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Timaeus

Soc.

One, two, three,—but where, my dear Timaeus, is the fourth[1] of our guests of yesterday, our hosts of today?

Tim.

Some sickness has befallen him, Socrates; for he would never have stayed away from our gathering of his own free will.

Soc.

Then the task of filling the place of the absent one falls upon you and our friends here, does it not?

Tim.

Undoubtedly, and we shall do our best not to come short; for indeed it would not be at all right, after the splendid hospitality we received from you yesterday, if we—that is, those who are left of us—failed to entertain you cordially in return.

Soc.

Well, then, do you remember the extent and character of the subjects which I proposed for your discussion?

Tim.

In part we do remember them; and of what we have forgotten you are present to remind us. Or rather, if it is not a trouble, recount them again briefly from the beginning, so as to fix them more firmly in our minds.

Soc.

[1] This fourth guest cannot be identified. Some have supposed that Plato himself is intended.

It shall be done. The main part of the discourse I delivered yesterday[2] was concerned with the kind of constitution which seemed to me likely to prove the best, and the character of its citizens.

Tim.

And in truth, Socrates, the polity you described was highly approved by us all.

Soc.

Did we not begin by dividing off the class of land-workers in it, and all other crafts, from the class of its defenders?[3]

Tim.

Yes.

Soc.

And when, in accordance with Nature, we had assigned to each citizen his one proper and peculiar occupation, we declared that those whose duty it is to fight in defence of all must act solely as guardians of the State, in case anyone from without or any of those within should go about to molest it; and that they should judge leniently such as are under their authority and their natural friends, but show themselves stern in battle towards all the enemies they encounter.[4]

Tim.

Very true.

Soc.

For we said, as I think, that the soul of the Guardians ought to be of a nature at once spirited and philosophic in a superlative degree, so that they might be able to treat their friends rightly with leniency and their foes with sternness.

Tim.

Yes.

Soc.

And what of their training? Did we not say that they were trained in gymnastic, in music, and in all the studies proper for such men?[5]

Tim.

Certainly.

Soc.

[2] i.e., the *Republic*, of which the political part (books ii.-v.) is here briefly recapitulated.

[3] See *Rep.* 369 E ff., 374 E ff.

[4] Cf. *Rep.* 375 B ff.

[5] Cf. *Rep.* 376 D ff.

And it was said, I believe, that the men thus trained should never regard silver or gold or anything else as their own private property; but as auxiliaries, who in return for their guard-work receive from those whom they protect such a moderate wage as suffices temperate men, they should spend their wage in common and live together in fellowship one with another, devoting themselves unceasingly to virtue, but keeping free from all other pursuits.[6]

Tim.

That too was stated as you say.

Soc.

Moreover, we went on to say about women[7] that their natures must be attuned into accord with the men, and that the occupations assigned to them, both in war and in all other activities of life, should in every case be the same for all alike.

Tim.

This matter also was stated exactly so.

Soc.

And what about the matter of child-production? Or was this a thing easy to recollect because of the strangeness of our proposals? For we ordained that as regards marriages and children all should have all in common, so that no one should ever recognize his own particular offspring, but all should regard all as their actual kinsmen—as brothers and sisters, if of a suitable age; as parents and grandparents, if more advanced in age; and as children and children's children, if junior in age.[8]

Tim.

Yes, this also, as you say, is easy to recollect.

Soc.

And in order that, to the best of our power, they might at once become as good as possible in their natural characters, do we not recollect how we said that the rulers, male and female, in dealing with marriage-unions must contrive to secure, by some secret method of allotment, that the two classes of bad men and good shall each be mated by lot with women of a like nature, and that no enmity shall occur amongst them because of this, seeing that they will ascribe the allotment to chance?[9]

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[6]Cf. *Ref. 416 D ff.*

[7]Cf. *Rep.* 451 C ff.

[8]Cf *Rep.* 457 ff.,461 D.

Tim.
We recollect.

Soc.
And do you recollect further how we said that the offspring of the good were to be reared, but those of the bad were to be sent privily to various other parts of the State; and as these grew up the rulers should keep constantly on the watch for the deserving amongst them and bring them back again, and into the place of those thus restored transplant the undeserving among themselves?[10]

Tim.
So we said.

Soc.
May we say then that we have now gone through our discourse of yesterday, so far as is requisite in a summary review; or is there any point omitted, my dear, which we should like to see added?

Tim.
Certainly not: this is precisely what was said, Socrates.

Soc.
And now, in the next place, listen to what my feeling is with regard to the polity we have described. I may compare my feeling to something of this kind: suppose, for instance, that on seeing beautiful creatures, whether works of art or actually alive but in repose, a man should be moved with desire to behold them in motion and vigorously engaged in some such exercise as seemed suitable to their physique; well, that is the very feeling I have regarding the State we have described. Gladly would I listen to anyone who should depict in words our State contending against others in those struggles which States wage; in how proper a spirit it enters upon war, and how in its warring it exhibits qualities such as befit its education and training in its dealings with each several State whether in respect of military actions or in respect of verbal negotiations. And herein, Critias and Hermocrates, I am conscious of my own inability ever to magnify sufficiently our citizens and our State. Now in this inability of mine there is nothing surprising; but I have formed the same opinion about the poets also, those of the present as well as those of the past; not that I disparage in any way the poetic clan, but it is plain to all that the imitative[11] tribe will imitate with most

[9] Cf. *Rep.* 458 ff.
[10] Cf. *Rep.* 415 B.C., 459 D ff.

ease and success the things amidst which it has been reared, whereas it is hard for any man to imitate well in action what lies outside the range of his rearing, and still harder in speech. Again, as to the class of Sophists, although I esteem them highly versed in many fine discourses of other kinds, yet I fear lest haply, seeing they are a class which roams from city to city and has no settled habitations of its own, they may go wide of the mark in regard to men who are at once philosophers and statesmen, and what they would be likely to do and say, in their several dealings with foemen in war and battle, both by word and deed.

Soc.

Thus there remains only that class which is of your complexion— a class which, alike by nature and nurture, shares the qualities of both the others. For our friend is a native of a most well-governed State, Italian Locris,[12] and inferior to none of its citizens either in property or in rank; and not only has he occupied the highest offices and posts of honor in his State, but he has also attained, in my opinion, the very summit of eminence in all branches of philosophy. As to Critias, all of us here know that he is no novice in any of the subjects we are discussing. As regards Hermocrates, we must believe the many witnesses who assert that both by nature and by nurture he is competent for all these inquiries. So, with this in my mind, when you requested me yesterday to expound my views of the polity I gratified you most willingly, since I knew that none could deal more adequately than you (if you were willing) with the next subject of discourse; for you alone, of men now living, could show our State engaged in a suitable war and exhibiting all the qualities which belong to it. Accordingly, when I had spoken upon my prescribed theme, I in turn prescribed for you this theme which I am now explaining. And you, after consulting together among yourselves, agreed to pay me back today with a feast of words; so here I am, ready for that feast in festal garb, and eager above all men to begin.

Herm.

Of a truth, Socrates, as our friend has said, we will show no lack of zeal, nor have we any excuse for refusing to do as you say. Yesterday, in fact, immediately after our return from you to the guest-chamber at Critias where we are lodging—aye, and earlier still, on our way there— we were considering these very subjects. Critias here mentioned to us

[11]For poetry as an "imitative" art Cf. *Rep.* 392 D, 579 E ff.

[12]Cf. *Laws*638 B. The laws of Epizephyrian Locri were ascribed to Zaleucus (circa 650 B.C.).

a story derived from ancient tradition; and now, Critias, pray tell it again to our friend here, so that he may help us to decide whether or not it is pertinent to our prescribed theme.

Crit.

That I must certainly do, if our third partner, also approves.

Tim.

Assuredly I approve.

Crit.

Listen then, Socrates, to a tale which, though passing strange, is yet wholly true, as Solon, the wisest of the Seven, once upon a time declared. Now Solon—as indeed he often says himself in his poems—was a relative and very dear friend of our great-grandfather Dropides;

Crit.

and Dropides told our grandfather Critias as the old man himself, in turn, related to us—that the exploits of this city in olden days, the record of which had perished through time and the destruction of its inhabitants, were great and marvellous, the greatest of all being one which it would be proper for us now to relate both as a payment of our debt of thanks to you and also as a tribute of praise, chanted as it were duly and truly, in honor of the Goddess on this her day of Festival.[13]

Soc.

Excellent! But come now, what was this exploit described by Critias, following Solons report, as a thing not verbally recorded, although actually performed by this city long ago?

Crit.

I will tell you: it is an old tale, and I heard it from a man not young. For indeed at that time, as he said himself, Critias was already close upon ninety years of age, while I was somewhere about ten; and it chanced to be that day of the Apaturia which is called "Cureotis."[14] The ceremony for boys which was always customary at the feast was held also on that occasion, our fathers arranging contests in recitation. So while many poems of many poets were declaimed, since the poems of Solon were at that time new, many of us children chanted them. And one of our fellow tribesmen—whether he really thought so at the time or whether he was paying a compliment to Critias—declared that in his opinion Solon was not only the wisest of men in all else, but in poetry also he was of all poets the noblest. Whereat the old man (I

[13] i.e., the Lesser Panathenaea, held early in June, just after the Bendideia.

[14] The Apaturia was a feast held in October in honor of Dionysus. On the third day of the feast the children born during the year were registered (hence the name Cureotis: *κοῦροι*=youths).

remember the scene well) was highly pleased and said with a smile,

"If only, Amynander, he had not taken up poetry as a by-play but had worked hard at it like others, and if he had completed the story he brought here from Egypt, instead of being forced to lay it aside owing to the seditions and all the other evils he found here on his return,—why then, I say, neither Hesiod nor Homer nor any other poet would ever have proved more famous than he."

"And what was the story, Critias?" said the other.

"Its subject," replied Critias,

"was a very great exploit, worthy indeed to be accounted the most notable of all exploits, which was performed by this city, although the record of it has not endured until now owing to lapse of time and the destruction of those who wrought it."

"Tell us from the beginning," said Amynander,

"what Solon related and how, and who were the informants who vouched for its truth."

"In the Delta of Egypt," said Critias,

"where, at its head, the stream of the Nile parts in two, there is a certain district called the Saitic. The chief city in this district is Sais—the home of King Amasis,[15]—the founder of which, they say, is a goddess whose Egyptian name is Neith,[16] and in Greek, as they assert, Athena. These people profess to be great lovers of Athens and in a measure akin to our people here."

Crit.

"And Solon said that when he travelled there he was held in great esteem amongst them; moreover, when he was questioning such of their priests as were most versed in ancient lore about their early history, he discovered that neither he himself nor any other Greek knew anything at all, one might say, about such matters. And on one occasion, when he wished to draw them on to discourse on ancient history, he attempted to tell them the most ancient of our traditions, concerning Phoroneus, who was said to be the first man, and Niobe; and he went on to tell the legend about Deucalion and Pyrrha after the Flood, and how they survived it, and to give the geneology of their descendants; and by recounting the number of years occupied by the events mentioned he tried to calculate the periods of time. Whereupon one of the priests, a prodigiously old man, said,

[15] Amasis (Aahmes) was king of Egypt 569-525 B.C., and a phil-Hellene; Cf. Hdt. ii. 162 ff.

[16] Neith is identified by Plutarch with Isis; Cf. Hdt. ii. 28.

"O Solon, Solon, you Greeks are always children: there is not such a thing as an old Greek." And on hearing this he asked,

"What mean you by this saying?" And the priest replied,

"You are young in soul, every one of you. For therein you possess not a single belief that is ancient and derived from old tradition, nor yet one science that is hoary with age. And this is the cause thereof: There have been and there will be many and divers destructions of mankind,[17] of which the greatest are by fire and water, and lesser ones by countless other means. For in truth the story that is told in your country as well as ours, how once upon a time Phaethon, son of Helios,[18] yoked his father's chariot, and, because he was unable to drive it along the course taken by his father, burnt up all that was upon the earth and himself perished by a thunderbolt,—that story, as it is told, has the fashion of a legend, but the truth of it lies in the occurrence of a shifting of the bodies in the heavens which move round the earth, and a destruction of the things on the earth by fierce fire, which recurs at long intervals. At such times all they that dwell on the mountains and in high and dry places suffer destruction more than those who dwell near to rivers or the sea; and in our case the Nile, our Saviour in other ways, saves us also at such times from this calamity by rising high. And when, on the other hand, the Gods purge the earth with a flood of waters, all the herdsmen and shepherds that are in the mountains are saved,[19] but those in the cities of your land are swept into the sea by the streams; whereas In our country neither then nor at any other time does the water pour down over our fields from above, on the contrary it all tends naturally to well up from below.""

Crit.

""Hence it is, for these reasons, that what is here preserved is reckoned to be most ancient; the truth being that in every place where there is no excessive heat or cold to prevent it there always exists some human stock, now more, now less in number. And if any event has occurred that is noble or great or in any way conspicuous, whether it be in your country or in ours or in some other place of which we know by report, all such events are recorded from of old and preserved here in our temples; whereas your people and the others are but newly equipped, every time, with letters and all such arts as civilized States require and when, after the usual interval of years, like a plague, the

[17] Cf. *Laws* 676 ff.

[18] For the legend pf Phaethon see Ovid, *Met.* i. 751 ff.

[19] Cf. *Laws* 677 B.

flood from heaven comes sweeping down afresh upon your people, it leaves none of you but the unlettered and uncultured, so that you become young as ever, with no knowledge of all that happened in old times in this land or in your own. Certainly the genealogies which you related just now, Solon, concerning the people of your country, are little better than children's tales; for, in the first place, you remember but one deluge, though many had occurred previously; and next, you are ignorant of the fact that the noblest and most perfect race amongst men were born in the land where you now dwell, and from them both you yourself are sprung and the whole of your existing city, out of some little seed that chanced to be left over; but this has escaped your notice because for many generations the survivors died with no power to express themselves in writing. For verily at one time, Solon, before the greatest destruction by water, what is now the Athenian State was the bravest in war and supremely well organized also in all other respects. It is said that it possessed the most splendid works of art and the noblest polity of any nation under heaven of which we have heard tell." Upon hearing this, Solon said that he marvelled, and with the utmost eagerness requested the priest to recount for him in order and exactly all the facts about those citizens of old. The priest then said:

"I begrudge you not the story, Solon; nay, I will tell it, both for your own sake and that of your city, and most of all for the sake of the Goddess who has adopted for her own both your land and this of ours, and has nurtured and trained them,—yours first by the space of a thousand years, when she had received the seed of you from Ge and Hephaestus,[20] and after that ours. And the duration of our civilization as set down in our sacred writings is 8000 years. Of the citizens, then, who lived 9000 years ago, I will declare to you briefly certain of their laws and the noblest of the deeds they performed:""

Crit.

"" the full account in precise order and detail we shall go through later at our leisure, taking the actual writings. To get a view of their laws, look at the laws here; for you will find existing here at the present time many examples of the laws which then existed in your city. You see, first, how the priestly class is separated off from the rest; next, the class of craftsmen, of which each sort works by itself without mixing with any other; then the classes of shepherds, hunters, and farmers,

[20] i.e., from the elements earth and fire, cf. 31 B. For the legend of Erechtheus, son of Ge and Hephaestus, and king of Athens (Hom. *Il.* ii. 547), see Eurip. *Ion.*

each distinct and separate. Moreover, the military class here, as no doubt you have noticed, is kept apart from all the other classes, being enjoined by the law to devote itself solely to the work of training for war. A further feature is the character of their equipment with shields and spears; for we were the first of the peoples of Asia [21] to adopt these weapons, it being the Goddess who instructed us, even as she instructed you first of all the dwellers in yonder lands. Again, with regard to wisdom, you perceive, no doubt, the law here—how much attention it has devoted from the very beginning to the Cosmic Order, by discovering all the effects which the divine causes produce upon human life, down to divination and the art of medicine which aims at health, and by its mastery also of all the other subsidiary studies. So when, at that time, the Goddess had furnished you, before all others, with all this orderly and regular system, she established your State, choosing the spot wherein you were born since she perceived therein a climate duly blended, and how that it would bring forth men of supreme wisdom. So it was that the Goddess, being herself both a lover of war and a lover of wisdom, chose the spot which was likely to bring forth men most like unto herself, and this first she established. Wherefore you lived under the rule of such laws as these,—yea, and laws still better,—and you surpassed all men in every virtue, as became those who were the offspring and nurslings of gods. Many, in truth, and great are the achievements of your State, which are a marvel to men as they are here recorded; but there is one which stands out above all both for magnitude and for nobleness. For it is related in our records how once upon a time your State stayed the course of a mighty host, which, starting from a distant point in the Atlantic ocean, was insolently advancing to attack the whole of Europe, and Asia to boot.""

Crit.

"" For the ocean there was at that time navigable; for in front of the mouth which you Greeks call, as you say, 'the pillars of Heracles,'[22] there lay an island which was larger than Libya [23] and Asia together; and it was possible for the travellers of that time to cross from it to the other islands, and from the islands to the whole of the continent over against them which encompasses that veritable ocean. For all that we have here, lying within the mouth of which we speak,[24] is evidently a

[21] Egypt being reckoned part of Asia.

[22] i.e., the Straits of Gibraltar.

[23] i.e., Africa.

haven having a narrow entrance; but that yonder is a real ocean, and the land surrounding it may most rightly be called, in the fullest and truest sense, a continent. Now in this island of Atlantis there existed a confederation of kings, of great and marvellous power, which held sway over all the island, and over many other islands also and parts of the continent; and, moreover, of the lands here within the Straits they ruled over Libya as far as Egypt, and over Europe as far as Tuscany. So this host, being all gathered together, made an attempt one time to enslave by one single onslaught both your country and ours and the whole of the territory within the Straits. And then it was, Solon, that the manhood of your State showed itself conspicuous for valor and might in the sight of all the world. For it stood pre-eminent above all in gallantry and all warlike arts, and acting partly as leader of the Greeks, and partly standing alone by itself when deserted by all others, after encountering the deadliest perils, it defeated the invaders and reared a trophy; whereby it saved from slavery such as were not as yet enslaved, and all the rest of us who dwell within the bounds of Heracles it ungrudgingly set free. But at a later time there occurred portentous earthquakes and floods, and one grievous day and night befell them, when the whole body of your warriors was swallowed up by the earth, and the island of Atlantis in like manner was swallowed up by the sea and vanished; wherefore also the ocean at that spot has now become impassable and unsearchable, being blocked up by the shoal mud which the island created as it settled down."" You have now heard, Socrates, in brief outline, the account given by the elder Critias of what he heard from Solon; and when you were speaking yesterday about the State and the citizens you were describing, I marvelled as I called to mind the facts I am now relating, reflecting what a strange piece of fortune it was that your description coincided so exactly for the most part with Solon's account.

Crit.

I was loth, however, to speak on the instant; for owing to lapse of time my recollection of his account was not sufficiently clear. So I decided that I ought not to relate it until I had first gone over it all carefully in my own mind. Consequently, I readily consented to the theme you proposed yesterday, since I thought that we should be reasonably well provided for the task of furnishing a satisfactory discourse—which in all such cases is the greatest task. So it was that, as Hermocrates has said, the moment I left your place yesterday I began to relate to them

[24] i.e., the Mediterranean Sea, contrasted with the Atlantic Ocean.

the story as I recollected it, and after I parted from them I pondered it over during the night and recovered, as I may say, the whole story. Marvellous, indeed, is the way in which the lessons of one's childhood "grip the mind," as the saying is. For myself, I know not whether I could recall to mind all that I heard yesterday; but as to the account I heard such a great time ago, I should be immensely surprised if a single detail of it has escaped me. I had then the greatest pleasure and amusement in hearing it, and the old man was eager to tell me, since I kept questioning him repeatedly, so that the story is stamped firmly on my mind like the encaustic designs of an indelible painting. Moreover, immediately after daybreak I related this same story to our friends here, so that they might share in my rich provision of discourse. Now, therefore,—and this is the purpose of all that I have been saying,—I am ready to tell my tale, not in summary outline only but in full detail just as I heard it. And the city with its citizens which you described to us yesterday, as it were in a fable, we will now transport hither into the realm of fact; for we will assume that the city is that ancient city of ours, and declare that the citizens you conceived are in truth those actual progenitors of ours, of whom the priest told. In all ways they will correspond, nor shall we be out of tune if we affirm that those citizens of yours are the very men who lived in that age. Thus, with united effort, each taking his part, we will endeavor to the best of our powers to do justice to the theme you have prescribed. Wherefore, Socrates, we must consider whether this story is to our mind, or we have still to look for some other to take its place.

