those four constituents, and blood has arisen from them too but in a different way, and the majority of diseases arise from the same causes we just mentioned. However, the most grievous diseases come about when the generation of these substances proceeds in reverse and they then undergo decay. For in the course of nature, flesh and sinew arise from blood, sinew from its fibres because it is akin to these, and flesh from the solidified material that forms when fibre is removed from blood. What's more,

the sticky oily material that emerges from the sinews and flesh glues the flesh to the structure of the bones and also nourishes the very bone that surrounds the marrow and makes it grow.

TIMAEUS: What's more, because of the density of bone, whatever is filtered through it consists of the purest kind of triangles, and being extremely smooth and oily, it pours drop by drop from the bones and waters the marrow. And when each of these substances comes into being based on these processes, the consequence for the most part is health, but when they are reversed, the result is disease. For whenever flesh is decomposed and releases decomposed matter back into the veins once more, then a lot of variegated blood, mixed with air, adopts multifarious colours and bitterness, as well as acidic and saline properties, and retains all sorts of bile, serum and phlegm. Once these substances have become perverted and corrupted, they first destroy the blood itself, and although they themselves do not provide any nourishment at all to the body, they are borne in all directions through the veins, no longer holding to the natural arrangement of the cycles, at enmity towards themselves because they afford no advantage to themselves, and hostile to any part of the body that stands firm and holds its position. This they destroy and corrupt.

TIMAEUS: Now, when any extremely old flesh is corrupted, it is difficult to assimilate, is blackened by the prolonged burning process, and being bitter due to the overall corrosion, it most grievously assaults any part of the body that has not yet been corrupted. Yet, on occasion, once the bitter substance has been diluted to some extent, the black-coloured substance takes on acidity rather than bitterness. At other times, when the bitterness has for its part been immersed in blood, it adopts a redder colour, and when the black colour is mixed with this, it goes yellow. And the yellow colour, in turn, mixes with the bitterness whenever the flesh that is decomposed by the flame around the fire is new flesh.

TIMAEUS: The shared name, bile, has been assigned to all these, presumably by some physicians or even by someone capable of looking at numerous dissimilar entities and discerning among them a single internal category that deserves to be given a name, while any other forms of bile we mention have a description of their own, based in each case upon their colour. Serum is mild

when it is a whey-like product of blood, but aggressive when it comes from black acid bile that is combined with a saline quality by the action of heat, a type called acid phlegm. There is also the decomposition product formed from young tender flesh in the presence of air. This can be filled up with air and enveloped in moisture, producing bubbles in the process. These are not visible individually since they are too small, but they combine together to produce a mass that is visible and has a white colour due to the generation of foam. This entire decomposition process by which soft flesh is compounded with air, we refer to as white phlegm. Of newly formed phlegm there is, in turn, a whey-like part – sweat, tears and any other substances of this sort that flow from the body every day to purify it. And yet these actually become instruments of disease whenever blood is not replenished from food and drink in accordance with nature, but contrary to the natural order, acquires its mass from opposites instead.

TIMAEUS: Now, when the flesh in the various regions is being assailed by diseases, yet the foundations still remain in place, their affliction is only half as strong, for an easy recovery can still be achieved. However, when the material that binds flesh to bone gets diseased and no longer nourishes the bone, nor acts as a bond between flesh and bone because it is separating off from both of these and from the sinews too,³⁰ and instead of being oily and smooth and sticky it becomes rough and saline, parched by a degenerate lifestyle, then any kind of material that suffers these effects crumbles away beneath the flesh and the sinews, separates from the bones along with the flesh which falls away at its roots, and leaves the sinews exposed and full of brine. The flesh then falls back into the blood-stream making the diseases we mentioned earlier more intense.

TIMAEUS: Although these are grievous afflictions of the body, those affecting the more basic parts are even worse. These occur when bone does not breathe in properly because of the density of the flesh, heats up on account of the mouldiness, decays, does not assimilate nutriment but proceeds instead in the opposite direction, and is disintegrated into that nutriment once more. That passes into flesh, and the flesh, falling into the blood-stream, renders all the diseases more severe than those described previously. And the most extreme case of all occurs when the substance of the marrow becomes diseased on account of some deficiency or excess. This brings about the most powerful

and formidably fatal diseases, in which the entire nature of the body flows of necessity in the opposite direction.

