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TIMAEUS

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Содержание

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INTRODUCTION AND ANALYSIS

Of all the writings of Plato the Timaeus is the most obscure and repulsive to the modern reader, and has nevertheless had the greatest influence over the ancient and mediaeval world. The obscurity arises in the infancy of physical science, out of the confusion of theological, mathematical, and physiological notions, out of the desire to conceive the whole of nature without any adequate knowledge of the parts, and from a greater perception of similarities which lie on the surface than of differences which are hidden from view. To bring sense under the control of reason; to find some way through the mist or labyrinth of appearances, either the highway of mathematics, or more devious paths suggested by the analogy of man with the world, and of the world with man; to see that all things have a cause and are tending towards an end – this is the spirit of the ancient physical philosopher. He has no notion of trying an experiment and is hardly capable of observing the curiosities of nature which are 'tumbling out at his feet,' or of interpreting even the most obvious of them. He is driven back from the nearer to the more distant, from particulars to generalities, from the earth to the stars. He lifts up his eyes to the heavens and seeks to guide by their motions his erring footsteps. But we neither appreciate the conditions of knowledge to which he was subjected, nor have the ideas which fastened upon his imagination the same hold upon us. For he is hanging between matter and mind; he is under the dominion at the same time both of sense and of abstractions; his impressions are taken almost at random from the outside of nature; he sees the light, but not the objects which are revealed by the light; and he brings into juxtaposition things which to us appear wide as the poles asunder, because he finds nothing between them. He passes abruptly from persons to ideas and numbers, and from ideas and numbers to persons, – from the heavens to man, from astronomy to physiology; he confuses, or rather does not distinguish, subject and object, first and final causes, and is dreaming of geometrical figures lost in a flux of sense. He contrasts the perfect movements of the heavenly bodies with the imperfect representation of them (Rep.), and he does not always require strict accuracy even in applications of number and figure (Rep.). His mind lingers around the forms of mythology, which he uses as symbols or translates into figures of speech. He has no implements of observation, such as the telescope or microscope; the great science of chemistry is a blank to him. It is only by an effort that the modern thinker can breathe the atmosphere of the ancient philosopher, or understand how, under such unequal conditions, he seems in many instances, by a sort of inspiration, to have anticipated the truth.

The influence with the Timaeus has exercised upon posterity is due partly to a misunderstanding. In the supposed depths of this dialogue the Neo-Platonists found hidden meanings and connections with the Jewish and Christian Scriptures, and out of them they elicited doctrines quite at variance with the spirit of Plato. Believing that he was inspired by the Holy Ghost, or had received his wisdom from Moses, they seemed to find in his writings the Christian Trinity, the Word, the Church, the creation of the world in a Jewish sense, as they really found the personality of God or of mind, and the immortality of the soul. All religions and philosophies met and mingled in the schools of Alexandria, and the Neo-Platonists had a method of interpretation which could elicit any meaning out of any words. They were really incapable of distinguishing between the opinions of one philosopher and another – between Aristotle and Plato, or between the serious thoughts of Plato and his passing fancies. They were absorbed in his theology and were under the dominion of his name, while that which was truly great and truly characteristic in him, his effort to realize and connect abstractions, was not understood by them at all. Yet the genius of Plato and Greek philosophy reacted

upon the East, and a Greek element of thought and language overlaid and partly reduced to order the chaos of Orientalism. And kindred spirits, like St. Augustine, even though they were acquainted with his writings only through the medium of a Latin translation, were profoundly affected by them, seeming to find 'God and his word everywhere insinuated' in them (August. Confess.)

There is no danger of the modern commentators on the Timaeus falling into the absurdities of the Neo-Platonists. In the present day we are well aware that an ancient philosopher is to be interpreted from himself and by the contemporary history of thought. We know that mysticism is not criticism. The fancies of the Neo-Platonists are only interesting to us because they exhibit a phase of the human mind which prevailed widely in the first centuries of the Christian era, and is not wholly extinct in our own day. But they have nothing to do with the interpretation of Plato, and in spirit they are opposed to him. They are the feeble expression of an age which has lost the power not only of creating great works, but of understanding them. They are the spurious birth of a marriage between philosophy and tradition, between Hellas and the East – (Greek) (Rep.). Whereas the so-called mysticism of Plato is purely Greek, arising out of his imperfect knowledge and high aspirations, and is the growth of an age in which philosophy is not wholly separated from poetry and mythology.

A greater danger with modern interpreters of Plato is the tendency to regard the Timaeus as the centre of his system. We do not know how Plato would have arranged his own dialogues, or whether the thought of arranging any of them, besides the two 'Trilogies' which he has expressly connected; was ever present to his mind. But, if he had arranged them, there are many indications that this is not the place which he would have assigned to the Timaeus. We observe, first of all, that the dialogue is put into the mouth of a Pythagorean philosopher, and not of Socrates. And this is required by dramatic propriety; for the investigation of nature was expressly renounced by Socrates in the Phaedo. Nor does Plato himself attribute any importance to his guesses at science. He is not at all absorbed by them, as he is by the IDEA of good. He is modest and hesitating, and confesses that his words partake of the uncertainty of the subject (Tim.). The dialogue is primarily concerned with the animal creation, including under this term the heavenly bodies, and with man only as one among the animals. But we can hardly suppose that Plato would have preferred the study of nature to man, or that he would have deemed the formation of the world and the human frame to have the same interest which he ascribes to the mystery of being and not-being, or to the great political problems which he discusses in the Republic and the Laws. There are no speculations on physics in the other dialogues of Plato, and he himself regards the consideration of them as a rational pastime only. He is beginning to feel the need of further divisions of knowledge; and is becoming aware that besides dialectic, mathematics, and the arts, there is another field which has been hitherto unexplored by him. But he has not as yet defined this intermediate territory which lies somewhere between medicine and mathematics, and he would have felt that there was as great an impiety in ranking theories of physics first in the order of knowledge, as in placing the body before the soul.

It is true, however, that the Timaeus is by no means confined to speculations on physics. The deeper foundations of the Platonic philosophy, such as the nature of God, the distinction of the sensible and intellectual, the great original conceptions of time and space, also appear in it. They are found principally in the first half of the dialogue. The construction of the heavens is for the most part ideal; the cyclic year serves as the connection between the world of absolute being and of generation, just as the number of population in the Republic is the expression or symbol of the transition from the ideal to the actual state. In some passages we are uncertain whether we are reading a description of astronomical facts or contemplating processes of the human mind, or of that divine mind (Phil.) which in Plato is hardly separable from it. The characteristics of man are transferred to the world-animal, as for example when intelligence and knowledge are said to be perfected by the circle of the Same, and true opinion by the circle of the Other; and conversely the motions of the world-animal reappear in man; its amorphous state continues in the child, and in both disorder and chaos are gradually succeeded by stability and order. It is not however to passages like these that Plato is

referring when he speaks of the uncertainty of his subject, but rather to the composition of bodies, to the relations of colours, the nature of diseases, and the like, about which he truly feels the lamentable ignorance prevailing in his own age.

We are led by Plato himself to regard the Timaeus, not as the centre or inmost shrine of the edifice, but as a detached building in a different style, framed, not after the Socratic, but after some Pythagorean model. As in the Cratylus and Parmenides, we are uncertain whether Plato is expressing his own opinions, or appropriating and perhaps improving the philosophical speculations of others. In all three dialogues he is exerting his dramatic and imitative power; in the Cratylus mingling a satirical and humorous purpose with true principles of language; in the Parmenides overthrowing Megarianism by a sort of ultra-Megarianism, which discovers contradictions in the one as great as those which have been previously shown to exist in the ideas. There is a similar uncertainty about the Timaeus; in the first part he scales the heights of transcendentalism, in the latter part he treats in a bald and superficial manner of the functions and diseases of the human frame. He uses the thoughts and almost the words of Parmenides when he discourses of being and of essence, adopting from old religion into philosophy the conception of God, and from the Megarians the IDEA of good. He agrees with Empedocles and the Atomists in attributing the greater differences of kinds to the figures of the elements and their movements into and out of one another. With Heracleitus, he acknowledges the perpetual flux; like Anaxagoras, he asserts the predominance of mind, although admitting an element of necessity which reason is incapable of subduing; like the Pythagoreans he supposes the mystery of the world to be contained in number. Many, if not all the elements of the Pre-Socratic philosophy are included in the Timaeus. It is a composite or eclectic work of imagination, in which Plato, without naming them, gathers up into a kind of system the various elements of philosophy which preceded him.