Soc.

What story should we adopt, Critias, in preference to this? For this story will be admirably suited to the festival of the Goddess which is now being held, because of its connection with her; and the fact that it is no invented fable but genuine history is all-important. How, indeed, and where shall we discover other stories if we let these slip? Nay, it is impossible. You, therefore, must now deliver your discourse (and may Good Fortune attend you!), while I, in requital for my speech of yesterday, must now keep silence in my turn and hearken.

Crit.

Consider now, Socrates, the order of the feast as we have arranged it. Seeing that Timaeus is our best astronomer and has made it his special task to learn about the nature of the Universe, it seemed good to us that he should speak first, beginning with the origin of the Cosmos and ending with the generation of mankind. After him I am to follow, taking over from him mankind, already as it were created by his speech,

and taking over from you a select number of men superlatively well trained. Then, in accordance with the word and law of Solon, I am to bring these before ourselves, as before a court of judges, and make them citizens of this State of ours, regarding them as Athenians of that bygone age whose existence, so long forgotten, has been revealed to us by the record of the sacred writings; and thenceforward I am to proceed with my discourse as if I were speaking of men who already are citizens and men of Athens.

Soc.

Bounteous and magnificent, methinks, is the feast of speech with which I am to be requited. So then, it will be your task, it seems, to speak next, when you have duly invoked the gods.

Tim.

Nay, as to that, Socrates, all men who possess even a small share of good sense call upon God always at the outset of every undertaking, be it small or great; we therefore who are purposing to deliver a discourse concerning the Universe, how it was created or haply is uncreate, must needs invoke Gods and Goddesses (if so be that we are not utterly demented), praying that all we say may be approved by them in the first place, and secondly by ourselves. Grant, then, that we have thus duly invoked the deities; >ourselves we must also invoke so to proceed, that you may most easily learn and I may most clearly expound my views regarding the subject before us.

Tim.

Now first of all we must, in my judgement, make the following distinction. What is that which is Existent always and has no Becoming? And what is that which is Becoming always and never is Existent? Now the one of these is apprehensible by thought with the aid of reasoning, since it is ever uniformly existent; whereas the other is an object of opinion with the aid of unreasoning sensation, since it becomes and perishes and is never really existent. Again, everything which becomes must of necessity become owing to some Cause; for without a cause it is impossible for anything to attain becoming. But when the artificer of any object, in forming its shape and quality, keeps his gaze fixed on that which is uniform, using a model of this kind, that object, executed in this way, must of necessity be beautiful; but whenever he gazes at that which has come into existence and uses a created model, the object thus executed is not beautiful. Now the whole Heaven, or Cosmos, or if there is any other name which it specially prefers, by that

let us call it,—so, be its name what it may, we must first investigate concerning it that primary question which has to be investigated at the outset in every case,—namely, whether it has existed always, having no beginning of generation, or whether it has come into existence, having begun from some beginning. It has come into existence; for it is visible and tangible and possessed of a body; and all such things are sensible and things sensible, being apprehensible by opinion with the aid of sensation, come into existence, as we saw,[25] and are generated. And that which has come into existence must necessarily, as we say, have come into existence by reason of some Cause.

Tim.

Now to discover the Maker and Father of this Universe were a task indeed; and having discovered Him, to declare Him unto all men were a thing impossible. However, let us return and inquire further concerning the Cosmos,—after which of the Models did its Architect construct it? Was it after that which is self-identical and uniform, or after that which has come into existence; Now if so be that this Cosmos is beautiful and its Constructor good, it is plain that he fixed his gaze on the Eternal; but if otherwise (which is an impious supposition), his gaze was on that which has come into existence. But it is clear to everyone that his gaze was on the Eternal; for the Cosmos is the fairest of all that has come into existence, and He the best of all the Causes. So having in this wise come into existence, it has been constructed after the pattern of that which is apprehensible by reason and thought and is self-identical. Again, if these premisses be granted, it is wholly necessary that this Cosmos should be a Copy of something. Now in regard to every matter it is most important to begin at the natural beginning. Accordingly, in dealing with a copy and its model, we must affirm that the accounts given will themselves be akin to the diverse objects which they serve to explain; those which deal with what is abiding and firm and discernible by the aid of thought will be abiding and unshakable; and in so far as it is possible and fitting for statements to be irrefutable and invincible, they must in no wise fall short thereof; whereas the accounts of that which is copied after the likeness of that Model, and is itself a likeness, will be analogous thereto and possess likelihood; for I as Being is to Becoming, so is Truth to Belief. Wherefore, Socrates, if in our treatment of a great host of matters regarding the Gods and the generation of the Universe we prove unable to give accounts that are always in all respects self-consistent and perfectly exact, be not

[25] Cf. 28 A.

thou surprised; rather we should be content if we can furnish accounts that are inferior to none in likelihood, remembering that both I who speak and you who judge are but human creatures, so that it becomes us to accept the likely account of these matters and forbear to search beyond it.

Soc.

Excellent, Timaeus! We must by all means accept it, as you suggest; and certainly we have most cordially accepted your prelude; so now, we beg of you, proceed straight on with the main theme.

Tim.

Let us now state the Cause wherefore He that constructed it constructed Becoming and the All. He was good, and in him that is good no envy ariseth ever concerning anything; and being devoid of envy He desired that all should be, so far as possible, like unto Himself.

Tim.

This principle, then, we shall be wholly right in accepting from men of wisdom as being above all the supreme originating principle of Becoming and the Cosmos. For God desired that, so far as possible, all things should be good and nothing evil; wherefore, when He took over all that was visible, seeing that it was not in a state of rest but in a state of discordant and disorderly motion, He brought it into order out of disorder, deeming that the former state is in all ways better than the latter. For Him who is most good it neither was nor is permissible to perform any action save what is most fair. As He reflected, therefore, He perceived that of such creatures as are by nature visible, none that is irrational will be fairer, comparing wholes with wholes, than the rational; and further, that reason cannot possibly belong to any apart from Soul. So because of this reflection He constructed reason within soul and soul within body as He fashioned the All, that so the work He was executing might be of its nature most fair and most good. Thus, then, in accordance with the likely account, we must declare that this Cosmos has verily come into existence as a Living Creature endowed with soul and reason owing to the providence of God. This being established, we must declare that which comes next in order. In the semblance of which of the living Creatures did the Constructor of the cosmos construct it? We shall not deign to accept any of those which belong by nature to the category of "parts"; for nothing that resembles the imperfect would ever become fair. But we shall affirm that the Cosmos, more than aught else, resembles most closely that Living Creature of which all other living creatures, severally and generically, are portions. For that Living Creature embraces and contains within

itself all the intelligible Living Creatures, just as this Universe contains us and all the other visible living creatures that have been fashioned.

Tim.

For since God desired to make it resemble most closely that intelligible Creature which is fairest of all and in all ways most perfect, He constructed it as a Living Creature, one and visible, containing within itself all the living creatures which are by nature akin to itself. Are we right, then, in describing the Heaven as one, or would it be more correct to speak of heavens as many or infinite[26] in number? One it must be termed, if it is to be framed after its Pattern. For that which embraces all intelligible Living Creatures could never be second, with another beside it; for if so, there must needs exist yet another Living Creature, which should embrace them both, and of which they two would each be a part; in which case this Universe could no longer be rightly described as modelled on these two, but rather on that third Creature which contains them both. Wherefore, in order that this Creature might resemble the all perfect Living Creature in respect of its uniqueness, for this reason its Maker made neither two Universes nor an infinite number, but there is and will continue to be this one generated Heaven, unique of its kind.[27] Now that which has come into existence must needs be of bodily form, visible and tangible; yet without fire nothing could ever become visible, nor tangible without some solidity, nor solid without earth. Hence, in beginning to construct the body of the All, God was making it of fire and earth. But it is not possible that two things alone should be conjoined without a third; for there must needs be some intermediary bond to connect the two. And the fairest of bonds is that which most perfectly unites into one both itself and the things which it binds together; and to effect this in the fairest manner is the natural property of proportion.

Tim.

For whenever the middle term of any three numbers, cubic or square,[28] is such that as the first term is to it, so is it to the last term, and again, conversely, as the last term is to the middle, so is the middle to the first,—then the middle term becomes in turn the first and the last, while the first and last become in turn middle terms, and the necessary consequence will be that all the terms are interchangeable, and being interchangeable they all form a unity. Now if the body of the All had

[26] Cf. 55 C ff. The Atomists held that there is an infinite number of worlds.

[27] Cf. 92 C.

[28] Dealing first with "square" numbers, the proportion here indicated is—a2 : ab :: ab :: b2; conversely, b2 : ab :: ab :: a2; alternately, ab : a2 :: b2 : ab.

had to come into existence as a plane surface, having no depth, one middle term would have sufficed to bind together both itself and its fellow-terms; but now it is otherwise: for it behoved it to be solid of shape, and what brings solids into unison is never one middle term alone but always two.[29] Thus it was that in the midst between fire and earth God set water and air, and having bestowed upon them so far as possible a like ratio one towards another—air being to water as fire to air, and water being to earth as air to water, —he joined together and constructed a Heaven visible and tangible. For these reasons and out of these materials, such in kind and four in number, the body of the Cosmos was harmonized by proportion and brought into existence. These conditions secured for it Amity, so that being united in identity with itself it became indissoluble by any agent other than Him who had bound it together. Now of the four elements the construction of the Cosmos had taken up the whole of every one. For its Constructor had constructed it of all the fire and water and air and earth that existed, leaving over, outside it, no single particle or potency of any one of these elements. And these were his intentions: first, that it might be, so far as possible, a Living Creature, perfect and whole, with all its parts perfect;

Tim.

and next, that it might be One, inasmuch as there was nothing left over out of which another like Creature might come into existence; and further, that it might be secure from age and ailment, since He perceived that when heat and cold, and all things which have violent potencies, surround a composite body from without and collide with it they dissolve it unduly and make it to waste away by bringing upon it ailments and age. Wherefore, because of this reasoning, He fashioned it to be One single Whole, compounded of all wholes, perfect and ageless and unailing. And he bestowed on it the shape which was befitting and akin. Now for that Living Creature which is designed to embrace within itself all living creatures the fitting shape will be that which comprises within itself all the shapes there are; wherefore He wrought it into a round, in the shape of a sphere, equidistant in all directions from the center to the extremities, which of all shapes is the most perfect and the most self-similar, since He deemed that the similar is infinitely fairer than the dissimilar. And on the outside round about, it was all made smooth with great exactness, and that for many reasons.

[29] Two mean terms are required for a continuous proportion of "solid" (or cubic) numbers, e.g. a3 :a2b :: a2b : ab2 :: ab2 : b3.

For of eyes it had no need, since outside of it there was nothing visible left over; nor yet of hearing, since neither was there anything audible; nor was there any air surrounding it which called for respiration; nor, again, did it need any organ whereby it might receive the food that entered and evacuate what remained undigested. For nothing went out from it or came into it from any side, since nothing existed; for it was so designed as to supply its own wastage as food for itself, and to experience by its own agency and within itself all actions and passions, since He that had constructed it deemed that it would be better if it were self-sufficing rather than in need of other things. Hands, too, He thought He ought not to attach unto it uselessly, seeing they were not required either for grasping or for repelling anyone; nor yet feet, nor any instruments of locomotion whatsoever.

Tim.

For movement He assigned unto it that which is proper to its body, namely, that one of the seven motions[30] which specially belongs to reason and intelligence; wherefore He spun it round uniformly in the same spot and within itself and made it move revolving in a circle; and all the other six motions He took away and fashioned it free from their aberrations. And seeing that for this revolving motion it had no need of feet, He begat it legless and footless. Such, then, was the sum of the reasoning of the ever-existing God concerning the god which was one day to be existent, whereby He made it smooth and even and equal on all sides from the center, a whole and perfect body compounded of perfect bodies, And in the midst thereof He set Soul, which He stretched throughout the whole of it, and therewith He enveloped also the exterior of its body; and as a Circle revolving in a circle He established one sole and solitary Heaven, able of itself because of its excellence to company with itself and needing none other beside, sufficing unto itself as acquaintance and friend. And because of all this He generated it to be a blessed God. Now as regards the Soul, although we are essaying to describe it after the body, God did not likewise plan it to be younger than the body[31]; for, when uniting them, He would not have permitted the elder to be ruled by the younger; but as for us men, even as we ourselves partake largely of the accidental and casual, so also do

[30]For "the seven motions" see 43 B; and for the (rotary) "motion of reason" Cf. *Laws*898 A. Cf. also 37 A ff., 42 C, 47 D, 77 B.

[31]For the priority of Soul Cf. *Laws*892 A, B, 896 C ff.; and for the right of the elder to rule Cf. *Laws*714 E.

our words. God, however, constructed Soul to be older than Body and prior in birth and excellence, since she was to be the mistress and ruler and it the ruled; and, He made her of the materials and in the fashion which I shall now describe.

Tim.

Midway between the Being which is indivisible and remains always the same and the Being which is transient and divisible in bodies, He blended a third form of Being compounded out of the twain, that is to say, out of the Same and the Other; and in like manner He compounded it midway between that one of them which is indivisible and that one which is divisible in bodies. And He took the three of them, and blent them all together into one form, by forcing the Other into union with the Same, in spite of its being naturally difficult to mix. And when with the aid of Being He had mixed them, and had made of them one out of three, straightway He began to distribute the whole thereof into so many portions as was meet; and each portion was a mixture of the Same, of the Other, and of Being.[32] And He began making the division thus: First He took one portion from the whole; then He took a portion double of this; then a third portion, half as much again as the second portion, that is, three times as much as the first; he fourth portion He took was twice as much as the second; the fifth three times as much as the third; the sixth eight times as much as the first; and the seventh twenty-seven times as much as the first.[33]

Tim.

After that He went on to fill up the intervals in the series of the powers of 2 and the intervals in the series of powers of 3 in the following manner[34]: He cut off yet further portions from the original mixture,

[32]The choice of these three as constituents of the Soul is explained by the use of the same terms in the *Sophist* (244-245) to denote certain "Greatest Kinds" or main categories. As Professor Paul Shorey has aptly observed (*Amer. Journ. Philol.* ix. p. 298), "It is necessary that the Soul should recognize everywhere . . . the same, the other and essence, those three *μέγιστα γένη*of the . . .*Sophist*. Hence on the Greek principle that like is known by like, Plato makes real substances out of these three abstractions and puts them as plastic material into the hands of the Demiurgus for the formation of the Soul."

[33]These seven numbers may be arranged in two branches, in order to show the two series of which Timaeus immediately goes on the speak:1 (the 1st), 2 (the 2nd), 4 (the 4th), 8 (the 6th); 3 (the 3rd), 9 (the 5th), 27 (the 7th). The former branch contains the "double intervals," i.e., the powers of 2; the latter one the "triple intervals," i.e., the powers of 3.

[34]Lit. the double intervals and the triple intervals. See the preceding note.

and set them in between the portions above rehearsed, so as to place two Means in each interval, —one a Mean which exceeded its Extremes and was by them exceeded by the same proportional part or fraction of each of the Extremes respectively[35]; the other a Mean which exceeded one Extreme by the same number or integer as it was exceeded by its other Extreme. And whereas the insertion of these links formed fresh intervals in the former intervals, that is to say, intervals of 3:2 and 4:3 and 9:8, He went on to fill up the 4:3 intervals with 9:8 intervals. This still left over in each case a fraction, which is represented by the terms of the numerical ratio 256:243. And thus the mixture, from which He had been cutting these portions off, was now all spent. Next, He split all this that He had put together into two parts lengthwise; and then He laid the twain one against the other, the middle of one to the middle of the other, like a great cross; and bent either of them into a circle, and join them, each to itself and also to the other, at a point opposite to where they had first been laid together. And He compassed them about with the motion that revolves in the same spot continually, and He made the one circle outer and the other inner. And the outer motion He ordained to be the Motion of the Same, and the inner motion the Motion of the Other. And He made the Motion of the Same to be toward the right along the side, and the Motion of the Other to be toward the left along the diagonal[36]; and He gave the sovranty to the Revolution of the Same and of the Uniform. For this alone He suffered to remain uncloven, whereas He split the inner Revolution in six places into seven unequal circles, according to each of the intervals of the double and triple intervals,[37] three double and three triple[38]. These two circles then He appointed to go in contrary directions; and of the seven circles into which He split the inner circle, He appointed three to revolve at an equal speed, the other four[39] to go at speeds equal neither with each other nor with the speed of the aforesaid three, yet moving at speeds the ratios of which one to another are those of natural integers. And when the construction of the Soul

[35]The "harmonic Mean."

[36]He now tilts the inner band, so that it makes an oblique angle with the outer, which is set at the horizontal; from which we see that the Revolution of the Same represents the celestial Equator, moving "horizontally to the right" (from East to West), and the Revolution of the Other represents the Ecliptic, which moves in a contrary direction to the Equator (from West to East), and at an angle to it. The Ecliptic He divides into seven, to represent the seven planets

[37]Viz. 2, 3, 4, 8, 9, 27.

[38]Viz. 2, 4, 8 double; 3, 9, 27 triple.

[39]The three are Sun, Venus, Mercury; the four Moon, Mars, Jupiter, Saturn.

had all been completed to the satisfaction of its Constructor, then He fabricated within it all the Corporeal, and uniting them center to center He made them fit together. And the Soul, being woven throughout the Heaven every way from the center to the extremity, and enveloping it in a circle from without, and herself revolving within herself, began a divine beginning of unceasing and intelligent life lasting throughout all time.

Tim.

And whereas the body of the Heaven is visible, the Soul is herself invisible but partakes in reasoning and in harmony, having come into existence by the agency of the best of things intelligible and ever-existing as the best of things generated. Inasmuch, then, as she is a compound, blended of the natures of the Same and the Other and Being, these three portions, and is proportionately divided and bound together, and revolves back upon herself, whenever she touches anything which has its substance dispersed or anything which has its substance undivided she is moved throughout her whole being and announces what the object is identical with and from what it is different, and in what relation, where and how and when, it comes about that each thing exists and is acted upon by others both in the sphere of the Becoming and in that of the ever-uniform. And her announcement, being identically true concerning both the Other and the Same, is borne through the self-moved without speech or sound; and whenever it is concerned with the sensible, and the circle of the Other moving in straight course proclaims it to the whole of its Soul, opinions and beliefs arise which are firm and true; and again, when it is concerned with the rational, and the circle of the Same, spinning truly, declares the facts, reason and knowledge of necessity result. But should anyone assert that the substance in which these two states arise is something other than Soul, his assertion will be anything rather than the truth. And when the Father that engendered it perceived it in motion and alive, a thing of joy to the eternal gods, He too rejoiced[40]; and being well-pleased He designed to make it resemble its Model still more closely. Accordingly, seeing that that Model is an eternal Living Creature, He set about making this Universe, so far as He could, of a like kind. But inasmuch as the nature of the Living Creature was eternal, this quality it was impossible to attach in its entirety to what is generated; wherefore He planned to make a movable image of Eternity, and, as He set in order the Heaven, of that Eternity which abides in unity He made an

[40]Note the play on *ἄγαλμα* thing of joy or statue and *ἠγάσθη* rejoiced.

eternal image, moving according to number, even that which we have named Time. For simultaneously with the construction of the Heaven He contrived the production of days and nights and months and years, which existed not before the Heaven came into being. And these are all portions of Time; even as "Was" and "Shall be" are generated forms of Time, although we apply them wrongly, without noticing, to Eternal Being.

Tim.

