

TIMAEUS

Timaeus offers the reader a rhetorical display, not a philosophical dialogue. In a stage-setting conversation, Socrates reviews his own previous day's exposition of the institutions of the ideal city (apparently those of the Republic), but the remainder of the work is taken up by Timaeus' very long speech describing the creation of the world. Other works in the Platonic corpus similarly consist of a single speech: not to mention the Apology, the same is true of Critias (Timaeus' incomplete companion piece) and Menexenus. But Timaeus' speech is unique among them in having extensive philosophical content: here we get philosophy, but grandiose and rhetorically elaborate cosmic theorizing, not the down-to-earth dialectical investigation of most of Plato's philosophical works. For a parallel one has to look to Phaedrus, where Socrates' two speeches on erotic love, especially the second, similarly deck out philosophical theses in brilliant, image-studded rhetorical dress.

Timaeus, who appears to be a dramatic invention of Plato's, comes from Southern Italy, noted for its Greek mathematicians and scientists. He bases his cosmology on the Platonic division, familiar for example from Phaedo and Republic, between eternal, unchanging 'Forms' and their unstable 'reflections' in the physical, perceptible world of 'becoming'. But he introduces a creator god, the 'demiurge' (Greek for 'craftsman'), who crafts and brings order to the physical world by using the Forms as patterns—Timaeus does not conceive the Forms as themselves shaping the world. And he develops the theory of a 'receptacle' underlying physical things, onto which, as onto a featureless plastic stuff, the Formal patterns are imposed. In these terms, and emphasizing mathematical relationships as the basis for cosmic order, Timaeus sets out the foundations of the sciences of astronomy, physics, chemistry, and physiology, including the physiology and psychology of perception, ending with a classification of the diseases of body and soul and provisions for their treatment. Timaeus was a central text of Platonism in later antiquity and the Middle Ages—it was almost the only work of Plato's available in Latin—and the subject of many controversies. Did Timaeus' creation story mean that the world was created in time—or did it merely tell in temporal terms a story of the world's eternal dependence on a higher reality, the Forms? Did the demiurge really stand apart from those realities in designing it, or were they in fact simply the contents of his own divine mind? Timaeus was central to debates on these and other questions of traditional Platonism.

Most scholars would date Timaeus among Plato's last works, though a minority argue for a date in the 'middle period', closer to Republic, which it

seems certainly to postdate. Plato, as author of the work, is responsible for all Timaeus' theories. How far do they represent his own philosophical convictions at the time he wrote? Timaeus himself emphasizes—in effect, because of the great distance, literal and metaphorical, separating us from the heavens, on which the rest of the world depends—that we cannot have more than a 'likely story', not the full, transparent truth, about the physical details of the world's structure. It may be instructive to work out detailed theories, but he offers them as no more than reasonable ways in which the creator might have proceeded in designing the world. Moreover, according to the Phaedrus, rhetorically skilled speakers will base what they say on the full philosophical truth, but will vary and embellish it as needed to attract and hold their hearers' attention and to persuade them to accept what is essential in it. Timaeus may be Plato's spokesman, but if Plato attended to the Phaedrus's strictures on rhetoric in composing his speech, one should exercise more than ordinary caution in inferring from what Timaeus says to details of Plato's own commitments even on matters of philosophical principle. In what Timaeus says about 'being' and 'becoming', the Forms and 'reflections', the 'demiurge' and the 'receptacle', and the arguments he offers on these subjects, what belongs to the rhetorical embellishment—intended to impress Socrates and his other listeners—and what is the sober truth, as Plato now understands it? The dialogue forces these questions on us, but gives no easy answers.

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SOCRATES: One, two, three . . . Where's number four, Timaeus? The four 17
of you were my guests yesterday and today I'm to be yours.

TIMAEUS: He came down with something or other, Socrates. He wouldn't have missed our meeting willingly.

SOCRATES: Well then, isn't it for you and your companions to fill in for your absent friend?

TIMAEUS: You're quite right. Anyhow, we'll do our best not to come up b
short. You did such a fine job yesterday hosting us visitors that now it wouldn't be right if the three of us didn't go all out to give you a feast in return.

SOCRATES: Do you remember all the subjects I assigned to you to speak on?

TIMAEUS: Some we do. And if there are any we don't—well, you're here to remind us. Better still, if it's not too much trouble, why don't you take a few minutes to go back through them from the beginning? That way they'll be the more firmly fixed in our minds.

SOCRATES: Very well. I talked about politics yesterday and my main c
point, I think, had to do with the kind of political structure cities should

have and the kind of men that should make it up so as to be the best possible.

TIMAEUS: Yes, Socrates, so you did, and we were all very satisfied with your description of it.

SOCRATES: Didn't we begin by separating off the class of farmers and all the other craftsmen in the city from the class of those who were to wage war on its behalf?

TIMAEUS: Yes.

- d SOCRATES: And we followed nature in giving each person only one occupation, one craft for which he was well suited. And so we said that only those whose job it was to wage war on everyone's behalf should be the guardians of the city. And if some foreigner or even a citizen were to go
18 against the city to cause trouble, these guardians should judge their own subjects lightly, since they are their natural friends. But they should be harsh, we said, with the enemies they encountered on the battlefield.

TIMAEUS: Yes, absolutely.

SOCRATES: That's because—as I think we said—the guardians' souls should have a nature that is at once both spirited and philosophical to the highest degree, to enable them to be appropriately gentle or harsh as the case may be.

TIMAEUS: Yes.

SOCRATES: What about their training? Didn't we say that they were to be given both physical and cultural training, as well as training in any other appropriate fields of learning?

TIMAEUS: We certainly did.

- b SOCRATES: Yes, and we said, I think, that those who received this training shouldn't consider gold or silver or anything else as their own private property. Like the professionals they are, they should receive from those under their protection a wage for their guardianship that's in keeping with their moderate way of life. And we said that they should share their expenses and spend their time together, live in one another's company, and devote their care above all to excellence, now that they were relieved of all other occupations.

TIMAEUS: Yes, we said that as well.

- c SOCRATES: And in fact we even made mention of women. We said that their natures should be made to correspond with those of men, and that all occupations, whether having to do with war or with the other aspects of life, should be common to both men and women.

TIMAEUS: That, too, was discussed.

SOCRATES: And what did we say about the procreation of children? We couldn't possibly forget that subject, because what we said about it was so unusual. We decided that they should all have spouses and children in common and that schemes should be devised to prevent anyone of them
d from recognizing his or her own particular child. Everyone of them would believe that they all make up a single family, and that all who fall within their own age bracket are their sisters and brothers, that those who are

older, who fall in an earlier bracket, are their parents or grandparents, while those who fall in a later one are their children or grandchildren.

TIMAEUS: You're right. That really was an unforgettable point.

SOCRATES: And surely we also remember saying, don't we, that to make their natures as excellent as possible right from the start, the rulers, male and female, should secretly arrange marriages by lot, to make sure that good men and bad ones would each as a group be separately matched up with women like themselves? And we said that this arrangement wouldn't create any animosity among them, because they'd believe that the matching was due to chance?

TIMAEUS: Yes, we remember.

SOCRATES: And do we also remember saying that the children of the good parents were to be brought up, while those of the bad ones were to be secretly handed on to another city? And that these children should be constantly watched as they grew up, so that the ones that turned out deserving might be taken back again and the ones they kept who did not turn out that way should change places with them?

TIMAEUS: We did say so.

SOCRATES: So now, Timaeus, are we done with our review of yesterday's talk—at least with its main points—or are we missing some point we made then? Have we left anything out?

TIMAEUS: Not a thing, Socrates. This is exactly what we said.

SOCRATES: All right, I'd like to go on now and tell you what I've come to feel about the political structure we've described. My feelings are like those of a man who gazes upon magnificent looking animals, whether they're animals in a painting or even actually alive but standing still, and who then finds himself longing to look at them in motion or engaged in some struggle or conflict that seems to show off their distinctive physical qualities. I felt the same thing about the city we've described. I'd love to listen to someone give a speech depicting our city in a contest with other cities, competing for those prizes that cities typically compete for. I'd love to see our city distinguish itself in the way it goes to war and in the way it pursues the war: that it deals with the other cities, one after another, in ways that reflect positively on its own education and training, both in word and deed—that is, both in how it behaves toward them and how it negotiates with them. Now on these matters, Critias and Hermocrates, I charge myself with being quite unable to sing fitting praise to our city and its men. That this should be so in my case isn't at all surprising. But I have come to have the same opinion of the poets, our ancient poets as well as today's. I have no disrespect for poets in general, but everyone knows that imitators as a breed are best and most adept at imitating the sort of things they've been trained to imitate. It's difficult enough for any one of them to do a decent job of imitating in performance, let alone in narrative description, anything that lies outside their training. And again, I've always thought that sophists as a class are very well versed in making long speeches and doing many other fine things. But because they wander from

one city to the next and never settle down in homes of their own, I'm afraid their representations of those philosopher-statesmen would simply miss their mark. Sophists are bound to misrepresent whatever these leaders accomplish on the battlefield when they engage any of their enemies, whether in actual warfare or in negotiations.

- So that leaves people of your sort, then. By nature as well as by training you take part in both philosophy and politics at once. Take Timaeus here.
- 20 He's from Locri, an Italian city under the rule of excellent laws. None of his compatriots outrank him in property or birth, and he has come to occupy positions of supreme authority and honor in his city. Moreover, he has, in my judgment, mastered the entire field of philosophy. As for Critias, I'm sure that all of us here in Athens know that he's no mere layman in any of the areas we're talking about. And many people whose testimony must surely be believed assure us that Hermocrates, too, is
- b well qualified by nature and training to deal with these matters. Already yesterday I was aware of this when you asked me to discuss matters of government, and that's why I was eager to do your bidding. I knew that if you'd agree to make the follow-up speech, no one could do a better job than you. No one today besides you could present our city pursuing a war that reflects her true character. Only you could give her all she requires. So now that I'm done speaking on my assigned subject, I've turned the tables and assigned you to speak on the subject I've just described.
- c You've thought about this together as a group, and you've agreed to reciprocate at this time. Your speeches are your hospitality gifts, and so here I am, all dressed up for the occasion. No one could be more prepared to receive your gifts than I.

- HERMOCRATES: Yes indeed, Socrates, you won't find us short on enthusiasm, as Timaeus has already told you. We don't have the slightest excuse for not doing as you say. Why, already yesterday, right after we had left here and got to Critias' guest quarters where we're staying—and even
- d earlier on our way there—we were thinking about this very thing. And then Critias brought up a story that goes back a long way. Tell him the story now, Critias, so he can help us decide whether or not it will serve the purpose of our assignment.

CRITIAS: Yes, we really should, if our third partner, Timaeus, also agrees.

TIMAEUS: Of course I do.

- CRITIAS: Let me tell you this story then, Socrates. It's a very strange one, but even so, every word of it is true. It's a story that Solon, the wisest of
- e the seven sages once vouched for. He was a kinsman and a very close friend of my great-grandfather Dropides. Solon himself says as much in many places in his poetry. Well, Dropides told the story to my grandfather Critias, and the old man in his turn would tell it to us from memory. The story is that our city had performed great and marvelous deeds in ancient times, which, owing to the passage of time and to the destruction of human life, have vanished. Of all these deeds one in particular was magnificent.
- 21 It is this one that we should now do well to commemorate and present

to you as our gift of thanks. In so doing we shall also offer the goddess a hymn, as it were, of just and true praise on this her festival.¹

SOCRATES: Splendid! Tell me, though, what was that ancient deed our city performed, the one that Solon reported and old Critias told you about? I've never heard of it. They say it really happened?

CRITIAS: I'll tell you. It's an ancient story I heard from a man who was no youngster himself. In fact, at the time Critias was pretty close to ninety years old already—so he said—and I was around ten or so. As it happened, it was the day of the presentation of children during the Apaturia.² On this occasion, too, we children got the customary treatment at the feast: our fathers started a recitation contest. Many compositions by many different poets were recited, and many of us children got to sing the verses of Solon, because they were new at the time. Now someone, a member of our clan, said that he thought that Solon was not only the wisest of men in general, but that his poetry in particular showed him to be the most civilized of all the poets. (The man may have been speaking his mind, or else he may have just wanted to make Critias feel good.) And the old man—how well I remember it—was tickled. He grinned broadly and said, "Yes, Amynander, it's too bad that Solon wrote poetry only as a diversion and didn't seriously work at it like the other poets. And too bad that he never finished the story he'd brought back home with him from Egypt. He was forced to abandon that story on account of the civil conflicts and all the other troubles he found here when he returned. Otherwise not even Hesiod or Homer, or any other poet at all would ever have become more famous than he. That's what I think, anyhow." "Well, Critias? What story was that?" asked the other. "It's the story about the most magnificent thing our city has ever done," replied Critias, "an accomplishment that deserves to be known far better than any of her other achievements. But owing to the march of time and the fact that the men who accomplished it have perished, the story has not survived to the present." "Please tell us from the beginning," said the other, "What was this 'true story' that Solon heard? How did he get to hear it? Who told him?"

"In Egypt," Critias began, "in that part of the Delta where the stream of the Nile divides around the vertex there is a district called the Saïtic. The most important city of this district is Saïs. (This is in fact also the city from which King Amasis came.) This city was founded by a goddess whose name was 'Neith' in Egyptian and (according to the people there) 'Athena' in Greek. They are very friendly to Athens and claim to be related to our people somehow or other. Now Solon said that when he arrived there the people began to revere him. Furthermore, he said that when he asked those priests of theirs who were scholars of antiquity about ancient times,

1. The goddess is Athena, patron deity of Athens; the conversation is presumably taking place at the celebration of the Panathenaic Festival in Athens.

2. The Apaturia was celebrated in Athens in October–November of each year. The presentation of children took place on the third day.

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- he discovered that just about every Greek, including himself, was all but completely ignorant about such matters. On one occasion, wanting to lead them on to talk about antiquity, he broached the subject of our own ancient history. He started talking about Phoroneus—the first human being, it is said—and about Niobe, and then he told the story of how Deucalion and Pyrrha survived the flood. He went on to trace the lines of descent of their posterity, and tried to compute their dates by calculating the number of years which had elapsed since the events of which he spoke. And then one of the priests, a very old man, said, ‘Ah, Solon, Solon, you Greeks are ever children. There isn’t an old man among you.’ On hearing this, Solon said, ‘What? What do you mean?’ ‘You are young,’ the old priest replied, ‘young in soul, every one of you. Your souls are devoid of beliefs about antiquity handed down by ancient tradition. Your souls lack any learning made hoary by time. The reason for that is this: There have been, and there will continue to be, numerous disasters that have destroyed human life in many kinds of ways. The most serious of these involve fire and water, while the lesser ones have numerous other causes. And so also among your people the tale is told that Phaethon, child of the Sun, once harnessed his father’s chariot, but was unable to drive it along his father’s course. He ended up burning everything on the earth’s surface and was destroyed himself when a lightning bolt struck him. This tale is told as a myth, but the truth behind it is that there is a deviation in the heavenly bodies that travel around the earth, which causes huge fires that destroy what is on the earth across vast stretches of time. When this happens all those people who live in mountains or in places that are high and dry are much more likely to perish than the ones who live next to rivers or by the sea. Our Nile, always our savior, is released and at such times, too, saves us from this disaster. On the other hand, whenever the gods send floods of water upon the earth to purge it, the herdsmen and shepherds in the mountains preserve their lives, while those who live in cities, in your region, are swept by the rivers into the sea. But here, in this place, water does not flow from on high onto our fields, either at such a time or any other. On the contrary, its nature is always to rise up from below. This, then, explains the fact that the antiquities preserved here are said to be the most ancient. The truth is that in all places where neither inordinate cold nor heat prevent it, the human race will continue to exist, sometimes in greater, sometimes in lesser numbers. Now of all the events reported to us, no matter where they’ve occurred—in your parts or in ours—if there are any that are noble or great or distinguished in some other way, they’ve all been inscribed here in our temples and preserved from antiquity on. In your case, on the other hand, as in that of others, no sooner have you achieved literacy and all the other resources that cities require, than there again, after the usual number of years, comes the heavenly flood. It sweeps upon you like a plague, and leaves only your illiterate and uncultured people behind. You become infants all over again, as it were, completely unfamiliar with anything there was in ancient times, whether here or in

your own region. And so, Solon, the account you just gave of your people's lineage is just like a nursery tale. First of all, you people remember only one flood, though in fact there had been a great many before. Second, you are unaware of the fact that the finest and best of all the races of humankind once lived in your region. This is the race from whom you yourself, your whole city, all that you and your countrymen have today, are sprung, thanks to the survival of a small portion of their stock. But this has escaped you, because for many generations the survivors passed on without leaving a written record. Indeed, Solon, there was a time, before the greatest of these devastating floods, when the city that is Athens today not only excelled in war but also distinguished itself by the excellence of its laws in every area. Its accomplishments and its social arrangements are said to have been the finest of all those under heaven of which we have received report.'

"When Solon heard this he was astounded, he said, and with unreserved eagerness begged the priests to give him a detailed, consecutive account of all that concerned those ancient citizens. 'I won't grudge you this, Solon,' the priest replied. 'I'll tell you the story for your own benefit as well as your city's, and especially in honor of our patron goddess who has founded, nurtured and educated our cities, both yours and ours. Yours she founded first, a thousand years before ours, when she had received from Earth and Hephaestus the seed from which your people were to come. Now our social arrangement, according to the records inscribed in our sacred documents, is eight thousand years old. Nine thousand years ago, then, did these fellow citizens of yours live, whose laws and whose finest achievement I'll briefly describe to you. At another time we'll go through all the details one by one at our leisure and inspect the documents themselves.

"Let's compare your ancient laws with ours today. You'll discover many instances that once existed among you, existing among us today. First, you'll find that the class of priests is marked off and separated from the other classes. Next, in the case of the working class, you'll find that each group—the herdsmen, the hunters and the farmers—works independently, without mixing with the others. In particular, I'm sure you've noticed that our warrior class has been separated from all the others. It's been assigned by law to occupy itself exclusively with matters of war. Moreover, the style of armor used is that of shields and spears, which we were the first among the peoples of Asia to use for arming ourselves. The goddess instructed us just as she first instructed you in the regions where you live. Moreover, as for wisdom, I'm sure you can see how much attention our way of life here has devoted to it, right from the beginning. In our study of the world order we have traced all our discoveries, including prophecy and health-restoring medicine, from those divine realities to human levels, and we have also acquired all the other related disciplines. This is in fact nothing less than the very same system of social order that the goddess first devised for you when she founded your city, which she did once she

d had chosen the region in which your people were born, and had discerned that the temperate climate in it throughout the seasons would bring forth men of surpassing wisdom. And, being a lover of both war and wisdom, the goddess chose the region that was likely to bring forth men most like herself, and founded it first. And so you came to live there, and to observe laws such as these. In fact your laws improved even more, so that you came to surpass all other peoples in every excellence, as could be expected from those whose begetting and nurture were divine.

e “Now many great accomplishments of your city recorded here are awe-inspiring, but there is one that surely surpasses them all in magnitude and excellence. The records speak of a vast power that your city once brought to a halt in its insolent march against the whole of Europe and Asia at once—a power that sprang forth from beyond, from the Atlantic ocean. For at that time this ocean was passable, since it had an island in it in front of the strait that you people say you call the ‘Pillars of Heracles.’³ This island was larger than Libya and Asia combined, and it provided passage to the other islands for people who traveled in those days. From
25 those islands one could then travel to the entire continent on the other side, which surrounds that real sea beyond. Everything here inside the strait we’re talking about seems nothing but a harbor with a narrow entrance, whereas that really is an ocean out there and the land that embraces it all the way around truly deserves to be called a continent. Now on this Isle of Atlantis a great and marvelous royal power established itself, and ruled not only the whole island, but many of the other islands and parts of the continent as well. What’s more, their rule extended even inside the
b strait, over Libya as far as Egypt, and over Europe as far as Tyrrhenia.⁴ Now one day this power gathered all of itself together, and set out to enslave all of the territory inside the strait, including your region and ours, in one fell swoop. Then it was, Solon, that your city’s might shone bright with excellence and strength, for all humankind to see. Preeminent among all others in the nobility of her spirit and in her use of all the arts of war,
c she first rose to the leadership of the Greek cause. Later, forced to stand alone, deserted by her allies, she reached a point of extreme peril. Nevertheless she overcame the invaders and erected her monument of victory. She prevented the enslavement of those not yet enslaved, and generously freed all the rest of us who lived within the boundaries of Heracles. Some time
d later excessively violent earthquakes and floods occurred, and after the onset of an unbearable day and a night, your entire warrior force sank below the earth all at once, and the Isle of Atlantis likewise sank below the sea and disappeared. That is how the ocean in that region has come

3. The strait of Gibraltar.

4. South of the Mediterranean the empire extended across North Africa to the western frontier of Egypt. To the north it included Europe as far east as central Italy.

to be even now unnavigable and unexplorable, obstructed as it is by a layer of mud at a shallow depth,⁵ the residue of the island as it settled.”