TIMAEUS: There is also a third form of these diseases which should be regarded as arising in three ways – from breath, from phlegm or from bile. For whenever the lungs, the dispensers of breaths to the body, are fenced in by some flux or other, the breath, being unable to go in one direction, goes in another direction in greater volume than appropriate. Then the parts that do not receive breath's cooling effect become corrupted, while it proceeds to force itself into the veins, contorts them and dissolves the body, stopping at the barrier at its centre where it gets closed in. These processes cause a huge number of painful diseases, often accompanied by copious sweating. And on occasion, when flesh breaks down within the body, breath is produced but is unable to make its way out, and therefore causes the same travails as the breath that comes from outside. These are at their worst when the breath surrounding the sinews and small veins there swells up, and in the process stretches backwards the tendons and the sinews attached to them. Indeed, it is from the tense condition arising from there that the diseases have come to be referred to as tetanus and opisthotonos.³¹ These are difficult to cure. In fact, when such diseases arise, fever offers the most relief. The white phlegm is troublesome when confined within because of the air in its bubbles, but it is milder when it finds passage to the outer part of the body, where it produces a variety of colours and white markings and engenders the diseases related thereto. When combined with black bile, it can spread over the orbits that are in the head and throw them into confusion. Now, if this comes to us in sleep it is quite mild. However, if it visits us whilst awake it is harder to get rid of, and being a disease of a sacred substance, it is quite rightly referred to as 'the sacred disease'.³² Phlegm that is acidic and salty is the wellspring of all diseases that produce catarrh, and because the flow takes place from a variety of locations, they have acquired all sorts of names.

TIMAEUS: Whatever parts of the body are said to be inflamed due to burning and inflammation have all become so on account of bile. Now, if the bile finds an external vent, it boils and sends forth all sorts of growths. However, if it is confined within, it engenders numerous inflammatory diseases. The worst of these occurs when bile is mixed together with pure

blood and prevents the blood fibres from exercising their assigned role. For these have been dispersed in the bloodstream so that it may retain a balanced measure of thickness and thinness, and neither flow out through the pores of the body because it is liquefied by the heat, nor on the other hand, have difficulty in circulating through the veins because it is dense and immobile. The fibres by their natural structure preserve a balance of these qualities, but when someone dies and their blood is cooling down, the rest of the blood is liquefied once the fibres coagulate together. However, if the fibres are left as they are, they act in consort with the cool surroundings and quickly congeal the blood. Now, since fibres have this capacity in relation to blood, when bile, which is a natural product of old blood, dissolves from the flesh back into the blood once more, the warm, moist bile gradually solidifies when it first falls into the blood because of the capacity of the fibres, and as it congeals and is forcibly extinguished it produces cold and shivering within. But when it flows in more voluminously, it boils up, and the heat it possesses overpowers the fibres and shakes them into disorder. And if there is so much bile that it becomes completely dominant, it passes through to the substance of the marrow, immediately undoes the 'ship's cables' of the soul by burning them, and sets it free. If there is less of it and the body resists the process of dissolution, the bile itself is overpowered and is expelled over the entire body surface, or compressed through the veins into the lower or upper abdomen, and is expelled from the body like fugitive elements from a city beset by faction. This produces diarrhoea, dysentery, and a whole range of similar diseases.

TIMAEUS: When the body is diseased, mainly due to excess fire, continuous high-temperatures and fever are induced; when it is due to excess air, the fevers are quotidian; when due to water they are tertian because water is more sluggish than air or fire; when it is due to earth, the fourth most sluggish of these four, it takes four times as long to purge away and produces quartan fevers that are hard to shake off.