For we say that it "is" or "was" or "will be," whereas, in truth of speech, "is" alone is the appropriate term; "was" and "will be," on the other hand, are terms properly applicable to the Becoming which proceeds in Time, since both of these are motions; but it belongs not to that which is ever changeless in its uniformity to become either older or younger through time, nor ever to have become so, nor to be so now, nor to be about to be so hereafter, nor in general to be subject to any of the conditions which Becoming has attached to the things which move in the world of Sense, these being generated forms of Time, which imitates Eternity and circles round according to number. And besides these we make use of the following expressions,— that what is become is become, and what is becoming is becoming, and what is about to become is about to become, and what is non-existent is non-existent; but none of these expressions is accurate.[41] But the present is not, perhaps, a fitting occasion for an exact discussion of these matters. Time, then, came into existence along with the Heaven, to the end that having been generated together they might also be dissolved together, if ever a dissolution of them should take place; and it was made after the pattern of the Eternal Nature, to the end that it might be as like thereto as possible; for whereas the pattern is existent through all eternity, the copy, on the other hand, is through all time, continually having existed, existing, and being about to exist. Wherefore, as a consequence of this reasoning and design on the part of God, with a view to the generation of Time, the sun and moon and five other stars, which bear the appellation of "planets," came into existence for the determining and preserving of the numbers of Time. And when God had made the bodies of each of them He placed them in the orbits along which the revolution of the Other was moving, seven orbits for the seven bodies.[42]. The Moon He placed in the first circle around

[41] i.e.it is incorrect to use the term "is" (*ἐστί*) both as a mere copula and in the sense of exists.

[42] Cf. 36 D.

the Earth, the Sun in the second above the Earth; and the Morning Star [43] and the Star called Sacred to Hermes He placed in those circles which move in an orbit equal to the Sun in velocity, but endowed with a power[44] contrary thereto; whence it is that the Sun and the Star of Hermes and the Morning Star regularly overtake and are overtaken by one another. As to the rest of the stars, were one to describe in detail the positions in which He set them, and all the reasons therefor, the description, though but subsidiary, would prove a heavier task than the main argument which it subserves. Later on, perhaps, at our leisure these points may receive the attention they merit.

Tim.

So when each of the bodies whose co-operation was required for the making of Time had arrived in its proper orbit; and when they had been generated as living creatures, having their bodies bound with living bonds, and had learnt their appointed duties; then they kept revolving around the circuit of the Other, which is transverse and passes through the circuit of the Same and is dominated thereby; and part of them moved in a greater, part in a smaller circle, those in the smaller moving more quickly and those in the greater more slowly. And because of the motion of the Same, the stars which revolved most quickly appeared to be overtaken by those which moved most slowly, although in truth they overtook them; for, because of their simultaneous progress in two opposite directions,[45] the motion of the Same, which is the swiftest of all motions, twisted all their circles into spirals and thus caused the body which moves away from it most slowly to appear the nearest.[46] And in order that there might be a clear measure of the relative speeds, slow and quick, with which they travelled round their eight orbits, in that circle which is second from the earth God kindled a light which now we call the Sun, to the end that it might shine, so far as possible, throughout the whole Heaven, and that all the living creatures entitled thereto might participate in number, learning it from the revolution of the Same and Similar. In this wise and for these reasons were generated Night and Day, which are the revolution

[43] i.e.a tendency as to direction.

[44] i.e., a tendency as to direction.

[45] i.e., a planet moving along the Ecliptic from W. to E. is at the same time drawn from E. to W. (in the plane of the Equator) by the regular motion of the sphere of the fixed stars (the circle of "the same" which moves at a higher velocity than that of "the other").

[46] i.e.Saturn appears to be nearest to the sphere of the fixed stars in point of velocity. Cf. *Laws*822 A ff.

of the one and most intelligent circuit; and Month, every time that the Moon having completed her own orbit overtakes the Sun; and Year, as often as the Sun has completed his own orbit. Of the other stars the revolutions have not been discovered by men (save for a few out of the many); wherefore they have no names for them, nor do they compute and compare their relative measurements, so that they are not aware, as a rule, that the "wanderings"[47] of these bodies, which are hard to calculate and of wondrous complexity, constitute Time. Nevertheless, it is still quite possible to perceive that the complete number of Time fulfils the Complete Year[48] when all the eight circuits, with their relative speeds, finish together and come to a head, when measured by the revolution of the Same and Similarly-moving. In this wise and for these reasons were generated all those stars which turn themselves about as they travel through Heaven, to the end that this Universe might be as similar as possible to the perfect and intelligible Living Creature in respect of its imitation of the Eternal Nature thereof. Now in all other respects this World had already, with the birth of Time, been wrought in the similitude of that whereunto it was being likened, but inasmuch as it did not as yet contain generated within it the whole range of living creatures, therein it was still dissimilar. So this part of the work which was still undone He completed by molding it after the nature of the Model. According, then, as Reason perceives Forms existing in the Absolute Living Creature, such and so many as exist therein did He deem that this World also should possess.

Tim.

And these Forms are four,—one the heavenly kind of gods[49]; another the winged kind which traverses the air; thirdly, the class which inhabits the waters; and fourthly, that which goes on foot on dry land. The form of the divine class[50] He wrought for the most part out of fire, that this kind might be as bright as possible to behold and as fair; and likening it to the All He made it truly spherical; and He placed it in the intelligence[51] of the Supreme to follow therewith, distributing it round about over all the Heaven, to be unto it a veritable adornment[52]

[47] An allusion to the name "planets," i.e. "wanderers"; Cf. 38 c.

[48] i.e., the Great World-Year, which is completed when all the planets return simultaneously to their original starting points. Its length was variously computed: Plato seems to have put it at 36,000 years (Cf. *Rep.* 546 B ff.).

[49] i.e., the stars.

[50] i.e., the fixed stars, and their sphere which moves with the daily rotation of the spherical Cosmos (the motion proper to "intelligence," Cf. 36 C, *Cratyl.* 411 D).

[51] i.e., the "intelligent" outermost sphere of "the same" (cf. the derivation of *φρόνησις* from *φορά* in *Cratyl.* 411 D).

cunningly traced over the whole. And each member of this class He endowed with two motions,[53] whereof the one is uniform motion in the same spot, whereby it conceives always identical thoughts about the same objects, and the other is a forward motion due to its being dominated by the revolution of the Same and Similar; but in respect of the other five motions[54] they are at rest and move not, so that each of them may attain the greatest possible perfection. From this cause, then, came into existence all those unwandering stars which are living creatures divine and eternal and abide for ever revolving uniformly in the same spot; and those which keep swerving and wandering have been generated in the fashion previously described. And Earth, our nurse, which is globed around[55] the pole that stretches through all, He framed to be the wardress and fashioner of night and day, she being the first and eldest of all the gods which have come into existence within the Heaven. But the choric dances of these same stars and their crossings one of another, and the relative reversals and progressions of their orbits, and which of the gods meet in their conjunctions, and how many are in opposition, and behind which and at what times they severally pass before one another and are hidden from our view, and again reappearing send upon men unable to calculate alarming portents of the things which shall come to pass hereafter,—to describe all this without an inspection of models[56] of these movements would be labor in vain. Wherefore, let this account suffice us, and let our discourse concerning the nature of the visible and generated gods have an end. Concerning the other divinities, to discover and declare their origin is too great a task for us, and we must trust to those who have declared it aforetime, they being, as they affirmed, descendants of gods and knowing well, no doubt, their own forefathers.[57] It is, as I say, impossible to disbelieve the children of gods, even though their statements lack either probable or necessary demonstration; and inasmuch as they profess to speak of family matters, we must follow custom and believe them.

[52]There is a play here on the word *κόσμος*, as meaning (1) adornment, (2) universe.

[53]i.e. (1) the rotation of the star on its own axis; (2) the diurnal revolution of the sphere of fixed stars.

[54]Cf. 34 A, 43 B.

[55]The Word *εἴλλεσθαι* (or *ἴλλεσθαι*) is taken by some to imply oscillation or rotation (Cf. Aristot.*De caelo*ii. 293 b 30); but it seems best to suppose that Plato is here regarding the Earth as stationary. Her potential motion (we may assume) is equal and opposite to that of the Universe, of which she is the center, and by thus neutralizing it she remains at rest.

[56]i.e.such instruments as a celestial globe or planetarium.

[57]This is, obviously, ironical; Cf. *Cratyl.* 402 B,*Phileb.* 66 C.

Tim.

Therefore let the generation of these gods be stated by us, following their account, in this wise: Of Ge and Uranus were born the children Oceanus and Tethys; and of these, Phorkys, Cronos, Rhea, and all that go with them; and of Cronos and Rhea were born Zeus and Hera and all those who are, as we know, called their brethren; and of these again, other descendants. Now when all the gods, both those who revolve manifestly[58] and those who manifest themselves so far as they choose, had come to birth, He that generated this All addressed them thus:

"Gods of gods,[59] those works whereof I am framer and father are indissoluble save by my will. For though all that is bound may be dissolved, yet to will to dissolve that which is fairly joined together and in good case were the deed of a wicked one. Wherefore ye also, seeing that ye were generated, are not wholly immortal or indissoluble, yet in no wise shall ye be dissolved nor incur the doom of death, seeing that in my will ye possess a bond greater and more sovereign than the bonds wherewith, at your birth, ye were bound together. Now, therefore, what I manifest and declare unto you do ye learn. Three mortal kinds[60] still remain ungenerated; but if these come not into being the Heaven will be imperfect; for it will not contain within itself the whole sum of the hinds of living creatures, yet contain them it must if it is to be fully perfect. But if by my doing these creatures came into existence and partook of life, they would be made equal unto gods; in order, therefore, that they may be mortal and that this World-all may be truly All, do ye turn yourselves, as Nature directs, to the work of fashioning these living creatures, imitating the power showed by me in my generating of you. Now so much of them as it is proper to designate 'immortal,' the part we call divine which rules supreme in those who are fain to follow justice always and yourselves, that part I will deliver unto you when I have sown it and given it origin. For the rest, do ye weave together the mortal with the immortal, and thereby fashion and generate living creatures, and give them food that they may grow, and when they waste away receive them to yourselves again." Thus He spake, and once more into the former bowl, wherein He had blended and mixed the Soul of the Universe, He poured the residue of the previous material, mixing it in somewhat the same manner, yet no

[58] i.e.the Stars; the others are the deities of popular belief (such as Homer depicts).

[59] An intensive form of expression, like the Biblical "King of kings and Lord of lords."

[60] Viz. the inhabitants of air, of water, and of earth.

longer with a uniform and invariable purity, but second and third in degree of purity. And when He had compounded the whole He divided it into souls equal in number to the stars, and each several soul He assigned to one star, and setting them each as it were in a chariot[61] He showed them the nature of the Universe, and declared unto them the laws of destiny,—namely, how that the first birth should be one and the same ordained for all, in order that none might be slighted by Him; and how it was needful that they, when sown each into his own proper organ of time,[62] should grow into the most god-fearing of living creatures; and that, since human nature is two-fold, the superior sex is that which hereafter should be designated "man."

Tim.

And when, by virtue of Necessity, they should be implanted in bodies, and their bodies are subject to influx and efflux, these results would necessarily follow,—firstly, sensation that is innate and common to all proceeding from violent affections; secondly, desire mingled with pleasure and pain; and besides these, fear and anger and all such emotions as are naturally allied thereto, and all such as are of a different and opposite character. And if they shall master these they will live justly, but if they are mastered, unjustly. And he that has lived his appointed time well shall return again to his abode in his native star, and shall gain a life that is blessed and congenial but whoso has failed therein shall be changed into woman's nature at the second birth;[63] and if, in that shape, he still refraineth not from wickedness he shall be changed every time, according to the nature of his wickedness, into some bestial form after the similitude of his own nature; nor in his changings shall he cease from woes until he yields himself to the revolution of the Same and Similar that is within him, and dominating by force of reason that burdensome mass which afterwards adhered to him of fire and water and earth and air, a mass tumultuous and irrational, returns again to the semblance of his first and best state. When He had fully declared unto them all these ordinances, to the end that He might be blameless in respect of the future wickedness of any one of them, He proceeded to sow them, some in the Earth, some in the Moon, others in the rest of the organs of Time. Following upon this sowing, He delivered over to the young gods the task of molding mortal bodies, and of framing and controlling all the rest of the human soul which it was still necessary

[61] Cf. *Laws* 899 A.

[62] i.e. star.

[63] Cf. 90 E.

to add, together with all that belonged thereto, and of governing this mortal creature in the fairest and best way possible, to the utmost of their power, except in so far as it might itself become the cause of its own evils. So He, then, having given all these commands, was abiding in His own proper and wonted state.

Tim.

And as He thus abode, His children gave heed to their Father's command and obeyed it. They took the immortal principle of the mortal living creature, and imitating their own Maker, they borrowed from the Cosmos portions of fire and earth and water and air, as if meaning to pay them back, and the portions so taken they cemented together; but it was not with those indissoluble bonds wherewith they themselves were joined that they fastened together the portions but with numerous pegs, invisible for smallness; and thus they constructed out of them all each several body, and within bodies subject to inflow and outflow they bound the revolutions of the immortal Soul. The souls, then, being thus bound within a mighty river neither mastered it nor were mastered, but with violence they rolled along and were rolled along themselves, so that the whole of the living creature was moved, but in such a random way that its progress was disorderly and irrational, since it partook of all the six motions[64]: for it progressed forwards and backwards, and again to right and to left, and upwards and downwards, wandering every way in all the six directions. For while the flood which foamed in and streamed out, as it supplied the food, was immense, still greater was the tumult produced within each creature as a result of the colliding bodies, when the body of a creature happened to meet and collide with alien fire from without, or with a solid lump of earth or liquid glidings of waters, or when it was overtaken by a tempest of winds driven by air, and when the motions due to all these causes rushing through the body impinged upon the Soul. And for these reasons all such motions were then termed "Sensations,"[65] and are still so termed today. Moreover, since at that time they were causing, for the moment, constant and widespread motion, joining with the perpetually flowing stream in moving and violently shaking the revolutions of the Soul, they totally blocked the course of the Same by flowing contrary thereto, and hindered it thereby in its ruling and its going; while, on the other hand, they so shook up the course of the Other that in the three several intervals of the double and the

[64] i.e. omitting the seventh motion ("rotation"), Cf. 34 A.

[65] i.e., *αἴσθησις* (sensation) is here derived from *ἀίσσω* (dart, rush).

triple,[66] and in the mean terms and binding links of the 3/2, 4/3 and 9/8,—these being not wholly dissoluble save by Him who had bound them together,—they produced all manner of twistings, and caused in their circles fractures and disruptions of every possible kind, with the result that, as they barely held together one with another, they moved indeed but moved irrationally, being at one time reversed, at another oblique, and again upside down. Suppose, for example, that a man is in an upside down position, with his head resting on the earth and his feet touching something above, then, in this position of the man relative to that of the onlookers, his right will appear left to them, and his left right, and so will theirs to him.

Tim.

This, and such like, are just what the revolutions of the Soul experience with intensity; and every time they happen upon any external object, whether it be of the class of the Same or of the Other,[67] they proclaim it to be the same as something or other than something contrary to the truth, and thereby prove themselves false and foolish, and devoid, at such times, of any revolution that rules and guides. And whenever external sensations in their movement collide with these revolutions and sweep along with them also the whole vessel of the Soul, then the revolutions, though actually mastered, appear to have the mastery. Hence it comes about that, because of all these affections, now as in the beginning, so often as the Soul is bound within a mortal body it becomes at the first irrational.[68] But as soon as the stream of increase and nutriment enters in less volume, and the revolutions calm down and pursue their own path, becoming more stable as time proceeds, then at length, as the several circles move each according to its natural track, their revolutions are straightened out and they announce the Same and the Other aright, and thereby they render their possessor intelligent. And if so be that this state of his soul be reinforced by right educational training, the man becomes wholly sound and faultless, having escaped the worst of maladies;[69] but if he has been wholly negligent therein, after passing a lame existence in life he returns again unperfected and unreasoning to Hades. These results, however, come about at a later time.[70] Regarding the subjects now before us, we must give a more exact exposition; and also regarding the subjects anterior to these,

[66] Cf. 35 B.

[67] Cf. 37 A.

[68] Cf. 86 E; *Phaedo* 81 C, 83 D.

[69] i.e. ignorance; Cf. 86 B ff., *Laws* 863 C ff.

[70] Cf. 86 B ff.

namely, the generation of bodies in their several parts, and the causes and divine counsels whereby the Soul has come into existence, we must hold fast to the most probable[71] account, and proceed accordingly, in the exposition now to be given. The divine revolutions, which are two, they bound within a sphere-shaped body, in imitation of the spherical form[72] of the All, which body we now call the "head," it being the most divine part and reigning over all the parts within us. To it the gods delivered over the whole of the body they had assembled to be its servant, having formed the notion that it should partake in all the motions which were to be. In order, then, that it should not go rolling upon the earth, which has all manner of heights and hollows, and be at a loss how to climb over the one and climb out of the other, they bestowed upon it the body as a vehicle and means of transport.

Tim.

And for this reason the body acquired length, and, by God's contriving, shot forth four limbs, extensible and flexible, to serve as instruments of transport, so that grasping with these and' supported thereon it was enabled to travel through all places, bearing aloft the chamber of our most divine and holy part. In this wise and for these reasons were legs and hands attached to all men; and inasmuch as they demand the forepart superior to the hinder part in honor and dignity, the Gods gave us the most part of our going in this direction. Thus it was necessary that man should have the forepart of his body distinct and dissimilar. Wherefore, dealing first with the vessel of the head, they set the face in the front thereof and bound within it organs for all the forethought of the Soul; and they ordained that this, which is the natural front, should be the leading part. And of the organs they constructed first light-bearing eyes, and these they fixed in the face for the reason following. They contrived that all such fire as had the property not of burning but of giving a mild light should form a body akin to the light of every day.[73] For they caused the pure fire within us, which is akin to that of day, to flow through the eyes in a smooth and dense stream; and they compressed the whole substance, and especially the center, of the eyes, so that they occluded all other fire that was coarser and allowed only this pure kind of fire to filter through. So whenever the stream of vision is surrounded by midday light, it flows out like unto like,[74] and coalescing therewith it forms one kindred

[71] Cf. 29 C, D.

[72] Cf. 73 C, 81 D.

[73] There is a play here on the words ἤμερον (mild)... ἡμέρας (day); Cf. *Cratyl.* 418 C.

substance along the path of the eyes' vision, wheresoever the fire which streams from within collides with an obstructing object without. And this substance, having all become similar in its properties because of its similar nature, distributes the motions of every object it touches, or whereby it is touched, throughout all the body even unto the Soul, and brings about that sensation which we now term "seeing." But when the kindred fire vanishes into night, the inner fire is cut off; for when it issues forth into what is dissimilar it becomes altered in itself and is quenched, seeing that it is no longer of like nature with the adjoining air, since that air is devoid of fire. Wherefore it leaves off seeing, and becomes also an inducement to sleep. For the eyelids —whose structure the Gods devised as a safeguard for the vision,—when they are shut close, curb the power of the inner fire; which power dissipates and allays the inward motions, and upon their allaying quiet ensues; and when this quiet has become intense there falls upon us a sleep that is well-nigh dreamless;

Tim.

but when some greater motions are still left behind, according to their nature and the positions they occupy such and so great are the images they produce, which images are copied within and are remembered by the sleepers when they awake out of the dream. And it is no longer difficult to perceive the truth about the formation of images in mirrors and in bright and smooth surfaces of every kind. It is from the combination with each other of the inner and the outer fires, every time that they unite on the smooth surface and are variously deflected, that all such reflections necessarily result, owing to the fire of the reflected face coalescing with the fire of the vision on the smooth and bright surface.[75] And left appears as right, because contact takes place between opposite portions of the visual stream and opposite portions of the object, contrary to the regular mode of collision. Contrariwise, right appears as right and left as left whenever the fire changes sides on coalescing with the object wherewith it coalesces; and this occurs whenever the smooth surface of the mirrors, being elevated on this side and on that,[76] repels the right portion of the visual stream to the left and the left to the right. And when this same mirror is turned lengthwise to the face it makes the whole face appear upside down, since it repels

[74]Vision is explained on the principle that "like is known by like": a fire-stream issuing from the eye meets a fire-stream coming from the object of vision (Cf. the view of Empedocles).

[75]e.g.when a man looks at his own face reflected in a mirror. Cf. *Soph.*266 C.