If we allow for the difference of subject, and for some growth in Plato's own mind, the discrepancy between the Timaeus and the other dialogues will not appear to be great. It is probable that the relation of the ideas to God or of God to the world was differently conceived by him at different times of his life. In all his later dialogues we observe a tendency in him to personify mind or God, and he therefore naturally inclines to view creation as the work of design. The creator is like a human artist who frames in his mind a plan which he executes by the help of his servants. Thus the language of philosophy which speaks of first and second causes is crossed by another sort of phraseology: 'God made the world because he was good, and the demons ministered to him.' The Timaeus is cast in a more theological and less philosophical mould than the other dialogues, but the same general spirit is apparent; there is the same dualism or opposition between the ideal and actual – the soul is prior to the body, the intelligible and unseen to the visible and corporeal. There is the same distinction between knowledge and opinion which occurs in the Theaetetus and Republic, the same enmity to the poets, the same combination of music and gymnastics. The doctrine of transmigration is still held by him, as in the Phaedrus and Republic; and the soul has a view of the heavens in a prior state of being. The ideas also remain, but they have become types in nature, forms of men, animals, birds, fishes. And the attribution of evil to physical causes accords with the doctrine which he maintains in the Laws respecting the involuntariness of vice.

The style and plan of the Timaeus differ greatly from that of any other of the Platonic dialogues. The language is weighty, abrupt, and in some passages sublime. But Plato has not the same mastery over his instrument which he exhibits in the Phaedrus or Symposium. Nothing can exceed the beauty or art of the introduction, in which he is using words after his accustomed manner. But in the rest of the work the power of language seems to fail him, and the dramatic form is wholly given up. He could write in one style, but not in another, and the Greek language had not as yet been fashioned by any poet or philosopher to describe physical phenomena. The early physiologists had generally written in verse; the prose writers, like Democritus and Anaxagoras, as far as we can judge from their fragments, never attained to a periodic style. And hence we find the same sort of clumsiness in the Timaeus of

Plato which characterizes the philosophical poem of Lucretius. There is a want of flow and often a defect of rhythm; the meaning is sometimes obscure, and there is a greater use of apposition and more of repetition than occurs in Plato's earlier writings. The sentences are less closely connected and also more involved; the antecedents of demonstrative and relative pronouns are in some cases remote and perplexing. The greater frequency of participles and of absolute constructions gives the effect of heaviness. The descriptive portion of the Timaeus retains traces of the first Greek prose composition; for the great master of language was speaking on a theme with which he was imperfectly acquainted, and had no words in which to express his meaning. The rugged grandeur of the opening discourse of Timaeus may be compared with the more harmonious beauty of a similar passage in the Phaedrus.

To the same cause we may attribute the want of plan. Plato had not the command of his materials which would have enabled him to produce a perfect work of art. Hence there are several new beginnings and resumptions and formal or artificial connections; we miss the 'callida junctura' of the earlier dialogues. His speculations about the Eternal, his theories of creation, his mathematical anticipations, are supplemented by desultory remarks on the one immortal and the two mortal souls of man, on the functions of the bodily organs in health and disease, on sight, hearing, smell, taste, and touch. He soars into the heavens, and then, as if his wings were suddenly clipped, he walks ungracefully and with difficulty upon the earth. The greatest things in the world, and the least things in man, are brought within the compass of a short treatise. But the intermediate links are missing, and we cannot be surprised that there should be a want of unity in a work which embraces astronomy, theology, physiology, and natural philosophy in a few pages.

It is not easy to determine how Plato's cosmos may be presented to the reader in a clearer and shorter form; or how we may supply a thread of connexion to his ideas without giving greater consistency to them than they possessed in his mind, or adding on consequences which would never have occurred to him. For he has glimpses of the truth, but no comprehensive or perfect vision. There are isolated expressions about the nature of God which have a wonderful depth and power; but we are not justified in assuming that these had any greater significance to the mind of Plato than language of a neutral and impersonal character… With a view to the illustration of the Timaeus I propose to divide this Introduction into sections, of which the first will contain an outline of the dialogue: (2) I shall consider the aspects of nature which presented themselves to Plato and his age, and the elements of philosophy which entered into the conception of them: (3) the theology and physics of the Timaeus, including the soul of the world, the conception of time and space, and the composition of the elements: (4) in the fourth section I shall consider the Platonic astronomy, and the position of the earth. There will remain, (5) the psychology, (6) the physiology of Plato, and (7) his analysis of the senses to be briefly commented upon: (8) lastly, we may examine in what points Plato approaches or anticipates the discoveries of modern science.

Section 1

Socrates begins the Timaeus with a summary of the Republic. He lightly touches upon a few points, – the division of labour and distribution of the citizens into classes, the double nature and training of the guardians, the community of property and of women and children. But he makes no mention of the second education, or of the government of philosophers.

And now he desires to see the ideal State set in motion; he would like to know how she behaved in some great struggle. But he is unable to invent such a narrative himself; and he is afraid that the poets are equally incapable; for, although he pretends to have nothing to say against them, he remarks that they are a tribe of imitators, who can only describe what they have seen. And he fears that the Sophists, who are plentifully supplied with graces of speech, in their erratic way of life having never had a city or house of their own, may through want of experience err in their conception of philosophers and statesmen. 'And therefore to you I turn, Timaeus, citizen of Locris, who are at once a philosopher and a statesman, and to you, Critias, whom all Athenians know to be similarly accomplished, and to Hermocrates, who is also fitted by nature and education to share in our discourse.'

HERMOCRATES: 'We will do our best, and have been already preparing; for on our way home, Critias told us of an ancient tradition, which I wish, Critias, that you would repeat to Socrates.' 'I will, if Timaeus approves.' 'I approve.' Listen then, Socrates, to a tale of Solon's, who, being the friend of Dropidas my great-grandfather, told it to my grandfather Critias, and he told me. The narrative related to ancient famous actions of the Athenian people, and to one especially, which I will rehearse in honour of you and of the goddess. Critias when he told this tale of the olden time, was ninety years old, I being not more than ten. The occasion of the rehearsal was the day of the Apaturia called the Registration of Youth, at which our parents gave prizes for recitation. Some poems of Solon were recited by the boys. They had not at that time gone out of fashion, and the recital of them led some one to say, perhaps in compliment to Critias, that Solon was not only the wisest of men but also the best of poets. The old man brightened up at hearing this, and said: Had Solon only had the leisure which was required to complete the famous legend which he brought with him from Egypt he would have been as distinguished as Homer and Hesiod. 'And what was the subject of the poem?' said the person who made the remark. The subject was a very noble one; he described the most famous action in which the Athenian people were ever engaged. But the memory of their exploits has passed away owing to the lapse of time and the extinction of the actors. 'Tell us,' said the other, 'the whole story, and where Solon heard the story.' He replied – There is at the head of the Egyptian Delta, where the river Nile divides, a city and district called Sais; the city was the birthplace of King Amasis, and is under the protection of the goddess Neith or Athene. The citizens have a friendly feeling towards the Athenians, believing themselves to be related to them. Hither came Solon, and was received with honour; and here he first learnt, by conversing with the Egyptian priests, how ignorant he and his countrymen were of antiquity. Perceiving this, and with the view of eliciting information from them, he told them the tales of Phoroneus and Niobe, and also of Deucalion and Pyrrha, and he endeavoured to count the generations which had since passed. Thereupon an aged priest said to him: 'O Solon, Solon, you Hellenes are ever young, and there is no old man who is a Hellene.' 'What do you mean?' he asked. 'In mind,' replied the priest, 'I mean to say that you are children; there is no opinion or tradition of knowledge among you which is white with age; and I will tell you why. Like the rest of mankind you have suffered from convulsions of nature, which are chiefly brought about by the two great agencies of fire and water. The former is symbolized in the Hellenic tale of young Phaethon who drove his father's horses the wrong way, and having burnt up the earth was himself burnt up by a thunderbolt. For there occurs at long intervals a derangement of the heavenly bodies, and then the earth is destroyed by fire. At such times, and when fire is the agent, those who dwell by rivers or on