TIMAEUS: So, the diseases of the body come about in this way, while diseases of the soul, due to the condition of the body, come about in the following way. We must agree that mindlessness is a disease of the soul. However, there are two kinds of mindlessness – madness and stupidity. Therefore, any

experience that a person undergoes in which either of these two qualities is involved should be referred to as a disease, and excessive pleasure or pain should be ranked as the most powerful diseases of the soul. For when a person is elated, or indeed is experiencing the opposite condition because he is in pain, he hastens in an untimely manner to grasp the one and flee from the other, and is unable either to see or to hear aright. He is raving, and in that moment he is least capable of exercising reason. And when the seed associated with the marrow becomes plentiful and free-flowing, and is just like a tree that is fruitful beyond its natural measure, numerous recurrent pangs and just as many pleasures are his lot, born of desires and the consequences thereof. For most of his life he is driven mad by the greatest pleasures and pains; his soul is kept diseased and senseless by the body, yet he gets a reputation for being deliberately degenerate rather than being a sick man. But in truth, lack of sexual restraint is, for the most part, a disease of the soul arising from an abundant and fluid condition of a single substance in the body due to porosity in the bones. And, indeed, almost all those who are unrestrained with respect to pleasure, and are said to be blameworthy because they are willingly bad, are censured unjustly. For no one is willingly bad, rather the bad become bad because of some degenerate condition of the body and the lack of an educated upbringing, both of which are afflictions that come to any person against his will.

TIMAEUS: Then again, in the case of pain, and based upon the same factors, the soul derives a great deal of its degeneracy from the body. For when acidic or saline phlegm, or any bitter and bilious humours that go wandering about the body, are unable to find a vent to the outside and are trapped inside, they blend their own vapour together with the motion of the soul and get them both mixed up. These engender a whole variety of diseases in the soul, some more intense, some less so, some more extensive, some less so, which are then borne towards the three regions of the soul. Depending upon the region they assail, they produce multifarious forms of ill-temper and despondency in one case, rashness and cowardice in another, and sometimes a combination of forgetfulness and dullness.

TIMAEUS: What's more, when men set in such bad ways dwell in cities with bad forms of government, and public and private discourse accords therewith,

and yet from childhood upwards they learn nothing to cure these ills, that's how the bad among us become bad, due to these two involuntary factors. For these we should blame the begetters rather than the begotten, and the nurturers rather than those who are nurtured. However, we should be eager in any way we can, through nurture, through activity, and through learning, to flee from badness and embrace its opposite, although these topics obviously belong to discussions of a different sort.

TIMAEUS: However, it is reasonable and appropriate to present an exposition, the counterpart of these, setting out, in turn, the treatment that will preserve our bodies and our thinking processes in good health. Indeed, it is preferable that our discussion holds to the theme of what is good rather than what is bad. Now, all that is good is beautiful, and beauty is not devoid of measure, so a living being that is to exhibit such qualities must be well proportioned. But when it comes to proportions, we notice the minor ones and take them into account, while the most significant and important never enter our reckoning. Indeed, in the case of health and disease, virtue and vice, no single proportion or disproportion is more important than the relation of soul itself to body itself. In the case of these two, we neither observe nor recognise that whenever a weaker, lesser frame supports a soul that is strong and great in every respect, or, indeed, when the two are conjoined as opposites, the living being, as a whole, is not beautiful because the proportion it lacks is the most important proportion, while the alternative arrangement is the most beautiful and beloved sight of all to those who are able to behold it.

TIMAEUS: For instance, a body whose legs are too long, or is out of proportion with itself because of some other excessive tendency, is also inclined to be ugly, prone to much fatigue when it partakes in any exertions, and to a lot of awkwardness and falls, causing a whole range of difficulties to itself because of its abnormal movements. Well, we should also think about the twofold combination that we refer to as a living being in the same way. Indeed, whenever the soul within it is more powerful than the body and becomes passionate, it shakes up the entire body and fills it up with diseases from within, and when it embarks upon some intense study or enquiry it wears out the body. And again, when engaging in teaching and verbal disputation, both in public and in private, it makes the body feverish and

troubled due to the strife that is generated and the associated thirst for victory, bringing on rheums and deceiving most so-called physicians into attributing the blame to the wrong cause.