[76]i.e., concave (and hemi-cylindrical).

the bottom of the ray to the top, and conversely the top to the bottom. Now all these are among the auxiliary Causes[77] which God employs as his ministers in perfecting, so far as possible, the Form of the Most Good; but by the most of men[78] they are supposed to be not auxiliary but primary causes of all things—cooling and heating, solidifying and dissolving, and producing all such effects. Yet they are incapable of possessing reason and thought for any purpose. For, as we must affirm, the one and only existing thing which has the property of acquiring thought is Soul; and Soul is invisible, whereas fire and water and earth and air are all visible bodies; and the lover of thought and knowledge must needs pursue first the causes which belong to the Intelligent Nature, and put second all such as are of the class of things which are moved by others, and themselves, in turn, move others because they cannot help it. And we also must act likewise. We must declare both kinds of Causes, but keep distinct those which, with the aid of thought, are artificers of things fair and good, and all those which are devoid of intelligence and produce always accidental and irregular effects.

Tim.

Now regarding the auxiliary causes which have helped the eyes to acquire the power which they now possess, let this statement suffice. Next we must declare the most important benefit effected by them, for the sake of which God bestowed them upon us. Vision, in my view, is the cause of the greatest benefit to us, inasmuch as none of the accounts now given concerning the Universe would ever have been given if men had not seen the stars or the sun or the heaven. But as it is, the vision of day and night and of months and circling years has created the art of number and has given us not only the notion of Time[79] but also means of research into the nature of the Universe. From these we have procured Philosophy in all its range, than which no greater boon ever has come or will come, by divine bestowal, unto the race of mortals.[80] This I affirm to be the greatest good of eyesight. As for all the lesser goods, why should we celebrate them? He that is no philosopher when deprived of the sight thereof may utter vain lamentations![81] But the cause and purpose of that best good, as we must maintain, is this,—that God devised and bestowed upon us vision to the end that

[77] These causes are "secondary," as contrasted with the "primary" or First Cause (which is also the "final Cause"), "the Good"; Cf. 29 E, 68 E,*Phaedo*99 B.

[78] e.g. Anaxagoras and the Atomists.

[79] Cf. 37 D ff.

[80] Cf. *Phileb.* 16 C ff.

[81] An echo of Eurip.*Phoenissae*1762 *ἀλλὰ γὰρ τί ταῦτα θρηνῶ καὶ μάτην ὀδύρομαι*;

we might behold the revolutions of Reason in the Heaven and use them for the revolvings of the reasoning that is within us, these being akin to those, the perturbable to the imperturbable; and that, through learning and sharing in calculations which are correct by their nature, by imitation of the absolutely unvarying revolutions of the God we might stabilize the variable revolutions within ourselves. Concerning sound also and hearing, once more we make the same declaration, that they were bestowed by the Gods with the same object and for the same reasons; for it was for these same purposes that speech was ordained, and it makes the greatest contribution thereto; music too, in so far as it uses audible sound, was bestowed for the sake of harmony.[82] And harmony, which has motions akin to the revolutions of the Soul within us, was given by the Muses to him who makes intelligent use of the Muses, not as an aid to irrational pleasure, as is now supposed, but as an auxiliary to the inner revolution of the Soul, when it has lost its harmony, to assist in restoring it to order and concord with itself. And because of the unmodulated condition, deficient in grace, which exists in most of us, Rhythm also was bestowed upon us to be our helper by the same deities and for the same ends. The foregoing part of our discourse, save for a small portion, has been an exposition of the operations of Reason; but we must also furnish an account of what comes into existence through Necessity.[83]

Tim.

For, in truth, this Cosmos in its origin was generated as a compound, from the combination of Necessity and Reason. And inasmuch as Reason was controlling Necessity by persuading her to conduct to the best end the most part of the things coming into existence, thus and thereby it came about, through Necessity yielding to intelligent persuasion, that this Universe of ours was being in this wise constructed at the beginning. Wherefore if one is to declare how it actually came into being on this wise, he must include also the form of the Errant Cause, in the way that it really acts. To this point, therefore, we must return, and taking once again a fresh starting point suitable to the matter we must make a fresh start in dealing therewith, just as we did with our previous subjects. We must gain a view of the real nature of fire and water, air and earth, as it was before the birth of Heaven, and the properties they had before that time; for at present no one

[82]For the importance of music in education Cf. *Rep.*401 D,*Laws*666 D ff.; also *Tim.*80 B.

[83]i.e., the sphere of mechanical causation, physical and physiological processes and results.

has as yet declared their generation, but we assume that men know what fire is, and each of these things, and we call them principles and presume that they are elements[84] of the Universe, although in truth they do not so much as deserve to be likened with any likelihood, by the man who has even a grain of sense, to the class of syllables. For the present, however, let our procedure be as follows. We shall not now expound the principle of all things—or their principles, or whatever term we use concerning them; and that solely for this reason, that it is difficult for us to explain our views while keeping to our present method of exposition.[85] You, therefore, ought not to suppose that I should expound them, while as for me—I should never be able to convince myself that I should be right in attempting to undertake so great a task. Strictly adhering, then, to what we previously affirmed, the import of the "likely" account, I will essay (as I did before) to give as "likely" an exposition as any other (nay, more so), regarding both particular things and the totality of things from the very beginning. And as before,[86] so now, at the commencement of our account, we must call upon God the Saviour to bring us safe through a novel and unwonted exposition to a conclusion based on likelihood, and thus begin our account once more. We must, however, in beginning our fresh account of the Universe make more distinctions than we did before; for whereas then we distinguished two Forms,[87] we must now declare another third kind.

Tim.

For our former exposition those two were sufficient, one of them being assumed as a Model Form, intelligible and ever uniformly existent, and the second as the model's Copy, subject to becoming and visible. A third kind we did not at that time distinguish, considering that those two were sufficient; but now the argument seems to compel us to try to reveal by words a Form that is baffling and obscure. What essential property, then, are we to conceive it to possess? This in particular,—that it should be the receptacle, and as it were the nurse, of all Becoming. Yet true though this statement is, we must needs describe it more plainly. That, however, is a difficult task, especially because it is necessary, for its sake, to discuss first the problem of

[84] *στοιχεῖα*, here applied to physical "elements," was the regular term for "letters" of the alphabet; Cf. *Theaet.* 203 B ff., *Rep.* 402 A ff.

[85] i.e., a method which aims only at "probability" or "likelihood": to attain to "first principles" we should need to employ the "dialectic" method.

[86] Cf. 27 C.

[87] Cf. 28 A.

fire and its fellow elements. For in regard to these it is hard to say which particular element we ought really to term water rather than fire, and which we ought to term any one element rather than each and all of them, while still employing a terminology that is reliable and stable. How, then, shall we handle this problem, and what likely solution can we offer? First of all, we see that which we now call "water" becoming by condensation, as we believe, stones and earth; and again, this same substance, by dissolving and dilating, becoming breath and air; and air through combustion becoming fire; and conversely, fire when contracted and quenched returning back to the form of air and air once more uniting and condensing into cloud and mist; and issuing from these, when still further compressed, flowing water; and from water earth and stones again: thus we see the elements passing on to one another, as it would seem, in an unbroken circle the gift of birth. Accordingly, since no one of these ever remains identical in appearance, which of them shall a man definitely affirm to be any one particular element and no other without incurring ridicule? None such exists. On the contrary, by far the safest plan in treating of these elements is to proceed thus: Whatsoever object we perceive to be constantly changing from one state to another, like fire, that object, be it fire, we must never describe as "this" but as "suchlike," nor should we ever call water "this" but "suchlike" nor should we describe any other element, as though it possessed stability, of all those which we indicate by using the terms "this" and "that" and suppose ourselves to refer to a definite object. For such an object shuns and eludes the names "this" and "that" and every name which indicates that they are stable. Thus we must not call the several elements "these," but in regard to each of them and all together we must apply the term "suchlike" to represent what is always circling round: thus we shall call that which is constantly "suchlike" by the name of fire, and so with everything else that is generated.

Tim.

But that "wherein" they are always, in appearance, coming severally into existence, and "wherefrom" in turn they perish, in describing that and that alone should we employ the terms "this" and "that"; whereas, in describing what is "suchlike"—hot, for instance, or white, or any of the opposite qualities, or any compounds thereof—we ought never to apply to it any of these terms. But we must bestir ourselves to explain this matter again yet more clearly. Now imagine that a man were to model all possible figures out of gold, and were then to proceed without cessation to remodel each of these into every other, then, if someone

were to point to one of the figures and ask what it is, by far the safest reply, in point of truth, would be that it is gold; but as for the triangle and all the other figures which were formed in it, one should never describe them as "being" seeing that they change even while one is mentioning them; rather one should be content if the figure admits of even the title "suchlike" being applied to it with any safety. And of the substance which receives all bodies the same account must be given. It must be called always by the same name; for from its own proper quality it never departs at all for while it is always receiving all things, nowhere and in no wise does it assume any shape similar to any of the things that enter into it. For it is laid down by nature as a molding-stuff for everything, being moved and marked by the entering figures, and because of them it appears different at different times. And the figures that enter and depart are copies of those that are always existent, being stamped from them in a fashion marvellous and hard to describe, which we shall investigate hereafter.[88] For the present, then, we must conceive of three kinds,—the Becoming, that "Wherein" it becomes, and the source "Wherefrom" the Becoming is copied and produced. Moreover, it is proper to liken the Recipient to the Mother, the Source to the Father, and what is engendered between these two to the Offspring; and also to perceive that, if the stamped copy is to assume diverse appearances of all sorts, that substance wherein it is set and stamped could not possibly be suited to its purpose unless it were itself devoid of all those forms which it is about to receive from any quarter. For were it similar to any of the entering forms, on receiving forms of an opposite or wholly different kind, as they arrived, it would copy them badly, through obtruding its own visible shape. Wherefore it is right that the substance which is to receive within itself all the kinds should be void of all forms; just as with all fragrant ointments, men bring about this condition by artistic contrivance and make the liquids which are to receive the odors as odorless as possible; and all who essay to mold figures in any soft material utterly refuse to allow any previous figure to remain visible therein, and begin by making it even and as smooth as possible before they execute the work.

Tim.

So likewise it is right that the substance which is to be fitted to receive frequently over its whole extent the copies of all things intelligible and eternal should itself, of its own nature, be void of all the forms.

[88] Cf. 53 C.

Wherefore, let us not speak of her that is the Mother and Receptacle of this generated world, which is perceptible by sight and all the senses, by the name of earth or air or fire or water, or any aggregates or constituents thereof: rather, if we describe her as a Kind invisible and unshaped, all-receptive, and in some most perplexing and most baffling way partaking of the intelligible, we shall describe her truly. In so far as it is possible to arrive at the nature of this kind from the foregoing account, one may state it most correctly in this way. That part of it which is made fiery appears each time as fire, that which has been liquefied as water; and it appears as earth and air in so far as it receives copies of these. But let us investigate the matter by more exact reasoning, and consider this question. Does there exist any self-subsisting fire or any of those other objects which we likewise term "self-subsisting realities"? Or is it only these things which we see, or otherwise perceive by means of bodily senses, that exist, possessed of sensible reality; beside which no other things exist anywhere or anyhow, and it is merely an idle assertion of ours that there always exists an intelligible Form of every object, whereas it is really nothing more than a verbal phrase? Now, on the one hand, it would be improper to dismiss the question before us without a trial and a verdict, and simply to asseverate that the fact is so; while, on the other hand, we ought not to burden a lengthy discourse with another subsidiary argument. If, however, it were possible to disclose briefly some main determining principle, that would best serve our purpose. This, then, is the view for which I, for my part, cast my vote. If Reason and True Opinion are two distinct Kinds, most certainly these self-subsisting Forms do exist, imperceptible by our senses, and objects of Reason only; whereas if, as appears to some, True Opinion differs in naught from Reason, then, on the contrary, all the things which we perceive by our bodily senses must be judged to be most stable. Now these two Kinds must be declared to be two, because they have come into existence separately and are unlike in condition. For the one of them arises in us by teaching, the other by persuasion; and the one is always in company with true reasoning, whereas the other is irrational; and the one is immovable by persuasion, whereas the other is alterable by persuasion; and of the one we must assert that every man partakes, but of Reason only the gods and but a small class of men.

Tim.

This being so, we must agree that One Kind is the self-identical Form, ungenerated and indestructible, neither receiving into itself any other from any quarter nor itself passing anywhither into another, invisible

and in all ways imperceptible by sense, it being the object which it is the province of Reason to contemplate; and a second Kind is that which is named after the former and similar thereto, an object perceptible by sense, generated, ever carried about, becoming in a place and out of it again perishing, apprehensible by Opinion with the aid of Sensation; and a third Kind is ever-existing Place, which admits not of destruction, and provides room for all things that have birth, itself being apprehensible by a kind of bastard reasoning by the aid of non-sensation, barely an object of belief; for when we regard this we dimly dream and affirm that it is somehow necessary that all that exists should exist *in* some spot and occupying some *place*, and that that which is neither on earth nor anywhere in the Heaven is nothing. So because of all these and other kindred notions, we are unable also on waking up to distinguish clearly the unsleeping and truly subsisting substance, owing to our dreamy condition, or to state the truth—how that it belongs to a copy—seeing that it has not for its own even that substance for which it came into being, but fleets ever as a phantom of something else—to come into existence *in* some other thing, clinging to existence as best it may, on pain of being nothing at all; whereas to the aid of the really existent there comes the accurately true argument, that so long as one thing is one thing, and another something different, neither of the two will ever come to exist in the other so that the same thing becomes simultaneously both one and two. Let this, then, be, according to my verdict, a reasoned account of the matter summarily stated,—that Being and Place and Becoming were existing, three distinct things, even before the Heaven came into existence; and that the Nurse of Becoming, being liquefied and ignified and receiving also the forms of earth and of air, and submitting to all the other affections which accompany these, exhibits every variety of appearance; but owing to being filled with potencies that are neither similar nor balanced, in no part of herself is she equally balanced, but sways unevenly in every part, and is herself shaken by these forms and shakes them in turn as she is moved.

Tim.

And the forms, as they are moved, fly continually in various directions and are dissipated; just as the particles that are shaken and winnowed by the sieves and other instruments used for the cleansing of corn fall in one place if they are solid and heavy, but fly off and settle elsewhere if they are spongy and light. So it was also with the Four Kinds when shaken by the Recipient: her motion, like an instrument which causes shaking, was separating farthest from one another the dissimilar, and

pushing most closely together the similar; wherefore also these Kinds occupied different places even before that the Universe was organized and generated out of them. Before that time, in truth, all these things were in a state devoid of reason or measure, but when the work of setting in order this Universe was being undertaken, fire and water and earth and air, although possessing some traces of their own nature, were yet so disposed as everything is likely to be in the absence of God; and inasmuch as this was then their natural condition, God began by first marking them out into shapes by means of forms and numbers. And that God constructed them, so far as He could, to be as fair and good as possible, whereas they had been otherwise,—this above all else must always be postulated in our account. Now, however, it is the disposition and origin of each of these Kinds which I must endeavor to explain to you in an exposition of an unusual type; yet, inasmuch as you have some acquaintance with the technical method which I must necessarily employ in my exposition, you will follow me. In the first place, then, it is plain I presume to everyone that fire and earth and water and air are solid bodies; and the form of a body, in every case, possesses depth also. Further, it is absolutely necessary that depth should be bounded by a plane surface; and the rectilinear plane is composed of triangles. Now all triangles derive their origin from two triangles, each having one angle right and the others acute[89]; and the one of these triangles has on each side half a right angle marked off by equal sides, while the other has the right angle divided into unequal parts by unequal sides. These we lay down as the principles of fire and all the other bodies, proceeding according to a method in which the probable is combined with the necessary; but the principles which are still higher than these are known only to God and the man who is dear to God. We must now declare what will be the four fairest bodies, dissimilar to one another, but capable in part of being produced out of one another by means of dissolution; for if we succeed herein we shall grasp the truth concerning the generation of earth and fire and the mean proportionals. For to no one will we concede that fairer bodies than these, each distinct of its kind, are anywhere to be seen. Wherefore we must earnestly endeavor to frame together these four kinds of bodies which excel in beauty, and to maintain that we have apprehended their nature adequately.

Tim.

[89] i.e., the rectangular isosceles triangle and the rectangular scalene; all other triangles can be built up from these two (e.g. see 54 E N.).

Now of the two triangles, the isosceles possesses one single nature, but the scalene an infinite number; and of these infinite natures we must select the fairest, if we mean to make a suitable beginning. If, then, anyone can claim that he has chosen one that is fairer for the construction of these bodies, he, as friend rather than foe, is the victor. We, however, shall pass over all the rest and postulate as the fairest of the triangles that triangle out of which, when two are conjoined, the equilateral triangle is constructed as a third.[90] The reason why is a longer story; but should anyone refute us and discover that it is not so, we begrudge him not the prize. Accordingly, let these two triangles be selected as those wherefrom are contrived the bodies of fire and of the other elements,— one being the isosceles, and the other that which always has the square on its greater side three times the square on the lesser side.[91] Moreover, a point about which our previous statement was obscure must now be defined more clearly. It appeared as if the four Kinds, in being generated, all passed through one another into one another, but this appearance was deceptive. For out of the triangles which we have selected four Kinds are generated, three of them out of that one triangle which has its sides unequal, and the fourth Kind alone composed of the isosceles triangle. Consequently, they are not all capable of being dissolved into one another so as to form a few large bodies composed of many small ones, or the converse; but three of them do admit of this process. For these three are all naturally compounded of one triangle, so that when the larger bodies are dissolved many small ones will form themselves from these same bodies, receiving the shapes that befit them; and conversely, when many small bodies are resolved into their triangles they will produce, when unified, one single large mass of another Kind. So let thus much be declared concerning their generation into one another. In the next place we have to explain the form in which each Kind has come to exist and the numbers from which it is compounded. First will come that form which is primary and has the smallest components, and the element thereof is that triangle which has its hypotenuse twice as long as its lesser side. And when a pair of such triangles are joined along the line of the hypotenuse, and this is done thrice, by drawing the hypotenuses and the short sides together as to a center, there is produced from those triangles, six in number,

[90] i.e., the half of an equilateral triangle; e.g. if the triangle ABC is bisected by the line AD, we have two such triangles in ADB and ADC.

[91] i.e., in the triangle ADB (see last note) AB = 2Bsquared, and (AB)squared = (BD)squared + (AD)squared; therefore 4(BD)squared = (BD)squared + (AD)squared, and so 3(BD)squared = (AD)squared.

one equilateral triangle.[92]

Tim.

And when four equilateral triangles are combined so that three plane angles meet in a point, they form one solid angle, which comes next in order to the most obtuse of the plane angles. And when four such angles are produced, the first solid figure[93] is constructed, which divides the whole of the circumscribed sphere into equal and similar parts. And the second solid[94] is formed from the same triangles, but constructed out of eight equilateral triangles, which produce one solid angle out of four planes; and when six such solid angles have been formed, the second body in turn is completed. And the third solid[95] is composed of twice sixty of the elemental triangles conjoined, and of twelve solid angles, each contained by five plane equilateral triangles, and it has, by its production, twenty equilateral triangular bases. Now the first of the elemental triangles ceased acting when it had generated these three solids, the substance of the fourth Kind[96] being generated by the isosceles triangle. Four of these combined, with their right angles drawn together to the center, produced one equilateral quadrangle; and six such quadrangles, when joined together, formed eight solid angles, each composed of three plane right angles; and the shape of the body thus constructed was cubic, having six plane equilateral quadrangular bases. And seeing that there still remained one other compound figure, the fifth,[97] God used it up for the Universe in his decoration thereof. Now in reasoning about all these things, a man might question whether he ought to affirm the existence of an infinite diversity of Universes or a limited number; and if he questioned aright he would conclude that the doctrine of an infinite diversity is that of a man unversed[98] in matters wherein he ought to be versed; but the question whether they ought really to be described as one Universe

[92] As in the figure the equilateral triangle ABC is divided into 6 triangles of unequal sides by joining the vertical points A, B, C to the points of bisection of the opposite sides, viz. D, E, F. Then the hypotenuse in each such triangle is double the shortest side (e.g. AO = 2FO). And FAO = 1/3 right angle; while FOA = 2/3 right angle. The "three plane edges" are thus of 60 degrees each = 180 degrees = "the most obtuse" plane angle; so that the solid angle is one degree less, i.e., 179 degrees.