the seashore are safer than those who dwell upon high and dry places, who in their turn are safer when the danger is from water. Now the Nile is our saviour from fire, and as there is little rain in Egypt, we are not harmed by water; whereas in other countries, when a deluge comes, the inhabitants are swept by the rivers into the sea. The memorials which your own and other nations have once had of the famous actions of mankind perish in the waters at certain periods; and the rude survivors in the mountains begin again, knowing nothing of the world before the flood. But in Egypt the traditions of our own and other lands are by us registered for ever in our temples. The genealogies which you have recited to us out of your own annals, Solon, are a mere children's story. For in the first place, you remember one deluge only, and there were many of them, and you know nothing of that fairest and noblest race of which you are a seed or remnant. The memory of them was lost, because there was no written voice among you. For in the times before the great flood Athens was the greatest and best of cities and did the noblest deeds and had the best constitution of any under the face of heaven.' Solon marvelled, and desired to be informed of the particulars. 'You are welcome to hear them,' said the priest, 'both for your own sake and for that of the city, and above all for the sake of the goddess who is the common foundress of both our cities. Nine thousand years have elapsed since she founded yours, and eight thousand since she founded ours, as our annals record. Many laws exist among us which are the counterpart of yours as they were in the olden time. I will briefly describe them to you, and you shall read the account of them at your leisure in the sacred registers. In the first place, there was a caste of priests among the ancient Athenians, and another of artisans; also castes of shepherds, hunters, and husbandmen, and lastly of warriors, who, like the warriors of Egypt, were separated from the rest, and carried shields and spears, a custom which the goddess first taught you, and then the Asiatics, and we among Asiatics first received from her. Observe again, what care the law took in the pursuit of wisdom, searching out the deep things of the world, and applying them to the use of man. The spot of earth which the goddess chose had the best of climates, and produced the wisest men; in no other was she herself, the philosopher and warrior goddess, so likely to have votaries. And there you dwelt as became the children of the gods, excelling all men in virtue, and many famous actions are recorded of you. The most famous of them all was the overthrow of the island of Atlantis. This great island lay over against the Pillars of Heracles, in extent greater than Libya and Asia put together, and was the passage to other islands and to a great ocean of which the Mediterranean sea was only the harbour; and within the Pillars the empire of Atlantis reached in Europe to Tyrrhenia and in Libya to Egypt. This mighty power was arrayed against Egypt and Hellas and all the countries bordering on the Mediterranean. Then your city did bravely, and won renown over the whole earth. For at the peril of her own existence, and when the other Hellenes had deserted her, she repelled the invader, and of her own accord gave liberty to all the nations within the Pillars. A little while afterwards there were great earthquakes and floods, and your warrior race all sank into the earth; and the great island of Atlantis also disappeared in the sea. This is the explanation of the shallows which are found in that part of the Atlantic ocean.'

Such was the tale, Socrates, which Critias heard from Solon; and I noticed when listening to you yesterday, how close the resemblance was between your city and citizens and the ancient Athenian State. But I would not speak at the time, because I wanted to refresh my memory. I had heard the old man when I was a child, and though I could not remember the whole of our yesterday's discourse, I was able to recall every word of this, which is branded into my mind; and I am prepared, Socrates, to rehearse to you the entire narrative. The imaginary State which you were describing may be identified with the reality of Solon, and our antediluvian ancestors may be your citizens. 'That is excellent, Critias, and very appropriate to a Panathenaic festival; the truth of the story is a great advantage.' Then now let me explain to you the order of our entertainment; first, Timaeus, who is a natural philosopher, will speak of the origin of the world, going down to the creation of man, and then I shall receive the men whom he has created, and some of whom will have been educated by you, and introduce them to you as the lost Athenian citizens of whom the Egyptian record spoke. As the law of Solon prescribes,

we will bring them into court and acknowledge their claims to citizenship. 'I see,' replied Socrates, 'that I shall be well entertained; and do you, Timaeus, offer up a prayer and begin.'

TIMAEUS: All men who have any right feeling, at the beginning of any enterprise, call upon the Gods; and he who is about to speak of the origin of the universe has a special need of their aid. May my words be acceptable to them, and may I speak in the manner which will be most intelligible to you and will best express my own meaning!

First, I must distinguish between that which always is and never becomes and which is apprehended by reason and reflection, and that which always becomes and never is and is conceived by opinion with the help of sense. All that becomes and is created is the work of a cause, and that is fair which the artificer makes after an eternal pattern, but whatever is fashioned after a created pattern is not fair. Is the world created or uncreated? – that is the first question. Created, I reply, being visible and tangible and having a body, and therefore sensible; and if sensible, then created; and if created, made by a cause, and the cause is the ineffable father of all things, who had before him an eternal archetype. For to imagine that the archetype was created would be blasphemy, seeing that the world is the noblest of creations, and God is the best of causes. And the world being thus created according to the eternal pattern is the copy of something; and we may assume that words are akin to the matter of which they speak. What is spoken of the unchanging or intelligible must be certain and true; but what is spoken of the created image can only be probable; being is to becoming what truth is to belief. And amid the variety of opinions which have arisen about God and the nature of the world we must be content to take probability for our rule, considering that I, who am the speaker, and you, who are the judges, are only men; to probability we may attain but no further.

SOCRATES: Excellent, Timaeus, I like your manner of approaching the subject – proceed.

TIMAEUS: Why did the Creator make the world?..He was good, and therefore not jealous, and being free from jealousy he desired that all things should be like himself. Wherefore he set in order the visible world, which he found in disorder. Now he who is the best could only create the fairest; and reflecting that of visible things the intelligent is superior to the unintelligent, he put intelligence in soul and soul in body, and framed the universe to be the best and fairest work in the order of nature, and the world became a living soul through the providence of God.

In the likeness of what animal was the world made? – that is the third question…The form of the perfect animal was a whole, and contained all intelligible beings, and the visible animal, made after the pattern of this, included all visible creatures.

Are there many worlds or one only? – that is the fourth question…One only. For if in the original there had been more than one they would have been the parts of a third, which would have been the true pattern of the world; and therefore there is, and will ever be, but one created world. Now that which is created is of necessity corporeal and visible and tangible, – visible and therefore made of fire, – tangible and therefore solid and made of earth. But two terms must be united by a third, which is a mean between them; and had the earth been a surface only, one mean would have sufficed, but two means are required to unite solid bodies. And as the world was composed of solids, between the elements of fire and earth God placed two other elements of air and water, and arranged them in a continuous proportion —

fire: air::air: water, and air: water::water: earth, and so put together a visible and palpable heaven, having harmony and friendship in the union of the four elements; and being at unity with itself it was indissoluble except by the hand of the framer. Each of the elements was taken into the universe whole and entire; for he considered that the animal should be perfect and one, leaving no remnants out of which another animal could be created, and should also be free from old age and disease, which are produced by the action of external forces. And as he was to contain all things, he was made in the all-containing form of a sphere, round as from a lathe and every way equidistant from the centre, as was natural and suitable to him. He was finished and smooth, having neither eyes nor ears, for there was nothing without him which he could see or hear; and he had no need to carry

food to his mouth, nor was there air for him to breathe; and he did not require hands, for there was nothing of which he could take hold, nor feet, with which to walk. All that he did was done rationally in and by himself, and he moved in a circle turning within himself, which is the most intellectual of motions; but the other six motions were wanting to him; wherefore the universe had no feet or legs.