What I’ve just related, Socrates, is a concise version of old Critias’ story, as Solon originally reported it. While you were speaking yesterday about politics and the men you were describing, I was reminded of what I’ve just told you and was quite amazed as I realized how by some supernatural chance your ideas are on the mark, in substantial agreement with what Solon said. I didn’t want to say so at the time, though. Because it had been so long ago, I didn’t remember Solon’s story very well. So I realized that I would first have to recover the whole story for myself well enough, and then to tell it that way. That’s why I was so quick to agree to your assignment yesterday. The most important task in situations like these is to propose a speech that rewards people’s expectations, and so I thought that we would be well supplied if I gave this one. And that’s how—as Hermocrates has already said—the moment I left here yesterday, I began to repeat the story to him and to Timaeus as it came back to me. After I left them I concentrated on it during the night and recovered just about the whole thing. They say that the lessons of childhood have a marvelous way of being retained. How true that is! In my case, I don’t know if I’d be able to recall everything I heard yesterday, but I’d be extremely surprised if any part of this story has gotten away from me, even though it’s been a very long time since I heard it. What I heard then gave me so much childlike pleasure—the old man was so eager to teach me because I kept on asking one question after another—that the story has stayed with me like the indelible markings of a picture with the colors burnt in. Besides, I told the whole story to Timaeus and Hermocrates first thing this morning, so that not just I, but they, too, would have a supply of material for our speech.

I’ve said all this, Socrates, to prepare myself to tell Solon’s story now. I won’t just give you the main points, but the details, one by one, just the way I heard it. We’ll translate the citizens and the city you described to us in mythical fashion yesterday to the realm of fact, and place it before us as though it is ancient Athens itself. And we’ll say that the citizens you imagined are the very ones the priest spoke about, our actual ancestors. The congruence will be complete, and our song will be in tune if we say that your imaginary citizens are the ones who really existed at that time. We’ll share the task among us, and we’ll all try our best to do justice to your assignment. What do you think, Socrates? Will this do as our speech, or should we look for another to replace it?

SOCRATES: Well, Critias, what other speech could we possibly prefer to this one? We’re in the midst of celebrating the festival of the goddess, and this speech really fits the occasion. So it couldn’t be more appropriate. And of course the fact that it’s no made-up story but a true account is no

5. Reading *kata bracheos* in d5.

small matter. How and where shall we find others to celebrate if we let these men go? We've no choice. Go on with your speech, then, and good
 27 luck! It's my turn now to sit back and listen to your speeches that pay back mine of yesterday.

CRITIAS: All right, Socrates, what do you think of the plan we've arranged for our guest gift to you? We thought that because Timaeus is our expert in astronomy and has made it his main business to know the nature of the universe, he should speak first, beginning with the origin of the universe, and concluding with the nature of human beings. Then I'll go next, once I'm in possession of Timaeus' account of the origin of human beings
 b and your account of how some of them came to have a superior education. I'll introduce them, as not only Solon's account but also his law would have it, into our courtroom and make them citizens of our ancient city—as really being those Athenians of old whom the report of the sacred records has rescued from obscurity—and from then on I'll speak of them as actual Athenian citizens.

SOCRATES: Apparently I'll be getting a complete, brilliant banquet of speeches in payment for my own. Very well then, Timaeus, the task of being our next speaker seems to fall to you. Why don't you make an invocation to the gods, as we customarily do?

c TIMAEUS: That I will, Socrates. Surely anyone with any sense at all will always call upon a god before setting out on any venture, whatever its importance. In our case, we are about to make speeches about the universe—whether it has an origin or even if it does not⁶—and so if we're not to go completely astray we have no choice but to call upon the gods and goddesses, and pray that they above all will approve of all we have
 d to say, and that in consequence we will, too. Let this, then, be our appeal to the gods; to ourselves we must appeal to make sure that you learn as easily as possible, and that I instruct you in the subject matter before us in the way that best conveys my intent.

As I see it, then, we must begin by making the following distinction: What is *that which always is* and has no becoming, and what is *that which becomes*⁷ but never is? The former is grasped by understanding, which
 28 involves a reasoned account. It is unchanging. The latter is grasped by opinion, which involves unreasoning sense perception. It comes to be and passes away, but never really is. Now everything that comes to be⁸ must of necessity come to be by the agency of some cause, for it is impossible for anything to come to be without a cause. So whenever the craftsman⁹

6. Reading *ei gegonen ē kai agenes estin* in c5.

7. Omitting *aei* in a1.

8. "Becoming" and "coming to be" here as elsewhere translate the same Greek word, *genesis*, and its cognates; the Greek word does not say, as English "comes to be" does, that once a thing has come to be, it now *is*, or has *being*.

9. Greek *dēmiourgos*, also sometimes translated below as "maker" (40c2, 41a7) or "fashioner" (69c3)—whence the divine "Demiurge" one reads about in accounts of the *Timaeus*.

looks at what is always changeless and, using a thing of that kind as his model, reproduces its form and character, then, of necessity, all that he so completes is beautiful. But were he to look at a thing that has come to be and use as his model something that has been begotten, his work will lack beauty.

Now as to the whole universe¹⁰ or world order [*kosmos*]^b—let's just call it by whatever name is most acceptable in a given context—there is a question we need to consider first. This is the sort of question one should begin with in inquiring into any subject. Has it always existed? Was there no origin from which it came to be? Or did it come to be and take its start from some origin? It has come to be. For it is both visible and tangible and it has a body—and all things of that kind are perceptible. And, as we have shown, perceptible things are grasped by opinion, which involves sense perception. As such, they are things that come to be, things that are begotten. Further, we maintain that, necessarily, that which comes to be must come to be by the agency of some cause. Now to find the maker and father of this universe [*to pan*] is hard enough, and even if I succeeded, to declare him to everyone is impossible. And so we must go back and raise this question about the universe: Which of the two models did the maker use when he fashioned it? Was it the one that does not change and stays the same, or the one that has come to be? Well, if this world of ours is beautiful and its craftsman good, then clearly he looked at the eternal model. But if what it's blasphemous to even say is the case, then he looked at one that has come to be. Now surely it's clear to all that it was the eternal model he looked at, for, of all the things that have come to be, our universe is the most beautiful, and of causes the craftsman is the most excellent. This, then, is how it has come to be: it is a work of craft, modeled after that which is changeless and is grasped by a rational account, that is, by wisdom. c

Since these things are so, it follows by unquestionable necessity that this world is an image of something. Now in every subject it is of utmost importance to begin at the natural beginning, and so, on the subject of an image and its model, we must make the following specification: the accounts we give of things have the same character as the subjects they set forth. So accounts of what is stable and fixed and transparent to understanding are themselves stable and unshifting. We must do our very best to make these accounts as irrefutable and invincible as any account may be. On the other hand, accounts we give of that which has been formed to be like that reality, since they are accounts of what is a likeness, are themselves likely, and stand in proportion to the previous accounts, i.e., what being is to becoming, truth is to convincingness. Don't be surprised then, Socrates, if it turns out repeatedly that we won't be able to produce accounts on a great many subjects—on gods or the coming to be of the universe—that are completely and perfectly consistent and accurate. Instead, if we can b

10. *Ouranos*, i.e., "heaven." c

d come up with accounts no less likely than any, we ought to be content, keeping in mind that both I, the speaker, and you, the judges, are only human. So we should accept the likely tale on these matters. It behooves us not to look for anything beyond this.

SOCRATES: Bravo, Timaeus! By all means! We must accept it as you say we should. This overture of yours was marvellous. Go on now and let us have the work itself.

e TIMAEUS: Very well then. Now why did he who framed this whole universe of becoming frame it? Let us state the reason why: He was good, and one who is good can never become jealous of anything. And so, being free of jealousy, he wanted everything to become as much like himself as was possible. In fact, men of wisdom will tell you (and you couldn't do
30 better than to accept their claim) that this, more than anything else, was the most preeminent reason for the origin of the world's coming to be. The god wanted everything to be good and nothing to be bad so far as that was possible, and so he took over all that was visible—not at rest but in discordant and disorderly motion—and brought it from a state of disorder to one of order, because he believed that order was in every way better than disorder. Now it wasn't permitted (nor is it now) that one who is
b supremely good should do anything but what is best. Accordingly, the god reasoned and concluded that in the realm of things naturally visible no unintelligent thing could as a whole be better than anything which does possess intelligence as a whole, and he further concluded that it is impossible for anything to come to possess intelligence apart from soul. Guided by this reasoning, he put intelligence in soul, and soul in body, and so he constructed the universe. He wanted to produce a piece of work that would be as excellent and supreme as its nature would allow. This, then, in keeping with our likely account, is how we must say divine
c providence brought our world into being as a truly living thing, endowed with soul and intelligence.

This being so, we have to go on to speak about what comes next. When the maker made our world, what living thing did he make it resemble? Let us not stoop to think that it was any of those that have the natural character of a part, for nothing that is a likeness of anything incomplete could ever turn out beautiful. Rather, let us lay it down that the universe resembles more closely than anything else that Living Thing of which all other living things are parts, both individually and by kinds. For that
d Living Thing comprehends within itself all intelligible living things, just as our world is made up of us and all the other visible creatures. Since the god wanted nothing more than to make the world like the best of the intelligible things, complete in every way, he made it a single visible living
31 thing, which contains within itself all the living things whose nature it is to share its kind.

Have we been correct in speaking of *one* universe, or would it have been more correct to say that there are many, in fact infinitely many universes? There is but one universe, if it is to have been crafted after its model. For that which contains all of the intelligible living things couldn't ever be one

of a pair, since that would require there to be yet another Living Thing, the one that contained those two, of which they then would be parts, and then it would be more correct to speak of our universe as made in the likeness, now not of those two, but of that other, the one that contains them. So, in order that this living thing should be like the complete Living Thing in respect of uniqueness, the Maker made neither two, nor yet an infinite number of worlds. On the contrary, our universe came to be as the one and only thing of its kind, is so now and will continue to be so in the future.

b

Now that which comes to be must have bodily form, and be both visible and tangible, but nothing could ever become visible apart from fire, nor tangible without something solid, nor solid without earth. That is why, as he began to put the body of the universe together, the god came to make it out of fire and earth. But it isn't possible to combine two things well all by themselves, without a third; there has to be some bond between the two that unites them. Now the best bond is one that really and truly makes a unity of itself together with the things bonded by it, and this in the nature of things is best accomplished by proportion. For whenever of three numbers which are either solids¹¹ or squares the middle term between any two of them is such that what the first term is to it, it is to the last, and, conversely, what the last term is to the middle, it is to the first, then, since the middle term turns out to be both first and last, and the last and the first likewise both turn out to be middle terms, they will all of necessity turn out to have the same relationship to each other, and, given this, will all be unified.

c

32

So if the body of the universe were to have come to be as a two dimensional plane, a single middle term would have sufficed to bind together its conjoining terms with itself. As it was, however, the universe was to be a solid, and solids are never joined together by just one middle term but always by two. Hence the god set water and air between fire and earth, and made them as proportionate to one another as was possible, so that what fire is to air, air is to water, and what air is to water, water is to earth. He then bound them together and thus he constructed the visible and tangible universe. This is the reason why these four particular constituents were used to beget the body of the world, making it a symphony of proportion.¹² They bestowed friendship¹³ upon it, so that, having come

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11. "Solids" are cubes (e.g., $2 \times 2 \times 2$, or 8).

12. A simple example of a proportionate progression that satisfies Plato's requirements in 32a might be that of 2, 4, 8. So: 2:4::4:8 (the first term is to the middle what the middle is to the last, the last term is to the middle what the middle is to the first); 4:2::8:4 or 4:8::2:4 (the middle term turns out to be first and last and the first and last terms turn out to be middles). Since, however, the body of the world is three-dimensional, its components must be represented by "solid" numbers (see previous note). This will require two middle terms.

13. Compare *Gorgias* 508a: "... Wise men claim that partnership and friendship ... hold together heaven and earth ... and that is why they call this universe a *world-order* ..."

together into a unity with itself, it could not be undone by anyone but the one who had bound it together.

- Now each one of the four constituents was entirely used up in the process of building the world. The builder built it from all the fire, water, air and earth there was, and left no part or power of any of them out. His intentions in so doing were these: First, that as a living thing it should be as whole and complete as possible and made up of complete parts. Second, that it should be just one universe, in that nothing would be left over from which another one just like it could be made. Third, that it should not get old and diseased. He realized that when heat or cold or anything else that possesses strong powers surrounds a composite body from outside and attacks it, it destroys that body prematurely, brings disease and old age upon it and so causes it to waste away. That is why he concluded that he should fashion the world as a single whole, composed of all wholes, complete and free of old age and disease, and why he fashioned it that way. And he gave it a shape appropriate to the kind of thing it was. The appropriate shape for that living thing that is to contain within itself all the living things would be the one which embraces within itself all the shapes there are. Hence he gave it a round shape, the form of a sphere, with its center equidistant from its extremes in all directions. This of all shapes is the most complete and most like itself, which he gave to it because he believed that likeness is incalculably more excellent than unlikeness. And he gave it a smooth round finish all over on the outside, for many reasons. It needed no eyes, since there was nothing visible left outside it; nor did it need ears, since there was nothing audible there, either. There was no air enveloping it that it might need for breathing, nor did it need any organ by which to take in food or, again, expel it when it had been digested. For since there wasn't anything else, there would be nothing to leave it or come to it from anywhere. It supplied its own waste for its food. Anything that it did or experienced it was designed to do or experience within itself and by itself. For the builder thought that if it were self-sufficient, it would be a better thing than if it required other things.

- And since it had no need to catch hold of or fend off anything, the god thought that it would be pointless to attach hands to it. Nor would it need feet or any support to stand on. In fact, he awarded it the movement suited to its body—that one of the seven motions which is especially associated with understanding and intelligence. And so he set it turning continuously in the same place, spinning around upon itself. All the other six motions he took away, and made its movement free of their wanderings. And since it didn't need feet to follow this circular path, he begat it without legs or feet. Applying this entire train of reasoning to the god that was yet to be, the eternal god made it smooth and even all over, equal from the center, a whole and complete body itself, but also made up of complete bodies. In its center he set a soul, which he extended throughout the whole body, and with which he then covered the body outside. And he set it to turn in a circle, a single solitary universe, whose very excellence enables it to

keep its own company without requiring anything else. For its knowledge of and friendship with itself is enough. All this, then, explains why this world which he begat for himself is a blessed god.

As for the world's soul, even though we are now embarking on an account of it *after* we've already given an account of its body, it isn't the case that the god devised it to be younger than the body. For the god would not have united them and then allow the elder to be ruled by the younger. We have a tendency to be casual and random in our speech, reflecting, no doubt, the whole realm of the casual and random of which we are a part. The god, however, gave priority and seniority to the soul, both in its coming to be and in the degree of its excellence, to be the body's mistress and to rule over it as her subject.

The components from which he made the soul and the way in which he made it were as follows: In between the *Being* that is indivisible and always changeless, and the one that is divisible and comes to be in the corporeal realm, he mixed a third, intermediate form of being, derived from the other two. Similarly, he made a mixture of the *Same*, and then one of the *Different*, in between their indivisible and their corporeal, divisible counterparts. And he took the three mixtures and mixed them together to make a uniform mixture, forcing the Different, which was hard to mix, into conformity with the Same. Now when he had mixed these two together with Being, and from the three had made a single mixture, he redivided the whole mixture into as many parts as his task required,¹⁴ each part remaining a mixture of the Same, the Different, and of Being. This is how he began the division: first he took one portion away from the whole, and then he took another, twice as large, followed by a third, one and a half times as large as the second and three times as large as the first. The fourth portion he took was twice as large as the second, the fifth three times as large as the third, the sixth eight times that of the first, and the seventh twenty-seven times that of the first.

After this he went on to fill the double and triple intervals by cutting off still more portions from the mixture and placing these between them, in such a way that in each interval there were two middle terms, one exceeding the first extreme by the same fraction of the extremes by which it was exceeded by the second, and the other exceeding the first extreme by a number equal to that by which it was exceeded by the second. These connections produced intervals of $3/2$, $4/3$, and $9/8$ within the previous intervals. He then proceeded to fill all the $4/3$ intervals with the $9/8$ interval, leaving a small portion over every time. The terms of this interval of the portion left over made a numerical ratio of $256/243$. And so it was that the mixture, from which he had cut off these portions, was eventually completely used up.

14. In order to establish in the soul, through connected geometrical proportions, the source of the harmonious order it needs to impart to the three-dimensional body of the world, and in particular to the heaven and the bodies it contains.

c Next, he sliced this entire compound in two along its length, joined the two halves together center to center like an X, and bent them back in a circle, attaching each half to itself end to end and to the ends of the other half at the point opposite to the one where they had been joined together. He then included them in that motion which revolves in the same place without variation, and began to make the one the outer, and the other the inner circle. And he decreed that the outer movement should be the movement of *the Same*, while the inner one should be that of *the Different*.¹⁵ He made the movement of the Same revolve toward the right by way of the side, and that of the Different toward the left by way of the diagonal, d and he made the revolution of the Same, i.e., the uniform, the dominant one in that he left this one alone undivided, while he divided the inner one six times, to make seven unequal circles.¹⁶ His divisions corresponded to the several double and triple intervals, of which there were three each. He set the circles to go in contrary directions: three to go at the same speed, and the other four to go at speeds different from both each other's and that of the other three. Their speeds, however, were all proportionate to each other.

e Once the whole soul had acquired a form that pleased him, he who formed it went on to fashion inside it all that is corporeal, and, joining center to center, he fitted the two together. The soul was woven together with the body from the center on out in every direction to the outermost limit of the universe, and covered it all around on the outside. And, revolving within itself, it initiated a divine beginning of unceasing, intelligent life for all time. Now while the body of the universe had come to be as a visible thing, the soul was invisible. But even so, because it shares in 37 reason and harmony, the soul came to be as the most excellent of all the things begotten by him who is himself most excellent of all that is intelligible and eternal.

b Because the soul is a mixture of the Same, the Different and Being (the three components we've described), because it was divided up and bound together in various proportions, and because it circles round upon itself, then, whenever it comes into contact with something whose being is scatterable or else with something whose being is indivisible, it is stirred throughout its whole self. It then declares what exactly that thing is the same as, or what it is different from, and in what respect and in what manner, as well as when, it turns out that they are the same or different and are

15. The outer band is the circle responsible for the constant daily rotation of the fixed stars—hence for the “movement of *the Same*.” The inner band is the circle responsible for contrary movements in the Zodiac of the seven “wandering” stars (moon and sun, plus the five planets known to the ancients)—hence for the “movements of *the Different*.”