[93] i.e., the tetrahedron or pyramid (molecule of fire).

[94] i.e., the octahedron (molecule of air).

[95] i.e., the icosahedron (molecule of water).

[96] i.e., the cube, composed of 6x4 rectangular isosceles triangles (molecule of earth).

[97] i.e., the dodecahedron. How God "used it up" is obscure: the reference may be to the 12 signs of the Zodiac.

[98] There is a play here on the two senses of *ἄπειρος*, unlimited and unskilled; Cf. *Phileb.* 17 E. The doctrine of an infinite number of worlds was held by the Atomists.

or five is one which might with more reason give us pause. Now our view declares the Universe to be essentially one, in accordance with the probable account; but another man, considering other facts, will hold a different opinion. Him, however, we must let pass. But as for the Kinds which have now been generated by our argument, let us assign them severally to fire and earth and water and air. To earth let us give the cubic form; for of the four Kinds earth is the most immobile and the most plastic body, and of necessity the body which has the most stable bases must be pre-eminently of this character. Now of the triangles we originally assumed, the basis formed by equal sides is of its nature more stable than that formed by unequal sides; and of the plane surfaces which are compounded of these several triangles, the equilateral quadrangle, both in its parts and as a whole, has a more stable base than the equilateral triangle.

Tim.

Wherefore, we are preserving the probable account when we assign this figure to earth, and of the remaining figures the least mobile to water, and the most mobile to fire, and the intermediate figure to air; and, further, when we assign the smallest body to fire, and the greatest to water, and the intermediate to air; and again, the first in point of sharpness to fire, the second to air, and the third to water. As regards all these forms, that which has the fewest bases must necessarily be the most mobile, since it is in all ways the sharpest and most acute of all; and it must also be the lightest, since it is composed of the fewest identical parts; and the second comes second in point of these same qualities, and the third third. Thus, in accordance with the right account and the probable, that solid which has taken the form of a pyramid shall be the element and seed of fire; the second in order of generation we shall affirm to be air, and the third water. Now one must conceive all these to be so small that none of them, when taken singly each in its several kind, is seen by us, but when many are collected together their masses are seen. And, moreover, as regards the numerical proportions which govern their masses and motions and their other qualities, we must conceive that God realized these everywhere with exactness, in so far as the nature of Necessity submitted voluntarily or under persuasion, and thus ordered all in harmonious proportion. From all that we have hitherto said about these Kinds, they will, in all likelihood, behave themselves as follows. Earth will keep moving when it happens to meet with fire and has been dissolved by its acuteness,

whether this dissolution takes place in pure fire or in a mass of air or of water; and this motion will continue until the particles of earth happen to meet together somewhere and reunite one with another, when they become earth again; for assuredly earth will never change into another form. But water, when broken up by fire or even by air, is capable of becoming a compound of one corpuscle of fire with two of air; and the fractions of air which come from the dissolving of one particle will form two corpuscles of fire. And again, when a small quantity of fire is enclosed by a large quantity of air and water, or of earth, and moves within them as they rush along, and is defeated in its struggle and broken up, then two corpuscles of fire unite to make one form of air. And when air is defeated and disintegrated, from two whole forms of air and a half, one whole form of water will be compounded.

Tim.

Once again let us reason out their character in this way. Whenever any of the other Kinds is caught within fire it is cut up thereby, owing to the acuteness of its angles and of the line of its sides, but when it has been re-composed into the substance of fire it ceases to be cut; for the Kind that is similar and uniform is in no case able either to cause any change in, or to suffer any affection from, a Kind which is in a uniform and similar state[99]; but so long as, in the course of its passage into another form, it is a weaker body fighting against a stronger, it is continually being dissolved. And again, whenever a few of the smaller corpuscles, being caught within a great number of larger corpuscles, are broken up and quenched, then, if they consent to be re-compounded into the shape of the victorious Kind, they cease to be quenched, and air is produced out of fire, and out of air water; but if they fight against combining with these or with any of the other Kinds, they do not cease from dissolution until either they are driven out to their own kindred, by means of this impact and dissolution, or else they are defeated and, instead of many forms, assume one form similar to the victorious Kind, and continue dwelling therewith as a united family. Moreover, it is owing to these affections that they all interchange their places; for while the bulk of each Kind keeps apart in a region of its own[100] because of the motion of the Recipient, yet those corpuscles which from

[99]The affinity of "like to like" was an axiom in early Greek thought; Cf. *Lysis*215 C ff.,*Sympos.* 186 A ff.

[100]The elements are conceived as having their proper abodes in concentric strata of space, one above another—earth in the center, water next, then air, and fire at the circumference of the World-Sphere.

time to time become dissimilar to themselves and similar to others are carried, because of the shaking, towards the region which belongs to those corpuscles whereto they have been assimilated. Such are the causes which account for the generation of all the unmixed and primary bodies. But within these four Kinds other classes exist, whereof the cause must be sought in the construction of each of the two elemental triangles, each such construction having originally produced not merely a triangle of one definite size, but larger and smaller triangles of sizes as numerous as are the classes within the Kinds. Consequently, when these are combined amongst themselves and with one another they are infinite in their variety; and this variety must be kept in view by those who purpose to employ probable reasoning concerning Nature. Now, unless we can arrive at some agreed conclusion concerning Motion and Rest, as to how and under what conditions they come about, our subsequent argument will be greatly hampered. The facts about them have already been stated in part; but in addition thereto we must state further that motion never consents to exist within uniformity. For it is difficult, or rather impossible, for that which is to be moved to exist without that which is to move, or that which is to move without that which is to be moved; but in the absence of these there is no motion, and that these should ever be uniform is a thing impossible.

Tim.

Accordingly, we must always place rest in uniformity, and motion in non-uniformity; and the cause of the non-uniform nature lies in inequality. Now we have explained the origin of inequality[101]; but we have not declared how it is that these bodies are not separated according to their several Kinds, and cease not from their motion and passage one through another. Wherefore, we shall once more expound the matter as follows. The revolution of the All, since it comprehends the Kinds, compresses them all, seeing that it is circular and tends naturally to come together to itself[102]; and thus it suffers no void place to be left. Wherefore, fire most of all has permeated all things, and in a second degree air, as it is by nature second in fineness; and so with the rest; for those that have the largest constituent parts have the largest void left in their construction, and those that have the smallest the least. Thus the tightening of the compression forces together the small bodies into the void intervals of the large. Therefore, when small bodies

[101] Cf. 53 C ff.: the varying shapes and sizes of the primary triangles account for the "inequality."

[102] i.e., exerts a centripetal force. For this "compression" cf. Emped. *Frag.* 185 *Τιτὰν ἠδ' αἰθὴρ σφίγγων περὶ κύκλον ἅπαντα.*

are placed beside large, and the smaller disintegrate the larger while the larger unite the smaller, they all shift up and down towards their own proper regions; for the change in their several sizes causes their position in space also to change. And since in this way and for these reasons the production of non-uniformity is perpetually maintained, it brings about unceasingly, both now and for the future, the perpetual motion of these bodies. In the next place, we must observe that there are many kinds of fire: for example, there is flame; and the kind issuing from flame, which does not burn but supplies light to the eyes; and the kind which, when the flame is quenched, is left behind among the embers. So likewise of air, there is the most translucent kind which is called by the name of aether, and the most opaque which is mist and darkness, and other species without a name, which are produced by reason of the inequality of the triangles. The kinds of water are, primarily, two, the one being the liquid, the other the fusible[103] kind. Now the liquid kind, inasmuch as it partakes of those small particles of water which are unequal, is mobile both in itself and by external force owing to its non-uniformity and the shape of its figure. But the other kind, which is composed of large and uniform particles, is more stable than the first and is heavy, being solidified by its uniformity; but when fire enters and dissolves it, this causes it to abandon its uniformity, and this being lost it partakes more largely in motion; and when it has become mobile it is pushed by the adjacent air and extended upon the earth; and for each of these modifications it has received a descriptive name—"melting" for the disintegration of its masses, and for its extension over the earth "fluidity."

Tim.

Again, since the fire on issuing from the water does not pass into a void but presses on the adjacent air, this in turn compresses the liquid mass which is still mobile into the abodes of the fire and combines it with itself; and the mass, being this, is compressed and recovering again its uniformity, because of the departure of the fire, the author of its non-uniformity, returns to its state of self-identity. And this cessation of the fire is termed "cooling," and the combination which follows on its departure "solidification." Of all the kinds of water which we have termed "fusible," the densest is produced from the finest and most uniform particles: this is a kind of unique form, tinged with a glittering and yellow hue, even that most precious of possessions, "gold," which has been strained through stones and solidified. And the off-shoot of

[103] i.e., metals are classes as "water," cf. 59 B ff.

gold, which is very hard because of its density and black in color, is called "adamant."[104] And the kind which closely resembles gold in its particles but has more forms than one, and in density is more dense than gold, and partakes of small and fine portions of earth so that it is harder, while it is also lighter owing to its having large interstices within it,—this particular kind of the bright and solid waters, being compounded thus, is termed "bronze." And the portion of earth that is mixed therewith becomes distinct by itself, when both grow old and separate again-each from the other; and then it is named "rust." And the rest of such phenomena it is no longer difficult to explain in full, if one aims at framing a description that is probable.[105] For as regards this, whenever for the sake of recreation a man lays aside arguments concerning eternal Realities and considers probable accounts of Becoming, gaining thereby a pleasure not to be repented of, he provides for his life a pastime that is both moderate and sensible. To this pastime let us now give free play, and proceed to expound in order the subsequent probabilities concerning these same phenomena in the following way. The water that is mixed with fire, which is fine and fluid, is termed "fluid," owing to its motion and the way it rolls over the earth.[106] Also it is soft owing to the fact that its bases, being less stable than those of earth, give way. When this kind is separated off from fire and air and isolated it becomes more uniform, but because of their outflow it is compressed upon itself; and when it is thus solidified, the part of it above the earth which is most affected by this process is termed "hail," and the part upon the earth "ice" and the part which is less affected and is still only half-solid is called snow when it is above the earth, but when it is upon the earth and solidified out of dew it is called "hoar-frost."

Tim.

Now as regards most forms of water that are intermingled one with another, the kind as a whole, consisting of water that has been strained through earth-grown plants, is called "sap"; but inasmuch as the several sorts have become dissimilar owing to intermixture, most of the kinds thus produced are unnamed. Four of these kinds, however, being fiery and specially conspicuous, have received names. Of these, that which is heating to the soul as well as the body is called "wine"; that which is smooth and divisive of the vision, and therefore bright to look

[104] Perhaps haematite or platinum.

[105] Cf. 29 B, D, 48 C, etc.

[106] Alluding to a fanciful derivation of *ὑγρόν* from *ὑπὲρ γῆν ῥέον*.

upon and gleaming and glistening in appearance, is the species "oil," including pitch and castor oil and olive oil itself and all the others that are of the same character; and all that kind which tends to expand the contracted parts of the mouth, so far as their nature allows, and by this property produces sweetness, has received as a general designation the name of "honey"; and the foamy kind, which tends to dissolve the flesh by burning, and is secreted from all the saps, is named "verjuice."[107] Of the species of earth, that which is strained through water becomes a stony substance in the following way. When the water commingled therewith is divided in the process of mingling, it changes into the form of air; and when it has become air it rushes up to its own region; but because there was no void space above them, therefore it pressed against the adjacent air; and it, being heavy, when pressed and poured round the mass of earth, crushed it forcibly and compressed it into the spaces from which the new air was ascending. But when earth is thus compressed by the air so as to be indissoluble by water it forms "stone"; of which the fairer sort is that composed of equal and uniform parts and transparent, and the coarser sort the opposite. That kind from which all the moisture has been carried off by the rapidity of fire, and which is more brittle in its composition than the first kind, is the kind to which we have given the name of "earthenware." But sometimes, when moisture is still left in the earth and it has been fused by fire and has cooled again, it forms the species which is black in hue. On the other hand there are two kinds, which, in exactly the same manner, are isolated after the mixture from much of their water, but are composed of finer parts of earth, and are saline: when these have become semi-solid and soluble again by water, one of them is purgative of oil and earth and forms the species called "lye"[108]; and the other, which blends well with the combinations which affect the sensation of the mouth, is that substance which is customarily termed "beloved of the gods,"[109] namely "salt." As regards the kinds which are a blend of these two, and are dissoluble by fire and not by water, their composition is due to the following cause. Fire and air do not melt masses of earth; for, inasmuch as their particles are smaller then the interstices of its structure, they have room to pass through without forcible effort and leave the earth undissolved, with the result that it remains unmelted; whereas the particles of water, being larger, must

[107]Perhaps a kind of fig-juice.

[108]i.e., potash or saltpeter.

[109]Cf. Hom.*Il.* ix. 214 *πάσσε δ' ἁλὸς θείοιο.*

use force to make their way out, and consequently dissolve and melt the earth.

Tim.

Thus earth when it is not forcibly condensed is dissolved only by water; and when it is condensed it is dissolved by fire only, since no entrance is left for anything save fire. Water, again, when most forcibly massed together is dissolved by fire only, but when massed less forcibly both by fire and air, the latter acting by way of the interstices, and the former by way of the triangles; but air when forcibly condensed is dissolved by nothing save by way of its elemental triangles, and when unforced it is melted down by fire only. As regards the classes of bodies which are compounds of earth and water, so long as the water occupies the interspaces of earth which are forcibly contracted, the portions of water which approach from without find no entrance, but flow round the whole mass and leave it undissolved. But when portions of fire enter into the interspaces of the water they produce the same effects on water as water does on earth; consequently, they are the sole causes why the compound substance is dissolved and flows. And of these substances those which contain less water than earth form the whole kind known as "glass," and all the species of stone called "fusible"; while those which contain more water include all the solidified substances of the type of wax and frankincense. And now we have explained with some fullness the Four Kinds, which are thus variegated in their shapes and combinations and permutations; but we have still to try to elucidate the Causes which account for their affective qualities. Now, first of all, the quality of sense-perceptibility must always belong to the objects under discussion; but we have not as yet described the generation of flesh and the appurtenances of flesh, nor of that portion of Soul which is mortal. But, in truth, these last cannot be adequately explained apart from the subject of the sensible affections, nor the latter without the former; while to explain both simultaneously is hardly possible. Therefore, we must assume one of the two, to begin with, and return later to discuss our assumptions. In order, then, that the affective properties may be treated next after the kinds, let us presuppose the facts about body and soul. Firstly, then, let us consider how it is that we call fire "hot" by noticing the way it acts upon our bodies by dividing and cutting. That its property is one of sharpness we all, I suppose, perceive;

Tim.

but as regards the thinness of its sides and the acuteness of its angles and the smallness of its particles and the rapidity of its motion—owing to all which properties fire is intense and keen and sharply cuts whatever it encounters,—these properties we must explain by recalling the origin of its form, how that it above all others is the one substance which so divides our bodies and minces them up as to produce naturally both that affection which we call "heat" and its very name.[110] The opposite affection is evident, but none the less it must not lack description. When liquids with larger particles, which surround the body, enter into it they drive out the smaller particles; but as they cannot pass into their room they compress the moisture within us, so that in place of non-uniformity and motion they produce immobility and density, as a result of the uniformity and compression. But that which is being contracted contrary to nature fights, and, in accordance with its nature, thrusts itself away in the contrary direction. And to this fighting and shaking we give the names of "trembling" and "shivering"; while this affection as a whole, as well as the cause thereof, is termed "cold." By the term "hard" we indicate all the things to which our flesh gives way; and by the term "soft" all those which give way to our flesh; and these terms are similarly used relatively to each other. Now a substance gives way when it has its base small; but when it is constructed of quadrangular bases, being very firmly based, it is a most inelastic form; and so too is everything which is of very dense composition and most rigid. The nature of "heavy" and "light" would be shown most clearly if, along with them, we examined also the nature of "above" and "below," as they are called. That there really exist two distinct and totally opposite regions, each of which occupies one-half of the Universe—the one termed "below," towards which move all things possessing any bodily mass, and the other "above," towards which everything goes against its will,— this is a wholly erroneous supposition[111] For inasmuch as the whole Heaven is spherical, all its outermost parts, being equally distant from the center, must really be "outermost" in a similar degree; and one must conceive of the center, which is distant from all the outermost parts by the same measures, as being opposite to them all. Seeing, then, that the Cosmos is actually of this nature, which of the bodies mentioned can one set "above" or "below" without incurring justly the charge of applying a wholly un-

[110] i.e., *θερμόν* (quasi *κερμόν*) is derived from *κερματίζω* (minced up or mint).

[111] The reference here is, probably to Democritus (Aristotle also speaks of *τὸ ἄνω φύσει*, *Phys.* 208 b 14).

suitable name? For its central region cannot rightly be termed either "above" or "below," but just "central"; while its circumference neither is central nor has it any one part more divergent than another from the center or any of its opposite parts. But to that which is in all ways uniform, what opposite names can we suppose are rightly applicable, or in what sense?

Tim.

For suppose there were a solid body evenly-balanced at the center of the universe, it would never be carried away to the extremities because of their uniformity in all respects; nay, even were a man to travel round it in a circle he would often call the same part of it both "above" and "below," according as he stood now at one pole, now at the opposite.[112] For seeing that the Whole is, as we said just now, spherical, the assertion that it has one region "above" and one "below" does not become a man of sense. Now the origin of these names and their true meaning which accounts for our habit of making these verbal distinctions even about the whole Heaven, we must determine on the basis of the following principles. Suppose that a man were to take his stand in that region of the Universe in which the substance of fire has its special abode, and where also that substance to which it flies is collected in largest bulk; and suppose that, having the power to do so, he were to separate portions of the fire and weigh them, putting them on scales and lifting the balance and pulling the fire by force into the dissimilar air, it is obvious that he will force the smaller mass more easily than the larger. For if two masses are lifted up simultaneously by a single effort, the smaller will necessarily yield more and the larger less, owing to its resistance, to the force exerted; and the large mass will be said to be "heavy" and moving "down," the small light and moving "up." Now this is just what we ought to detect ourselves doing in our region here. Standing on the earth and detaching various earthy substances, and sometimes pure earth, we pull them into the dissimilar air by force and against nature, since both these kinds cleave to their own kindred; and the smaller mass yields more easily, and follows first, as we force it into the dissimilar kind; wherefore we name it "light," and the region to which we force it "above"; and the conditions opposite thereto we name "heavy" and "below." Thus, these must necessarily differ in their mutual relations, because the main masses of the Kinds occupy regions opposite to one another; for when we compare what is light in one region with what is light in the opposite region, and the heavy with the

[112] i.e., "above" and "below" are purely relative terms.

heavy, the "below" with the below, and the" above with the above, we shall discover that these all become and are opposite and oblique and in every way different in their mutual relations. There is, however, this one fact to be noticed about them all, that it is the passage of each kind to its kindred mass which makes the moving body heavy, and the region to which such a body moves "below"; while the opposite conditions produce the contrary results.[113] Let this, then, stand as our account of the causes of these conditions.

Tim.

Of "smoothness" and "roughness" anyone might be able to discern the causes and explain them also to others. For the cause of the latter is hardness combined with irregularity, and of the former regularity combined with density. In respect of the affections common to the whole body a very important point, which still remains, is the cause of the pleasures and pains attaching to the sense-affections we have been discussing; and the cause also of those affections which have become perceptible by means of the bodily parts and involve in themselves concomitant pains and pleasures. Let us, then, try to grasp the causes in connection with every perceptible and imperceptible affection in the following way, bearing in mind the distinction we previously drew[114] between mobile and immobile substances; for it is in this way that we must track down all those facts that we intend to grasp. Whenever what is naturally mobile is impressed by even a small affection, it transmits it in a circle, the particles passing on to one another this identical impression until they reach the organ of intelligence and announce the quality of the agent. But a substance of the opposite kind, being stable and having no circular movement, is only affected in itself and does not move any other adjacent particle; consequently, since the particles do not transmit to one another the original affection, it fails to act upon the living creature as a whole, and the result is that the affected body is non-percipient. This is the case with the bones and the hair and all our other parts that are mainly earthy whereas the former character belongs especially to the organs of sight and of hearing, owing to the fact that they contain a very large quantity of fire and air. Now the nature of pleasure and pain we must conceive of in this way. When an affection which is against nature and violent occurs within us with intensity it is painful, whereas the return back to the natural

[113] i.e., the attraction takes different directions, therefore "up" and "down" are relative terms.