And so the thought of God made a God in the image of a perfect body, having intercourse with himself and needing no other, but in every part harmonious and self-contained and truly blessed. The soul was first made by him – the elder to rule the younger; not in the order in which our wayward fancy has led us to describe them, but the soul first and afterwards the body. God took of the unchangeable and indivisible and also of the divisible and corporeal, and out of the two he made a third nature, essence, which was in a mean between them, and partook of the same and the other, the intractable nature of the other being compressed into the same. Having made a compound of all the three, he proceeded to divide the entire mass into portions related to one another in the ratios of 1, 2, 3, 4, 9, 8, 27, and proceeded to fill up the double and triple intervals thus —

– over 1, 4/3, 3/2, – over 2, 8/3, 3, – over 4, 16/3, 6, – over 8:
– over 1, 3/2, 2, – over 3, 9/2, 6, – over 9, 27/2, 18, – over 27;

in which double series of numbers are two kinds of means; the one exceeds and is exceeded by equal parts of the extremes, e.g. 1, 4/3, 2; the other kind of mean is one which is equidistant from the extremes – 2, 4, 6. In this manner there were formed intervals of thirds, 3:2, of fourths, 4:3, and of ninths, 9:8. And next he filled up the intervals of a fourth with ninths, leaving a remnant which is in the ratio of 256:243. The entire compound was divided by him lengthways into two parts, which he united at the centre like the letter X, and bent into an inner and outer circle or sphere, cutting one another again at a point over against the point at which they cross. The outer circle or sphere was named the sphere of the same – the inner, the sphere of the other or diverse; and the one revolved horizontally to the right, the other diagonally to the left. To the sphere of the same which was undivided he gave dominion, but the sphere of the other or diverse was distributed into seven unequal orbits, having intervals in ratios of twos and threes, three of either sort, and he bade the orbits move in opposite directions to one another – three of them, the Sun, Mercury, Venus, with equal swiftness, and the remaining four – the Moon, Saturn, Mars, Jupiter, with unequal swiftness to the three and to one another, but all in due proportion.

When the Creator had made the soul he made the body within her; and the soul interfused everywhere from the centre to the circumference of heaven, herself turning in herself, began a divine life of rational and everlasting motion. The body of heaven is visible, but the soul is invisible, and partakes of reason and harmony, and is the best of creations, being the work of the best. And being composed of the same, the other, and the essence, these three, and also divided and bound in harmonical proportion, and revolving within herself – the soul when touching anything which has essence, whether divided or undivided, is stirred to utter the sameness or diversity of that and some other thing, and to tell how and when and where individuals are affected or related, whether in the world of change or of essence. When reason is in the neighbourhood of sense, and the circle of the other or diverse is moving truly, then arise true opinions and beliefs; when reason is in the sphere of thought, and the circle of the same runs smoothly, then intelligence is perfected.

When the Father who begat the world saw the image which he had made of the Eternal Gods moving and living, he rejoiced; and in his joy resolved, since the archetype was eternal, to make the creature eternal as far as this was possible. Wherefore he made an image of eternity which is time, having an uniform motion according to number, parted into months and days and years, and also having greater divisions of past, present, and future. These all apply to becoming in time, and have no meaning in relation to the eternal nature, which ever is and never was or will be; for the unchangeable is never older or younger, and when we say that he 'was' or 'will be,' we are mistaken, for these words are applicable only to becoming, and not to true being; and equally wrong are we

in saying that what has become IS become and that what becomes IS becoming, and that the non-existent IS non-existent…These are the forms of time which imitate eternity and move in a circle measured by number.

Thus was time made in the image of the eternal nature; and it was created together with the heavens, in order that if they were dissolved, it might perish with them. And God made the sun and moon and five other wanderers, as they are called, seven in all, and to each of them he gave a body moving in an orbit, being one of the seven orbits into which the circle of the other was divided. He put the moon in the orbit which was nearest to the earth, the sun in that next, the morning star and Mercury in the orbits which move opposite to the sun but with equal swiftness – this being the reason why they overtake and are overtaken by one another. All these bodies became living creatures, and learnt their appointed tasks, and began to move, the nearer more swiftly, the remoter more slowly, according to the diagonal movement of the other. And since this was controlled by the movement of the same, the seven planets in their courses appeared to describe spirals; and that appeared fastest which was slowest, and that which overtook others appeared to be overtaken by them. And God lighted a fire in the second orbit from the earth which is called the sun, to give light over the whole heaven, and to teach intelligent beings that knowledge of number which is derived from the revolution of the same. Thus arose day and night, which are the periods of the most intelligent nature; a month is created by the revolution of the moon, a year by that of the sun. Other periods of wonderful length and complexity are not observed by men in general; there is moreover a cycle or perfect year at the completion of which they all meet and coincide…To this end the stars came into being, that the created heaven might imitate the eternal nature.

Thus far the universal animal was made in the divine image, but the other animals were not as yet included in him. And God created them according to the patterns or species of them which existed in the divine original. There are four of them: one of gods, another of birds, a third of fishes, and a fourth of animals. The gods were made in the form of a circle, which is the most perfect figure and the figure of the universe. They were created chiefly of fire, that they might be bright, and were made to know and follow the best, and to be scattered over the heavens, of which they were to be the glory. Two kinds of motion were assigned to them – first, the revolution in the same and around the same, in peaceful unchanging thought of the same; and to this was added a forward motion which was under the control of the same. Thus then the fixed stars were created, being divine and eternal animals, revolving on the same spot, and the wandering stars, in their courses, were created in the manner already described. The earth, which is our nurse, clinging around the pole extended through the universe, he made to be the guardian and artificer of night and day, first and eldest of gods that are in the interior of heaven. Vain would be the labour of telling all the figures of them, moving as in dance, and their juxta-positions and approximations, and when and where and behind what other stars they appear to disappear – to tell of all this without looking at a plan of them would be labour in vain.

The knowledge of the other gods is beyond us, and we can only accept the traditions of the ancients, who were the children of the gods, as they said; for surely they must have known their own ancestors. Although they give no proof, we must believe them as is customary. They tell us that Oceanus and Tethys were the children of Earth and Heaven; that Phoreys, Cronos, and Rhea came in the next generation, and were followed by Zeus and Here, whose brothers and children are known to everybody.

When all of them, both those who show themselves in the sky, and those who retire from view, had come into being, the Creator addressed them thus: – 'Gods, sons of gods, my works, if I will, are indissoluble. That which is bound may be dissolved, but only an evil being would dissolve that which is harmonious and happy. And although you are not immortal you shall not die, for I will hold you together. Hear me, then: – Three tribes of mortal beings have still to be created, but if created by me they would be like gods. Do ye therefore make them; I will implant in them the seed of immortality, and you shall weave together the mortal and immortal, and provide food for them, and receive them

again in death.' Thus he spake, and poured the remains of the elements into the cup in which he had mingled the soul of the universe. They were no longer pure as before, but diluted; and the mixture he distributed into souls equal in number to the stars, and assigned each to a star – then having mounted them, as in a chariot, he showed them the nature of the universe, and told them of their future birth and human lot. They were to be sown in the planets, and out of them was to come forth the most religious of animals, which would hereafter be called man. The souls were to be implanted in bodies, which were in a perpetual flux, whence, he said, would arise, first, sensation; secondly, love, which is a mixture of pleasure and pain; thirdly, fear and anger, and the opposite affections: and if they conquered these, they would live righteously, but if they were conquered by them, unrighteously. He who lived well would return to his native star, and would there have a blessed existence; but, if he lived ill, he would pass into the nature of a woman, and if he did not then alter his evil ways, into the likeness of some animal, until the reason which was in him reasserted her sway over the elements of fire, air, earth, water, which had engrossed her, and he regained his first and better nature. Having given this law to his creatures, that he might be guiltless of their future evil, he sowed them, some in the earth, some in the moon, and some in the other planets; and he ordered the younger gods to frame human bodies for them and to make the necessary additions to them, and to avert from them all but self-inflicted evil.