16. These circles or bands are the ones responsible for the individual movements in the Zodiac respectively of moon, sun, Mercury, Venus, Mars, Jupiter, and Saturn, the seven “wanderers” (see 38c–d). The sun, Venus, and Mercury are the three mentioned just below as going “at the same speed” (see 38d).

characterized as such. This applies both to the things that come to be, and to those that are always changeless. And when this contact gives rise to an account that is equally true whether it is about what is different or about what is the same, and is borne along without utterance or sound within the self-moved thing, then, whenever the account concerns anything that is perceptible, the circle of the Different goes straight and proclaims it throughout its whole soul. This is how firm and true opinions and convictions come about. Whenever, on the other hand, the account concerns any object of reasoning, and the circle of the Same runs well and reveals it, the necessary result is understanding and knowledge. And if anyone should ever call that in which these two arise, not soul but something else, what he says will be anything but true.

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Now when the Father who had begotten the universe observed it set in motion and alive, a thing that had come to be as a shrine for the everlasting gods, he was well pleased, and in his delight he thought of making it more like its model still. So, as the model was itself an everlasting Living Thing, he set himself to bringing this universe to completion in such a way that it, too, would have that character to the extent that was possible. Now it was the Living Thing's nature to be eternal, but it isn't possible to bestow eternity fully upon anything that is begotten. And so he began to think of making a moving image of eternity: at the same time as he brought order to the universe, he would make an eternal image, moving according to number, of eternity remaining in unity. This number, of course, is what we now call "time."

d

For before the heavens came to be, there were no days or nights, no months or years. But now, at the same time as he framed the heavens, he devised their coming to be. These all are parts of time, and *was* and *will be* are forms of time that have come to be. Such notions we unthinkingly but incorrectly apply to everlasting being. For we say that it *was* and *is* and *will be*, but according to the true account only *is* is appropriately said of it. *Was* and *will be* are properly said about the becoming that passes in time, for these two are motions. But that which is always changeless and motionless cannot become either older or younger in the course of time—it neither ever became so, nor is it now such that it has become so, nor will it ever be so in the future. And all in all, none of the characteristics that becoming has bestowed upon the things that are borne about in the realm of perception are appropriate to it. These, rather, are forms of time that have come to be—time that imitates eternity and circles according to number. And what is more, we also say things like these: that what has come to be *is* what has come to be, that what is coming to be *is* what is coming to be, and also that what will come to be *is* what will come to be, and that what is not *is* what is not. None of these expressions of ours is accurate. But I don't suppose this is a good time right now to be too meticulous about these matters.

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Time, then, came to be together with the universe so that just as they were begotten together, they might also be undone together, should there

- c ever be an undoing of them. And it came to be after the model of that which is sempiternal, so that it might be as much like its model as possible. For the model is something that has being for all eternity, while it, on the other hand, has been, is, and shall be for all time, forevermore. Such was the reason, then, such the god's design for the coming to be of time, that he brought into being the Sun, the Moon and five other stars, for the begetting of time. These are called "wanderers," and they came to be in order to set limits to and stand guard over the numbers of time. When the god had finished making a body for each of them, he placed them into d the orbits traced by the period of the Different—seven bodies in seven orbits. He set the Moon in the first circle, around the earth, and the Sun in the second, above it. The Dawnbearer (the Morning Star, or Venus) and the star said to be sacred to Hermes (Mercury) he set to run in circles that equal the Sun's in speed, though they received the power contrary to its power. As a result, the Sun, the star of Hermes and the Dawnbearer alike overtake and are overtaken by one another. As for the other bodies, if I were to spell out where he situated them, and all his reasons for doing e so, my account, already a digression, would make more work than its purpose calls for. Perhaps later on we could at our leisure give this subject the exposition it deserves.

- Now when each of the bodies that were to cooperate in producing time had come into the movement prepared for carrying it and when, bound by bonds of soul, these bodies had been begotten with life and learned their assigned tasks, they began to revolve along the movement of the 39 Different, which is oblique and which goes through the movement of the Same, by which it is also dominated.¹⁷ Some bodies would move in a larger circle, others in a smaller one, the latter moving more quickly and the former more slowly. Indeed, because of the movement of the Same, the ones that go around most quickly appeared to be overtaken by those going more slowly, even though in fact they were overtaking them. For as it revolves, this movement gives to all these circles a spiral twist, because b they are moving forward in two contrary directions at once. As a result, it makes that body which departs most slowly from it—and it is the fastest of the movements—appear closest to it.

- And so that there might be a conspicuous measure of their relative slowness and quickness with which¹⁸ they move along in their eight revolutions, the god kindled a light in the orbit second from the earth, the light that we now call the Sun. Its chief work would be to shine upon the whole universe and to bestow upon all those living things appropriately endowed and taught by the revolution of the Same and the uniform, a share in c number. In this way and for these reasons night-and-day, the period of a single circling, the wisest one, came to be. A month has passed when the

17. Reading *ioušan . . . kratoumenēn* in a1–2.

18. Accepting the emendation *kath'ha* in b3.

Moon has completed its own cycle and overtaken the Sun; a year when the Sun has completed its own cycle.

As for the periods of the other bodies, all but a scattered few have failed to take any note of them. Nobody has given them names or investigated their numerical measurements relative to each other. And so people are all but ignorant of the fact that time really is the wanderings of these bodies, bewilderingly numerous as they are and astonishingly variegated. It is none the less possible, however, to discern that the perfect number of time brings to completion the perfect year at that moment when the relative speeds of all eight periods have been completed together and, measured by the circle of the Same that moves uniformly, have achieved their consummation. This, then, is how as well as why those stars were begotten which, on their way through the universe, would have turnings. The purpose was to make this living thing as like as possible to that perfect and intelligible Living Thing, by way of imitating its sempiternity.

Prior to the coming to be of time, the universe had already been made to resemble in various respects the model in whose likeness the god was making it, but the resemblance still fell short in that it didn't yet contain all the living things that were to have come to be within it. This remaining task he went on to perform, casting the world into the nature of its model. And so he determined that the living thing he was making should possess the same kinds and numbers of living things as those which, according to the discernment of Intellect, are contained within the real Living Thing. Now there are four of these kinds: first, the heavenly race of gods; next, the kind that has wings and travels through the air; third, the kind that lives in water; and fourth, the kind that has feet and lives on land. The gods he made mostly out of fire, to be the brightest and fairest to the eye.¹⁹ He made them well-rounded, to resemble the universe, and placed them in the wisdom of the dominant circle [i.e., of the Same], to follow the course of the universe. He spread the gods throughout the whole heaven to be a true adornment [*kosmos*] for it, an intricately wrought whole. And he bestowed two movements upon each of them. The first was rotation, an unvarying movement in the same place, by which the god would always think the same thoughts about the same things. The other was revolution, a forward motion under the dominance of the circular carrying movement of the Same and uniform. With respect to the other five motions, the gods are immobile and stationary, in order that each of them may come as close as possible to attaining perfection.

This, then, was the reason why all those everlasting and unwandering stars—divine living things which stay fixed by revolving without variation in the same place—came to be. Those that have turnings and thus wander in that sort of way came to be as previously described.

19. These are the fixed stars, i.e., those other than the moon, sun, and planets, which have already been created (cf. below, 40b).

c The Earth he devised to be our nurturer, and, because it winds around the axis that stretches throughout the universe, also to be the maker and guardian of day and night. Of the gods that have come to be within the universe, Earth ranks as the foremost, the one with greatest seniority.

To describe the dancing movements of these gods, their juxtapositions and the back-circlings and advances of their circular courses on themselves; to tell which of the gods come into line with one another at their conjunctions and how many of them are in opposition, and in what order and at which times they pass in front of or behind one another, so that some are occluded from our view to reappear once again, thereby bringing terrors and portents of things to come to those who cannot reason—to tell all this d without the use of visible models would be labor spent in vain. We will make do with this account, and so let this be the conclusion of our discussion of the nature of the visible and generated gods.

As for the other spiritual beings [*daimones*], it is beyond our task to know and speak of how they came to be. We should accept on faith the assertions of those figures of the past who claimed to be the offspring of gods. They must surely have been well informed about their own ancestors. So we e cannot avoid believing the children of gods, even though their accounts lack plausible or compelling proofs. Rather, we should follow custom and believe them, on the ground that what they claim to be reporting are matters of their own concern. Accordingly, let us accept their account of how these gods came to be and state what it is.

Earth and Heaven gave birth to Ocean and Tethys, who in turn gave birth to Phorcys, Cronus and Rhea and all the gods in that generation. 41 Cronus and Rhea gave birth to Zeus and Hera, as well as all those siblings who are called by names we know. These in turn gave birth to yet another generation. In any case, when all the gods had come to be, both the ones who make their rounds conspicuously and the ones who present themselves only to the extent that they are willing, the begetter of this universe spoke to them. This is what he said:

“O gods, works divine whose maker and father I am, whatever has come to be by my hands cannot be undone but by my consent.²⁰ Now b while it is true that anything that is bound is liable to being undone, still, only one who is evil would consent to the undoing of what has been well fitted together and is in fine condition. This is the reason why you, as creatures that have come to be, are neither completely immortal nor exempt from being undone. Still, you will not be undone nor will death be your portion, since you have received the guarantee of my will—a greater, more sovereign bond than those with which you were bound when you came to be. Learn now, therefore, what I declare to you. There remain still three kinds of mortal beings that have not yet been begotten; and as long as c they have not come to be, the universe will be incomplete, for it will still lack within it all the kinds of living things it must have if it is to be

20. Accepting the emendation *theiōn* and the supplement <ta> before *di' emou* in a7.

sufficiently complete. But if these creatures came to be and came to share in life by my hand, they would rival the gods. It is you, then, who must turn yourselves to the task of fashioning these living things, as your nature allows. This will assure their mortality, and this whole universe will really be a completed whole. Imitate the power I used in causing you to be. And to the extent that it is fitting for them to possess something that shares our name of 'immortal', something described as divine and ruling within those of them who always consent to follow after justice and after you, I shall begin by sowing that seed, and then hand it over to you. The rest of the task is yours. Weave what is mortal to what is immortal, fashion and beget living things. Give them food, cause them to grow, and when they perish, receive them back again."

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When he had finished this speech, he turned again to the mixing bowl he had used before, the one in which he had blended and mixed the soul of the universe. He began to pour into it what remained of the previous ingredients and to mix them in somewhat the same way, though these were no longer invariably and constantly pure, but of a second and third grade of purity. And when he had compounded it all, he divided the mixture into a number of souls equal to the number of the stars and assigned each soul to a star. He mounted each soul in a carriage, as it were, and showed it the nature of the universe. He described to them the laws that had been foreordained: They would all be assigned one and the same initial birth, so that none would be less well treated by him than any other. Then he would sow each of the souls into that instrument of time suitable to it, where they were to acquire the nature of being the most god-fearing of living things, and, since humans have a twofold nature, the superior kind should be such as would from then on be called "man." So, once the souls were of necessity implanted in bodies, and these bodies had things coming to them and leaving them, the first innate capacity they would of necessity come to have would be sense perception, which arises out of forceful disturbances. This they all would have. The second would be love, mingled with pleasure and pain. And they would come to have fear and spiritedness as well, plus whatever goes with having these emotions, as well as all their natural opposites. And if they could master these emotions, their lives would be just, whereas if they were mastered by them, they would be unjust. And if a person lived a good life throughout the due course of his time, he would at the end return to his dwelling place in his companion star, to live a life of happiness that agreed with his character. But if he failed in this, he would be born a second time, now as a woman. And if even then he still could not refrain from wickedness, he would be changed once again, this time into some wild animal that resembled the wicked character he had acquired. And he would have no rest from these toilsome transformations until he had dragged that massive accretion of fire-water-air-earth into conformity with the revolution of the Same and uniform within him, and so subdued that turbulent, irrational mass by means of reason. This would return him to his original condition of excellence.

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Having set out all these ordinances to them—which he did to exempt himself from responsibility for any evil they might afterwards do—the god proceeded to sow some of them into the Earth, some into the Moon, and others into the various other instruments of time. After the sowing, he handed over to the young gods the task of weaving mortal bodies. He had them make whatever else remained that the human soul still needed
 e to have, plus whatever goes with those things. He gave them the task of ruling over these mortal living things and of giving them the finest, the best possible guidance they could give, without being responsible for any evils these creatures might bring upon themselves.

When he had finished assigning all these tasks, he proceeded to abide at rest in his own customary nature. His children immediately began to attend to and obey their father's assignment. Now that they had received the immortal principle of the mortal living thing, they began to imitate the craftsman who had made them. They borrowed parts of fire, earth,
 43 water and air from the world, intending to pay them back again, and bonded together into a unity the parts they had taken, but not with those indissoluble bonds by which they themselves were held together. Instead, they proceeded to fuse them together with copious rivets so small as to be invisible, thereby making each body a unit made up of all the components. And they went on to invest this body—into and out of which things were to flow—with the orbits of the immortal soul. These orbits, now bound within a mighty river, neither mastered that river nor were mastered by it, but tossed it violently and were violently tossed by it. Consequently
 b the living thing as a whole did indeed move, but it would proceed in a disorderly, random and irrational way that involved all six of the motions.²¹ It would go forwards and backwards, then back and forth to the right and the left, and upwards and downwards, wandering every which way in these six directions. For mighty as the nourishment-bearing billow was in its ebb and flow, mightier still was the turbulence produced by the disturbances caused by the things that struck against the living things.
 c Such disturbances would occur when the body encountered and collided with external fire (i.e., fire other than the body's own) or for that matter with a hard lump of earth or with the flow of gliding waters, or when it was caught up by a surge of air-driven winds. The motions produced by all these encounters would then be conducted through the body to the soul, and strike against it. (That is no doubt why these motions as a group came afterwards to be called "sensations," as they are still called today.)²² It was just then, at that very instant, that they produced a very long and
 d intense commotion. They cooperated with the continually flowing channel

21. Timaeus is here describing the uncontrolled movements of a new-born animal. He goes on to describe the confusion produced in its soul by its first sensations.

22. It is not clear what etymological point involving the word *aisthēseis* (sensations) Plato wants to make here. Perhaps he thinks (incorrectly) that *aisthēsis* is etymologically related to *aïssein*, "to shake."

to stir and violently shake the orbits of the soul. They completely bound that of the Same by flowing against it in the opposite direction, and held it fast just as it was beginning to go its way. And they further shook the orbit of the Different right through, with the result that they twisted every which way the three intervals of the double and the three of the triple, as well as the middle terms of the ratios of $3/2$, $4/3$ and $9/8$ that connect them.²³ [These agitations did not undo them, however,] because they cannot be completely undone except by the one who had bound them together. They mutilated and disfigured the circles in every possible way so that the circles barely held together and though they remained in motion, they moved without rhyme or reason, sometimes in the opposite direction, sometimes sideways and sometimes upside down—like a man upside down, head propped against the ground and holding his feet up against something. In that position his right side will present itself both to him and to those looking at him as left, and his left side as right. It is this very thing—and others like it—that had such a dramatic effect upon the revolutions of the soul. Whenever they encounter something outside of them characterizable as *same* or *different*, they will speak of it as “the same as” something, or as “different from” something else when the truth is just the opposite, so proving themselves to be misled and unintelligent. Also, at this stage souls do not have a ruling orbit taking the lead. And so when certain sensations come in from outside and attack them, they sweep the soul’s entire vessel along with them. It is then that these revolutions, however much in control they seem to be, are actually under their control. All these disturbances are no doubt the reason why even today and not only at the beginning, whenever a soul is bound within a mortal body, it at first lacks intelligence. But as the stream that brings growth and nourishment diminishes and the soul’s orbits regain their composure, resume their proper courses and establish themselves more and more with the passage of time, their revolutions are set straight, to conform to the configuration each of the circles takes in its natural course. They then correctly identify what is the same and what is different, and render intelligent the persons who possess them. And to be sure, if such a person also gets proper nurture to supplement his education, he’ll turn out perfectly whole and healthy, and will have escaped the most grievous of illnesses. But if he neglects this, he’ll limp his way through life and return to Hades uninitiated and unintelligent.

But this doesn’t happen until later. Our present subject, on the other hand, needs a more detailed treatment. We must move on to treat the prior questions—the ones that deal with how bodies came to be, part by part, as well as the soul. What were the gods’ reasons, what was their plan when they caused these to be? In discussing these questions we shall hold fast to what is most likely, and proceed accordingly.

23. See 36b above.

Copying the revolving shape of the universe, the gods bound the two divine orbits into a ball-shaped body, the part that we now call our head. This is the most divine part of us, and master of all our other parts. They then assembled the rest of the body and handed the whole of it to the head, to be in its service. They intended it to share in all the motions there
 e were to be. To keep the head from rolling around on the ground without any way of getting up over its various high spots and out of the low, they gave it the body as a vehicle to make its way easy. This is the reason why the body came to have length and grow four limbs that could flex and extend themselves, divinely devised for the purpose of getting about. Holding on and supporting itself with these limbs, it would be capable of
 45 making its way through all regions, while carrying at the top the dwelling place of that most divine, most sacred part of ourselves. This is how as well as why we have all grown arms and legs. And considering the front side to be more honorable and more commanding than the back, the gods gave us the ability to travel for the most part in this direction. Human beings no doubt ought to have the front sides of their bodies distinguishable from and dissimilar to their backs, and so the gods began by setting the
 b face on that side of the head, the soul's vessel. They bound organs inside it to provide completely for the soul, and they assigned this side, the natural front, to be the part that takes the lead.

The eyes were the first of the organs to be fashioned by the gods, to conduct light. The reason why they fastened them within the head is this. They contrived that such fire as was not for burning but for providing a gentle light should become a body, proper to each day. Now the pure fire inside us, cousin to that fire, they made to flow through the eyes: so they made the eyes—the eye as a whole but its middle in particular—close-
 c textured, smooth and dense, to enable them to keep out all the other, coarser stuff, and let that kind of fire pass through pure by itself. Now whenever daylight surrounds the visual stream, like makes contact with like and coalesces with it to make up a single homogeneous body aligned with the direction of the eyes. This happens wherever the internal fire strikes and presses against an external object it has connected with. And because this body of fire has become uniform throughout and thus uni-
 d formly affected, it transmits the motions of whatever it comes in contact with as well as of whatever comes in contact with it, to and through the whole body until they reach the soul. This brings about the sensation we call “seeing.” At night, however, the kindred fire has departed and so the visual stream is cut off. For now it exits only to encounter something unlike itself. No longer able to bond with the surrounding air, which now has lost its fire, it undergoes changes and dies out. So it not only stops seeing, but even begins to induce sleep. For when the eyelids—which the gods
 e devised to keep eyesight safe—are closed, they shut in the power of the internal fire, which then disperses and evens out the internal motions, and when these have been evened out, a state of quietness ensues. And if this quietness is deep, one falls into an all but dreamless sleep. But if some

fairly strong motions remain, they produce images similar in kind and in number to the kind of motions they are, and the kind of regions in which they remain—images which, though formed within, are recalled upon waking as external objects.

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And so there is no longer any difficulty in understanding how images are produced in mirrors or in any other smooth reflecting surfaces. On such occasions the internal fire joins forces with the external fire, to form on the smooth surface a single fire which is reshaped in a multitude of ways. So once the fire from the face comes to coalesce with the fire from sight on the smooth and bright surface, you have the inevitable appearance of all images of this sort. What is left will appear as right, because the parts of the fire from sight connect with the opposite parts of the fire from the face, contrary to the usual manner of encounter. But, on the other hand, what is right does appear as right, and what is left as left whenever light switches sides in the process of coalescing with the light with which it coalesces. And this happens whenever the mirror's smooth surface is curled upwards on both sides, thereby bending the right part of the fire from sight towards the left, and the left part towards the right. And when this same smooth surface is turned along the length of the face [i.e., vertically], it makes the whole object appear upside down, because it bends the lower part of the ray toward the top, and the upper part toward the bottom.