[114] Cf. 54 B ff., 57 D, E.

condition, when intense, is pleasant[115]; and an affection which is mild and gradual is imperceptible, while the converse is of a contrary character. And the affection which, in its entirety, takes place with ease is eminently perceptible, but it does not involve pain or pleasure; such, for example, are the affections of the visual stream itself, which, as we said before,[116] becomes in the daylight a body substantially one with our own. For no pains are produced therein by cuttings or burnings or any other affections, nor does its reversion to its original form produce pleasures; but it has most intense and clear perceptions concerning every object that affects it, and every object also which it strikes against or touches; for force is wholly absent both from its dilation and from its contraction.

Tim.

But those bodies which are composed of larger particles, since they yield with difficulty to the agent and transmit their motions to the whole, feel pleasures and pains— pains when they suffer alteration, and pleasures when they are restored to their original state. And all those bodies which undergo losses of substance and emptyings that are gradual, but replenishings that are intense and abundant, become insensitive to the emptyings but sensitive to the replenishings; consequently, they furnish no pains to the mortal part of the soul, but the greatest pleasures—a result which is obvious in the case of perfumes. But all those parts which undergo violent alterations, and are restored gradually and with difficulty to their original condition, produce results the opposite of those last mentioned; and it is evident that this is what occurs in the case of burnings and cuttings of the body. And now we have given a fairly complete statement of the affections which are common to the body as a whole, and of all the names which belong to the agents which produce them. Next we must try, if haply we are able, to describe what takes place in the several parts of our bodies, both the affections themselves and the agents to which they are ascribed. Firstly, then, we must endeavor to elucidate so far as possible those affections which we omitted in our previous account of the flavors, they being affections peculiar to the tongue. It is evident that these also, like most others, are brought about by means of certain contractions and dilations[117]; and, more than other affections, they involve also conditions of roughness and smoothness. For all the earthy particles

[115]Cf. *Rep.* 583 C ff.,*Phileb.* 31 D ff.

[116]Cf. 45 B.

[117]Cf. 64 E.

which enter in by the small veins—which, extending as far as to the heart, serve as it were for testing-instruments[118] of the tongue,—when they strike upon the moist and soft parts of the flesh and are melted down, contract the small veins and dry them up; and these particles when more rough appear to be "astringent," when less rough "harsh." And such as act on these veins as detergents and wash out all the surface of the tongue, when they do this excessively and lay such hold on the tongue as to dissolve part of its substance—and such, for example, is the property of alkalies,— are all termed "bitter"; while those which have a property less strong than the alkaline, being detergent in a moderate degree, seem to us to be "saline," and more agreeable, as being devoid of the rough bitterness.

Tim.

And those which share in the heat of the mouth and are made smooth thereby, when they are fully inflamed and are themselves in turn burning the part which heated them, fly upwards because of their lightness towards the senses of the head and cut all the parts on which they impinge; and because of these properties all such are called "pungent." Again, when particles already refined by putrefaction, entering into the narrow veins, are symmetrical with the particles of earth and air contained therein, so that they cause them to circulate round one another and ferment, then, in thus fermenting they change round and pass into fresh places, and thereby create fresh hollows which envelop the entering particles. By this means, the air being veiled in a moist film, sometimes of earth, sometimes of pure moisture, moist and hollow and globular vessels of air are formed; and those formed of pure moisture are the transparent globules called by the name of "bubbles," while those of the earthy formation which moves throughout its mass and seethes are designated "boiling" and "fermenting"; and the cause of these processes is termed "acid." An affection which is the opposite of all those last described results from an opposite condition. Whenever the composition of the particles which enter into the moist parts is naturally akin to the state of the tongue, they oil its roughened parts and smooth it, contracting the parts that are unnaturally dilated or dilating those that are contracted, and thus settling them all, so far as possible, in their natural condition; and every such remedy of the forcible affections, being pleasant and welcome to everyone, is called "sweet." For this subject, then, let this account suffice. Next, as regards the property of the nostrils, it does not contain fixed kinds. For

[118]The function of the nerves is here assigned to the veins.

the whole range of smells is a half-formed class, and no kind possesses the symmetry requisite for containing any smell; for our veins in these organs are of too narrow a construction for the kinds of earth and of water and too wide for those of fire and air, so that no one has ever yet perceived any smell from any of these, but only from substances which are in process of being moistened or putrefied or melted or vaporized. For smells arise in the intermediate state, when water is changing into air or air into water, and they are all smoke or mist; and of these, the passage from air to water is mist, and the passage from water to air is smoke whence it is that all the smells are thinner than water and thicker than air.

Tim.

Their nature is made clear whenever there is some block in the respiration and a man draws in his breath forcibly; for then no accompanying smell is strained through, but the breath passes in alone by itself isolated from the smells. So for these reasons the varieties of these smells have no name, not being derived either from many or from simple forms, but are indicated by two distinctive terms only, "pleasant" and "painful" of which the one kind roughens and violently affects the whole of our bodily cavity which lies between the head and the navel, whereas the other mollifies this same region and restores it agreeably to its natural condition. The third organ of perception within us which we have to describe in our survey is that of hearing, and the causes whereby its affections are produced. In general, then, let us lay it down that sound is a stroke transmitted through the ears, by the action of the air upon the brain and the blood, and reaching to the soul; and that the motion caused thereby, which begins in the head and ends about the seat of the liver, is "hearing"; and that every rapid motion produces a "shrill" sound, and every slower motion a more "deep" sound; and that uniform motion produces an "even" and smooth sound and the opposite kind of motion a "harsh" sound; and that large motion produces "loud" sound, and motion of the opposite kind "soft" sound. The subject of concords of sounds must necessarily be treated in a later part of our exposition.[119] We have still remaining a fourth kind of sensation, which we must divide up seeing that it embraces numerous varieties, which, as a whole, we call "colors." This consists of a flame which issues from the several bodies, and possesses particles so proportioned to the visual stream as to produce sensation; and as regards the visual stream, we have already stated[120] merely the

[119] Cf. 80 A.

causes which produced it. Concerning colors, then, the following explanation will be the most probable and worthy of a judicious account. Of the particles which fly off from the rest and strike into the visual stream some are smaller, some larger, and some equal to the particles of the stream itself; those, then, that are equal are imperceptible, and we term them "transparent"; while the larger and smaller particles—of which the one kind contracts, the other dilates the visual stream—are akin to the particles of heat and cold which affect the flesh, and to the astringent particles which affect the tongue, and to all the heating particles which we call "bitter"[121] with these "white" and "black" are really identical affections, occurring in a separate class of sensation, although they appear different for the causes stated.

Tim.

These, therefore, are the names we must assign to them: that which dilates the visual stream is "white" and the opposite thereof "black"[122]; and the more rapid motion, being that of a different species of fire, which strikes upon the visual stream and dilates it as far as to the eyes, and penetrating and dissolving the very passages of the eyes causes a volume of fire and water to pour from them, which we call "tears." And this moving body, being itself fire, meets fire from the opposite direction; and as the one firestream is leaping out like a flash, and the other passing in and being quenched in the moisture, in the resultant mixture colors of all kinds are produced. This sensation we term "dazzling" and the object which causes it "bright" or "brilliant." Again, when the kind of fire which is midway between these[123] reaches to the liquid of the eyes and is mingled therewith, it is not brilliant but, owing to the blending of the fire's ray through the moisture, it gives off a sanguine color, and we give it the name of "red." And "bright" color when blended with red and white becomes "yellow." But in what proportions the colors are blended it were foolish to declare, even if one knew, seeing that in such matters one could not properly adduce any necessary ground or probable reason. Red blended with black and white makes "purple"; but when these colors are mixed and more completely burned, and black is blended therewith, the result is "violet." "Chestnut" comes from the blending of yellow and grey; and "grey" from white and black; and "ochre" from white mixed with yellow. And when white is combined with "bright" and is steeped

[120]Cf. 45 C ff.

[121]Cf. 65 E.

[122]Cf. 45 C ff.

[123]i.e., between the kinds of fire which produce "blackness" and "brightness."

in deep black it turns into a "dark blue" color; and dark blue mixed with white becomes "light blue"; and chestnut with black becomes "green." As to the rest, it is fairly clear from these examples what are the mixtures with which we ought to identify them if we would preserve probability in our account. But should any inquirer make an experimental test of these facts, he would evince his ignorance of the difference between man's nature and Gods—how that, whereas God is sufficiently wise and powerful to blend the many into one and to dissolve again the one into many, there exists not now, nor ever will exist hereafter, a child of man sufficient for either of these tasks. Such, then, being the necessary nature of all these things, the Artificer of the most fair and good took them over at that time amongst things generated when He was engendering the self-sufficing and most perfect God; and their inherent properties he used as subservient causes, but Himself designed the Good in all that was being generated.

Tim.

Wherefore one ought to distinguish two kinds of causes,[124] the necessary and the divine, and in all things to seek after the divine for the sake of gaining a life of blessedness, so far as our nature admits thereof, and to seek the necessary for the sake of the divine, reckoning that without the former it is impossible to discern by themselves alone the divine objects after which we strive, or to apprehend them or in any way partake thereof. Seeing, then, that we have now lying before us and thoroughly sifted—like wood ready for the joiner, —the various kinds of causes, out of which the rest of our account must be woven together, let us once more for a moment revert to our starting-point,[125] and thence proceed rapidly to the point from which we arrived hither. In this way we shall endeavor now to supplement our story with a conclusion and a crown in harmony with what has gone before. As we stated at the commencement,[126] all these things were in a state of disorder, when God implanted in them proportions both severally in relation to themselves and in their relations to one another, so far as it was in any way possible for them to be in harmony and proportion. For at that time nothing partook thereof, save by accident, nor was it possible to name anything worth mentioning which bore the names we now give them, such as fire and water, or any of the other elements; but He, in the first place, set all these in order, and then

[124] Cf. 46 D, 48 A.

[125] i.e., 47 E.

[126] Cf. 30 A, 42 D ff.

out of these He constructed this present Universe, one single Living Creature containing within itself all living creatures both mortal and immortal. And He Himself acts as the Constructor of things divine, but the structure of the mortal things He commanded His own engendered sons to execute. And they, imitating Him, on receiving the immortal principle of soul, framed around it a mortal body, and gave it all the body to be its vehicle,[127] and housed therein besides another form of soul, even the mortal form, which has within it passions both fearful and unavoidable—firstly, pleasure, a most mighty lure to evil; next, pains, which put good to rout[128]; and besides these, rashness and fear, foolish counsellors both and anger, hard to dissuade; and hope, ready to seduce. And blending these with irrational sensation and with all-daring lust, they thus compounded in necessary fashion the mortal kind of soul. Wherefore, since they scrupled to pollute the divine, unless through absolute necessity, they planted the mortal kind apart therefrom in another chamber of the body, building an isthmus and boundary for the head and chest by setting between them the neck, to the end that they might remain apart. And within the chest—or "thorax," as it is called—they fastened the mortal kind of soul.

Tim.

And inasmuch as one part thereof is better, and one worse, they built a division within the cavity of the thorax— as if to fence off two separate chambers, for men and for women—by placing the midriff between them as a screen. That part of the soul, then, which partakes of courage and spirit, since it is a lover of victory, they planted more near to the head, between the midriff and the neck, in order that it might hearken to the reason, and, in conjunction therewith, might forcibly subdue the tribe of the desires whensoever they should utterly refuse to yield willing obedience to the word of command from the citadel of reason. And the heart, which is the junction of the veins and the fount of the blood which circulates vigorously through all the limbs, they appointed to be the chamber of the bodyguard, to the end that when the heat of the passion boils up, as soon as reason passes the word round that some unjust action is being done which affects them, either from without or possibly even from the interior desires, every organ of sense in the body might quickly perceive through all the channels both the injunctions and the threats and in all ways obey and follow them, thus allowing their best part to be the leader of them

[127] Cf. 44 E.

[128] Cf. 64 E.

all. And as a means of relief for the leaping of the heart, in times when dangers are expected and passion is excited—since they knew that all such swelling of the passionate parts would arise from the action of fire,—they contrived and implanted the form of the lungs. This is, in the first place, soft and bloodless; and, moreover, it contains within it perforated cavities like those of a sponge, so that, when it receives the breath and the drink, it might have a cooling effect and furnish relief and comfort in the burning heat. To this end they drew the channels of the windpipe to the lungs, and placed the lungs as a kind of padding round the heart, in order that, when the passion therein should be at its height, by leaping upon a yielding substance and becoming cool, the heart might suffer less and thereby be enabled the more to be subservient to the reason in time of passion. And all that part of the Soul which is subject to appetites for foods and drinks, and all the other wants that are due to the nature of the body, they planted in the parts midway between the midriff and the boundary at the navel, fashioning as it were a manger in all this region for the feeding of the body; and there they tied up this part of the Soul, as though it were a creature which, though savage, they must necessarily keep joined to the rest and feed, if the mortal stock were to exist at all.

Tim.

In order, then, that this part, feeding thus at its manger and housed as far away as possible from the counselling part, and creating the least possible turmoil and din, should allow the Supreme part to take counsel in peace concerning what benefits all, both individually and in the mass,—for these reasons they stationed it in that position. And inasmuch as they knew that it would not understand reason, and that, even if it did have some share in the perception of reasons, it would have no natural instinct to pay heed to any of them but would be bewitched for the most part both day and night by images and phantasms,—to guard against this God devised and constructed the form of the liver and placed it in that part's abode; and He fashioned it dense and smooth and bright and sweet, yet containing bitterness, that the power of thoughts which proceed from the mind, moving in the liver as in a mirror which receives impressions and provides visible images, should frighten this part of the soul; for when the mental power bears down upon it with stern threats, it uses a kindred portion of the liver's bitterness[129] and makes it swiftly suffuse the whole liver, so that it exhibits bilious colors, and by contraction makes it all wrinkled and

[129] i.e., gall.

rough; moreover, as regards the lobe and passages and gates[130] of the liver, the first of these it bends back from the straight and compresses, while it blocks the others and closes them up, and thus it produces pains and nausea. On the other hand, when a breath of mildless from the intellect paints on the liver appearances of the opposite kind, and calms down its bitterness by refusing to move or touch the nature opposite to itself, and using upon the liver the sweetness inherent therein rectifies all its parts so as to make them straight and smooth and free, it causes the part of the soul planted round the liver to be cheerful and serene, so that in the night it passes its time sensibly, being occupied in its slumbers with divination, seeing that in reason and intelligence it has no share. For they who constructed us, remembering the injunction of their Father, when He enjoined upon them to make the mortal kind as good as they possibly could, rectified the vile part of us by thus establishing therein the organ of divination, that it might in some degree lay hold on truth. And that God gave unto man's foolishness the gift of divination[131] a sufficient token is this: no man achieves true and inspired divination when in his rational mind, but only when the power of his intelligence is fettered in sleep or when it is distraught by disease or by reason of some divine inspiration.

Tim.

But it belongs to a man when in his right mind to recollect and ponder both the things spoken in dream or waking vision by the divining and inspired nature, and all the visionary forms that were seen, and by means of reasoning to discern about them all wherein they are significant and for whom they portend evil or good in the future, the past, or the present. But it is not the task of him who has been in a state of frenzy, and still continues therein, to judge the apparitions and voices seen or uttered by himself; for it was well said of old that to do and to know one's own and oneself belongs only to him who is sound of mind. Wherefore also it is customary to set the tribe of prophets[132] to pass judgement upon these inspired divinations; and they, indeed, themselves are named "diviners" by certain who are wholly ignorant of the truth that they are not diviners but interpreters of the mysterious voice and apparition, for whom the most fitting name would be "prophets of things divined." For these reasons, then, the nature of the liver is such as we have stated and situated in the region we have

[130] i.e., the right lobe, the viliary vesicle, and the vena porta; cf. Eurip. *Electra* 827 ff.

[131] Cf. *Rep.* 346 B, *Laws* 772 D, *Phaedo.* 244 A ff.

[132] Cf. *Laws* 871 C, Eurip. *Ion* 413 ff.

described, for the sake of divination. Moreover, when the individual creature is alive this organ affords signs that are fairly manifest, but when deprived of life[133] it becomes blind and the divinations it presents are too much obscured to have any clear significance. The structure of the organ which adjoins it,[134] with its seat on the left, is for the sake of the liver, to keep it always bright and clean, as a wiper that is laid beside a mirror always prepared and ready to hand. Wherefore also, whenever any impurities due to ailments of the body occur round about the liver, the loose texture of the spleen cleanses and absorbs them all, seeing that it is woven of a stuff that is porous and bloodless: hence, when it is filled with the offscourings, the spleen grows to be large and festered; and conversely, when the body is cleansed, it is reduced and shrinks back to its primal state. Concerning the soul, then, what part of it is mortal, what part immortal, and where and with what companions and for what reasons these have been housed apart, only if God concurred could we dare to affirm that our account is true[135]; but that our account is probable we must dare to affirm now, and to affirm still more positively as our inquiry proceeds: affirmed, therefore, let it be. The subject which comes next to this we must investigate on the same lines; and that subject is the way in which the remainder of the body has been generated.[136] Its construction would most fittingly be ascribed to reasoning such as this.

Tim.

Those who were constructing our kind were aware of the incontinence that would reside in us in respect of drinks and meats, and how that because of our greed we would consume far more than what was moderate and necessary; wherefore, lest owing to maladies swift destruction should overtake them, and the mortal kind, while still incomplete, come straightway to a complete end,—foreseeing this, the Gods set the "abdomen,"[137] as it is called, to serve as a receptacle for the holding of the superfluous meat and drink; and round about therein they coiled the structure of the entrails, to prevent the food from passing through quickly and thereby compelling the body to require more food quickly, and causing insatiate appetite, whereby the whole kind by reason of its gluttony would be rendered devoid of philosophy and of culture, and disobedient to the most divine part we possess. As regards the bones

[133] i.e., in the sacrificed victim; Cf. *Rep.* 364 C ff.

[134] i.e., the spleen, which, in relation to the liver, is concave.

[135] Cf. 68 D, 74 D.

[136] Cf. 61 C.

[137] Literally "the lower belly," as distinct from "the upper belly" or thorax.

and the flesh and all such substances the position was this. All these had their origin in the generation of the marrow. For it was in this that the bonds of life by which the Soul is bound to the body were fastened, and implanted the roots of the mortal kind; but the marrow itself was generated out of other elements. Taking all these primary triangles[138] which, being unwarped and smooth, were best able to produce with exactness fire and water and air and earth, God separated them, each apart from his own kind, and mixing them one with another in due proportion, He fashioned therefrom the marrow, devising it as a universal seed-stuff for every mortal kind. Next, He engendered therein the various kinds of Soul[139] and bound them down; and He straightway divided the marrow itself, in His original division, into shapes corresponding in their number and their nature to the number and the nature of the shapes which should belong to the several kinds of Soul. And that portion of the marrow which was intended to receive within itself, as it were into a field, the divine seed He molded in the shape of a perfect globe[140] and bestowed on it the name of "brain," purposing that, when each living creature should be completed, the vessel surrounding this should be called the "head." But that portion which was to contain the other and mortal part of the Soul He divided into shapes that were at once rounded and elongated,[141] and all these He designated "marrow"; and from these, as from anchors, He cast out bands of the Whole Soul, and around this He finally wrought the whole of this body of ours, when He had first built round about it for a shelter a framework all of bone. And bone He compounded in this wise. Having sifted earth till it was pure and smooth, He kneaded it and moistened it with marrow; then He placed it in fire, and after that dipped it in water, and from this back to fire, and once again in water; and by thus transferring it many times from the one element to the other He made it so that it was soluble by neither.

Tim.

This, then, He used, and fashioned thereof, by turning, a bony sphere round about the brain; and therein he left a narrow opening; and around the marrow of both neck and back He molded vertebrae of bone, and set them, like pivots, in a vertical row, throughout all the trunk, beginning from the head. And thus for preserving the whole

[138] Cf. 53 C ff.