Having given these commands, the Creator remained in his own nature. And his children, receiving from him the immortal principle, borrowed from the world portions of earth, air, fire, water, hereafter to be returned, which they fastened together, not with the adamantine bonds which bound themselves, but by little invisible pegs, making each separate body out of all the elements, subject to influx and efflux, and containing the courses of the soul. These swelling and surging as in a river moved irregularly and irrationally in all the six possible ways, forwards, backwards, right, left, up and down. But violent as were the internal and alimentary fluids, the tide became still more violent when the body came into contact with flaming fire, or the solid earth, or gliding waters, or the stormy wind; the motions produced by these impulses pass through the body to the soul and have the name of sensations. Uniting with the ever-flowing current, they shake the courses of the soul, stopping the revolution of the same and twisting in all sorts of ways the nature of the other, and the harmonical ratios of twos and threes and the mean terms which connect them, until the circles are bent and disordered and their motion becomes irregular. You may imagine a position of the body in which the head is resting upon the ground, and the legs are in the air, and the top is bottom and the left right. And something similar happens when the disordered motions of the soul come into contact with any external thing; they say the same or the other in a manner which is the very opposite of the truth, and they are false and foolish, and have no guiding principle in them. And when external impressions enter in, they are really conquered, though they seem to conquer.

By reason of these affections the soul is at first without intelligence, but as time goes on the stream of nutriment abates, and the courses of the soul regain their proper motion, and apprehend the same and the other rightly, and become rational. The soul of him who has education is whole and perfect and escapes the worst disease, but, if a man's education be neglected, he walks lamely through life and returns good for nothing to the world below. This, however, is an after-stage – at present, we are only concerned with the creation of the body and soul.

The two divine courses were encased by the gods in a sphere which is called the head, and is the god and lord of us. And to this they gave the body to be a vehicle, and the members to be instruments, having the power of flexion and extension. Such was the origin of legs and arms. In the next place, the gods gave a forward motion to the human body, because the front part of man was the more honourable and had authority. And they put in a face in which they inserted organs to minister in all things to the providence of the soul. They first contrived the eyes, into which they conveyed a light akin to the light of day, making it flow through the pupils. When the light of the eye is surrounded by the light of day, then like falls upon like, and they unite and form one body which conveys to the

soul the motions of visible objects. But when the visual ray goes forth into the darkness, then unlike falls upon unlike – the eye no longer sees, and we go to sleep. The fire or light, when kept in by the eyelids, equalizes the inward motions, and there is rest accompanied by few dreams; only when the greater motions remain they engender in us corresponding visions of the night. And now we shall be able to understand the nature of reflections in mirrors. The fires from within and from without meet about the smooth and bright surface of the mirror; and because they meet in a manner contrary to the usual mode, the right and left sides of the object are transposed. In a concave mirror the top and bottom are inverted, but this is no transposition.

These are the second causes which God used as his ministers in fashioning the world. They are thought by many to be the prime causes, but they are not so; for they are destitute of mind and reason, and the lover of mind will not allow that there are any prime causes other than the rational and invisible ones – these he investigates first, and afterwards the causes of things which are moved by others, and which work by chance and without order. Of the second or concurrent causes of sight I have already spoken, and I will now speak of the higher purpose of God in giving us eyes. Sight is the source of the greatest benefits to us; for if our eyes had never seen the sun, stars, and heavens, the words which we have spoken would not have been uttered. The sight of them and their revolutions has given us the knowledge of number and time, the power of enquiry, and philosophy, which is the great blessing of human life; not to speak of the lesser benefits which even the vulgar can appreciate. God gave us the faculty of sight that we might behold the order of the heavens and create a corresponding order in our own erring minds. To the like end the gifts of speech and hearing were bestowed upon us; not for the sake of irrational pleasure, but in order that we might harmonize the courses of the soul by sympathy with the harmony of sound, and cure ourselves of our irregular and graceless ways.

Thus far we have spoken of the works of mind; and there are other works done from necessity, which we must now place beside them; for the creation is made up of both, mind persuading necessity as far as possible to work out good. Before the heavens there existed fire, air, water, earth, which we suppose men to know, though no one has explained their nature, and we erroneously maintain them to be the letters or elements of the whole, although they cannot reasonably be compared even to syllables or first compounds. I am not now speaking of the first principles of things, because I cannot discover them by our present mode of enquiry. But as I observed the rule of probability at first, I will begin anew, seeking by the grace of God to observe it still.

In our former discussion I distinguished two kinds of being – the unchanging or invisible, and the visible or changing. But now a third kind is required, which I shall call the receptacle or nurse of generation. There is a difficulty in arriving at an exact notion of this third kind, because the four elements themselves are of inexact natures and easily pass into one another, and are too transient to be detained by any one name; wherefore we are compelled to speak of water or fire, not as substances, but as qualities. They may be compared to images made of gold, which are continually assuming new forms. Somebody asks what they are; if you do not know, the safest answer is to reply that they are gold. In like manner there is a universal nature out of which all things are made, and which is like none of them; but they enter into and pass out of her, and are made after patterns of the true in a wonderful and inexplicable manner. The containing principle may be likened to a mother, the source or spring to a father, the intermediate nature to a child; and we may also remark that the matter which receives every variety of form must be formless, like the inodorous liquids which are prepared to receive scents, or the smooth and soft materials on which figures are impressed. In the same way space or matter is neither earth nor fire nor air nor water, but an invisible and formless being which receives all things, and in an incomprehensible manner partakes of the intelligible. But we may say, speaking generally, that fire is that part of this nature which is inflamed, water that which is moistened, and the like.

Let me ask a question in which a great principle is involved: Is there an essence of fire and the other elements, or are there only fires visible to sense? I answer in a word: If mind is one thing and

true opinion another, then there are self-existent essences; but if mind is the same with opinion, then the visible and corporeal is most real. But they are not the same, and they have a different origin and nature. The one comes to us by instruction, the other by persuasion, the one is rational, the other is irrational; the one is movable by persuasion, the other immovable; the one is possessed by every man, the other by the gods and by very few men. And we must acknowledge that as there are two kinds of knowledge, so there are two kinds of being corresponding to them; the one uncreated, indestructible, immovable, which is seen by intelligence only; the other created, which is always becoming in place and vanishing out of place, and is apprehended by opinion and sense. There is also a third nature – that of space, which is indestructible, and is perceived by a kind of spurious reason without the help of sense. This is presented to us in a dreamy manner, and yet is said to be necessary, for we say that all things must be somewhere in space. For they are the images of other things and must therefore have a separate existence and exist in something (i.e. in space). But true reason assures us that while two things (i.e. the idea and the image) are different they cannot inhere in one another, so as to be one and two at the same time.

To sum up: Being and generation and space, these three, existed before the heavens, and the nurse or vessel of generation, moistened by water and inflamed by fire, and taking the forms of air and earth, assumed various shapes. By the motion of the vessel, the elements were divided, and like grain winnowed by fans, the close and heavy particles settled in one place, the light and airy ones in another. At first they were without reason and measure, and had only certain faint traces of themselves, until God fashioned them by figure and number. In this, as in every other part of creation, I suppose God to have made things, as far as was possible, fair and good, out of things not fair and good.

And now I will explain to you the generation of the world by a method with which your scientific training will have made you familiar. Fire, air, earth, and water are bodies and therefore solids, and solids are contained in planes, and plane rectilinear figures are made up of triangles. Of triangles there are two kinds; one having the opposite sides equal (isosceles), the other with unequal sides (scalene). These we may fairly assume to be the original elements of fire and the other bodies; what principles are prior to these God only knows, and he of men whom God loves. Next, we must determine what are the four most beautiful figures which are unlike one another and yet sometimes capable of resolution into one another…Of the two kinds of triangles the equal-sided has but one form, the unequal-sided has an infinite variety of forms; and there is none more beautiful than that which forms the half of an equilateral triangle. Let us then choose two triangles; one, the isosceles, the other, that form of scalene which has the square of the longer side three times as great as the square of the lesser side; and affirm that, out of these, fire and the other elements have been constructed.