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Now all of the above are among the auxiliary causes employed in the service of the god as he does his utmost to bring to completion the character of what is most excellent. But because they make things cold or hot, compact or disperse them, and produce all sorts of similar effects, most people regard them not as auxiliary causes, but as the actual causes of all things. Things like these, however, are totally incapable of possessing any reason or understanding about anything. We must pronounce the soul to be the only thing there is that properly possesses understanding. The soul is an invisible thing, whereas fire, water, earth and air have all come to be as visible bodies. So anyone who is a lover of understanding and knowledge must of necessity pursue as primary causes those that belong to intelligent nature, and as secondary all those belonging to things that are moved by others and that set still others in motion by necessity. We too, surely, must do likewise: we must describe both types of causes, distinguishing those which possess understanding and thus fashion what is beautiful and good, from those which, when deserted by intelligence, produce only haphazard and disorderly effects every time.

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Let us conclude, then, our discussion of the accompanying auxiliary causes that gave our eyes the power which they now possess. We must next speak of that supremely beneficial function for which the god gave them to us. As my account has it, our sight has indeed proved to be a source of supreme benefit to us, in that none of our present statements about the universe could ever have been made if we had never seen any stars, sun or heaven. As it is, however, our ability to see the periods of

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day-and-night, of months and of years, of equinoxes and solstices, has led to the invention of number, and has given us the idea of time and opened
 b the path to inquiry into the nature of the universe. These pursuits have given us philosophy, a gift from the gods to the mortal race whose value neither has been nor ever will be surpassed. I'm quite prepared to declare this to be the supreme good our eyesight offers us. Why then should we exalt all the lesser good things, which a non-philosopher struck blind would "lament and bewail in vain"?²⁴ Let us rather declare that the cause and purpose of this supreme good is this: the god invented sight and gave it to us so that we might observe the orbits of intelligence in the universe
 c and apply them to the revolutions of our own understanding. For there is a kinship between them, even though our revolutions are disturbed, whereas the universal orbits are undisturbed. So once we have come to know them and to share in the ability to make correct calculations according to nature, we should stabilize the straying revolutions within ourselves by imitating the completely unstraying revolutions of the god.

Likewise, the same account goes for sound and hearing—these too are the gods' gifts, given for the same purpose and intended to achieve the same result. Speech was designed for this very purpose—it plays the
 d greatest part in its achievement. And all such composition as lends itself to making audible musical sound²⁵ is given in order to express harmony, and so serves this purpose as well. And harmony, whose movements are akin to the orbits within our souls, is a gift of the Muses, if our dealings with them are guided by understanding, not for irrational pleasure, for which people nowadays seem to make use of it, but to serve as an ally in the fight to bring order to any orbit in our souls that has become unharmonized, and make it concordant with itself. Rhythm, too, has likewise been
 e given us by the Muses for the same purpose, to assist us. For with most of us our condition is such that we have lost all sense of measure, and are lacking in grace.

Now in all but a brief part of the discourse I have just completed I have presented what has been crafted by Intellect. But I need to match this account by providing a comparable one concerning the things that have
 48 come about by Necessity. For this ordered world is of mixed birth: it is the offspring of a union of Necessity and Intellect. Intellect prevailed over Necessity by persuading it to direct most of the things that come to be toward what is best, and the result of this subjugation of Necessity to wise persuasion was the initial formation of this universe. So if I'm to tell the story of how it really came to be in this way, I'd also have to introduce the character of the Straying Cause—how it is its nature to set things adrift.
 b I shall have to retrace my steps, then, and, armed with a second starting point that also applies to these same things, I must go back once again to

24. A near-quotation from Euripides, *Phoenician Women*, 1762.

25. Reading *phōnēs* in d1.

the beginning and start my present inquiry from there, just as I did with my earlier one.

We shall of course have to study the intrinsic nature of fire, water, air and earth prior to the heaven's coming to be, as well as the properties they had then. So far no one has as yet revealed how these four came to be. We tend to posit them as the elemental "letters" of the universe and tell people they are its "principles" on the assumption that they know what fire and the other three are. In fact, however, they shouldn't even be compared to syllables. Only a very unenlightened person might be expected to make such a comparison. So let me now proceed with my treatment in the following way: for the present I cannot state "the principle" or "principles" of all things, or however else I think about them, for the simple reason that it is difficult to show clearly what my view is if I follow my present manner of exposition. Please do not expect me to do so then. I couldn't convince even myself that I could be right to commit myself to undertaking a task of such magnitude. I shall keep to what I stated at the beginning, the virtue of likely accounts, and so shall try right from the start to say about things, both individually and collectively, what is no less likely than any—more likely, in fact, than what I have said before.²⁶ Let us therefore at the outset of this discourse call upon the god to be our savior this time, too, to give us safe passage through a strange and unusual exposition, and lead us to a view of what is likely. And so let me begin my speech again.

The new starting point in my account of the universe needs to be more complex than the earlier one. Then we distinguished two kinds, but now we must specify a third, one of a different sort. The earlier two sufficed for our previous account: one was proposed as a model, intelligible and always changeless, a second as an imitation of the model, something that possesses becoming and is visible. We did not distinguish a third kind at the time, because we thought that we could make do with the two of them. Now, however, it appears that our account compels us to attempt to illuminate in words a kind that is difficult and vague. What must we suppose it to do and to be? This above all: it is a *receptacle* of all becoming—its wetnurse, as it were.

However true that statement may be, we must nevertheless describe it more clearly. This is a difficult task, particularly because it requires us to raise a preliminary problem about fire and the other three:

It is difficult to say of each of them—in a way that employs a reliable and stable account—which one is the sort of thing one should really call *water* rather than *fire*, or which one one should call some one of these rather than just any and every one of them. What problem, then, do they present for us to work through in likely fashion? And then how and in what manner are we to go on to speak about this third kind?

26. Accepting the insertion of <ton> after *mallon de* in d3.

c First, we see (or think we see) the thing that we have just now been calling *water* condensing and turning to stones and earth. Next, we see this same thing dissolving and dispersing, turning to wind and air, and air, when ignited, turning to fire. And then we see fire being condensed and extinguished and turning back to the form of air, and air coalescing and thickening and turning back into cloud and mist. When these are compressed still more we see them turning into flowing water, which we see turning to earth and stones once again. In this way, then, they transmit their coming to be one to the other in a cycle, or so it seems. Now then, d since none of these appears ever to remain the same, which one of them can one categorically assert, without embarrassment, to be some particular thing, *this* one, and not something else? One can't. Rather, the safest course by far is to propose that we speak about these things in the following way: what we invariably observe becoming different at different times—fire for example—to characterize that, i.e., fire, not as “this,” but each time as “what is such,” and speak of water not as “this,” but always as “what is such.” And never to speak of anything else as “this,” as though it has e some stability, of all the things at which we point and use the expressions “that” and “this” and so think we are designating something. For it gets away without abiding the charge of “that” and “this,” or any other expression that indicts them of being stable. It is in fact safest not to refer to it by any of these expressions. Rather, “what is such”—coming around like what it was, again and again—*that's* the thing to call it in each and every case. So fire—and generally everything that has becoming—it is safest to call “what is altogether such.” But that *in* which they each appear to keep coming into being and *from* which they subsequently pass out of being, 50 *that's* the only thing to refer to by means of the expressions “that” and “this.” A thing that is some “such” or other, however,—hot or white, say, or any one of the opposites, and all things constituted by these—should be called none of these things [i.e., “this” or “that”].²⁷

27. An alternative translation of 49c7–50a4 has been proposed by H. F. Cherniss (*Am. J. of Philol.* 75, 113 ff.):

Since these thus never appear as severally identical, concerning which of them could one without shame firmly assert that this is any particular thing and not another? It is not possible, but by far the safest way is to speak of them on this basis: What we ever see coming to be at different times in different places, for example fire, not to say “this is fire,” but “what on any occasion is such and such is fire,” nor “this is water,” but “what is always such and such is water,” nor ever “[this],” as if it had some permanence, “is some other” of the things that we think we are designating as something when by way of pointing we use the term “this” or “that.” For it slips away and does not abide the assertion of “that” and “this” or any assertion that indicts them of being stable. But [it is safest] not to speak of these as severally distinct but so to call the such and such that always recurs alike in each and all cases together, for example [to call] that which is always such and such fire, and so with everything

I must make one more effort to describe it, more clearly still. Suppose you were molding gold into every shape there is, going on non-stop remolding one shape into the next. If someone then were to point at one of them and ask you, "What is it?," your safest answer by far, with respect to truth, would be to say, "gold," but never "triangle" or any of the other shapes that come to be in the gold, as though it *is* these, because they change even while you're making the statement. However, that answer, too, should be satisfactory, as long as the shapes are willing to accept "what is such" as someone's designation. This has a degree of safety.

Now the same account, in fact, holds also for that nature which receives all the bodies. We must always refer to it by the same term, for it does not depart from its own character in any way. Not only does it always receive all things, it has never in any way whatever taken on any characteristic similar to any of the things that enter it. Its nature is to be available for anything to make its impression upon, and it is modified, shaped and reshaped by the things that enter it. These are the things that make it appear different at different times. The things that enter and leave it are imitations of those things that always are, imprinted after their likeness in a marvellous way that is hard to describe. This is something we shall pursue at another time. For the moment, we need to keep in mind three types of things: that which comes to be, that in which it comes to be, and that after which the thing coming to be is modeled, and which is the source of its coming to be. It is in fact appropriate to compare the receiving thing to a mother, the source to a father, and the nature between them to their offspring. We also must understand that if the imprints are to be varied, with all the varieties there to see, this thing upon which the imprints are to be formed could not be well prepared for that role if it were not itself devoid of any of those characters that it is to receive from elsewhere. For if it resembled any of the things that enter it, it could not successfully copy their opposites or things of a totally different nature whenever it were to receive them. It would be showing its own face as well. This is why the thing that is to receive in itself all the elemental kinds must be totally devoid of any characteristics. Think of people who make fragrant ointments. They expend skill and ingenuity to come up with something just like this [i.e., a neutral base], to have on hand to start with. The liquids that are to receive the fragrances they make as odorless as possible. Or think of people who work at impressing shapes upon soft materials. They emphatically refuse to allow any such material to already have some definite shape. Instead, they'll even it out and make it as smooth as it can be. In the same

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that comes to be; and, on the other hand, that in which these severally distinct characteristics are ever and anon being manifested as they come to be in it and out of which again they are passing away, it is safest to designate it alone when we employ the word "this" or "that" but what is of any kind soever, hot or white or any of the contraries and all that consist of these, not in turn to call it any of these.

- way, then, if the thing that is to receive repeatedly throughout its whole self the likenesses of the intelligible objects, the things which always are²⁸—if it is to do so successfully, then it ought to be devoid of any inherent characteristics of its own. This, of course, is the reason why we shouldn't call the mother or receptacle of what has come to be, of what is visible or perceivable in every other way, either earth or air, fire or water, or any of their compounds or their constituents. But if we speak of it as an invisible and characterless sort of thing, one that receives all things and shares in a most perplexing way in what is intelligible, a thing extremely difficult to comprehend, we shall not be misled. And in so far as it is possible to arrive at its nature on the basis of what we've said so far, the most correct way to speak of it may well be this: the part of it that gets ignited appears on each occasion as fire, the dampened part as water, and parts as earth or air in so far as it receives the imitations of these.

- But we must prefer to conduct our inquiry by means of rational argument. Hence we should make a distinction like the following: Is there such a thing as a Fire *by itself*? Do all these things of which we always say that each of them is something "by itself" really exist? Or are the things we see, and whatever else we perceive through the body, the only things that possess this kind of actuality, so that there is absolutely nothing else besides them at all? Is our perpetual claim that there exists an intelligible Form for each thing a vacuous gesture, in the end nothing but mere talk? Now we certainly will not do justice to the question before us if we dismiss it, leaving it undecided and unadjudicated, and just insist that such things exist, but neither must we append a further lengthy digression to a discourse already quite long. If, however, a significant distinction formulated in few words were to present itself, that would suit our present needs best of all. So here's how I cast my own vote: If understanding and true opinion are distinct, then these "by themselves" things definitely exist—these Forms, the objects not of our sense perception, but of our understanding only. But if—as some people think—true opinion does not differ in any way from understanding, then all the things we perceive through our bodily senses must be assumed to be the most stable things there are. But we do have to speak of understanding and true opinion as distinct, of course, because we can come to have one without the other, and the one is not like the other. It is through instruction that we come to have understanding, and through persuasion that we come to have true belief. Understanding always involves a true account while true belief lacks any account. And while understanding remains unmoved by persuasion, true belief gives in to persuasion. And of true belief, it must be said, all men have a share, but of understanding, only the gods and a small group of people do.
- Since these things are so, we must agree that that which keeps its own form unchangingly, which has not been brought into being and is not

28. Accepting the insertion of *noētōn* before *pantōn* in a1.

destroyed, which neither receives into itself anything else from anywhere else, nor itself enters into anything else anywhere, is one thing. It is invisible—it cannot be perceived by the senses at all—and it is the role of understanding to study it. The second thing is that which shares the other's name and resembles it. This thing can be perceived by the senses, and it has been begotten. It is constantly borne along, now coming to be in a certain place and then perishing out of it. It is apprehended by opinion, which involves sense perception. And the third type is space, which exists always and cannot be destroyed. It provides a fixed state for all things that come to be. It is itself apprehended by a kind of bastard reasoning that does not involve sense perception, and it is hardly even an object of conviction. We look at it as in a dream when we say that everything that exists must of necessity be somewhere, in some place and occupying some space, and that that which doesn't exist somewhere, whether on earth or in heaven, doesn't exist at all.

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We prove unable to draw all these distinctions and others related to them—even in the case of that unsleeping, truly existing reality—because our dreaming state renders us incapable of waking up and stating the truth, which is this: Since that for which an image has come to be is not at all intrinsic to the image, which is invariably borne along to picture something else, it stands to reason that the image should therefore come to be *in* something else, somehow clinging to being, or else be nothing at all. But that which really is receives support from the accurate, true account—that as long as the one is distinct from the other, neither of them ever comes to be in the other in such a way that they at the same time become one and the same, and also two.

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Let this, then, be a summary of the account I would offer, as computed by my “vote.” There are being, space, and becoming, three distinct things which existed even before the universe came to be.

Now as the wetnurse of becoming turns watery and fiery and receives the character of earth and air, and as it acquires all the properties that come with these characters, it takes on a variety of visible aspects, but because it is filled with powers that are neither similar nor evenly balanced, no part of it is in balance. It sways irregularly in every direction as it is shaken by those things, and being set in motion it in turn shakes them. And as they are moved, they drift continually, some in one direction and others in others, separating from one another. They are winnowed out, as it were, like grain that is sifted by winnowing sieves or other such implements. They are carried off and settle down, the dense and heavy ones in one direction, and the rare and light ones to another place.

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That is how at that time the four kinds were being shaken by the receiver, which was itself agitating like a shaking machine, separating the kinds most unlike each other furthest apart and pushing those most like each other closest together into the same region. This, of course, explains how these different kinds came to occupy different regions of space, even before the universe was set in order and constituted from them at its coming to

- b be. Indeed, it is a fact that before this took place the four kinds all lacked proportion and measure, and at the time the ordering of the universe was undertaken, fire, water, earth and air initially possessed certain traces of what they are now. They were indeed in the condition one would expect thoroughly god-forsaken things to be in. So, finding them in this natural condition, the first thing the god then did was to give them their distinctive shapes, using forms and numbers.

- c Here is a proposition we shall always affirm above all else: The god fashioned these four kinds to be as perfect and excellent as possible, when they were not so before. It will now be my task to explain to you what structure each of them acquired, and how each came to be. My account will be an unusual one, but since you are well schooled in the fields of learning in terms of which I must of necessity proceed with my exposition, I'm sure you'll follow me.

- d First of all, everyone knows, I'm sure, that fire, earth, water and air are bodies. Now everything that has bodily form also has depth. Depth, moreover, is of necessity comprehended within surface, and any surface bounded by straight lines is composed of triangles. Every triangle, moreover, derives from two triangles, each of which has one right angle and two acute angles. Of these two triangles, one [the isosceles right-angled triangle] has at each of the other two vertices an equal part of a right angle, determined by its division by equal sides; while the other [the scalene right-angled triangle] has unequal parts of a right angle at its other two vertices, determined by the division of the right angle by unequal sides. This, then, we presume to be the originating principle of fire and of the other bodies, as we pursue our likely account in terms of Necessity. Principles yet more ultimate than these are known only to the god, and to any man he may hold dear.

- e We should now say which are the most excellent four bodies that can come to be. They are quite unlike each other, though some of them are capable of breaking up and turning into others and vice-versa. If our account is on the mark, we shall have the truth about how earth and fire and their proportionate intermediates [water and air] came to be. For we shall never concede to anyone that there are any visible bodies more excellent than these, each conforming to a single kind. So we must wholeheartedly proceed to fit together the four kinds of bodies of surpassing excellence, and to declare that we have come to grasp their natures well enough.

- 54 Of the two [right-angled] triangles, the isosceles has but one nature, while the scalene has infinitely many. Now we have to select the most excellent one from among the infinitely many, if we are to get a proper start. So if anyone can say that he has picked out another one that is more excellent for the construction of these bodies, his victory will be that of a friend, not an enemy. Of the many [scalene right-angled] triangles, then, we posit as the one most excellent, surpassing the others, that one from [a pair of] which the equilateral triangle is constructed as a third figure.

Why this is so is too long a story to tell now. But if anyone puts this claim to the test and discovers that it isn't so, his be the prize, with our congratulations. So much, then, for the selection of the two triangles out of which the bodies of fire and the other bodies are constructed—the [right-angled] isosceles, and [the right-angled] scalene whose longer side squared is always triple its shorter side squared [i.e., the half-equilateral].

At this point we need to formulate more precisely something that was not stated clearly earlier. For then it appeared that all four kinds of bodies could turn into one another by successive stages.²⁹ But the appearance is wrong. While there are indeed four kinds of bodies that come to be from the [right-angled] triangles we have selected, three of them come from triangles that have unequal sides, whereas the fourth alone is fashioned out of isosceles triangles. Thus not all of them have the capacity of breaking up and turning into one another, with a large number of small bodies turning into a small number of large ones and vice-versa. There are three that can do this. For all three are made up of a single type of triangle, so that when once the larger bodies are broken up, the same triangles can go to make up a large number of small bodies, assuming shapes appropriate to them. And likewise, when numerous small bodies are fragmented into their triangles, these triangles may well combine to make up some single massive body belonging to another kind.

So much, then, for our account of how these bodies turn into one another. Let us next discuss the form that each of them has come to have, and the various numbers that have combined to make them up.

Leading the way will be the primary form [the tetrahedron], the tiniest structure, whose elementary triangle is the one whose hypotenuse is twice the length of its shorter side. Now when a pair of such triangles are juxtaposed along the diagonal [i.e., their hypotenuses] and this is done three times, and their diagonals and short sides converge upon a single point as center, the result is a single equilateral triangle, composed of six such triangles. When four of these equilateral triangles are combined, a single solid angle is produced at the junction of three plane angles. This, it turns out, is the angle which comes right after the most obtuse of the plane angles.³⁰ And once four such solid angles have been completed, we get the primary solid form, which is one that divides the entire circumference [sc. of the sphere in which it is inscribed] into equal and similar parts.

The second solid form [the octahedron] is constructed out of the same triangles which, however, are now arranged in eight equilateral triangles and produce a single solid angle out of four plane angles. And when six such solid angles have been produced, the second body has reached its completion.