TIMAEUS: In contrast, whenever a large body that is too strong for the soul is conjoined with a small weak mind, the activities of the stronger dominate and strengthen their own desire. Now, there are two desires naturally associated with human beings – nutriment for our body, and understanding for our most divine part. So, activities of the body make the soul dull, slow to learn and unretentive, and engender within its the worst possible disease, stupidity. Now, there is a single safeguard against these two tendencies – neither to set the soul moving without moving the body, nor body without soul – so that both are protected and become balanced and healthy. Accordingly, a person who engages in mathematics or some other intense study involving the mind should also give the body its due measure of activity through recourse to gymnastics, while the person who is careful about shaping his body should, in turn, impart a corresponding level of activity to the soul through recourse to music and philosophy in general, if he really intends to be referred to as noble and good in the proper sense.

TIMAEUS: The parts of the body and soul should also be cared for on the same basis, in imitation of the frame of the Universe. For the body is warmed and cooled internally by whatever enters into it, and, again, is dried out and moistened by whatever is outside it, and suffers any consequences derived from both processes. So whenever someone remains at rest and submits his body to these processes, it is overpowered and destroyed. But if, on the other hand, someone imitates the nurturer and nurse of the Universe, as we call it, he would never allow his body to remain completely still but would move it, and by continually creating certain vibrations in it, maintain a constant, natural balance between the internal and external movements. By this measured shaking, he would order the affections and particles that wander about the body in accordance with their mutual affinity, into a mutual arrangement that reflects the description of the Universe we gave earlier, not allowing enemies to be placed side by side to engender strife and disease in the body, but ensuring the production of health by placing friend alongside friend.

TIMAEUS: Now, when it comes to movements, the best movement is in oneself, by oneself, for this has most kinship with the movement of thought and of the Universe. Being moved by another is an inferior form of movement, but the worst form involves moving the body, part by part, by means of various agents, while it is lying still. Accordingly, the best way of purging or restoring the body is through gymnastic exercises, second is through the swaying motion of ships and any other means of carriage that do not induce tiredness. There is a third form of motion, useful in cases of extreme necessity, which should not be accepted under any other circumstances by anyone possessed of intelligence – the use of purgative drugs for medical purposes. For diseases that do not pose a huge threat should not be incited with drugs. Indeed, in a way, the structure of any disease resembles the nature of a living being. In fact, the constitution of these beings involves an assigned span of life applicable to the species as a whole, and each particular creature is born with its own allotted life span, in the absence of the intervention of necessity. For the triangles belonging to each individual are constructed, from the very outset, with the capacity to endure for a certain period of time, and no creature could ever live beyond that limit. Now, the same tendency applies to the constitution of diseases. Whenever someone ignores their allotted time span and destroys them with drugs, minor diseases are inclined to become major, few to become many. Therefore, we should manage everything of this sort through our lifestyle insofar as leisure allows, and not irritate a troublesome malady through the use of drugs.

TIMAEUS: That's enough said about the living creature as a whole and its bodily parts, and how a person may live in accord with reason, guiding and being guided by himself. But first and most importantly, we must somehow arrange for the part that will guide us to be as beautiful and excellent as possible for its guiding role. Now, to elaborate upon these matters in detail would constitute a task in its own right, yet we would not go much astray if we were to conclude our account by adding a secondary topic in accord with what has gone before, by considering the issue as follows. As we have stated on numerous occasions, there are three forms of soul dwelling in three regions within us, each possessing movements of its own. Accordingly, we should now declare as briefly as possible, and on the same basis as before, that any

form which continues in idleness and keeps quiet its own movements necessarily becomes weaker, while any that are exercised become stronger. Therefore, we should be careful that these movements retain a due proportion with respect to one another.

TIMAEUS: As for the most lordly form of our soul, we should think of it in this way. It is as a daimon given to each of us by God, and it is said to dwell at the very pinnacle of our bodies to raise us up from Earth to our kindred in Heaven, we who are, properly speaking, a plant not of the Earth but of Heaven. Indeed, it is from there, the place from which soul first had her birth, that the divine agency suspends our head and root, making straight the entire body.