I was wrong in imagining that all the four elements could be generated into and out of one another. For as they are formed, three of them from the triangle which has the sides unequal, the fourth from the triangle which has equal sides, three can be resolved into one another, but the fourth cannot be resolved into them nor they into it. So much for their passage into one another: I must now speak of their construction. From the triangle of which the hypotenuse is twice the lesser side the three first regular solids are formed – first, the equilateral pyramid or tetrahedron; secondly, the octahedron; thirdly, the icosahedron; and from the isosceles triangle is formed the cube. And there is a fifth figure (which is made out of twelve pentagons), the dodecahedron – this God used as a model for the twelvefold division of the Zodiac.

Let us now assign the geometrical forms to their respective elements. The cube is the most stable of them because resting on a quadrangular plane surface, and composed of isosceles triangles. To the earth then, which is the most stable of bodies and the most easily modelled of them, may be assigned the form of a cube; and the remaining forms to the other elements, – to fire the pyramid, to air the octahedron, and to water the icosahedron, – according to their degrees of lightness or heaviness or power, or want of power, of penetration. The single particles of any of the elements are not seen by reason of their smallness; they only become visible when collected. The ratios of their motions,

numbers, and other properties, are ordered by the God, who harmonized them as far as necessity permitted.

The probable conclusion is as follows: – Earth, when dissolved by the more penetrating element of fire, whether acting immediately or through the medium of air or water, is decomposed but not transformed. Water, when divided by fire or air, becomes one part fire, and two parts air. A volume of air divided becomes two of fire. On the other hand, when condensed, two volumes of fire make a volume of air; and two and a half parts of air condense into one of water. Any element which is fastened upon by fire is cut by the sharpness of the triangles, until at length, coalescing with the fire, it is at rest; for similars are not affected by similars. When two kinds of bodies quarrel with one another, then the tendency to decomposition continues until the smaller either escapes to its kindred element or becomes one with its conqueror. And this tendency in bodies to condense or escape is a source of motion…Where there is motion there must be a mover, and where there is a mover there must be something to move. These cannot exist in what is uniform, and therefore motion is due to want of uniformity. But then why, when things are divided after their kinds, do they not cease from motion? The answer is, that the circular motion of all things compresses them, and as 'nature abhors a vacuum,' the finer and more subtle particles of the lighter elements, such as fire and air, are thrust into the interstices of the larger, each of them penetrating according to their rarity, and thus all the elements are on their way up and down everywhere and always into their own places. Hence there is a principle of inequality, and therefore of motion, in all time.

In the next place, we may observe that there are different kinds of fire – (1) flame, (2) light that burns not, (3) the red heat of the embers of fire. And there are varieties of air, as for example, the pure aether, the opaque mist, and other nameless forms. Water, again, is of two kinds, liquid and fusile. The liquid is composed of small and unequal particles, the fusile of large and uniform particles and is more solid, but nevertheless melts at the approach of fire, and then spreads upon the earth. When the substance cools, the fire passes into the air, which is displaced, and forces together and condenses the liquid mass. This process is called cooling and congealment. Of the fusile kinds the fairest and heaviest is gold; this is hardened by filtration through rock, and is of a bright yellow colour. A shoot of gold which is darker and denser than the rest is called adamant. Another kind is called copper, which is harder and yet lighter because the interstices are larger than in gold. There is mingled with it a fine and small portion of earth which comes out in the form of rust. These are a few of the conjectures which philosophy forms, when, leaving the eternal nature, she turns for innocent recreation to consider the truths of generation.

Water which is mingled with fire is called liquid because it rolls upon the earth, and soft because its bases give way. This becomes more equable when separated from fire and air, and then congeals into hail or ice, or the looser forms of hoar frost or snow. There are other waters which are called juices and are distilled through plants. Of these we may mention, first, wine, which warms the soul as well as the body; secondly, oily substances, as for example, oil or pitch; thirdly, honey, which relaxes the contracted parts of the mouth and so produces sweetness; fourthly, vegetable acid, which is frothy and has a burning quality and dissolves the flesh. Of the kinds of earth, that which is filtered through water passes into stone; the water is broken up by the earth and escapes in the form of air – this in turn presses upon the mass of earth, and the earth, compressed into an indissoluble union with the remaining water, becomes rock. Rock, when it is made up of equal particles, is fair and transparent, but the reverse when of unequal. Earth is converted into pottery when the watery part is suddenly drawn away; or if moisture remains, the earth, when fused by fire, becomes, on cooling, a stone of a black colour. When the earth is finer and of a briny nature then two half-solid bodies are formed by separating the water, – soda and salt. The strong compounds of earth and water are not soluble by water, but only by fire. Earth itself, when not consolidated, is dissolved by water; when consolidated, by fire only. The cohesion of water, when strong, is dissolved by fire only; when weak, either by air or fire, the former entering the interstices, the latter penetrating even the triangles. Air when strongly

condensed is indissoluble by any power which does not reach the triangles, and even when not strongly condensed is only resolved by fire. Compounds of earth and water are unaffected by water while the water occupies the interstices in them, but begin to liquefy when fire enters into the interstices of the water. They are of two kinds, some of them, like glass, having more earth, others, like wax, having more water in them.

Having considered objects of sense, we now pass on to sensation. But we cannot explain sensation without explaining the nature of flesh and of the mortal soul; and as we cannot treat of both together, in order that we may proceed at once to the sensations we must assume the existence of body and soul.

What makes fire burn? The fineness of the sides, the sharpness of the angles, the smallness of the particles, the quickness of the motion. Moreover, the pyramid, which is the figure of fire, is more cutting than any other. The feeling of cold is produced by the larger particles of moisture outside the body trying to eject the smaller ones in the body which they compress. The struggle which arises between elements thus unnaturally brought together causes shivering. That is hard to which the flesh yields, and soft which yields to the flesh, and these two terms are also relative to one another. The yielding matter is that which has the slenderest base, whereas that which has a rectangular base is compact and repellent. Light and heavy are wrongly explained with reference to a lower and higher in place. For in the universe, which is a sphere, there is no opposition of above or below, and that which is to us above would be below to a man standing at the antipodes. The greater or less difficulty in detaching any element from its like is the real cause of heaviness or of lightness. If you draw the earth into the dissimilar air, the particles of earth cling to their native element, and you more easily detach a small portion than a large. There would be the same difficulty in moving any of the upper elements towards the lower. The smooth and the rough are severally produced by the union of evenness with compactness, and of hardness with inequality.

Pleasure and pain are the most important of the affections common to the whole body. According to our general doctrine of sensation, parts of the body which are easily moved readily transmit the motion to the mind; but parts which are not easily moved have no effect upon the patient. The bones and hair are of the latter kind, sight and hearing of the former. Ordinary affections are neither pleasant nor painful. The impressions of sight afford an example of these, and are neither violent nor sudden. But sudden replenishments of the body cause pleasure, and sudden disturbances, as for example cuttings and burnings, have the opposite effect.

>From sensations common to the whole body, we proceed to those of particular parts. The affections of the tongue appear to be caused by contraction and dilation, but they have more of roughness or smoothness than is found in other affections. Earthy particles, entering into the small veins of the tongue which reach to the heart, when they melt into and dry up the little veins are astringent if they are rough; or if not so rough, they are only harsh, and if excessively abstergent, like potash and soda, bitter. Purgatives of a weaker sort are called salt and, having no bitterness, are rather agreeable. Inflammatory bodies, which by their lightness are carried up into the head, cutting all that comes in their way, are termed pungent. But when these are refined by putrefaction, and enter the narrow veins of the tongue, and meet there particles of earth and air, two kinds of globules are formed – one of earthy and impure liquid, which boils and ferments, the other of pure and transparent water, which are called bubbles; of all these affections the cause is termed acid. When, on the other hand, the composition of the deliquescent particles is congenial to the tongue, and disposes the parts according to their nature, this remedial power in them is called sweet.