Now the third body [the icosahedron] is made up of a combination of one hundred and twenty of the elementary triangles, and of twelve solid

29. Cf. 49b–c.

30. The solid angle is the conjunction of three 60° plane angles, totalling 180°.

angles, each enclosed by five plane equilateral triangles. This body turns out to have twenty equilateral triangular faces. And let us take our leave of this one of the elementary triangles, the one that has begotten the above three kinds of bodies and turn to the other one, the isosceles [right-angled] triangle, which has begotten the fourth [the cube]. Arranged in sets of four whose right angles come together at the center, the isosceles triangle produced a single equilateral quadrangle [i.e., a square]. And when six of these quadrangles were combined together, they produced eight solid angles, each of which was constituted by three plane right angles. The shape of the resulting body so constructed is a cube, and it has six quadrangular equilateral faces.

One other construction, a fifth, still remained, and this one the god used for the whole universe, embroidering figures on it.³¹

Anyone following this whole line of reasoning might very well be puzzled about whether we should say that there are infinitely many worlds or a finite number of them. If so, he would have to conclude that to answer, “infinitely many,” is to take the view of one who is really “unfinished” in things he ought to be “finished” in. He would do better to stop with the question whether we should say that there’s really just one world or five and be puzzled about that. Well, our “probable account” answer declares there to be but one world, a god—though someone else, taking other things into consideration, will come to a different opinion. We must set him aside, however.

Let us now assign to fire, earth, water and air the structures which have just been given their formations in our speech. To earth let us give the cube, because of the four kinds of bodies earth is the most immobile and the most pliable—which is what the solid whose faces are the most secure must of necessity turn out to be, more so than the others. Now of the [right-angled] triangles we originally postulated, the face belonging to those that have equal sides has a greater natural stability than that belonging to triangles that have unequal sides, and the surface that is composed of the two triangles, the equilateral quadrangle [the square], holds its position with greater stability than does the equilateral triangle, both in their parts and as wholes. Hence, if we assign this solid figure to earth, we are preserving our “likely account.” And of the solid figures that are left, we shall next assign the least mobile of them to water, to fire the most mobile, and to air the one in between. This means that the tiniest body belongs to fire, the largest to water, and the intermediate one to air—and also that the body with the sharpest edges belongs to fire, the next sharpest to air, and the third sharpest to water. Now in all these cases the body that has the fewest faces is of necessity the most mobile, in that it, more than any other, has edges that are the sharpest and best fit for cutting in every direction. It is also the lightest, in that it is made up of the least

31. The dodecahedron, the remaining one of the regular solids. It approaches most nearly a sphere in volume—the shape of the universe, on Timaeus’ story.

number of identical parts. The second body ranks second in having these same properties, and the third ranks third. So let us follow our account, which is not only likely but also correct, and take the solid form of the pyramid that we saw constructed as the element or the seed of fire. And let us say that the second form in order of generation is that of air, and the third that of water.

Now we must think of all these bodies as being so small that due to their small size none of them, whatever their kind, is visible to us individually. When, however, a large number of them are clustered together, we do see them in bulk. And in particular, as to the proportions among their numbers, their motions and their other properties, we must think that when the god had brought them to complete and exact perfection (to the degree that Necessity was willing to comply obediently), he arranged them together proportionately.

Given all we have said so far about the kinds of elemental bodies, the following account [of their transformations] is the most likely: When earth encounters fire and is broken up by fire's sharpness, it will drift about—whether the breaking up occurred within fire itself, or within a mass of air or water—until its parts meet again somewhere, refit themselves together and become earth again. The reason is that the parts of earth will never pass into another form. But when water is broken up into parts by fire or even by air, it could happen that the parts recombine to form one corpuscle of fire and two of air. And the fragments of air could produce, from any single particle that is broken up, two fire corpuscles. And conversely, whenever a small amount of fire is enveloped by a large quantity of air or water or perhaps earth and is agitated inside them as they move, and in spite of its resistance is beaten and shattered to bits, then any two fire corpuscles may combine to constitute a single form of air. And when air is overpowered and broken down, then two and one half entire forms of air will be consolidated into a single, entire form of water.

Let us recapitulate and formulate our account of these transformations as follows: Whenever one of the other kinds is caught inside fire and gets cut up by the sharpness of fire's angles and edges, then if it is reconstituted as fire, it will stop getting cut. The reason is that a thing of any kind that is alike and uniform is incapable of effecting any change in, or being affected by, anything that is similar to it. But as long as something involved in a transformation has something stronger than it to contend with, the process of its dissolution will continue non-stop. And likewise, when a few of the smaller corpuscles are surrounded by a greater number of bigger ones, they will be shattered and quenched. The quenching will stop when these smaller bodies are willing to be reconstituted into the form of the kind that prevailed over them, and so from fire will come air, and from air, water. But if these smaller corpuscles are in process of turning into these and one of the other kinds encounters them and engages them in battle, their dissolution will go on non-stop until they are either completely squeezed and broken apart and escape to their own likes, or else are

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defeated, and, melding from many into one, they are assimilated to the kind that prevailed over them, and come to share its abode from then on.

- c And, what is more, as they undergo these processes, they all exchange their territories: for as a result of the Receptacle's agitation the masses of each of the kinds are separated from one another, with each occupying its own region, but because some parts of a particular kind do from time to time become unlike their former selves and like the other kinds, they are carried by the shaking towards the region occupied by whatever masses they are becoming like to.

- d These, then, are the sorts of causes by which the unalloyed primary bodies have come to be. Now the fact that different varieties are found within their respective forms is to be attributed to the constructions of each of the elementary triangles. Each of these two constructions did not originally yield a triangle that had just one size, but triangles that were both smaller and larger, numerically as many as there are varieties within a given form. That is why when they are mixed with themselves and with each other they display an infinite variety, which those who are to employ a likely account in their study of nature ought to take note of.

- e Now as for motion and rest, unless there is agreement on the manner and the conditions in which these two come to be, we will have many obstacles to face in our subsequent course of reasoning. Although we have already said something about them, we need to say this as well: there will be no motion in a state of uniformity. For it is difficult, or rather impossible, for something to be moved without something to set it in motion, or something to set a thing in motion without something to be moved by it. When either is absent, there is no motion, but [when they are present] it is quite impossible for them to be uniform. And so let us always presume that rest is found in a state of uniformity and to attribute motion to non-uniformity. The latter, moreover, is caused by inequality, the origin of
58 which we have already discussed.³²

- We have not explained, however, how it is that the various corpuscles have not reached the point of being thoroughly separated from each other kind by kind, so that their transformations into each other and their movement [toward their own regions] would have come to a halt. So let us return to say this about it: Once the circumference of the universe has comprehended the [four] kinds, then, because it is round and has a natural tendency to gather in upon itself, it constricts them all and allows no empty
b space to be left over. This is why fire, more than the other three, has come to infiltrate all of the others, with air in second place, since it is second in degree of subtlety, and so on for the rest. For the bodies that are generated from the largest parts will have the largest gaps left over in their construction, whereas the smallest bodies will have the tiniest. Now this gathering, contracting process squeezes the small parts into the gaps inside the big ones. So now, as the small parts are placed among the large ones and the smaller ones tend to break up the larger ones while the larger tend to

32. The reference is unclear. Cf. perhaps 52e.

cause the smaller to coalesce, they all shift, up and down, into their own respective regions. For as each changes in quantity, it also changes the position of its region. This, then, is how and why the occurrence of non-uniformity is perpetually preserved, and so sets these bodies in perpetual motion, both now and in the future without interruption.

Next, we should note that there are many varieties of fire that have come to be. For example, there is both flame and the effluence from flame which, while it doesn't burn, gives light to the eyes. And then there is the residue of flame which is left in the embers when the flame has gone out. The same goes for air. There is the brightest kind that we call "aether," and also the murkiest, "mist" and "darkness." Then there are other, nameless sorts which result from inequality among the triangles. The varieties of water can first of all be divided into two groups, the liquid and the liquifiable. Because the former possesses water parts that are not only unequal but also small, it turns out to be mobile, both in itself and when acted upon by something else. This is due to its non-uniformity and the configuration of its shape. The other type of water, composed of large and uniform kinds, is rather more immobile and heavy, compacted as it is by its uniformity. But when fire penetrates it and begins to break it up, it loses its uniformity, and once that is lost it is more susceptible to motion. When it has become quite mobile it is spread out upon the ground under pressure from the air surrounding it. Each of these changes has its own name: "melting" for the disintegration of its bulk and "flowing" for the spreading on the ground. But when, conversely, the fire is expelled from it, then, since the fire does not pass into a void, pressure is exerted upon the surrounding air, which in turn compresses the still mobile liquid mass into the places previously occupied by the fire and mixes it with itself. As it is being compressed, the mass regains its uniformity now that fire, the agent of non-uniformity, has left the scene, and it resettles into its own former state. The departure of the fire is called "cooling," and the compression that occurs when the fire is gone is called "jelling." Of all these types of water that we have called liquifiable, the one that consists of the finest, the most uniform parts and has proved to be the most dense, one that is unique in its kind and tinged with brilliant yellow, is gold, our most precious possession, filtered through rocks and thereby compacted. And gold's offshoot, which because of its density is extremely hard and has a black color, is called adamant. Another has parts that approximate gold and comes in more than one variety. In terms of density, it is in one way denser than gold and includes a small, fine part of earth, so that it is harder. But it is actually lighter than gold, because it has large gaps inside of it. This, it turns out, is copper, one variety of the bright, jelled kinds of water. Whenever the earth part of the mixture separates off again from the rest in the passage of time, this part, called verdigris, becomes visible by itself.

As for going further and giving an account of other stuffs of this sort along the lines of the likely stories we have been following, that is no complicated matter. And should one take a break and lay aside accounts

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- d about the things that always are, deriving instead a carefree pleasure from surveying the likely accounts about becoming, he would provide his life with a moderate and sensible diversion. So shall we, then, at this time give free rein to such a diversion and go right on to set out the next likelihoods on these subjects, as follows:

- Take now the water that is mixed with fire. It is fine and liquid and on account of its mobility and the way it rolls over the ground it is called "liquid." It is soft, moreover, in that its faces, being less firm than those of earth, give way to it. When this water is separated from its fire and air
e and is isolated, it becomes more uniform, and it is pressed together into itself by the things that leave it. So compacted, the water above the earth which is most affected by this change turns to hail, while that on earth turns to ice. Some water is not affected quite so much, being still only half compacted. Such water above the earth becomes snow while that on the earth becomes what is called "frost," from dew that is congealed.

- Now most of the varieties of water which are mixed with one another
60 are collectively called "saps," because they have been filtered through plants that grow out of the earth. Because they are mixed, each of them has its own degree of non-uniformity. Many of these varieties are nameless, though four of them, all with fire in them, are particularly conspicuous and so have been given names. First, there is wine, which warms not only the body but the soul as well. Second, there are the various oils, which are smooth and divide the ray of sight and for that reason glisten, appearing bright and shiny to the eye: these include resin, castor oil, olive oil and
b others that share their properties. And third, there is what is most commonly called honey, which includes all that relaxes the taste passages of the mouth back to their natural state, and which by virtue of this property conveys a sense of sweetness. Fourth, there is what has been named tart juice, quite distinct from all the other saps. It is a foamy stuff, and is caustic and hence hazardous to the flesh.

- As for the varieties of earth, first, such earth as has been filtered through water turns into a stony body in something like the following way: When the water that is mixed with it disintegrates in the mixing process, it is
c transformed into the form of air, and, once it has turned into air, it thrusts its way upwards toward its own region. And since there is no void above it, it pushes aside the air next to it. And when this air, heavy as it is, is pressed and poured around the mass of earth, it squeezes it hard and compresses it to fill the places vacated by the recently formed air. When so compressed by air, earth is insoluble in water and constitutes itself as stone. The more beautiful kind of stone is stone that is transparent and made up of equal and uniform parts; the uglier kind is just the opposite.
d Second, there is the kind of earth from which moisture has been completely expelled by a swiftly burning fire and which thus comes to have a rather more brittle constitution than the first kind of earth. This is a kind to which the name "pottery" has been given. Sometimes, however, moisture gets left in and we get earth that is made liquifiable by fire. When it has cooled

it turns to stone that is black in color (i.e., lava). Then, thirdly, there are the two varieties of earth that both alike are the residue of a mixture of a great quantity of water. They are briny, made up of the finest parts of earth, and turn out to be semi-solid and water soluble again. One of these is soda, a cleansing agent against oil and dirt; the other is salt, which is well suited to enhance various blends of flavor and has, not unreasonably, proven itself to be a stuff pleasing to the gods. e

There are also compounds of earth and water which are soluble by fire but not by water.³³ These are compacted in this way for the following sort of reason: Neither air nor fire will dissolve masses of earth, because air and fire consist of parts that by nature are smaller than are the gaps within earth. They thus pass without constraint through the wide gaps of a mass of earth, leaving it intact and undissolved. But since the parts of water are naturally bigger, they must force their way through, and in so doing they undo and dissolve the earth. For water alone can in this way dissolve earth that isn't forcibly compressed, but when earth is compressed nothing but fire can dissolve it. That is because fire is the only thing left that can penetrate it. So also, only fire can disperse water that has been compressed with the greatest force, whereas both fire and air can disperse water that is in a looser state. Air does it by entering the gaps, and fire by breaking up the triangles. The only way in which air that has been condensed under force can be broken up is into its elemental triangles, and even when it is not forcibly compressed only fire can dissolve it. 61

So as for these bodies that are mixtures of earth and water, as long as the gaps within a given mass of earth are occupied by its own water which is tightly packed within the gaps, the water parts that come charging upon it from the outside have no way of getting into the mass and so flow around the whole of it, leaving it undissolved. The fire parts, however, do penetrate the gaps within the water parts and hence as fire they do to water³⁴ what water did to earth. They alone, it turns out, cause this body, this partnership of earth and water to come apart and become fluid. These compounds of earth and water include not only bodies that have less water in them than earth, such as glass and generally all stone formations that can be called liquifiable, but also bodies that have more water than earth, namely all those that have the consistency of wax or of incense. b

We have now pretty much completed our presentation of the kinds of bodies that are distinguished by their multifarious shapes, their combinations and their intertransformations. Now we must try to shed some light on what has caused them to come to have the properties they do. First, we need at every step in our discourse to appeal to the existence of sense perception, but we have so far discussed neither the coming to be of flesh, or of what pertains to flesh, nor the part of the soul that is mortal. It so c

33. I.e., glass, wax, and similar bodies; see below.

34. Accepting the conjecture *hudōr* at b5.

- d happens, however, that we cannot give an adequate account of these matters without referring to perceptual properties, but neither can we give an account of the latter without referring to the former, and to treat them simultaneously is all but impossible. So we must start by assuming the one or the other, and later revisit what we have assumed. Let's begin by taking for granted for now the existence of body and soul. This will allow our account of these properties to succeed the account we've just given of the elemental kinds.

- First, then, let us see what we mean when we call fire *hot*. Let's look at it in this way: We notice how fire acts on our bodies by dividing and cutting them. We are all well aware that the experience is a sharp one.
- e The fineness of fire's edges, the sharpness of its angles, the minuteness of its parts and the swiftness of its motion—all of which make fire severely
- 62 piercing so that it makes sharp cuts in whatever it encounters—must be taken into consideration as we recall how its shape came to be. It is this substance, more than any other, that divides our bodies throughout and cuts them up into small pieces, thereby giving us the property (as well as the name [*kermatizein*]) that we now naturally call *hot* [*thermon*].

- What the opposite property is, is quite obvious; we should not, however, keep anything left out of our account. As the larger parts of the moisture surrounding our bodies penetrate our bodies and push out the smaller parts, but are unable to take up the places vacated by those smaller parts,
- b they compress the moisture within us and congeal it by rendering it in a state of motionlessness in place of a state of moving non-uniformity, by virtue of the uniformity and compression so introduced. But anything which is being unnaturally compressed has a natural tendency to resist such compression, and pushes itself outward, in the opposite direction. This resistance, this shaking is called "shivering" and "chill," and the experience as a whole, as well as what brings it about, has come to have the name *cold*.

- Hard* we call whatever our flesh gives way to; *soft*, whatever gives way to our flesh. And this is how they are relative to each other. Whatever stands
- c upon a small base tends to give way. The form composed of quadrangles, however, is the least liable to being displaced because its bases are very secure, and that which is compacted to its maximum density is particularly resistant to being displaced.

- Heavy* and *light* can be most clearly explained if we examine them in conjunction with what we call *above* and *below*. It is entirely wrong to hold that there are by nature two separate regions, divorced from and entirely opposite one another, the one the region "below," toward which anything that has physical mass tends to move, and the other the region "above" toward which everything makes its way only under force. For given that
- d the whole heaven is spherical, all the points that are situated as extremes at an equal distance from the center must by their nature be extremes of just the same sort, and we must take it that the center, being equidistant from the extremes, is situated at the point that is the opposite to all the

extremes. Now if this is the universe's natural constitution, which of the points just mentioned could you posit as "above" or "below" without justly giving the appearance of using totally inappropriate language? There is no justification for describing the universe's central region either as a natural "above" or a natural "below," but just as "at the center." And the region at the circumference is, to be sure, not the center, but neither is one of its parts so distinguished from any other that it is related to the center in a specific way more so than any of the parts opposite to it. What contrary terms could you apply to something that is by nature all alike in every direction? How could you think to use such terms appropriately? If, further, there is something solid and evenly balanced at the center of the universe, it could not move to any of the extreme points, because these are all alike in all directions. But if you could travel around it in a circle, you would repeatedly take a position at your own antipodes and call the very same part of it now the part "above," and then the part "below." For the whole universe, as we have just said, is spherical, and to say that some region of it is its "above," and another its "below," makes no sense. The origin of these terms and the subjects to which they really apply, which explain how we have become accustomed to using them in dividing the world as a whole in this way, we must resolve by adopting the following supposition: Imagine a man stepping onto that region of the universe that is the particular province of fire, where the greatest mass of fire is gathered together, and toward which other fire moves. Imagine, further, that he has the power to remove some parts of the fire and place them on scales. When he raises the beam and drags the fire into the alien air, applying force to it, clearly the lesser quantity of fire somehow gives way to his force more easily than the greater. For when two things are raised by one and the same exertion, the lesser quantity will invariably yield more readily and the greater (which offers more resistance) less readily, to the force applied. And so the large quantity will be described as *heavy* and moving *downward*, and the small one as *light* and moving *upward*. Now this is the very thing we must detect ourselves doing in our own region. When we stand on the earth and weigh out one earth-like thing against another, and sometimes some earth itself, we drag these things by force, contrary to their natural tendency, into the alien air. While both of them tend to cling to what is akin to them, nevertheless the smaller one will yield sooner and more readily than the larger one to the force we apply that introduces it into the alien stuff. Now this is what we call *light*, and the region into which we force it to go we call *above*; their opposites we call *heavy* and *below*. Now the things [having any of these designations] necessarily differ relatively to one another, because the various masses of the elemental kinds of body occupy opposite regions: what in one region is light, heavy, below or above will all be found to become, or to be, directly opposite to, or at an angle to, or in any and every different direction from, what is light, heavy, below or above in the opposite region. In fact, this is the one thing that should be understood to apply in all these cases: the path towards

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its own kind is what makes a thing moving along it "heavy" and the region into which it moves, "below," whereas the other set of terms ["light" and "above"] are for things behaving the other way. This, then, concludes our account of what causes [things to have] these properties.

As for *smooth* and *rough*, I take it that anyone could discern the explanation of those properties and communicate it to someone else: roughness results from the combination of hardness with non-uniformity, while
64 smoothness is the result of uniformity's contribution to density.