[139] i.e., the rational (*νοῦς*), and "spirited" (*θυμός*), and appetitive (*ἐπιθυμία*) kinds or parts.

[140] Cf. 44 D.

[141] i.e., the vertebral column, cylindrical in shape.

seed He closed it in with a ring-fence of stony substance; and therein He made joints, using as an aid the power of the Other[142] as an intermediary between them, for the sake of movement and bending. And inasmuch as He deemed that the texture of the bony substance was too hard and inflexible, and that if it were fired and cooled again it would decay and speedily destroy the seed within it, for these reasons He contrived the species known as sinew and flesh. He designed to bind all the limbs together by means of the former, which tightens and relaxes itself around the pivots, and thus cause the body to bend and stretch itself. And the flesh He designed to be a shield against the heat and a shelter against the cold; and, moreover, that in case of falls it should yield to the body softly and gently, like padded garments[143]; and, inasmuch as it contains within it warm moisture, that it should supply in summer, by its perspiration and dampness, a congenial coolness over the exterior of the whole body, and contrariwise in winter defend the body sufficiently, by means of its fire, from the frost which attacks and surrounds it from without. Wherefore, with this intent, our Modeller mixed and blended together water and fire and earth, and compounding a ferment of acid and salt mixed it in therewith, and thus molded flesh full of sap and soft. And the substance of the sinews He compounded of a mixture of bone and unfermented flesh, forming a single substance blended of both and intermediate in quality, and he used yellow also for its coloring. Hence it is that the sinews have acquired a quality that is firmer and more rigid than flesh, but softer and more elastic than bone. With these, then, God enclosed the bones and marrow, first binding them one to another with the sinews, and then shrouding them all over with flesh. All the bones, then, that possessed most soul[144] He enclosed in least flesh, but the bones which contained least soul with most and most dense flesh; moreover, at the junctions of the bones, except where reason revealed some necessity for its existence, He made but little flesh to grow, lest by hindering the flexions it should make the bodies unwieldy, because stiff in movement, or else through its size and density, when thickly massed together, it should produce insensitiveness, owing to its rigidity, and thereby cause the intellectual parts to be more forgetful and more obtuse.

Tim.

Wherefore the thighs and the shins and the region of the loins and

[142] i.e., the principle of plurality, cf. 35 B.

[143] Cf. 70 D.

[144] i.e., those of the head and spine.

the bones of the upper and lower arm, and all our other parts which are jointless, and all those bones which are void of intelligence within, owing to the small quantity of soul in the marrow—all these are abundantly supplied with flesh; but those parts which are intelligent are supplied less abundantly—except possibly where He so fashioned the flesh that it can of itself convey sensations, as is the case with the tongue; but most of these parts He made in the way described above. For the substance which is generated by necessity and grows up with us in no wise admits of quick perception coexisting with dense bone and abundant flesh. For if these characteristics were willing to consort together, then the structure of the head would have acquired them most of all, and mankind, crowned with a head that was fleshy and sinewy and strong, would have enjoyed a life that was twice (nay, many times) as long as our present life, and healthier, to boot, and more free from pain. But as it is, when the Constructors of our being were cogitating whether they should make a kind that was more long-lived and worse or more short-lived and better, they agreed that the shorter and superior life should by all means be chosen by all rather than the longer and inferior. Wherefore they covered the head closely with thin bone, but not with flesh and sinews, since it was also without flexions. For all these reasons, then, the head that was joined to the body in every man was more perceptive and more intelligent but less strong. It was on these grounds and in this way that God set the sinews at the bottom of the head round about the neck and glued them there symmetrically; and with these He fastened the extremities of the jaws below the substance of the face; and the rest of the sinews He distributed amongst all the limbs, attaching joint to joint. And those who fashioned the features of our mouth fashioned it with teeth and tongue and lips, even as it is fashioned now, for ends both necessary and most good, contriving it as an entrance with a view to necessary ends, and as an outlet with a view to the ends most good. For all that enters in and supplies food to the body is necessary; while the stream of speech which flows out and ministers to intelligence is of all streams the fairest and most good.

Tim.

Moreover, it was not possible to leave the head to consist of bare bone only, because of the excessive variations of temperature in either direction, due to the seasons; nor yet was it possible to allow it to be shrouded up, and to become, in consequence, stupid and insensitive owing to its burdensome mass of flesh. Accordingly, of the fleshy substance which was not being fully dried up a larger enveloping film was separated off, forming what is now called “skin.” And this, having

united with itself because of the moisture round the brain and spreading, formed a vesture round about the head; and this was damped by the moisture ascending under the seams and closed down over the crown, being drawn together as it were in a knot; and the seams had all kinds of shapes owing to the force of the soul's revolutions and of her food, being more in number when these are more in conflict with one another, and less when they are less in conflict. And the Deity kept puncturing all this skin round about with fire; and when the skin was pierced and the moisture flew out through it, all the liquid and heat that was pure went away, but such as was mixed with the substance whereof the skin also was composed was lifted up by the motion and extended far beyond the skin, being of a fineness to match the puncture; but since it was thrust back, because of its slowness, by the external air that surrounded it, it coiled itself round inside and rooted itself under the skin. Such, then, were the processes by which hair grew in the skin, it being a cord-like species akin to the skin but harder and denser owing to the constriction of the cold, whereby each hair as it separated off from the skin was chilled and constricted. Making use, then, of the causes mentioned our Maker fashioned the head shaggy with hair, purposing that, in place of flesh, the hair should serve as a light roofing for the part about the brain for safety's sake, providing a sufficient shade and screen alike in summer and in winter, while proving no obstacle in the way of easy perception. And at the place in the fingers where sinew and skin and bone were interlaced there was formed a material blended of these three; and this when it was dried off became a single hard skin compounded of them all and whereas these were the auxiliary causes[145] whereby it was fashioned, it was wrought by the greatest of causes, divine Purpose, for the sake of what should come to pass hereafter. For those who were constructing us knew that out of men women should one day spring and all other animals[146]; and they understood, moreover, that many of these creatures would need for many purposes the help of nails; wherefore they impressed upon men at their very birth the rudimentary structure of finger-nails. Upon this account and with these designs they caused skin to grow into hair and nails upon the extremities of the limbs.

Tim.

And when all the limbs and parts of the mortal living creature had been naturally joined together, it was so that of necessity its life con-

[145] Cf. 68 E f.

[146] Cf. 90 E ff.

sisted in fire and air; and because of this it wasted away when dissolved by these elements or left empty thereby; wherefore the Gods contrived succour for the creature. Blending it with other shapes and senses they engendered a substance akin to that of man, so as to form another living creature: such are the cultivated trees and plants and seeds which have been trained by husbandry and are now domesticated amongst us; but formerly the wild kinds only existed, these being older than the cultivated kinds. For everything, in fact, which partakes of life may justly and with perfect truth be termed a living creature. Certainly that creature which we are now describing partakes of the third kind of soul, which is seated, as we affirm, between the midriff and the navel,[147] and which shares not at all in opinion and reasoning and mind but in sensation, pleasant and painful, together with desires. For inasmuch as it continues wholly passive and does not turn within itself around itself, repelling motion from without and using its own native motion, it is not endowed by its original constitution with a natural capacity for discerning or reflecting upon any of its own experiences. Wherefore it lives indeed and is not other than a living creature, but it remains stationary and rooted down owing to its being deprived of the power of self-movement. And when our Superiors had generated all these kinds as nutriment for us inferior beings, they channelled out our body itself, like as if they were cutting channels in gardens, to the end that it might be irrigated as it were by an inflowing stream. And firstly, beneath the junction of the skin and flesh they cut for hidden channels two veins[148] along the back, seeing that the body was in fact double, with right side and left; and these they drew down along by the spine, keeping between them the spermatic marrow, in order that this might thrive as much as possible, and that the stream of moisture from there, being in a downward course, might flow easily to the other parts and cause the irrigation to be uniform. After this they clave the veins round the head and interlaced them, and drew them opposite ways, bending those from the right of the head to the left and those from the left to the right, in order that they, together with the skin, might serve as a bond between the head and the body, seeing that the head was not encircled by sinews at the crown; and in order, also, that the sense-impressions derived from the parts on either side might be manifest to the whole body.

[147] Cf. 70 D ff., 72 E ff.

[148] i.e., the aorta and the vena cava. The distinction between veins and arteries was unknown in Plato's time.

Tim.

Thereupon they arranged the irrigation on some such plan as this—a plan which we shall perceive more easily when we have first agreed upon the following postulates. All bodies composed of smaller particles shut in the larger, but those composed of larger particles cannot shut in the smaller; and fire, because of all the elements it has the smallest particles,[149] passes through water and earth and air and all things composed thereof, and nothing can shut it in. We must conceive that the same law holds good of the action of our belly. Whenever foods and drinks flow into it it shuts them in, but air and fire, being of smaller particles than its own structure, it cannot shut in. These elements, therefore, God employed to provide irrigation from the belly to the veins, weaving out of air and fire a veil of mesh-work like unto a fish-weel, having two innerweels at its entrance; and one of these inner-weels He wove over again so as to make it bifurcated; and from the inner-weels He stretched as it were ropes all over it in a circle up to the extremities of the veil. Now the inward parts of the veil He constructed wholly of fire, but the inner-weels and the envelope of air; and taking this He placed it round about the living creature that was molded in the following manner. The part consisting of the inner-weels He let down into the mouth; and since this part was twofold, He let down one inner-weel by way of the windpipe into the lungs, and the other into the belly alongside the windpipe. And cleaving the former of these weels in two He gave to both sections a common outlet by way of the channels of the nose, so that when the first conduit by way of the mouth failed to act, its streams as well should be plenished from this. The rest of the enveloping mesh-work He made to grow round all the hollow part of our body; and He caused all this at one time to flow gently into the inner-weels, seeing they were of air, and at another time the weels to flow back into it. And inasmuch as the body was porous, He caused the veil to pass in through it and out again; and the inner rays of fire that were enclosed within it He made to follow the air as it moved in either direction; whence it comes that, so long as the mortal living creature preserves its structure, this process goes on unceasingly. And to this kind of process the Giver of Titles[150] gave, as we say, the names of "inspiration" and "expiration." And the whole of this mechanism and its effects have been created in order to secure

[149] Cf. 56 A, 58 A ff.

[150] A mythical figure, like Adam in Gen. 11. 19-20; Cf. *Cratyl.* 438-439.

nourishment and life for our body, by means of moistening and cooling.

Tim.

For as the respiration goes in and out the inward fire attached thereto follows it; and whenever in its constant oscillations this fire enters in through the belly and lays hold on the meats and drinks, it dissolves them, and dividing them into small particles it disperses them through the outlets by which it passes and draws them off to the veins, like water drawn into channels from a spring; and thus it causes the streams of the veins to flow through the body as through a pipe. Once again let us consider the process of respiration, and the causes in virtue of which it has come to be such as it now is. This, then, is the way of it. Inasmuch as no void exists[151] into which any of the moving bodies could enter, while the breath from us moves outwards, what follows is plain to everyone— namely, that the breath does not enter a void but pushes the adjacent body from its seat; and the body thus displaced drives out in turn the next; and by this law of necessity every such body is driven round towards the seat from which the breath went out and enters therein, filling it up and following the breath; and all this takes place as one simultaneous process, like a revolving wheel, because that no void exists. Wherefore the region of the chest and that of the lungs when they let out the breath become filled again by the air surrounding the body, which filters in through the porous flesh and circulates round. And again, when the air is repelled and passes out through the body it pushes the inspired air round and in by way of the passages of the mouth and of the nostrils. The originating cause of these processes we must assume to be this. Every living creature has its inward parts round the blood and the veins extremely hot, as it were a fount of fire residing within it; and this region we have, in fact, likened to the envelope of the fish-weel, saying that all that was extended at its middle was woven of fire, whereas all the other and outward parts were of air. Now we must agree that heat, by Nature's law, goes out into its own region to its kindred substance; and inasmuch as there are two outlets, the one out by way of the body, the other by way of the mouth and the nose, whenever the fire rushes in one direction it propels the air round to the other, and the air which is thus propelled round becomes heated by streaming into the fire, whereas the air which passes out becomes cooled. And as the heat changes its situation and the particles about the other outlet become hotter, the hotter body in its turn tends in that direction, and moving towards its own substance propels round

[151] Cf. 58 A.

the air which is at the former outlet; and thus the air, by continually undergoing and transmitting the same affections, causes inspiration and expiration to come about as a result of this double process, as it were a wheel that oscillates backwards and forwards.

Tim.

Moreover, we must trace out in this way the causes of the phenomena connected with medical cupping-glasses, and the causes of deglutition, and of projectiles, whether discharged aloft or flying over the surface of the earth; and the causes also of all the sounds[152] which because of their quickness or slowness seem shrill or deep, and the movement of which is at one time discordant because of the irregularity of the motion they cause within us, and at another time concordant because of its regularity. For the slower sounds overtake the motions of the earlier and quicker sounds when the latter begin to stop and have already fallen to a speed similar to that with which the slower sounds collide with them afterwards and move them; and when the slower overtake the quicker sounds they do not perturb them by imposing upon them a different motion, but they attach to them the beginning of a slower motion in accord with that which was quicker but is tending to cease; and thus from shrill and deep they blend one single sensation, furnishing pleasure thereby to the unintelligent, and to the intelligent that intellectual delight[153] which is caused by the imitation of the divine harmony[154] manifested in mortal motions. Furthermore, as regards all flowings of waters, and fallings of thunderbolts, and the marvels concerning the attraction of electron[155] and of the Heraclean stone[156]—not one of all these ever possesses any real power of attraction; but the fact that there is no void, and that these bodies propel themselves round one into another, and that according as they separate or unite they all exchange places and proceed severally each to its own region,—it is by means of these complex and reciprocal processes that such marvels are wrought, as will be evident to him who investigates them properly. Moreover, the process of respiration—with which our account commenced—came about, as we previously stated, in this manner and by these means. The fire divides the foods, and rises through the body

[152] Cf. 67 A ff.

[153] *εὐφροσύνη* (quasi *εὐφεροσύνη*), derived from *φέρω, φορά* (motion); Cf. *Cratyl.* 419 D. The two kinds of sound, quicker and slower, are supposed to be blended by the time they reach the ear.

[154] Cf. 47 C ff.

[155] i.e., amber.

[156] i.e., the loadstone or magnet; Cf. *Ion* 533 D.

following after the breath; and as it rises, with the breath it fills the veins from the belly by drawing into them from thence the divided particles. And it is owing to this that in all living creatures the streams of nutriment course in this way through the whole body. And inasmuch as these nutritive particles are freshly divided and derived from kindred substances,—some from fruits, and some from cereals, which God planted for us for the express purpose of serving as food,[157]—they get all varieties of colors because of their commingling, but red is the color that runs through them most of all, it being a natural product of the action of the fire in dividing the liquid food and imprinting itself thereon.[158]

Tim.

Wherefore the color of the stream which flows through the body acquired an appearance such as we have described; and this stream we call "blood," which is the nutriment of the flesh and of the whole body, each part drawing therefrom supplies of fluid and filling up the room of the evacuated matter. And the processes of filling and evacuating take place just as the motion of everything in the Universe takes place, namely, according to the law that every kindred substance moves towards its kind. For the bodies which surround us without are always dissolving us and sending off and distributing to each species of substance what is akin thereto; while the blood-particles, again, being minced up within us and surrounded by the structure of each creature as by a Heaven, are compelled to copy the motion of the whole; hence, when each of the particles that are divided up inside moves towards its kin, it fills up again the emptied place. And when what passes out is more than the inflow every creature decays, but when less, it increases. Now when the structure of the whole creature is new, inasmuch as the triangles which form its elements[159] are still fresh, and as it were straight from the stocks, it keeps them firmly interlocked one with another, and the whole mass of it is of a soft composition, seeing that it is newly produced from marrow and nourished on milk; and as the triangles contained therein, which have invaded it from without and go to form the meats and drinks, are older and weaker than its own, it divides and overcomes them with its own new triangles, and thus renders the creature large by feeding it on many similar substances. But when the root of the triangles[160] grows slack owing to their having fought

[157]Cf. 77 A.

[158]Cf. 68 B, C.

[159]Cf. 53 D ff.

many fights during long periods, they are no longer able to divide the entering triangles of the food and assimilate them to themselves, but are themselves easily divided by those which enter from without; and in this condition every animal is overpowered and decays; and this process is named "old age." And finally, when the bonds of the triangles in the marrow which have been fitly framed together no longer resist the strain but fall asunder, they let slip in turn the bonds of the soul, and it, when thus naturally set loose, flies out gladly; for whereas every process which is contrary to nature is painful, that which takes place naturally is pleasurable. So too, in like manner, the death which occurs in consequence of disease or by wounds is painful and violent, but that which follows on old age and constitutes a natural end is the least grievous of deaths and is accompanied by more of pleasure than of pain.

Tim.

The origin of disease is plain, of course, to everybody. For seeing that there are four elements of which the body is compacted,—earth, fire, water and air,—when, contrary to nature, there occurs either an excess or a deficiency of these elements, or a transference thereof from their native region to an alien region; or again, seeing that fire and the rest have each more than one variety, every time that the body admits an inappropriate variety, then these and all similar occurrences bring about internal disorders and disease. For when any one element suffers a change of condition that is contrary to nature, all its particles that formerly were being cooled become heated, and the dry presently become moist, and the light heavy, and they undergo every variety of change in every respect. For, as we maintain, it is only the addition or subtraction of the same substance from the same substance in the same order and in the same manner and in due proportion which will allow the latter to remain safe and sound in its sameness with itself. But whatsoever oversteps any of these conditions in its going out or its coming in will produce alterations of every variety and countless diseases and corruptions. Again, in the structures which are naturally secondary[161] in order of construction, there is a second class of diseases to be noted by him who has a mind to take cognizance of them. For inasmuch as marrow and bone and flesh and sinew are compacted from the elements,—and blood also is formed from the same constituents, although in a different way,— most of the other maladies come about

[160] i.e., the radical structure of the primary triangles; cf. 53 D ff.

[161] Cf. 41 D ff.

like those previously described, but the most severe of them have dangerous results for the reason following: whenever the production of these secondary substances proceeds in the reverse direction, then they are corrupted. For in the order of nature flesh and sinews arise from blood,[162] the sinew from the fibrine because of its kindred quality, and flesh from the coagulated substance which coagulates on its separation from the fibrine; and further, the substance which is derived from the sinews and flesh, being viscid and oily,[163] not only glues the flesh to the substance of the bones but also feeds and increases the bone itself which encloses the marrow, while that which is formed of the purest kind of triangles, very smooth and very oily, filters through the density of the bones, and, as it oozes and drips from the bones, moistens the marrow. Now when each of these substances is produced in this order, health as a rule results; but if in the reverse order, disease. For whenever the flesh is decomposed and sends its decomposed matter back again into the veins, then, uniting with the air, the blood in the veins, which is large in volume and of every variety, is diversified by colors and bitter flavors, as well as by sharp and saline properties, and contains bile and serum and phlegm of every sort.

Tim.

For when all the substances become reversed and corrupted, they begin by destroying the blood itself, and then they themselves cease to supply any nourishment to the body; for they move through the veins in all directions and no longer preserve the order of their natural revolutions, being at enmity with themselves because they have no enjoyment of themselves, and being at war also with the established and regular constitution of the body, which they corrupt and dissolve. Therefore all the oldest part of the flesh that is decomposed becomes tough and is blackened by the continued combustion; and because it is eaten away on every side it is bitter, and therefore dangerous in its attack on any part of the body that is not as yet corrupted. And at one time the black matter acquires a sharpness in place of its bitterness, when the bitter substance becomes more diluted; and at another time the bitter substance acquires a redder color through being dipped in blood, while if the black matter is blended with this it turns greenish; and again, whenever new flesh also is decomposed by the fire of the inflammation, a yellow matter is commingled with the bitter substance. To all these humors the general designation "bile" has been given,[164]

[162] Cf. 74 D.