Smells are not divided into kinds; all of them are transitional, and arise out of the decomposition of one element into another, for the simple air or water is without smell. They are vapours or mists, thinner than water and thicker than air: and hence in drawing in the breath, when there is an obstruction, the air passes, but there is no smell. They have no names, but are distinguished as pleasant and unpleasant, and their influence extends over the whole region from the head to the navel.

Hearing is the effect of a stroke which is transmitted through the ears by means of the air, brain, and blood to the soul, beginning at the head and extending to the liver. The sound which moves swiftly is acute; that which moves slowly is grave; that which is uniform is smooth, and the opposite is harsh. Loudness depends on the quantity of the sound. Of the harmony of sounds I will hereafter speak.

Colours are flames which emanate from all bodies, having particles corresponding to the sense of sight. Some of the particles are less and some larger, and some are equal to the parts of the sight. The equal particles appear transparent; the larger contract, and the lesser dilate the sight. White is produced by the dilation, black by the contraction, of the particles of sight. There is also a swifter motion of another sort of fire which forces a way through the passages of the eyes, and elicits from them a union of fire and water which we call tears. The inner fire flashes forth, and the outer finds a way in and is extinguished in the moisture, and all sorts of colours are generated by the mixture. This affection is termed by us dazzling, and the object which produces it is called bright. There is yet another sort of fire which mingles with the moisture of the eye without flashing, and produces a colour like blood – to this we give the name of red. A bright element mingling with red and white produces a colour which we call auburn. The law of proportion, however, according to which compound colours are formed, cannot be determined scientifically or even probably. Red, when mingled with black and white, gives a purple hue, which becomes umber when the colours are burnt and there is a larger admixture of black. Flame-colour is a mixture of auburn and dun; dun of white and black; yellow of white and auburn. White and bright meeting, and falling upon a full black, become dark blue; dark blue mingling with white becomes a light blue; the union of flame-colour and black makes leek-green. There is no difficulty in seeing how other colours are probably composed. But he who should attempt to test the truth of this by experiment, would forget the difference of the human and divine nature. God only is able to compound and resolve substances; such experiments are impossible to man.

These are the elements of necessity which the Creator received in the world of generation when he made the all-sufficient and perfect creature, using the secondary causes as his ministers, but himself fashioning the good in all things. For there are two sorts of causes, the one divine, the other necessary; and we should seek to discover the divine above all, and, for their sake, the necessary, because without them the higher cannot be attained by us.

Having now before us the causes out of which the rest of our discourse is to be framed, let us go back to the point at which we began, and add a fair ending to our tale. As I said at first, all things were originally a chaos in which there was no order or proportion. The elements of this chaos were arranged by the Creator, and out of them he made the world. Of the divine he himself was the author, but he committed to his offspring the creation of the mortal. From him they received the immortal soul, but themselves made the body to be its vehicle, and constructed within another soul which was mortal, and subject to terrible affections – pleasure, the inciter of evil; pain, which deters from good; rashness and fear, foolish counsellors; anger hard to be appeased; hope easily led astray. These they mingled with irrational sense and all-daring love according to necessary laws and so framed man. And, fearing to pollute the divine element, they gave the mortal soul a separate habitation in the breast, parted off from the head by a narrow isthmus. And as in a house the women's apartments are divided from the men's, the cavity of the thorax was divided into two parts, a higher and a lower. The higher of the two, which is the seat of courage and anger, lies nearer to the head, between the midriff and the neck, and assists reason in restraining the desires. The heart is the house of guard in which all the veins meet, and through them reason sends her commands to the extremity of her kingdom. When the passions are in revolt, or danger approaches from without, then the heart beats and swells; and the creating powers, knowing this, implanted in the body the soft and bloodless substance of the lung, having a porous and springy nature like a sponge, and being kept cool by drink and air which enters through the trachea.

The part of the soul which desires meat and drink was placed between the midriff and navel, where they made a sort of manger; and here they bound it down, like a wild animal, away from the

council-chamber, and leaving the better principle undisturbed to advise quietly for the good of the whole. For the Creator knew that the belly would not listen to reason, and was under the power of idols and fancies. Wherefore he framed the liver to connect with the lower nature, contriving that it should be compact, and bright, and sweet, and also bitter and smooth, in order that the power of thought which originates in the mind might there be reflected, terrifying the belly with the elements of bitterness and gall, and a suffusion of bilious colours when the liver is contracted, and causing pain and misery by twisting out of its place the lobe and closing up the vessels and gates. And the converse happens when some gentle inspiration coming from intelligence mirrors the opposite fancies, giving rest and sweetness and freedom, and at night, moderation and peace accompanied with prophetic insight, when reason and sense are asleep. For the authors of our being, in obedience to their Father's will and in order to make men as good as they could, gave to the liver the power of divination, which is never active when men are awake or in health; but when they are under the influence of some disorder or enthusiasm then they receive intimations, which have to be interpreted by others who are called prophets, but should rather be called interpreters of prophecy; after death these intimations become unintelligible. The spleen which is situated in the neighbourhood, on the left side, keeps the liver bright and clean, as a napkin does a mirror, and the evacuations of the liver are received into it; and being a hollow tissue it is for a time swollen with these impurities, but when the body is purged it returns to its natural size.

The truth concerning the soul can only be established by the word of God. Still, we may venture to assert what is probable both concerning soul and body.

The creative powers were aware of our tendency to excess. And so when they made the belly to be a receptacle for food, in order that men might not perish by insatiable gluttony, they formed the convolutions of the intestines, in this way retarding the passage of food through the body, lest mankind should be absorbed in eating and drinking, and the whole race become impervious to divine philosophy.

The creation of bones and flesh was on this wise. The foundation of these is the marrow which binds together body and soul, and the marrow is made out of such of the primary triangles as are adapted by their perfection to produce all the four elements. These God took and mingled them in due proportion, making as many kinds of marrow as there were hereafter to be kinds of souls. The receptacle of the divine soul he made round, and called that portion of the marrow brain, intending that the vessel containing this substance should be the head. The remaining part he divided into long and round figures, and to these as to anchors, fastening the mortal soul, he proceeded to make the rest of the body, first forming for both parts a covering of bone. The bone was formed by sifting pure smooth earth and wetting it with marrow. It was then thrust alternately into fire and water, and thus rendered insoluble by either. Of bone he made a globe which he placed around the brain, leaving a narrow opening, and around the marrow of the neck and spine he formed the vertebrae, like hinges, which extended from the head through the whole of the trunk. And as the bone was brittle and liable to mortify and destroy the marrow by too great rigidity and susceptibility to heat and cold, he contrived sinews and flesh – the first to give flexibility, the second to guard against heat and cold, and to be a protection against falls, containing a warm moisture, which in summer exudes and cools the body, and in winter is a defence against cold. Having this in view, the Creator mingled earth with fire and water and mixed with them a ferment of acid and salt, so as to form pulpy flesh. But the sinews he made of a mixture of bone and unfermented flesh, giving them a mean nature between the two, and a yellow colour. Hence they were more glutinous than flesh, but softer than bone. The bones which have most of the living soul within them he covered with the thinnest film of flesh, those which have least of it, he lodged deeper. At the joints he diminished the flesh in order not to impede the flexure of the limbs, and also to avoid clogging the perceptions of the mind. About the thighs and arms, which have no sense because there is little soul in the marrow, and about the inner bones, he laid the flesh thicker. For where the flesh is thicker there is less feeling, except in certain parts which the Creator has made

solely of flesh, as for example, the tongue. Had the combination of solid bone and thick flesh been consistent with acute perceptions, the Creator would have given man a sinewy and fleshy head, and then he would have lived twice as long. But our creators were of opinion that a shorter life which was better was preferable to a longer which was worse, and therefore they covered the head with thin bone, and placed the sinews at the extremity of the head round the neck, and fastened the jawbones to them below the face. And they framed the mouth, having teeth and tongue and lips, with a view to the necessary and the good; for food is a necessity, and the river of speech is the best of rivers. Still, the head could not be left a bare globe of bone on account of the extremes of heat and cold, nor be allowed to become dull and senseless by an overgrowth of flesh. Wherefore it was covered by a peel or skin which met and grew by the help of the cerebral humour. The diversity of the sutures was caused by the struggle of the food against the courses of the soul. The skin of the head was pierced by fire, and out of the punctures came forth a moisture, part liquid, and part of a skinny nature, which was hardened by the pressure of the external cold and became hair. And God gave hair to the head of man to be a light covering, so that it might not interfere with his perceptions. Nails were formed by combining sinew, skin, and bone, and were made by the creators with a view to the future when, as they knew, women and other animals who would require them would be framed out of man.