The most important point that remains concerning the properties that have a common effect upon the body as a whole, pertains to the causes of pleasures and pains in the cases we have described as well as all cases in which sensations are registered throughout the bodily parts, sensations which are also simultaneously accompanied by pains and pleasures in those parts. With every property, whether perceived or not, let us take up the question of the causes of pleasure or pain in the following way, recalling
b the distinction made in the foregoing between what is easily moved and what is hard to move. This is the way in which we must pursue all that we intend to comprehend. When even a minor disturbance affects that which is easily moved by nature, the disturbance is passed on in a chain reaction with some parts affecting others in the same way as they were affected, until it reaches the center of consciousness and reports the property that produced the reaction. On the other hand, something that is hard to move remains fixed and merely experiences the disturbance without
c passing it on in any chain reaction. It does not disturb any of its neighboring parts, so that in the absence of some parts passing on the disturbance to others, the initial disturbance affecting them fails to move on into the living thing as a whole and renders the disturbance unperceived. This is true of our bones and hair and of the other mostly earth-made parts that we possess. But the former is true of our sight and hearing in particular, and this is due to the fact that their chief inherent power is that of air and of fire.

This, then, is what we should understand about pleasure and pain: an
d unnatural disturbance that comes upon us with great force and intensity is painful, while its equally intense departure, leading back to the natural state, is pleasant. One that is mild and gradual is not perceived, whereas the opposite is the case with the opposite disturbance. Further, one that occurs readily can be completely perceived, more so than any other, though neither pleasure nor pain is involved. Take, for example, those involved in the act of seeing. Earlier³⁵ we described the ray of sight as a body that comes into being with the daylight as an extension of ourselves. The cuttings, the burnings and whatever else it undergoes don't cause any
e pains in it, nor does the return to its former state yield any pleasures. Its perceptions are the more vivid and clear the more it is affected and the greater the number of things it encounters and makes contact with, for there is absolutely no violence involved when it is severed [by the cutting

35. At 45c.

and burning, etc.] and reconstituted. Bodies consisting of larger parts, on the other hand, won't easily give way to what acts upon them. They pass on the motions they receive to the entire body, and so they do get pleasures and pains—pains when they are alienated from their natural condition and pleasures when they are once again restored to it. All those bodies which experience only gradual departures from their normal state or gradual depletions but whose replenishments are intense and substantial are bodies that are unaware of their depletions but not of their replenishments, and hence they introduce very substantial pleasures in the mortal part of the soul but not any pains. This is clear in the case of fragrances. But all those bodies whose alienations are intense while their restorations to their former states are but gradual and slow, pass on motions that are entirely contrary to those mentioned just before. Again, this clearly turns out to be the case when the body suffers burns or cuts. 65

We have now pretty much covered those disturbances that affect the whole body in a common way, as well as all the terms that have come to be applied to the agents that produce them. We must now try to discuss, if we can, those that take place in our various particular parts, and, as before, their causes, which lie in the agents that produce them. First, then, we need to shed what light we can on what we left untreated earlier when we talked about tastes, and these are the properties specifically connected to the tongue. It seems that these, too, in common with most other properties, come about as a result of contractions and dilations, but apart from that, these tongue-related properties seem rather more than any of the others to involve roughness and smoothness. Now as earth-like parts penetrate the area around the tiny vessels that act as testers for the tongue and reach down to the heart, they impact upon the moist, soft flesh of the tongue and are melted away. In the process they contract the vessels and dry them up. When they tend to be rather rough, we taste them as *sour*; when less rough, as *tangy*. Things that rinse the vessels and wash the entire area around the tongue are all called *bitter* when they do so to excess and so assault the tongue as to dissolve some of it, as soda actually can do. When they are not as strong as soda and effect only a moderate rinsing, they taste *salty* to us. They have none of the harsh bitterness, and we find them rather agreeable. Things that absorb the heat of the mouth, by which they are also worn smooth, are ignited and in their turn return their fire to that which made them hot. Their lightness carries them up to the senses in the head, as they cut any and everything they come up against. Because this is what they do, things of this sort have all been called *pungent*. On the other hand, there are those things which have been refined by the process of decomposition and which then intrude themselves into the narrow vessels. These are proportioned both to the earth parts and those of air that are contained within the vessels, so that they agitate the earth and air parts and cause them to be stirred one around the other. As these are being stirred, they surround one another, and, as parts of one sort intrude themselves into parts of another, they make hollows which envelop 66

- b the parts that go inside. So when a hollow envelope of moisture, whether earthy or pure, as the case may be, is stretched around air, we get moist vessels of air, hollow spheres of water. Some of these, those that form a transparent enclosure consisting of a pure moisture are called "bubbles"; those, on the other hand, whose moisture is earthy and agitates and rises upward all at once are called by the terms "effervescence" and "fermentation." That which causes these disturbances is called *acid* to the taste.
- c There is a disturbance that is the opposite of all the ones we have just discussed, one that is the effect of an opposite cause. Whenever the composition of the moistened parts that enter the vessels of the tongue is such that it is congruent with the natural condition of the tongue, these entering parts make smooth and lubricate the roughened parts and in some cases constrict while in others they relax the parts that have been abnormally dilated or contracted. They decisively restore all those parts back to their natural position. As such, they prove to be a cure for the violent disturbances [just discussed], being fully pleasant and agreeable to one and all, and are called *sweet*.
- d So much for the subject of tastes. As for the power belonging to the nostrils, there are no types within it. This is because a smell is always a "half-breed." None of the elemental shapes, as it happens, has the proportions required for having any odor. The vessels involved in our sense of smell are too narrow for the varieties of earth and water parts, yet too wide for those of earth and air. Consequently no one has ever perceived any odor coming from these elemental bodies. Things give off odors when they
 - e either get damp or decay, or melt or evaporate; for when water changes to air or air to water, odors are given off in the transition. All odors collectively are either vapor or mist, mist being what passes from air to water, and vapor what passes from water to air, and this is why odors as a group turn out to be finer than water, yet grosser than air. Their character becomes clear when one strains to draw one's breath through something that obstructs one's breathing. There will be no odor that filters through. All that comes through is just the breath itself, devoid of any odor.
- 67 These variations among odors, then, form two sets, neither of which has a name, since they do not consist of a specific number of simple types. Let us draw the only clear distinction we can draw here, that between the *pleasant* and the *offensive*. The latter of these irritates and violates the whole upper body from the top of the head to the navel, while the former soothes that area and welcomes it back to its natural state.
- b A third kind of perception that we want to consider is hearing. We must describe the causes that produce the properties connected with this perception. In general, let us take it that sound is the percussion of air by way of the ears upon the brain and the blood and transmitted to the soul, and that hearing is the motion caused by the percussion that begins in the head and ends in the place where the liver is situated. And let us take it that whenever the percussion is rapid, the sound is *high-pitched*, and that the slower the percussion, the lower the pitch. A regular percussion produces a

uniform, smooth sound, while a contrary one produces one that is *rough*. A forceful percussion produces a *loud* sound, while a contrary one produces one that is *soft*. But we must defer discussion of harmonization in sounds to a later part of our discourse.

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The fourth and remaining kind of perception is one that includes a vast number of variations within it, and hence it requires subdivision. Collectively, we call these variations *colors*. Color is a flame which flows forth from bodies of all sorts, with its parts proportional to our sight so as to produce perception. At an earlier point in our discourse we treated only the causes that led to the origination of the ray of sight;³⁶ now, at this point, it is particularly appropriate to provide a well-reasoned account of colors.

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Now the parts that move from the other objects and impinge on the ray of sight are in some cases smaller, in others larger than, and in still other cases equal in size to, the parts of the ray of sight itself. Those that are equal are imperceptible, and these we naturally call *transparent*. Those that are larger contract the ray of sight while those that are smaller, on the other hand, dilate it, and so are “cousin” to what is cold or hot in the case of the flesh, and, in the case of the tongue, with what is sour, or with all those things that generate heat and that we have therefore called “pungent.” So *black* and *white*, it turns out, are properties of contraction and dilation, and are really the same as these other properties, though in a different class, which is why they present a different appearance. This, then, is how we should speak of them: *white* is what dilates the ray of sight, and *black* is what does the opposite.

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Now when a more penetrating motion of a different type of fire pounces on the ray of sight and dilates it right up to the eyes, and forces its way through the very passages within the eyeballs and melts them, it discharges from those passages a glob of fire and water which we call a tear. The penetrating motion itself consists of fire, and as it encounters fire from the opposite direction, then, as the one fire leaps out from the eyes like a lightning flash and the other enters them but is quenched by the surrounding moisture, the resulting turmoil gives rise to colors of every hue. The disturbance so produced we call “dazzling,” and that which produces it we name *bright* and *brilliant*.

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On the other hand, the type of fire that is intermediate between white and bright is one that reaches the moisture in the eyes and blends with it, but is not brilliant. As the fire shines through the moisture with which it is mixed, it yields the color of blood, which we call *red*. And when bright is mixed with red and white, we get *orange*. But it would be unwise to state the proportions among them, even if one could know them. It is impossible, even approximately, to provide a proof or a likely account on these matters.

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36. See 45b–d.

- c Now red mixed with black and white is of course *purple*. When this combination is burnt further and more black is mixed with it, we get *violet*. *Gray* is a mixture of black and white, and the mixture of orange and gray produces *amber*. *Beige* comes from white mixed with orange. White combined with bright and immersed in a saturated black produces a *cobalt blue* color, which, when blended with white, becomes *turquoise*. A mixture of amber with black yields *green*. As for the other hues, it should be fairly clear from the above cases by what mixtures they are to be represented in a way that preserves our “likely story.” But if anyone in considering these matters were to put them to an actual test, he would demonstrate his ignorance of the difference between the human and the divine. It is god who possesses both the knowledge and power required to mix a plurality into a unity and, conversely, to dissolve a unity into a plurality, while no human being could possess either of these, whether at the present time or at any time in the future.
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- e And so all these things were taken in hand, their natures being determined then by necessity in the way we’ve described, by the craftsman of the most perfect and excellent among things that come to be, at the time when he brought forth that self-sufficient, most perfect god. Although he did make use of the relevant auxiliary causes, it was he himself who gave their fair design to all that comes to be. That is why we must distinguish two forms of cause, the divine and the necessary. First, the divine, for
- 69 which we must search in all things if we are to gain a life of happiness to the extent that our nature allows, and second, the necessary, for which we must search for the sake of the divine. Our reason is that without the necessary, those other objects, about which we are serious, cannot on their own be discerned, and hence cannot be comprehended or partaken of in any other way.

We have now sorted out the different kinds of cause, which lie ready for us like lumber for carpenters. From them we are to weave together the remainder of our account. So let us briefly return to our starting point and quickly proceed to the same place from which we arrived at our present position.³⁷ Let us try to put a final “head” on our account, one that fits in with our previous discussion.

- To repeat what was said at the outset, the things we see were in a condition of disorderliness when the god introduced as much proportionality into them and in as many ways—making each thing proportional both to itself and to other things—as was possible for making them be commensurable and proportionate. For at the time they had no proportionality at all, except by chance, nor did any of them qualify at all for the names we now use to name them, names like *fire*, *water*, etc. All these
- c things, rather, the god first gave order to, and then out of them he proceeded to construct this universe, a single living thing that contains within itself all living things, mortal or immortal. He himself fashioned those that were

37. Cf. 31b–32c and 48b, 48e–49a, respectively.

divine, but assigned his own progeny the task of fashioning the generation of those that were mortal.

They imitated him: having taken the immortal origin of the soul, they proceeded next to encase it within a round mortal body [the head], and to give it the entire body as its vehicle. And within the body they built another kind of soul as well, the mortal kind, which contains within it those dreadful but necessary disturbances: pleasure, first of all, evil's most powerful lure; then pains, that make us run away from what is good; besides these, boldness also and fear, foolish counselors both; then also the spirit of anger hard to assuage, and expectation easily led astray. These they fused with unreasoning sense perception and all-venturing lust, and so, as was necessary, they constructed the mortal type of soul. In the face of these disturbances they scrupled to stain the divine soul only to the extent that this was absolutely necessary, and so they provided a home for the mortal soul in another place in the body, away from the other, once they had built an isthmus as boundary between the head and the chest by situating a neck between them to keep them apart. Inside the chest, then, and in what is called the trunk they proceeded to enclose the mortal type of soul. And since one part of the mortal soul was naturally superior to the other, they built the hollow of the trunk in sections, dividing them the way that women's quarters are divided from men's. They situated the midriff between the sections to serve as a partition. Now the part of the mortal soul that exhibits manliness and spirit, the ambitious part, they settled nearer the head, between the midriff and the neck, so that it might listen to reason and together with it restrain by force the part consisting of appetites, should the latter at any time refuse outright to obey the dictates of reason coming down from the citadel. The heart, then, which ties the veins together, the spring from which blood courses with vigorous pulse throughout all the bodily members, they set in the guardhouse. That way, if spirit's might should boil over at a report from reason that some wrongful act involving these members is taking place—something being done to them from outside or even something originating from the appetites within—every bodily part that is sensitive may be keenly sensitized, through all the narrow vessels, to the exhortations or threats and so listen and follow completely. In this way the best part among them all can be left in charge.

The gods foreknew that the pounding of the heart (which occurs when one expects what one fears or when one's spirit is aroused) would, like all such swelling of the passions, be caused by fire. So they devised something to relieve the pounding: they implanted lungs, a structure that is first of all soft and without blood and that secondly contains pores bored through it like a sponge. This enables it to take in breath and drink and thereby cool the heart, bringing it respite and relaxation in the heat. That, then, is why they cut the passages of the windpipe down to the lungs, and situated the lungs around the heart like padding, so that when spirit within the heart should reach its peak, the heart might pound against

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something that gives way to it and be cooled down. By laboring less, it might be better able to join spirit in serving reason.

- The part of the soul that has appetites for food and drink and whatever
 e else it feels a need for, given the body's nature, they settled in the area
 between the midriff and the boundary toward the navel. In the whole
 of this region they constructed something like a trough for the body's
 nourishment. Here they tied this part of the soul down like a beast, a wild
 one, but one they could not avoid sustaining along with the others if a
 mortal race were ever to be. They assigned it its position there, to keep it
 ever feeding at its trough, living as far away as possible from the part that
 takes counsel, and making as little clamor and noise as possible, thereby
 71 letting the supreme part take its counsel in peace about what is beneficial
 for one and all. They knew that this part of the soul was not going to
 understand the deliverances of reason and that even if it were in one way
 or another to have some awareness of them, it would not have an innate
 regard for any of them, but would be much more enticed by images and
 phantoms night and day. Hence the god conspired with this very tendency
 b by constructing a liver, a structure which he situated in the dwelling place
 of this part of the soul. He made it into something dense, smooth, bright
 and sweet, though also having a bitter quality, so that the force of the
 thoughts sent down from the mind might be stamped upon it as upon a
 mirror that receives the stamps and returns visible images. So whenever
 the force of the mind's thoughts could avail itself of a congenial portion
 of the liver's bitterness and threaten it with severe command, it could then
 frighten this part of the soul. And by infusing the bitterness all over the
 liver, it could project bilious colors onto it and shrink the whole liver,
 c making it wrinkled and rough. It could curve and shrivel up the liver's
 lobe and block up and close off its receptacles and portal fissures, thereby
 causing pains and bouts of nausea. And again, whenever thought's gentle
 inspiration should paint quite opposite pictures, its force would bring
 respite from the bitterness by refusing to stir up or to make contact with
 a nature opposite to its own. It would instead use the liver's own natural
 d sweetness on it and restore the whole extent of it to be straight and smooth
 and free, and make that portion of the soul that inhabits the region around
 the liver gracious and well behaved, conducting itself with moderation
 during the night when, seeing that it has no share in reason and understand-
 ing, it practices divination by dreams. For our creators recalled their father's
 instruction to make the mortal race as excellent as possible, and so, redeem-
 e ing even the base part of ourselves in this way, they set the center of
 divination here, so that it might have some grasp of truth.

The claim that god gave divination as a gift to human folly has good support: while he is in his right mind no one engages in divination, however divinely inspired and true it may be, but only when his power of understanding is bound in sleep or by sickness, or when some sort of possession works a change in him. On the other hand, it takes a man who has his wits about him to recall and ponder the pronouncements produced by

this state of divination or possession, whether in sleep or while awake. It takes such a man to thoroughly analyze any and all visions that are seen, to determine how and for whom they signify some future, past or present good or evil. But as long as the fit remains on him, the man is incompetent to render judgment on his own visions and voices. As the ancient proverb well puts it, "Only a man of sound mind may know himself and conduct his own affairs." This is the reason why it is customary practice to appoint interpreters to render judgment on an inspired divination. These persons are called "diviners" by some who are entirely ignorant of the fact that they are expositors of utterances or visions communicated through riddles. Instead of "diviners," the correct thing to call them is, "interpreters of things divined."

72

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This, then, explains why the liver's nature is what it is, and why it is situated in the region we say—it is for the purpose of divination. Now while each creature is still alive, an organ of this sort will display marks that are fairly clear, but once its life has gone, the organ turns blind and its divinations are too faint to display any clear marks. Moreover, the neighboring organ situated on its left turns out to have a structure which is meant to serve the liver in keeping it bright and clean continuously, like a dust cloth provided for wiping a mirror, placed next to it and always available. Hence, whenever impurities of one sort or another, the effects of bodily illnesses, turn up all around the liver, the spleen, a loosely-woven organ with hollow spaces that contain no blood, cleans them all away and absorbs them. In consequence it becomes engorged with the impurities it has cleaned off, swells to great size and festers. Later, when the body's cleansing is complete, the swelling subsides, and the spleen once again shrinks back to its normal size.

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So, as for our questions concerning the soul—to what extent it is mortal and to what extent divine; where its parts are situated, with what organs they are associated, and why they are situated apart from one another—that the truth has been told is something we could affirm only if we had divine confirmation. But that our account is surely at least a "likely" one is a claim we must risk, both now and as we proceed to examine the matter more closely. Let that be our claim, then.

Our next topic must be pursued along the same lines. This was to describe how the rest of the body came to be.³⁸ The following train of reasoning should explain its composition best of all. The creators of our race knew that we were going to be undisciplined in matters of food and drink. They knew that our gluttony would lead us to consume much more than the moderate amount we needed. So, to prevent the swift destruction of our mortal race by diseases and to forestall its immediate, premature demise, they had the foresight to create the lower abdomen, as it's called, as a receptacle for storing the excess food and drink. They wound the intestines round in coils to prevent the nourishment from passing through

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38. Cf. 61c.

so quickly that the body would of necessity require fresh nourishment just as quickly, thereby rendering it insatiable. Such gluttony would make our whole race incapable of philosophy and the arts, and incapable of heeding the most divine part within us.