[163] i.e., the synovial fluid.

either by certain physicians or by someone who was capable of surveying a number of dissimilar cases and discerning amongst them one single type[165] worthy to give its name to them all. All the rest that are counted as species of bile have gained their special descriptions in each case from their colors. Serum is of two kinds: one is the mild whey of the blood; the other, being derived from black and acid bile, is malignant whenever it is imbued with a saline quality through the action of heat; and this kind is termed "acid phlegm." Another kind involves air and is produced by dissolution from new and tender flesh. And when this is inflated and enclosed by a fluid, and when as a result of this process bubbles[166] are formed which individually are invisible because of their small size but in the aggregate form a mass which is visible, and which possess a color which appears white owing to the foam created,—then we describe all this decomposition of tender flesh intermixed with air as "white phlegm." And the whey of phlegm that is newly formed is "sweat" and "tears," and all other such humors as pour forth in the daily purgings of the body. And all these are factors in disease, whenever the blood is not replenished naturally from meats and drinks but receives its mass from opposite substances contrary to Nature's laws.

Tim.

Now, when the flesh in any part is being decomposed by disease, but the bases thereof still remain firm, the force of the attack is reduced by half, for it still admits of easy recovery; but whenever the substance which binds the flesh to the bones[167] becomes diseased and no longer separates itself at once from them and from the sinews, so as to provide food for the bone and to serve as a bond between flesh and bone, but becomes rough and saline instead of being oily and smooth and viscid, owing to its being starved by a bad regimen,—then, every such substance, as it undergoes these affections, molders away beneath the flesh and the sinews and withdraws from the bones; while the flesh falls away with it from the roots and leaves the sinews bare and full of saline matter, and by falling back itself into the stream of the blood it augments the maladies previously described. But although these bodily ailments are severe, still more grave are those which precede them, whenever the bone by reason of the density of the flesh fails to receive sufficient inspiration, and becoming heated because of its moldiness de-

[164] Cf. 71 B.
[165] Cf. 68 D.
[166] Cf. 66 B.
[167] Cf. 82 D.

cays and does not admit its nutriment, but, on the contrary, falls back itself, as it crumbles, into its nutriment which then passes into flesh, and this flesh falling into, the blood causes all such maladies to be more violent than those previously described. And the most extreme case of all occurs whenever the substance of the marrow becomes diseased either from deficiency or from excess; for this results in the gravest of diseases and the most potent in causing death, inasmuch as the whole substance of the body, by the force of necessity, streams in the reverse direction. A third class of diseases takes place, as we must conceive, in three ways, being due partly to air, partly to phlegm, and partly to bile. Whenever the lungs, which are the dispensers of air to the body, fail to keep their outlets clean through being blocked up with rheums, then the air, being unable to pass one way while entering by another way in more than its proper volume, causes the parts deprived of respiration to rot, but forces and distorts the vessels of the veins, and as it thus dissolves the body it is itself shut off within the center thereof which contains the midriff; and as a result of this countless diseases of a painful kind are produced, accompanied by much sweating. And often, when the flesh is disintegrated, air which is enclosed in the body and is unable to pass out brings about the same pangs as those caused by the air that enters from without; and these pangs are most severe when the air surrounds the sinews and the adjacent veins and by its swelling up strains backwards the tendons and the sinews attached to them; hence it is actually from this process of intense strain that these maladies have derived their names of "tetanus" and "opisthotonus."

Tim.

Of these maladies the cure also is severe for what does most to relieve them is, in fact, an attack of fever. White phlegm, also, is dangerous when it is blocked inside because of the air in its bubbles; but when it has air-vents outside the body it is milder, although it marks the body with spots by breeding white scabs and tetters and the maladies akin thereto. And when this phlegm is blended with black bile and spreads over the revolutions of the head, which are the most divine, and perturbs them, its action is more gentle during sleep, but when it attacks persons who are awake it is harder to shake off; and because it is a disease of the sacred substance it is most justly termed "the sacred disease."[168] Phlegm that is sharp and saline is the fount of all the maladies which are of the nature of catarrhs; and these have received all kinds of names because the regions into which they flow are of all

[168]i.e., epilepsy; Cf. *Laws*916 A.

varieties. All those diseases which are called inflammations, owing to the burning and inflaming of the body which they involve, are caused by bile. This, when it gains an external outlet, boils and sends up all kinds of eruptions; but when it is confined inside it produces many burning diseases; and of these the gravest occurs when the bile, being mixed with pure blood, displaces the matter of the fibrine from its proper position. For this fibrine is dispersed through the blood in order that the blood may have a due proportion of both rarity and density, and may neither flow out from the porous body through being liquefied by heat, nor yet prove immobile through its density and circulate with difficulty in the veins. Of these qualities the fibrine preserves the due amount owing to the nature of its formation.[169] Even when anyone collects together the fibrine of blood that is dead and in process of cooling, all the rest of the blood turns liquid; but if the fibrine is left alone as it is, it acts in combination with the surrounding cold and rapidly congeals the blood. As the fibrine, then, has this property, bile, which is naturally formed of old blood and dissolved again into blood from flesh, penetrates the blood gradually at first, while it is hot and moist, and is congealed by this property of the fibrine; and as it becomes congealed and forcibly chilled it causes internal cold and shivering.

Tim.

But when the bile flows in with more volume, it overpowers the fibrine by the heat it contains, and shakes it into disorder by its boiling up; and should it be capable of thus overpowering the fibrine continuously, it penetrates to the substance of the marrow and loosens from thence, by burning, the mooring-ropes of the soul,[170] as it were of a ship, and sets it free. But when the bile is in smaller quantity and the body resists dissolution, then the bile itself is overpowered, and either it is ejected over the whole surface of the body, or else it is forced through the veins into the lower or the upper belly, being ejected from the body like fugitives from a city in revolt; and it produces diarrhoea and dysentery and all suchlike maladies. When a body has become diseased mainly from an excess of fire, it produces constant inflammations and fevers; when from air, quotidian fevers; when from water, tertian fevers, because that element is more sluggish than air or fire; and when from earth, which is the fourth and most sluggish of the elements and is purged in four-fold periods of time,[171] it causes quartan fevers and is

[169] Cf. 82 D.

[170] Cf. 73 D, 81 D.

cured with difficulty. Such is the manner in which diseases of the body come about; and those of the soul which are due to the condition of the body arise in the following way. We must agree that folly is a disease of the soul[172]; and of folly there are two kinds, the one of which is madness, the other ignorance. Whatever affection a man suffers from, if it involves either of these conditions it must be termed "disease"; and we must maintain that pleasures and pains in excess are the greatest of the soul's diseases. For when a man is overjoyed or contrariwise suffering excessively from pain, being in haste to seize on the one and avoid the other beyond measure, he is unable either to see or to hear anything correctly, and he is at such a time distraught and wholly incapable of exercising reason. And whenever a man's seed grows to abundant volume in his marrow,[173] as it were a tree that is overladen beyond measure with fruit, he brings on himself time after time many pangs and many pleasures owing to his desires and the issue thereof, and comes to be in a state of madness for the most part of his life because of those greatest of pleasures and pains, and keeps his soul diseased and senseless by reason of the action of his body. Yet such a man is reputed to be voluntarily wicked and not diseased; although, in truth, this sexual incontinence, which is due for the most part to the abundance and fluidity of one substance because of the porosity of the bones, constitutes a disease of the soul. And indeed almost all those affections which are called by way of reproach "incontinence in pleasure," as though the wicked acted voluntarily, are wrongly so reproached; for no one is voluntarily wicked,[174] but the wicked man becomes wicked by reason of some evil condition of body and unskilled nurture, and these are experiences which are hateful to everyone and involuntary. And again, in respect of pains likewise the soul acquires much evil because of the body.

Tim.

For whenever the humors which arise from acid and saline phlegms, and all humors that are bitter and bilious wander through the body and find no external vent but are confined within, and mingle their vapor with the movement of the soul and are blended therewith, they implant diseases of the soul of all kinds, varying in intensity and in extent; and as these humors penetrate to the three regions[175] of the

[171] i.e., the fever recurs after an interval of two days.

[172] Cf. *Rep.* 571 D, *Soph.* 228 A, *Laws* 689 A ff.

[173] Cf. 73 C, 91 C.

[174] For this Socratic dictum Cf. *Protag.* 345 D ff., *Laws* 731 C ff.

[175] Cf. 73 D ff.

Soul, according to the region which they severally attack, they give rise to all varieties of bad temper and bad spirits, and they give rise to all manner of rashness and cowardice, and of forgetfulness also, as well as of stupidity. Furthermore, when, with men in such an evil condition, the political administration also is evil, and the speech in the cities, both public and private, is evil; and when, moreover, no lessons that would cure these evils are anywhere learnt from childhood,—thus it comes to pass that all of us who are wicked become wicked owing to two quite involuntary causes. And for these we must always blame the begetters more than the begotten, and the nurses more than the nurslings; yet each man must endeavor, as best he can, by means of nurture and by his pursuits and studies to flee the evil and to pursue the good. This, however, forms a separate subject of discussion. Again, it is reasonable and proper to set forth in turn the subject complementary to the foregoing, namely the remedial treatment of body and mind, and the causes which conserve this. For what is good merits description more than what is evil. All that is good is fair, and the fair is not void of due measure; wherefore also the living creature that is to be fair must be symmetrical. Of symmetries we distinguish and reason about such as are small, but of the most important and the greatest we have no rational comprehension. For with respect to health and disease, virtue and vice, there is no symmetry or want of symmetry greater than that which exists between the soul itself and the body itself. But as regards these, we wholly fail to perceive or reflect that, whenever a weaker and inferior type of body is the vehicle[176] of a soul that is strong and in all ways great,—or conversely, when each of these two is of the opposite kind,—then the creature as a whole is not fair, seeing that it is unsymmetrical in respect of the greatest of symmetries; whereas a creature in the opposite condition is of all sights, for him who has eyes to see, the fairest and most admirable. A body, for example, which is too long in the legs, or otherwise disproportioned owing to some excess, is not only ugly, but, when joint effort is required, it is also the source of much fatigue and many sprains and falls by reason of its clumsy motion, whereby it causes itself countless evils.

Tim.

So likewise we must conceive of that compound of soul and body which we call the "living creature." Whenever the soul within it is stronger than the body and is in a very passionate state, it shakes up the whole body from within and fills it with maladies; and whenever the soul

[176] Cf. 44 E, 69 C.

ardently pursues some study or investigation, it wastes the body; and again, when the soul engages, in public or in private, in teachings and battles of words carried on with controversy and contention, it makes the body inflamed and shakes it to pieces, and induces catarrhs; and thereby it deceives the majority of so-called physicians and makes them ascribe the malady to the wrong cause. And, on the other hand, when a large and overbearing body is united to a small and weak intellect, inasmuch as two desires naturally exist amongst men, —the desire of food for the body's sake, and the desire of wisdom for the sake of the most divine part we have,—the motions of the stronger part prevail and augment their own power, but they make that of the soul obtuse and dull of wit and forgetful, and thereby they produce within it that greatest of diseases, ignorance. From both these evils the one means of salvation is this—neither to exercise the soul without the body nor the body without the soul,[177] so that they may be evenly matched and sound of health. Thus the student of mathematics, or of any other subject, who works very hard with his intellect must also provide his body with exercise by practising gymnastics; while he who is diligent in molding his body must, in turn, provide his soul with motion by cultivating music[178] and philosophy in general, if either is to deserve to be called truly both fair and good. The various parts, likewise, must be treated in the same manner, in imitation of the form of the Universe. For as the body is inflamed or chilled within by the particles that enter it, and again is dried or moistened by those without, and suffers the affections consequent on both these motions, whenever a man delivers his body, in a state of rest, to these motions, it is overpowered and utterly perishes; whereas if a man imitates that which we have called the nurturer and nurse of the Universe,[179] and never, if possible, allows the body to be at rest but keeps it moving, and by continually producing internal vibrations defends it in nature's way against the inward and outward motions, and by means of moderate vibrations arranges the affections and particles which stray about in the body in their due reciprocal order,[180] according to their affinities,—as described in the previous account which we have given of the Universe—then he will not suffer foe set beside foe to breed war in the body and disease, but he will cause friend to be set beside friend so as to produce sound health.

[177] Cf. *Laws* 728 E.

[178] i.e., "music" in the wide sense of "mental culture."

[179] Cf. 49 A, 52 D.

[180] Cf. 33 A.

Tim.

Further, as concerns the motions, the best motion of a body is that caused by itself in itself; for this is most nearly akin to the motion of intelligence and the motion of the Universe. Motion due to the agency of another is less good; and the least good motion is that which is imparted to a body lying in a state of rest and which moves it piecemeal and by means of others. Wherefore the motion that is best for purgings and renovations of the body consists in gymnastic exercises; and second-best is the motion provided by swaying vehicles,[181] such as boats or any conveyances that produce no fatigue; while the third kind of motion, although useful for one who is absolutely driven to it, is by no means acceptable, under any other conditions, to a man of sense, it being the medical kind of purging by means of drugs. For no diseases which do not involve great danger ought to be irritated by drugging. For in its structure every disease resembles in some sort the nature of the living creature. For, in truth, the constitution of these creatures has prescribed periods of life for the species as a whole, and each individual creature likewise has a naturally predestined term of life, apart from the accidents due to necessity. For from the very beginning the triangles of each creature are constructed with a capacity for lasting until a certain time, beyond which no one could ever continue to live. With respect to the structure of diseases also the same rule holds good: whenever anyone does violence thereto by drugging, in despite of the predestined period of time, diseases many and grave, in place of few and slight, are wont to occur. Wherefore one ought to control all such diseases, so far as one has the time to spare, by means of dieting rather than irritate a fractious evil by drugging. Concerning both the composite living creature and the bodily part of it, how a man should both guide and be guided by himself so as to live a most rational life, let our statement stand thus. But first and with special care we must make ready the part which is to be the guide to the best of our power, so that it may be as fair and good as possible for the work of guidance. Now to expound this subject alone in accurate detail would in itself be a sufficient task.[182] But treating it merely as a side-issue, if we follow on the lines of our previous exposition, we may consider the matter and state our conclusions not inaptly in the following terms.

Tim.

[181] Cf. *Laws* 789 C.

[182] Education is the theme of *Rep.* vii. and *Laws* vii. and xii ad fin.

We have frequently asserted[183] that there are housed within us in three regions three kinds of soul, and that each of these has its own motions; so now likewise we must repeat, as briefly as possible, that the kind which remains in idleness and stays with its own motions; in repose necessarily becomes weakest, whereas the kind which exercises itself becomes strongest; wherefore care must be taken that they have their motions relatively to one another in due proportion. And as regards the most lordly kind of our soul, we must conceive of it in this wise: we declare that God has given to each of us, as his daemon,[184] that kind of soul which is housed in the top of our body and which raises us—seeing that we are not an earthly but a heavenly plant up from earth towards our kindred in the heaven. And herein we speak most truly; for it is by suspending our head and root from that region whence the substance of our soul first came that the Divine Power keeps upright our whole body. Whoso, then, indulges in lusts or in contentions and devotes himself overmuch thereto must of necessity be filled with opinions that are wholly mortal, and altogether, so far as it is possible to become mortal, fall not short of this in even a small degree, inasmuch as he has made great his mortal part. But he who has seriously devoted himself to learning and to true thoughts, and has exercised these qualities above all his others, must necessarily and inevitably think thoughts that are immortal and divine, if so be that he lays hold on truth, and in so far as it is possible for human nature to partake of immortality,[185] he must fall short thereof in no degree; and inasmuch as he is for ever tending his divine part and duly magnifying that daemon who dwells along with him, he must be supremely blessed.[186] And the way of tendance of every part by every man is one—namely, to supply each with its own congenial food and motion; and for the divine part within us the congenial motions are the intellections and revolutions of the Universe.[187] These each one of us should follow, rectifying the revolutions within our head, which were distorted at our birth, by learning the harmonies and revolutions of the Universe, and thereby making the part that thinks like unto the object of its thought, in accordance with its original nature, and having achieved this likeness attain finally to that goal of life which is set before men by the gods as the most good both for the present and for the time to come. And

[183]Cf. 69 D, 79 D, 87 A.

[184]i.e., genius or guardian-angel; Cf. *Laws*732 C, 877 A.

[185]Cf. *Sympos.* 212 A.

[186]Literally, with a good daemon (a play on δαίμωνand εὐδαίμων).

[187]Cf. 37 A ff.

now the task prescribed for us at the beginning to give a description of the Universe up to the production of mankind, would appear to be wellnigh completed. For as regards the mode in which the rest of living creatures have been produced we must make but a brief statement, seeing that there is no need to speak at length; for by such brevity we will feel ourselves to be preserving a right proportion in our handling of these subjects. Wherefore let this matter be treated as follows.

Tim.

According to the probable account, all those creatures generated as men who proved themselves cowardly and spent their lives in wrong-doing were transformed, at their second incarnation,[188] into women. And it was for this reason that the gods at that time contrived the love of sexual intercourse by constructing an animate creature of one kind in us men, and of another kind in women; and they made these severally in the following fashion. From the passage of egress for the drink, where it receives and joins in discharging the fluid which has come through the lungs beneath the kidneys into the bladder and has been compressed by the air, they bored a hole into the condensed marrow which comes from the head down by the neck and along the spine which marrow, in our previous account,[189] we termed "seed." And the marrow, inasmuch as it is animate and has been granted an outlet, has endowed the part where its outlet lies with a love for generating by implanting therein a lively desire for emission. Wherefore in men the nature of the genital organs is disobedient and self-willed, like a creature that is deaf to reason, and it attempts to dominate all because of its frenzied lusts. And in women again, owing to the same causes, whenever the matrix or womb, as it is called,—which is an indwelling creature desirous of child-bearing,—remains without fruit long beyond the due season, it is vexed and takes it ill; and by straying all ways through the body and blocking up the passages of the breath and preventing respiration it casts the body into the uttermost distress, and causes, moreover, all kinds of maladies; until the desire and love of the two sexes unite them. Then, culling as it were the fruit from trees, they sow upon the womb, as upon ploughed soil, animalcules that are invisible for smallness and unshapen; and these, again, they mold into shape and nourish to a great size within the body; after which they bring them forth into the light and thus complete the generation of the living creature. In this fashion, then, women and the whole female

[188] Cf. 41 D ff.

[189] Cf. 73 C, 86 C.

sex have come into existence. And the tribe of birds are derived by transformation, growing feathers in place of hair, from men who are harmless but light-minded[190]—men, too, who, being students of the worlds above, suppose in their simplicity that the most solid proofs about such matters are obtained by the sense of sight. And the wild species of animal that goes on foot is derived from those men who have paid no attention at all to philosophy nor studied at all the nature of the heavens, because they ceased to make use of the revolutions within the head and followed the lead of those parts of the soul which are in the breast.[191]

Tim.

Owing to these practices they have dragged their front limbs and their head down to the earth, and there planted them, because of their kinship therewith; and they have acquired elongated heads of every shape, according as their several revolutions have been distorted by disuse. On this account also their race was made four-footed and many-footed, since God set more supports under the more foolish ones, so that they might be dragged down still more to the earth. And inasmuch as there was no longer any need of feet for the most foolish of these same creatures, which stretched with their whole body along the earth, the gods generated these footless and wriggling upon the earth. And the fourth kind, which lives in the water, came from the most utterly thoughtless and stupid of men, whom those that remolded them deemed no longer worthy even of pure respiration, seeing that they were unclean of soul through utter wickedness; wherefore in place of air, for refined and pure respiring, they thrust them into water, there to respire its turbid depths. Thence have come into being the tribe of fishes and of shellfish and all creatures of the waters, which have for their portion the extremest of all abodes in requital for the extremity of their witlessness. Thus, both then and now, living creatures keep passing into one another in all these ways, as they undergo transformation by the loss or by the gain of reason and unreason. And now at length we may say that our discourse concerning the Universe has reached its termination. For this our Cosmos has received the living creatures both mortal and immortal and been thereby fulfilled; it being itself a visible Living Creature embracing the visible creatures, a perceptible God made in the image of the Intelligible, most great and good and fair and perfect in its generation—even this one Heaven sole of its kind.[192]

[190] Cf. *Rep.* 529 A ff.

[191] Cf. 69 E ff.

[192]Cf. 30 C ff., 31 B.

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