TIMAEUS: Now, it is inevitable that in someone who is busy with desires and ambitions, and who labours intensely at these, all the opinions he forms are mortal, and insofar as it is possible for a person to become mortal, he takes on its full measure since he has swollen that part of himself. On the other hand, it is completely inevitable, I presume, that someone who has taken seriously to the love of learning and to true understanding, and has exercised these faculties within himself most of all, will think immortal and divine thoughts if he should actually attain truth. Furthermore, insofar as human nature is allowed to partake of immortality, he will obtain its full measure, and since he is constantly caring for the divine, and preserving the particular daimon associated with himself in good order, he will be especially blessed. But, of course, the one and only way of caring for everything is to bestow the nutriment and movement appropriate to each, and in the case of our divine part, the kindred movements are the thoughts and revolutions of the Universe. So, by adhering closely to these, setting aright the orbits in our head which were corrupted around the time we were born, by coming to an understanding of the harmonies and revolutions of the Universe, each of us should bring our observing part into the likeness of what is observed in accord with the ancient nature, and in that likeness, finally attain the very best life prescribed by the gods for humanity with a view to time present and time future.

TIMAEUS: And so today's initial assignment, to give a detailed account of the Universe as far as the birth of humanity, almost seems to have reached a conclusion. Of course, we must make brief mention of the manner in which the other living beings, for their part, came into existence, but it is not necessary to lengthen this. For in this way we may think ourselves to be more measured in our discussion of these matters. So let's discuss this as follows. According to the likely account, those who had been born as men and proved cowards, or lived their lives in an unjust manner, were changed in nature to women at their second birth. That's why the god framed the passion of intercourse at that time, fashioning one ensouled living being in us, another in women. Each of the two was made in the following way. They extended the exit passage of drink at the place where it receives the liquid that arrives by the lungs, through the kidneys into the bladder, and expels it along with the air that exerts the pressure. They carried this passage through into the marrow that has been fashioned to run from the head, down the neck and through the spine. Indeed, we said in our previous discussions that this is seed. And since this is ensouled and has a way of getting out at the place we mentioned, it engenders therein a lively desire to flow outwards, and produces the passion of procreation. So, it is that the sexual organ in men has become disobedient and self-willed, like a living creature with no regard for reason who attempts to dominate everything because of its raging desires.

TIMAEUS: In women, for their part, the so-called matrix or womb is a living being within them, desirous of begetting children. Whenever this has become barren for a long time beyond its due season, it becomes troublesome and discontented. It wanders about the body in all directions, blocks up the exit passages of the breath, and by preventing respiration inflicts extreme distress and brings on a whole variety of other diseases until her desire and the male passion brings them together, and, as if stripping fruit from trees, sows the ploughed land of the womb with living beings, as yet unformed and so small that they are invisible, gives them distinctness once more, nurtures them within to a great size, and thereafter leads them into the light and completes the process of generating living creatures. So this is how women and all that is female came into being.

TIMAEUS: Birds, as a class, were formed in a different way. Growing feathers rather than hair, they came from men who were harmless but unsubstantial, who studied the upper regions, but believed, due to their simple-mindedness, that the most definitive evidence concerning them comes from sight. The wild land animals, for their part, arose from those who had no recourse to philosophy or any awareness at all of the nature of the Heaven, because they did not make use of the revolutions in the head but followed the lead of the parts of the soul in the region of the chest. So, as a result of living in this way, they extended their forward limbs and their heads to the earth due to their kinship therewith, and settled there, having acquired elongated heads of all varieties, corresponding to the way in which their own revolutions had been pressed together on account of idleness. So that is the reason why this type of creature developed as four-footed or many footed; God placed more supports under those who were more mindless so that they would be more drawn to the earth. The most mindless among them, in whom the entire body is stretched out upon the earth, no longer needed feet, so the gods made them without feet, to crawl in the dust of the earth. The fourth type arose in water from the completely unintelligent and unlearned. Those who fashioned them, deeming them no longer worthy to breathe pure air because they had an impure soul due to all-pervasive error, forced them to breathe the murky depths of water rather than fine, pure air. Hence, the race of fishes, of shellfish, and all the creatures that have come into being in water, have been assigned an extreme dwelling place as a penalty for their extreme stupidity.