- b As for flesh and bones and things of that nature, this is how it is. The starting point for all these was the formation of marrow. For life's chains, as long as the soul remains bound to the body, are bound within the marrow, giving roots for the mortal race. The marrow itself came to be out of other things. For the god isolated from their respective kinds those primary triangles which were undistorted and smooth and hence, owing to their exactness, were particularly well suited to make up fire, water, air
- c and earth. He mixed them together in the right proportions, and from them made the marrow, a "universal seed" contrived for every mortal kind. Next, he implanted in the marrow the various types of soul and bound them fast in it. And in making his initial distribution, he proceeded immediately to divide the marrow into the number and kinds of shapes that matched the number and kinds of shapes that the types of soul were to possess, type by type. He then proceeded to mold the "field," as it were,
- d that was to receive the divine seed, making it round, and called this portion of the marrow, "brain." Each living thing was at its completion to have a head to function as a container for this marrow. That, however, which was to hold fast the remaining, mortal part of the soul, he divided into shapes that were at once round and elongated, all of which he named "marrow." And from these as from anchors he put out bonds to secure the whole soul and so he proceeded to construct our bodies all around this marrow, beginning with the formation of solid bone as a covering for the whole of it.
- e This is how he constructed bone. He sifted earth that was pure and smooth, kneaded it and soaked it with marrow. Next, he set this mixture in fire, and then dipped it in water, then back in fire, followed by water again. By moving it this way repeatedly from the one and then back to the other, he made it insoluble by both. He made use of this material in shaping a round, bony globe to enclose the brain, and left it with a narrow
- 74 passage out. From the material he then proceeded to mold vertebrae to enclose marrow of the neck and back, and set them in place one underneath another, beginning with the head and proceeding along the whole length of the trunk, to function as pivots. And so, to preserve all of the seed, he fenced it in with a stony enclosure. In this enclosure he made joints, employing in their case the character of the Different situated between them to allow them to move and to flex.
- b Moreover, the god thought that bone as such was rather too brittle and inflexible, and also that repeatedly getting extremely hot and cold by turns would cause it to disintegrate and to destroy in short order the seed within it. That is why he contrived to make sinews and flesh. He bound all the limbs together with sinews that could contract and relax, and so enabled the body to flex about the pivots and to stretch itself out. The flesh he

made as a defense against summer's heat and as protection against winter's cold. And, as protection against injuries, too, he made the flesh so that it would give way softly and gently to bodies like the felt coverings we wear. He made it to contain within itself a warm moisture that would come out as perspiration during summertime, when, by moistening the body on the outside, it would impart the body's own coolness to the whole of it. And conversely, in wintertime this moisture would provide an adequate defense, by means of this fire, against the frost which surrounds it and attacks it from outside. Such were the designs of him who molded us like wax: he made a mixture using water, fire and earth, which he adjusted together, and created a compound of acid and brine, a fermented mixture which he combined with the previous mixture, and so he formed flesh, sappy and soft. The sinews he made out of a mixture of bone and unfermented flesh, to make up a single yellow stuff whose character was intermediate between them both. That is the reason the sinews came to have a stretchier and tougher character than flesh, yet softer and more moist than bone. With these the god wrapped the bones and the marrow. First he bound the bones to each other with sinews, and then he laid a shroud of flesh upon them all.

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All those bones that had more soul than others he proceeded to wrap in a very thin layer of flesh, while those that contained less he wrapped in a very thick layer of very dense flesh. And indeed, at the joints of the bones, where it appeared that reason did not absolutely require the presence of flesh, he introduced only a thin layer of flesh, so that the ability of the joints to flex would not be impeded, a condition that would have made it very difficult for the bodies to move. A further reason was this: if there were a thick layer of flesh there, packed extremely densely together, its hardness would cause a kind of insensibility, which would make thinking less retentive and more obscure. This he wanted to prevent.

This explains why thighs and calves, the area around the hips, arms (both upper and lower), and all other bodily parts where there are no joints as well as all the internal bones, are all fully provided with flesh. It is because they have only small amounts of soul in their marrow, and so are devoid of intelligence. On the other hand, all those bodily parts that do possess intelligence are less fleshy, except perhaps for a fleshy thing—the tongue, for example—that was created to be itself an organ of sensation. But in most cases it is as I said. For there is no way that anything whose generation and composition are a consequence of Necessity can accommodate the combination of thick bone and massive flesh with keen and responsive sensation. If these two characteristics had not refused their concomitance, our heads above all else would have been so constituted as to possess this combination, and the human race, crowned with a head fortified with flesh and sinews would have a life twice, or many more times as long, a healthier and less painful life than the one we have now. As it was, however, our makers calculated the pros and cons of giving our race greater longevity but making it worse, versus making it better, though less long-lived, and

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decided that the superior though shorter life-span was in every way preferable for everyone to the longer but inferior one. This is why they capped the head with a sparse layer of bone—and not with flesh and sinew, given that the head has no joints. For all these reasons, then, the head has turned out to be more sensitive and intelligent but also, in every man's case, much weaker than the body to which it is attached. With this in mind the god thus positioned sinews at the very edge of the head, around the neck, and welded them uniformly. To these sinews he fastened the ends of the jawbones underneath the face. The other sinews he shared out among all the limbs, fastening joint to joint.

Our makers fitted the mouth out with teeth, a tongue and lips in their current arrangement, to accommodate both what is necessary and what is best: they designed the mouth as the entry passage for what is necessary, and as the exit for what is best: for all that comes in and provides nourishment for the body is necessary, while that stream of speech that flows out through the mouth, that instrument of intelligence, is the fairest and best of all streams.

Moreover, the head couldn't be left to consist of nothing but bare bone, in view of the extremes of seasonal heat and cold. On the other hand, any mass of flesh with which it might be veiled couldn't be allowed to make it dull and insensitive, either. And so, an outer layer, disproportionately large (the thing we now call "skin"), was separated off from the flesh [of the upper body] that wasn't drying out completely. The moisture in the area of the brain enabled this layer to draw together toward itself and grow so as to envelop the head all around. Coming up under the sutures, this moisture watered it, and closed it together upon the crown, drawing it together in a knot, as it were. The sutures varied considerably, owing to the effect of the revolutions [in the head]³⁹ and of the nourishment taken: the greater the conflict among these revolutions, the more numerous the sutures—the lesser the conflict, the less numerous they were.

Now the divine part [the brain] began to puncture this whole area of skin all around with its fire. Once the skin was pierced and the moisture had exuded outward through it, all that was purely wet and hot went away. The part that was compounded of the same stuff that the skin was made up of, caught up by this motion, was stretched to a great length outside this skin, no thicker than the punctured hole [through which it passed]. However, it moved slowly, and so the surrounding air pushed it back inside to curl underneath the skin and take root there. This is the process by which hair has come to grow on the skin. Hair is something fibrous, made of the same stuff as the skin, though harder and more dense due to the felting effect of the cooling process: once a hair separates off from skin, it is cooled and so gets felted together.

With this stuff, then, our maker made our heads bushy, availing himself of the causal factors just described. His intention was that this, not bare

39. Cf. 43a ff.

flesh, ought to provide a protective covering for the part of the head that holds the brain: it was light, and just right for providing shade in summer, and shelter in winter, without obstructing or interfering with the head's sensitivity in any way. d

Sinew, skin and bone were interwoven at the ends of our fingers and toes. The mixture of these three was dried out, resulting in the formation of a single stuff, a piece of hard skin, the same in every case. Now these were merely auxiliary causes in its formation—the preeminent cause of its production was the purpose that took account of future generations: our creators understood that one day women and the whole realm of wild beasts would one day come to be from men, and in particular they knew that many of these offspring would need the use of nails and claws or hoofs for many purposes.⁴⁰ This is why they took care to include nails formed in a rudimentary way in their design for humankind, right at the start. This was their reason, then, and these the professed aims that guided them in making skin, hair and nails grow at the extremities of our limbs. e

So all the parts, all the limbs of the mortal living thing came to constitute a natural whole. Of necessity, however, it came about that he lived his life surrounded by fire and air, which caused him to waste away and be depleted, and so to perish. The gods, therefore, devised something to protect him. They made another mixture and caused another nature to grow, one congenial to our human nature though endowed with other features and other sensations, so as to be a different living thing. These are now cultivated trees, plants and seeds, taught by the art of agriculture to be domesticated for our use. But at first the only kinds there were were wild ones, older than our cultivated kinds. We may call these plants “living things” on the ground that anything that partakes of life has an incontestable right to be called a “living thing.”⁴¹ And in fact, what we are talking about now partakes of the third type of soul, the type that our account has situated between the midriff and the navel. This type is totally devoid of opinion, reasoning or understanding, though it does share in sensation, pleasant and painful, and desires. For throughout its existence it is completely passive, and its formation has not entrusted it with a natural ability to discern and reflect upon any of its own characteristics, by revolving within and about itself, repelling movement from without and exercising its own inherent movement. Hence it is alive, to be sure, and unmistakably a living thing, but it stays put, standing fixed and rooted, since it lacks self-motion. b

All these varieties were planted by our masters, to whom we are subject, to nourish us. Having done that, they proceeded to cut channels throughout c

40. See below, 90e–92c.

41. The word for living things here, *zōa* (which is often appropriately translated “animals”), is cognate with Timaeus’ word for “life.” His point is that because plants have “life” (*zēn*), they are appropriately called *zōa*, even though they are not animals.

- our bodies, like water pipes in a garden, so that our bodies could be irrigated, as it were, by an oncoming stream. First, they cut two blood
- d veins, channels hidden underneath the skin where the flesh joins it, to go down either side of the back—the body is a twofold thing, with a right and a left side. They situated these veins alongside the spine, and between them they placed the life-giving marrow as well, to give it its best chance to flourish, and to allow the bloodstream, which courses downhill, to flow readily from this region and uniformly irrigate the other parts of the body.
- e They next split these veins in the region of the head, and wove them through one another, crossing them in opposite directions. They diverted the veins from the right toward the left side of the body, and those from the left toward the right, so that they, together with the skin, would act as a bond to keep the head fastened to the body, seeing that there were no sinews attached to the crown to enclose the head all around. They did this especially to make sure that the stimulations received by the senses, coming from either side of the body, might register clearly upon the body as a whole.

- From here the gods proceeded to fashion the irrigation system in the
- 78 following way. We'll come to see it more easily if we can first agree on this point: whatever is made up of smaller parts holds in larger parts, while what consists of larger parts is incapable of holding in smaller parts. Of all the elemental kinds, fire is made up of the smallest parts, and that is the reason it can pass through water, earth and air, and any of their compounds. Nothing can hold it in. Now we must apply the same point
- b to our belly. When food and drink descend into it, it holds them in, but it cannot hold in air and fire, consisting as they do of smaller parts than it does. And so the god availed himself of fire and air to conduct moisture from the belly to the [two] veins. He wove together an interlaced structure of air and fire, something like a fish trap. At its entrance it had a pair of funnels, one of which in turn he subdivided into two. And from the funnels he stretched reeds, as it were, all around throughout the structure, right
- c to its extremities. All the interior parts of this network he made of fire; the funnels and the shell he made of air.

- He took this structure and set it around the living thing which he had fashioned, in the following way. The funnel part he inserted into the mouth, and, consisting as it did of two funnels, he let one of them descend into the lungs down the windpipe, and the other alongside the windpipe into the belly. He made a split in the first one and assigned each of its parts a common outlet by way of the nostrils, so that when the one part fails to
- d provide passage by way of the mouth, all of its currents also might be replenished from that one. The shell, the other part of the trap, he made to grow around the hollow part of the body, and he made this whole thing now flow together onto the funnels [compressing them]—gently, because they are made of air—now, when the funnels flow back [expanding again], he made the interlaced structure sink into and through the body—a rela-

tively porous thing—and pass outside again.⁴² The interior rays of fire [inside the shell], bound from side to side, he made to follow the air as it passed in both directions. This process was to go on non-stop for as long as the mortal living thing holds together; and this, of course, is the phenomenon to which the name-giver (so we claim) assigned the names of *inhalation* and *exhalation*. This entire pattern of action and reaction, irrigating and cooling our bodies, supports their nutrition and life. For whenever the internal fire, united with the breath that passes in or out, follows it along, it surges up and down continually and makes its way through and into the belly, where it gets hold of the food and drink. These it dissolves or breaks up into tiny parts, which it then takes through the outbound passages along which it is advancing, and transfers them into the [two] veins, as water from a spring is transferred into water pipes. And so it causes the currents of the veins to flow through the body as through a conduit.

Let us, however, take another look at what happens in respiration. What explains its having the character that it now actually has? It is this. Since there is no void into which anything that is moving could enter, and since the air we breathe out does move out, away from us, it clearly follows that this air doesn't move into a void, but pushes the air next to it out of its place. As this air is pushed out, it drives out the air next to it, and so on, and so inevitably the air, displaced all around, enters the place from which the original air was breathed out and refills that place, following hard on the breath. This all takes place at once, like the rotation of a wheel, because there is no such thing as a void. Consequently even as the breath is being discharged, the area of the chest and the lungs fills up again with the air that surrounds the body, air that goes through the cycle of displacement and penetrates the porous flesh. And again, when the air is turned back and passes outward through the body, it comes round to push respiration inward by way of the mouth and the nostrils.

How did these processes get started? The explanation, we must suppose, is this: in the case of every living thing, its inner parts that are close to the blood and the veins are its hottest parts—an inner spring of fire inside it, as it were. This, of course, is what we've been comparing to the interlaced structure of a fish trap; it is entirely woven of fire, we said, and extended throughout its middle, while the rest of it, the external parts, are woven of air. Now it is beyond dispute that what is hot has a natural tendency to move outward into its own proper region, toward that which is akin to it. In this case there are two passages out, one out through [the pores of] the body, and the other out through the mouth and nose. So whenever hot air rushes out the one passage, it pushes air around into the other, and the air so pushed around gets hot as it encounters the fire, while the

42. As 79c–e seems to show, Timaeus appears to envisage the “shell” as an envelope of air surrounding the exterior of the torso, being drawn through the interstices of the body into the interior and then pushed out again, as breathing takes place.

air that passes out is cooled down. Now as the temperature changes and the air that enters by way of one or the other of the passages gets hotter, the hotter air is more inclined to return by way of the passage it entered, since it moves toward what is like itself, and so it pushes air around to and through the other passage. This air is affected the same way, and produces the same effect every time; and so, due to both these principles it produces an oscillation back and forth, thereby providing for inhalation and exhalation to occur.

- In this connection we should pursue along these lines an inquiry into the causes of the phenomena associated with medical cupping, and of swallowing, as well as of the motion of all projectiles that are dispatched into the air and along the ground. We should also investigate all sounds, whether fast or slow—sounds that appear to us as high pitched or low. Sometimes, when the motion they produce in us as they move towards us lacks conformity, these sounds are inharmonious; at other times, when the motion does have conformity, the sounds are harmonious. [What happens in the latter case is this.] The slower sounds catch up with the motions of the earlier and quicker sounds as these are already dying away and have come to a point of conformity with the motions produced by the slower sounds that travel later. In catching up with them, the slower sounds do not upset them, even though they introduce another motion. On the contrary, they graft onto the quicker movement, now dying away, the beginning of a slower one that conforms to it, and so they produce a single effect, a mixture of high and low. Hence the pleasure they bring to fools and the delight they afford—by their expression of divine harmony in mortal movement—to the wise.
- And what is more, every kind of water current, even the descent of a thunderbolt as well as that marvellous “attraction” exercised by amber and by the lodestone, in all these cases there is no such thing as a force of attraction. As any careful investigator will discover, there is no void; these things push themselves around into each other; all things move by exchanging places, each to its own place, whether in the process of combination or of dissolution. He will discover that these “works of wizardry” are due to the interactive relationships among these phenomena.
- The phenomenon of respiration, which provided the occasion for this account, is a case in point. The above are the principles and causes to which it owes its existence, as we have said before. The fire cuts up the food [in our bellies] and as it follows the breath it oscillates inside us. As the oscillation goes on, the fire pumps the cut-up bits of food from the belly and packs them into the veins. This is the mechanism by which the streams of nourishment continue to flow throughout the bodies of all living things. The bits of food, freshly cut up and derived from things like themselves—from fruits or from vegetables which the god had caused to grow for this very purpose, to serve us as food—come to have a variety of colors as a result of being mixed together, but a reddish color pervading them predominates, a character that is the product of the cutting and

staining action of fire upon moisture. This is why the color of the liquid that flows in our bodies looks the way we've described; this liquid we call *blood*, which feeds our flesh and indeed our whole bodies. From this source the various parts of our bodies are watered and so replenish the supports of the depleted areas. Now both processes, the replenishment and the depletion, follow the manner of the movement of anything within the universe at large: everything moves toward that which is of its own kind. In this case, our external environment continually wastes us away and distributes our bulk by dispatching each [elemental] kind toward its own sort. The ingredients in our blood, then, having been chopped up inside us and encompassed by the individual living thing as by the frame of the universe, of necessity imitate the universe's motion. And so, as each of the fragmented parts inside moves toward its own kind, it replenishes once again the area just then depleted. In every case, whenever there is more leaving a body than flowing in [to replenish it], it diminishes; whenever less, the body grows. So while a living thing's constitution is still young, and its elemental triangles are "fresh from the slips," as it were, the triangles are firmly locked together, even though the frame of its entire mass is pliable, seeing that it has just lately been formed from marrow and nourished with milk. Now when the triangles that constitute the young living thing's food and drink enter its body from the outside and are enveloped within it, the body's own new triangles cut and prevail over these others, which are older and weaker than they are. The living thing is thus nourished by an abundance of like parts, and so made to grow big. But when the roots of the triangles are slackened as a result of numerous conflicts they have waged against numerous adversaries over a long period of time, they are no longer able to cut up the entering food-triangles into conformity with themselves. They are themselves handily destroyed by the invaders from outside. Every living thing, then, goes into decline when it loses this battle, and it suffers what we call "old age." Eventually the interlocking bonds of the triangles around the marrow can no longer hold on, and come apart under stress, and when this happens they let the bonds of the soul go. The soul is then released in a natural way, and finds it pleasant to take its flight. All that is unnatural, we recall, is painful while all that occurs naturally is pleasant. This is true of death as well: a death that is due to disease or injury is painful and forced, while a death that comes naturally, when the aging process has run its course, is of all deaths the least distressing—a pleasant, not a painful death.

How diseases originate is, I take it, obvious to all. Given that there are four kinds of stuff out of which the body has been constructed—earth, fire, water and air—it may happen that some of these unnaturally increase themselves at the expense of the others. Or they may switch regions, each leaving its own and moving into another's region. Or again, since there is in fact more than one variety of fire and the other stuffs, it may happen that a given bodily part accommodates a particular variety that is not appropriate for it. When these things happen, they bring on conflicts and

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- b diseases. For when any of these unnatural occurrences and changes take place, bodily parts that used to be cold become hot, or those that are dry go on to become moist, and so with light and heavy, too. They undergo all sorts of changes in all sorts of ways. Indeed, it is our view that only when that which arrives at or leaves a particular bodily part is the same as that part, consistent, uniform and in proper proportion with it, will the body be allowed to remain stable, sound and healthy. On the other hand, anything that causes offense by passing beyond these bounds as it arrives or departs will bring on a multiplicity of altered states, and an infinity of diseases and degenerations.

- c Furthermore, since there is a class of secondary structures to be found in nature, anyone who intends to understand diseases will have a second set of subjects to study. Since marrow and bone, flesh and sinew are composed of the elemental stuffs—from which blood also has been formed, though in a different way—most of the diseases are brought on in the manner just described. But the most serious and grievous diseases are contracted when the process of generation that led to the formation of these structures is reversed. When this happens, they degenerate. It is natural for flesh and sinews to be formed from blood, the sinew from the fiber (which is of its own kind) and the flesh from the part of the blood that congeals when the sinew is separated from it. And the sticky and oily stuff that in its turn emerges from the sinew and the flesh both glues the flesh to the bone and feeds the marrow-encompassing bone itself, so causing it to grow. And because the bone is so dense, the part of this stuff that filters through, consisting as it does of the purest, smoothest and oiliest
- d kind of triangles, forms droplets inside the bone and waters the marrow.
- e And when this is the way it actually happens in each case, health will generally result.

- Disease, however, will result if things happen the other way around. For when flesh that is wasting away passes its waste back into the veins, the veins will contain not only air but also an excess of blood of great variety. This blood will have a multitude of colors and bitter aspects, and even acidic and salty qualities, and will contain bile and serum and phlegm of every sort. These are all back-products and agents of destruction. To
- 83 begin with, they corrupt the blood itself, and then also they do not supply the body any further with nourishment. They move everywhere throughout the veins, no longer keeping to the order of natural circulation. They are hostile to one another, since none receives any advantage from any other, and they wage a destructive and devastating war against the constituents of the body that have stayed intact and kept to their posts.

- Now as the oldest part of the flesh wastes away, it resists assimilation. It turns black as a result of being subjected to a prolonged process of
- b burning, and because it is thoroughly eaten up it is bitter, and so it launches a severe attack against any part of the body that has not yet been destroyed. Sometimes the bitterness is largely refined away, and then the black color acquires an acidic quality that replaces the bitter. At other times, though,

the bitterness is steeped in blood, and then it comes to have more of a reddish color, and when the black is mixed with this, it becomes a grass-like green. Further, when the flesh that is disintegrated by the fire of the inflammation is fairly young, the color that is mixed with the bitterness is a yellowish orange. Now the name “bile,” common to all these varieties, was given to them either by doctors, possibly, or else by someone who had the ability to look at a plurality of unlike things and see in them a single kind that deserves to be called by a single name. As for everything that can be called a variety of bile, each has its own distinctive definition, depending on its color. In the case of serum, some of it, the watery part of the blood, is benign while that which is a part of the black, acid bile is malignant when heat causes it to be mixed with a salty quality. This kind of thing is called acid phlegm. Furthermore, when the stuff that comes from the disintegration of young, tender flesh is exposed to air and blown up with wind and enveloped in moisture, bubbles form as a result, each one too small to be seen though collectively amounting to a visible mass. These bubbles look white, as foam begins to form. All this disintegration of tender flesh reacting with air is what we call white phlegm. Newly formed phlegm, furthermore, has a watery part which consists of perspiration and tears, as well as any other impurities that are discharged every day. So whenever the blood, instead of being replenished in the natural way by nutrients from food and drink, derives its volume from opposite sources, contrary to nature’s way, all these things, it turns out, serve as instruments of disease.

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Now when a certain part of the flesh is decomposed by disease, as long as the foundations of the flesh remain intact, the effect of the calamity is only half of what it would otherwise be, for there is still a chance of an easy recovery. But when the stuff that binds the flesh to the bones becomes diseased and no longer nourishes the bone or binds the flesh to the bone because it is now separated from flesh and bone as well as from sinews,⁴³ it turns from being slick and smooth and oily to being rough and briny, shriveled up in consequence of its bad regimen. When this occurs, all the stuff that this happens to crumbles away back into the flesh and the sinew, and separates from the bone. The flesh, which collapses with it away from its roots, leaves the sinews bare and full of brine. And the flesh itself succumbs back into the bloodstream, where it works to aggravate the previously mentioned diseases.

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Severe as these bodily processes are, those disorders that affect the more basic tissues are even more serious. When the density of the flesh prevents the bone from getting enough ventilation, the bone gets moldy, which causes it to get too hot. Gangrene sets in and the bone cannot take in its nourishment. It then crumbles and, by a reverse process, is dissolved into that nourishment which, in its turn, enters the flesh, and as the flesh lands in the blood it causes all of the previously mentioned diseases to become

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43. Reading *au to ex ekeinōn hama kai neurōn* in a2.

more virulent still. But the most extreme case of all is when the marrow becomes diseased, either as a result of some deficiency or some excess. This produces the most serious, the most critically fatal diseases, in which all the bodily processes are made to flow backwards.

- Further, there is a third class of diseases, which we should think of as arising in three ways. (a) One way is from air, (b) another from phlegm and (c) the third from bile. (a) When the lungs, the dispensers of air to the body, are obstructed by humors, they do not permit a clear passage. At some places the air cannot get in, while at others more than the appropriate amount gets in. In the former case, there will be parts of the body that don't get any breath and so begin to decay, while in the latter case the air forces its way through the veins and twists them together like strands. It makes its way into the central region of the body, the region that contains the midriff, where it is shut in, thereby causing the body to waste away.
- e These factors produce countless painful diseases, often accompanied by profuse perspiration. And often, when flesh disintegrates inside the body, air is produced there, but is unable to get out. This air then causes just as much excruciating pain as the air that comes in from outside. The pain is most severe when the air settles around the sinews and the veins there and causes them to swell, thereby stretching backwards the "back stays" (the great sinews of the shoulder and arm) and the sinews attached to them. It is from this phenomenon of stretching, of course, that the diseases called *tetanus* ("tension") and *opisthotonus* ("backward stretching") have received their names. These diseases are difficult to cure. In fact, the onset
- 85 of a fever affords the best prospects for relief from such ailments.

- (b) Now as for the white phlegm, as long as it is trapped in the body, it is troublesome because of the air in its bubbles. But if it finds a vent to the outside of the body, it is gentler, even though it does deck the body with white, leprous spots and engenders the corresponding diseases. If it is mixed with black bile and the mixture is sprayed against the divine circuits in the head, thereby throwing them into confusion, the effect is
- b fairly mild if it comes during sleep, but should it come upon someone while awake, it is much harder to shake off. Seeing that it is a disease of the sacred part of our constitution, it is entirely just that it should be called the "sacred" disease (i.e., epilepsy).

Acid and salty phlegm is the source of all those diseases that come about by passage of fluids. These disorders have been given all sorts of different names, in view of the fact that the bodily regions into which the fluids flow are quite diverse.

- (c) All inflammations in the body (so called from their being burned or
- c "set aflame") are caused by bile. When bile finds a vent to the outside, it boils over and sends up all sorts of tumors, but when it is shut up inside, it creates many inflammatory diseases. The worst occurs when the bile gets mixed with clean blood and disrupts the disposition of the blood's fibers, which are interspersed throughout the blood. These fibers act to preserve a balance of thinness and thickness, i.e., to prevent both the blood

from getting so liquid, due to the body's heat, that it oozes out from the body's pores, and, on the other hand, its getting so dense that it is sluggish and hardly able to circulate within the veins. The fibers, then, by virtue of their natural composition, preserve the appropriate state between these conditions. And even after death, when the blood cools down, if the fibers are [extracted from the blood and] collected, the residue will still be completely runny, while if they are left in the blood, they, along with the surrounding cold, congeal it in no time. Given, then, that the fibers have this effect upon the blood, though the bile—which originated as primitive blood and then from flesh was dissolved into blood again—is hot and liquid at first as a little of it invades the blood, it congeals under the effect of the fibers, and as it congeals and is forced to extinguish its heat it causes internal cold and shivering. But as more of it flows in, it overpowers the fibers with its own heat. It boils over and shakes them up into utter confusion. And if it proves capable of sustaining its power to the end, it penetrates to the marrow and burns it up, thereby loosening the cables that hold the soul there, like a ship, and setting the soul free. But when there is rather little of it and the body resists its dissolution, the bile is itself overpowered and is expelled either by way of the body as a whole or else it is compressed through the veins into the lower or upper belly, and is expelled from the body like an exile from a city in civil strife, so bringing on diarrhea, dysentery and every disease of that kind. Bodies afflicted mostly by an excess of fire will generate continuous states of heat and fevers; those suffering from an excess of air produce fevers that recur every day; while those that have an excess of water have fevers that recur only every other day, given that water is more sluggish than air or fire. Bodies afflicted by an excess of earth, the most sluggish of the four, are purged within a fourfold cycle of time and produce fevers that occur every fourth day, fevers that are hard to get over.

The foregoing described how diseases of the body happen to come about. The diseases of the soul that result from a bodily condition come about in the following way. It must be granted, surely, that mindlessness is the disease of the soul, and of mindlessness there are two kinds. One is madness, and the other is ignorance. And so if a man suffers from a condition that brings on either one or the other, that condition must be declared a disease.

We must lay it down that the diseases that pose the gravest dangers for the soul are excessive pleasures and pains. When a man enjoys himself too much or, in the opposite case, when he suffers great pain, and he exerts himself to seize the one and avoid the other in inopportune ways, he lacks the ability to see or hear anything right. He goes raving mad and is at that moment least capable of rational thought. And if the seed of a man's marrow grows to overflowing abundance like a tree that bears an inordinately plentiful quantity of fruit, he is in for a long series of bursts of pain, or of pleasures, in the area of his desires and their fruition. These severe pleasures and pains drive him mad for the greater part of his life,

- d and though his body has made his soul diseased and witless, people will think of him not as sick, but as willfully evil. But the truth about sexual overindulgence is that it is a disease of the soul caused primarily by the condition of a single stuff which, due to the porousness of the bones, flows within the body and renders it moist. And indeed, just about every type of succumbing to pleasure is talked about as something reproachable, as though the evils are willfully done. But it is not right to reproach people
- e for them, for no one is willfully evil. A man becomes evil, rather, as a result of one or another corrupt condition of his body and an uneducated upbringing. No one who incurs these pernicious conditions would will to have them.

And as for pains, once again it is the body that causes the soul so much trouble, and in the same ways. When any of a man's acid and briny phlegms or any bitter and bilious humors wander up and down his body without finding a vent to the outside and remain pent up inside, they mix the vapor that they give off with the motion of the soul and so are confounded with it. So they produce all sorts of diseases of the soul, some more intense and some more frequent than others. And as they move to the three regions of the soul, each of them produces a multitude of varieties of bad temper and melancholy in the region it attacks, as well as of recklessness and cowardice, not to mention forgetfulness and stupidity.

87 Furthermore, when men whose constitutions are bad in this way have bad forms of government where bad civic speeches are given, both in public and in private and where, besides, no studies that could remedy this situation are at all pursued by people from their youth on up, that is how all of us who are bad come to be that way—the products of two causes both entirely beyond our control. It is the begetters far more than the begotten, and the nurturers far more than the nurtured, that bear the blame for all this. Even so, one should make every possible effort to flee from badness, whether with the help of one's upbringing, or the pursuits or studies one undertakes, and to seize its opposite. But that is the subject for another speech.

- c The counterpart to the subject just dealt with, i.e., how to treat our bodies and states of mind and preserve them whole, is one that it is now fitting and right to give its turn. After all, good things have more of a claim to be the subject of our speech than bad things. Now all that is good is beautiful, and what is beautiful is not ill-proportioned. Hence we must take it that if a living thing is to be in good condition, it will be well-proportioned. We can perceive the less important proportions and do some figuring about them, but the more important proportions, which are of
- d the greatest consequence, we are unable to figure out. In determining health and disease or virtue and vice no proportion or lack of it is more important than that between soul and body—yet we do not think about any of them nor do we realize that when a vigorous and excellent soul is carried about by a too frail and puny frame, or when the two are combined in the opposite way, the living thing as a whole lacks beauty, because it is lacking in the most important of proportions. That living thing, however,

which finds itself in the opposite condition is, for those who are able to observe it, the most beautiful, the most desirable of all things to behold. Imagine a body which lacks proportion because its legs are too long or something else is too big. It is not only ugly but also causes itself no end of troubles. As its parts try to cooperate to get its tasks done it frequently tires itself out or gets convulsive, or, because it lurches this way and that, it keeps falling down. That's how we ought to think of that combination of soul and body which we call the living thing. When within it there is a soul more powerful than the body and this soul gets excited, it churns the whole being and fills it from inside with diseases, and when it concentrates on one or another course of study or inquiry, it wears the body out. And again, when the soul engages in public or private teaching sessions or verbal battles, the disputes and contentions that then occur cause the soul to fire the body up and rock it back and forth, so inducing discharges which trick most so-called doctors into making misguided diagnoses. But when, on the other hand, a large body, too much for its soul, is joined with a puny and feeble mind, then, given that human beings have two sets of natural desires—desires of the body for food and desires of the most divine part of us for wisdom—the motions of the stronger part will predominate, and amplify their own interest. They render the functions of the soul dull, stupid and forgetful, thereby bringing on the gravest disease of all: ignorance.

From both of these conditions there is in fact one way to preserve oneself, and that is not to exercise the soul without exercising the body, nor the body without the soul, so that each may be balanced by the other and so be sound. The mathematician, then, or the ardent devotee of any other intellectual discipline should also provide exercise for his body by taking part in gymnastics, while one who takes care to develop his body should in his turn practice the exercises of the soul by applying himself to the arts and to every pursuit of wisdom, if he is to truly deserve the joint epithets of "fine and good." And the various bodily parts should also be looked after in this same way, in imitation of the structure of the universe. For since the body is heated and cooled inside by things that enter it and is dried and moistened by things outside of it and made to undergo the consequent changes by both of these motions, it will happen that when a man subjects his body to these motions when it has been in a state of rest, the body is overcome and brought to ruin. But if he models himself after what we have called the foster-mother and nurse of the universe and persistently refuses to allow his body any degree of rest but exercises and continually agitates it through its whole extent, he will keep in a state of natural equilibrium the internal and the external motions. And if the agitation is a measured one, he will succeed in bringing order and regularity to those disturbances and those elemental parts that wander all over the body according to their affinities in the way described in the account we gave earlier about the universe. He will not allow one hostile element to position itself next to another and so breed wars and diseases in the body.

- 89 Instead, he will have one friendly element placed by another, and so bring about health.

Now the best of the motions is one that occurs within oneself and is caused by oneself. This is the motion that bears the greatest kinship to understanding and to the motion of the universe. Motion that is caused by the agency of something else is less good. Worst of all is the motion that moves, part by part, a passive body in a state of rest, and does so by means of other things. That, then, is why the motion induced by physical exercise is the best of those that purify and restore the body. Second is that induced by the rocking motion of sea travel or travel in any other

b kind of conveyance that doesn't tire one out. The third type of motion is useful in an occasional instance of dire need; barring that, however, no man in his right mind should tolerate it. This is medical purging by means of drugs. We should avoid aggravating with drugs diseases that aren't particularly dangerous. Every disease has a certain makeup that in a way resembles the natural makeup of living things. In fact, the constitution of such beings goes through an ordered series of stages throughout their life. This is true of the species as a whole, and also of its individual members,

c each of which is born with its allotted span of life, barring unavoidable accidents. This is because its triangles are so made up, right from the beginning, as to have the capacity to hold up for a limited time beyond which life cannot be prolonged any further. Now diseases have a similar makeup, so that when you try to wipe them out with drugs before they have run their due course, the mild diseases are liable to get severe, and the occasional ones frequent. That is why you need to cater to all such diseases by taking care of yourself to the extent you are free and have the

d time to do that. What you should not do is aggravate a stubborn irritation with drugs.

Let these remarks suffice, then, on the subject of the living thing as a whole and its bodily parts, and how a man should both lead and be led by himself in order to have the best prospects for leading a rational life. Indeed, we must give an even higher priority to doing our utmost to make sure that the part that is to do the leading is as superbly and perfectly as

e possible fitted for that task. Now a thoroughgoing discussion of these matters would in and of itself be a considerable task, but if we treat it as a side issue, in line with what we have said before, it may not be out of turn to conclude our discourse with the following observations.

There are, as we have said many times now, three distinct types of soul that reside within us, each with its own motions. So now too, we must say in the same vein, as briefly as we can, that any type which is idle and keeps its motions inactive cannot but become very weak, while one that

90 keeps exercising becomes very strong. And so we must keep watch to make sure that their motions remain proportionate to each other.

Now we ought to think of the most sovereign part of our soul as god's gift to us, given to be our guiding spirit. This, of course, is the type of soul that, as we maintain, resides in the top part of our bodies. It raises

us up away from the earth and toward what is akin to us in heaven, as though we are plants grown not from the earth but from heaven. In saying this, we speak absolutely correctly. For it is from heaven, the place from which our souls were originally born, that the divine part suspends our head, i.e., our root, and so keeps our whole body erect. So if a man has become absorbed in his appetites or his ambitions and takes great pains to further them, all his thoughts are bound to become merely mortal. And so far as it is at all possible for a man to become thoroughly mortal, he cannot help but fully succeed in this, seeing that he has cultivated his mortality all along. On the other hand, if a man has seriously devoted himself to the love of learning and to true wisdom, if he has exercised these aspects of himself above all, then there is absolutely no way that his thoughts can fail to be immortal and divine, should truth come within his grasp. And to the extent that human nature can partake of immortality, he can in no way fail to achieve this: constantly caring for his divine part as he does, keeping well-ordered the guiding spirit that lives within him, he must indeed be supremely happy. Now there is but one way to care for anything, and that is to provide for it the nourishment and the motions that are proper to it. And the motions that have an affinity to the divine part within us are the thoughts and revolutions of the universe. These, surely, are the ones which each of us should follow. We should redirect the revolutions in our heads that were thrown off course at our birth,⁴⁴ by coming to learn the harmonies and revolutions of the universe, and so bring into conformity with its objects our faculty of understanding, as it was in its original condition. And when this conformity is complete, we shall have achieved our goal: that most excellent life offered to humankind by the gods, both now and forevermore.

And now indeed, it seems, we have all but completed our initial assignment, that of tracing the history of the universe down to the emergence of humankind. We should go on to mention briefly how the other living things came to be—a topic that won't require many words. By doing this we'll seem to be in better measure with ourselves so far as our words on these subjects are concerned.

Let us proceed, then, to a discussion of this subject in the following way. According to our likely account, all male-born humans who lived lives of cowardice or injustice were reborn in the second generation as women. And this explains why at that time the gods fashioned the desire for sexual union, by constructing one ensouled living thing in us as well as another one in women. This is how they made them in each case: There is [in a man] a passage by which fluids exit from the body, where it receives the liquid that has passed through the lungs down into the kidneys and on into the bladder and expels it under pressure of air. From this passage they bored a connecting one into the compacted marrow that runs from the head along the neck through the spine. This is in fact the marrow that

44. See 43a–44a.

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- we have previously called "seed."⁴⁵ Now because it has soul in it and had now found a vent [to the outside], this marrow instilled a life-giving desire for emission right at the place of venting, and so produced the love of procreation. This is why, of course, the male genitals are unruly and self-willed, like an animal that will not be subject to reason and, driven crazy by its desires, seeks to overpower everything else. The very same causes
- c operate in women. A woman's womb or uterus, as it is called, is a living thing within her with a desire for childbearing. Now when this remains unfruitful for an unseasonably long period of time, it is extremely frustrated and travels everywhere up and down her body. It blocks up her respiratory passages, and by not allowing her to breathe it throws her into extreme emergencies, and visits all sorts of other illnesses upon her until finally
 - d the woman's desire and the man's love bring them together, and, like plucking the fruit from a tree, they sow the seed into the ploughed field of her womb, living things too small to be visible and still without form. And when they have again given them distinct form, they nourish these living things so that they can mature inside the womb. Afterwards, they bring them to birth, introducing them into the light of day.

- That is how women and females in general came to be. As for birds, as a kind they are the products of a transformation. They grow feathers instead of hair. They descended from innocent but simpleminded men,
- e men who studied the heavenly bodies but in their naiveté believed that the most reliable proofs concerning them could be based upon visual observation. Land animals in the wild, moreover, came from men who had no tincture of philosophy and who made no study of the universe whatsoever, because they no longer made use of the revolutions in their heads but instead followed the lead of the parts of the soul that reside in the chest. As a consequence of these ways of theirs they carried their forelimbs and their heads dragging towards the ground, like towards like. The tops of their heads became elongated and took all sorts of shapes,
 - 92 depending on the particular way the revolutions were squeezed together from lack of use. This is the reason animals of this kind have four or more feet. The god placed a greater number of supports under the more mindless beings, so that they might be drawn more closely to the ground. As for the most mindless of these animals, the ones whose entire bodies stretch out completely along the ground, the gods made them without feet, crawl-
 - b ing along the ground, there being no need of feet anymore. The fourth kind of animal, the kind that lives in water, came from those men who were without question the most stupid and ignorant of all. The gods who brought about their transformation concluded that these no longer deserved to breathe pure air, because their souls were tainted with transgressions of every sort. Instead of letting them breathe rare and pure air, they shoved them into water to breathe its murky depths. This is the origin of fish, of all shellfish, and of every water-inhabiting animal. Their justly

45. At 73c1; 74a4.

due reward for their extreme stupidity is their extreme dwelling place. These, then, are the conditions that govern, both then and now, how all the animals exchange their forms, one for the other, and in the process lose or gain intelligence or folly.

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And so now we may say that our account of the universe has reached its conclusion. This world of ours has received and teems with living things, mortal and immortal. A visible living thing containing visible ones, perceptible god, image of the intelligible Living Thing,⁴⁶ its grandness, goodness, beauty and perfection are unexcelled. Our one universe, indeed the only one of its kind, has come to be.

46. Cf. 30c, d and 39e.