TIMAEUS: And it is on the basis of these principles that all living creatures, then and now, are transformed into one another; they are changed through the acquisition or loss of nous or stupidity. So, we may now declare that our discourse concerning the Universe has at last come to an end. This Universe has received mortal and immortal living beings and has been filled with them, and, accordingly, has become a visible, living being encompassing all that is visible, an image of whatever is known by nous, a perceptible god, supreme, excellent, sublime and perfect, this Heaven, only begotten and one.

Notes

1. The gathering 'yesterday' was apparently that described in the Republic. There is much speculation as to the identity of the fourth, missing interlocutor.
2. Solon was the most famous early Athenian lawgiver, whose constitutional reforms in the 6th century brought an end to the great strife in the city.
3. The goddess in question is Athena. The reference to her festival is an indication that the discussion is taking place during the Panathenaea, which was held every year in Athens in honour of the patron goddess.
4. Apaturia were festivals held annually around the Greek world. In Athens, the Panathenaea was an opportunity for the Attic clans to meet to discuss various issues.
5. Deucalion and his wife Pyrrha were reputed to have been the only survivors of a cataclysmic flood sent by Zeus.
6. This is a reference to the Straits of Gibraltar.
7. (a) $2:4 :: 4:8$ and (b) $8:4 :: 4:2$, so (c) $4:8 :: 2:4$. In (a) they are first/middle/last. In (b) the last has become first and the first last. In (c) the middle has become first and last and the last and first both middle. Hence, any of the three can become first, last or middle and so in that sense they are the same.
8. $F:A :: A:W / A:W :: W:E$, so there are now two middle terms, air and water in this example.
9. The circular motion by revolving on its own axis is assigned to the all. It alone involves no movement away from a fixed position and is thus termed 'un-wandering'.
10. The three mixtures are intermediate types of being, same and other, each formed by mixing their indivisible kinds with their divisible kinds.
11. The first mean is a harmonic mean, e.g. between 6 and 12 it is 8, which is $\frac{1}{3}$ greater than 6 and $\frac{1}{3}$ less than 12. The second mean is an arithmetic mean, e.g. in the case of 6 and 12 it is 9, which exceeds 6 by 3 and is 3 less than 12.
12. The Greek word for planets means wanderers, and refers to their irregular motion as compared to the 'fixed' stars.
13. This is a reference to the dawn-bearer (Venus).
14. This is Mercury.
15. Hence, the stars/gods rotate on their own axes and are also carried uniformly across the sky. These are the two assigned motions, the latter of which can be observed in the night sky.
16. The seven motions are rotation on an axis, movement to the right, left, up, down, forward and backward. Only the first two are exhibited by the stars/gods.

17. A connection is implied here between the Greek word for 'sensations' (aisthêseis) and the word for 'shaking' (aïssein).
18. This is a very close paraphrase of Euripides' *Phoenician Women*, 1762.
19. This sentence is evidence for equating nous with the Demiurge. The phrase 'with few exceptions' probably refers to the section on the mechanism of vision (45b–c).
20. Omitting *pur* at 49d6, following Cornford.
21. The former is the right-angled isosceles triangle. The latter is the right-angled scalene triangle.
22. This simply means that the three 60° angles that meet at the corner of a tetrahedron add up to 180° , which is not an obtuse angle but next after the most obtuse angle.
23. This refers to a tetrahedron inscribed within a sphere.
24. That is, a square.
25. This refers to the dodecahedron, which is the closest of all the solids to the spherical shape of the universe.
26. The reference here seems to be to a supposed connection between the Greek words for 'heat' and for 'cutting into pieces'.
27. The Greek word for brain translates literally as 'in the head'.
28. This is the brain itself.
29. The Greek word for living things, *zoa*, is often applied to animals. The point here is that plants, given that they are living things, have just as much right as animals to be called *zoa*.
30. The text is corrupt here. This translation follows Waterfield and Zeyl.
31. *Opisthotonos* is a spasm of the muscles around the neck and back often caused by severe tetanus, a bacterial disease that causes muscle rigidity.
32. Epilepsy was referred to as the sacred disease.