The gods also mingled natures akin to that of man with other forms and perceptions. Thus trees and plants were created, which were originally wild and have been adapted by cultivation to our use. They partake of that third kind of life which is seated between the midriff and the navel, and is altogether passive and incapable of reflection.

When the creators had furnished all these natures for our sustenance, they cut channels through our bodies as in a garden, watering them with a perennial stream. Two were cut down the back, along the back bone, where the skin and flesh meet, one on the right and the other on the left, having the marrow of generation between them. In the next place, they divided the veins about the head and interlaced them with each other in order that they might form an additional link between the head and the body, and that the sensations from both sides might be diffused throughout the body. In the third place, they contrived the passage of liquids, which may be explained in this way: – Finer bodies retain coarser, but not the coarser the finer, and the belly is capable of retaining food, but not fire and air. God therefore formed a network of fire and air to irrigate the veins, having within it two lesser nets, and stretched cords reaching from both the lesser nets to the extremity of the outer net. The inner parts of the net were made by him of fire, the lesser nets and their cavities of air. The two latter he made to pass into the mouth; the one ascending by the air-pipes from the lungs, the other by the side of the air-pipes from the belly. The entrance to the first he divided into two parts, both of which he made to meet at the channels of the nose, that when the mouth was closed the passage connected with it might still be fed with air. The cavity of the network he spread around the hollows of the body, making the entire receptacle to flow into and out of the lesser nets and the lesser nets into and out of it, while the outer net found a way into and out of the pores of the body, and the internal heat followed the air to and fro. These, as we affirm, are the phenomena of respiration. And all this process takes place in order that the body may be watered and cooled and nourished, and the meat and drink digested and liquefied and carried into the veins.

The causes of respiration have now to be considered. The exhalation of the breath through the mouth and nostrils displaces the external air, and at the same time leaves a vacuum into which through the pores the air which is displaced enters. Also the vacuum which is made when the air is exhaled through the pores is filled up by the inhalation of breath through the mouth and nostrils. The explanation of this double phenomenon is as follows: – Elements move towards their natural places. Now as every animal has within him a fountain of fire, the air which is inhaled through the mouth and nostrils, on coming into contact with this, is heated; and when heated, in accordance with the law of attraction, it escapes by the way it entered toward the place of fire. On leaving the body it is

cooled and drives round the air which it displaces through the pores into the empty lungs. This again is in turn heated by the internal fire and escapes, as it entered, through the pores.

The phenomena of medical cupping-glasses, of swallowing, and of the hurling of bodies, are to be explained on a similar principle; as also sounds, which are sometimes discordant on account of the inequality of them, and again harmonious by reason of equality. The slower sounds reaching the swifter, when they begin to pause, by degrees assimilate with them: whence arises a pleasure which even the unwise feel, and which to the wise becomes a higher sense of delight, being an imitation of divine harmony in mortal motions. Streams flow, lightnings play, amber and the magnet attract, not by reason of attraction, but because 'nature abhors a vacuum,' and because things, when compounded or dissolved, move different ways, each to its own place.

I will now return to the phenomena of respiration. The fire, entering the belly, minces the food, and as it escapes, fills the veins by drawing after it the divided portions, and thus the streams of nutriment are diffused through the body. The fruits or herbs which are our daily sustenance take all sorts of colours when intermixed, but the colour of red or fire predominates, and hence the liquid which we call blood is red, being the nurturing principle of the body, whence all parts are watered and empty places filled.

The process of repletion and depletion is produced by the attraction of like to like, after the manner of the universal motion. The external elements by their attraction are always diminishing the substance of the body: the particles of blood, too, formed out of the newly digested food, are attracted towards kindred elements within the body and so fill up the void. When more is taken away than flows in, then we decay; and when less, we grow and increase.

The young of every animal has the triangles new and closely locked together, and yet the entire frame is soft and delicate, being newly made of marrow and nurtured on milk. These triangles are sharper than those which enter the body from without in the shape of food, and therefore they cut them up. But as life advances, the triangles wear out and are no longer able to assimilate food; and at length, when the bonds which unite the triangles of the marrow become undone, they in turn unloose the bonds of the soul; and if the release be according to nature, she then flies away with joy. For the death which is natural is pleasant, but that which is caused by violence is painful.

Every one may understand the origin of diseases. They may be occasioned by the disarrangement or disproportion of the elements out of which the body is framed. This is the origin of many of them, but the worst of all owe their severity to the following causes: There is a natural order in the human frame according to which the flesh and sinews are made of blood, the sinews out of the fibres, and the flesh out of the congealed substance which is formed by separation from the fibres. The glutinous matter which comes away from the sinews and the flesh, not only binds the flesh to the bones, but nourishes the bones and waters the marrow. When these processes take place in regular order the body is in health.

But when the flesh wastes and returns into the veins there is discoloured blood as well as air in the veins, having acid and salt qualities, from which is generated every sort of phlegm and bile. All things go the wrong way and cease to give nourishment to the body, no longer preserving their natural courses, but at war with themselves and destructive to the constitution of the body. The oldest part of the flesh which is hard to decompose blackens from long burning, and from being corroded grows bitter, and as the bitter element refines away, becomes acid. When tinged with blood the bitter substance has a red colour, and this when mixed with black takes the hue of grass; or again, the bitter substance has an auburn colour, when new flesh is decomposed by the internal flame. To all which phenomena some physician or philosopher who was able to see the one in many has given the name of bile. The various kinds of bile have names answering to their colours. Lymph or serum is of two kinds: first, the whey of blood, which is gentle; secondly, the secretion of dark and bitter bile, which, when mingled under the influence of heat with salt, is malignant and is called acid phlegm. There is also white phlegm, formed by the decomposition of young and tender flesh, and covered with little

bubbles, separately invisible, but becoming visible when collected. The water of tears and perspiration and similar substances is also the watery part of fresh phlegm. All these humours become sources of disease when the blood is replenished in irregular ways and not by food or drink. The danger, however, is not so great when the foundation remains, for then there is a possibility of recovery. But when the substance which unites the flesh and bones is diseased, and is no longer renewed from the muscles and sinews, and instead of being oily and smooth and glutinous becomes rough and salt and dry, then the fleshy parts fall away and leave the sinews bare and full of brine, and the flesh gets back again into the circulation of the blood, and makes the previously mentioned disorders still greater. There are other and worse diseases which are prior to these; as when the bone through the density of the flesh does not receive sufficient air, and becomes stagnant and gangrened, and crumbling away passes into the food, and the food into the flesh, and the flesh returns again into the blood. Worst of all and most fatal is the disease of the marrow, by which the whole course of the body is reversed. There is a third class of diseases which are produced, some by wind and some by phlegm and some by bile. When the lung, which is the steward of the air, is obstructed, by rheums, and in one part no air, and in another too much, enters in, then the parts which are unrefreshed by air corrode, and other parts are distorted by the excess of air; and in this manner painful diseases are produced. The most painful are caused by wind generated within the body, which gets about the great sinews of the shoulders – these are termed tetanus. The cure of them is difficult, and in most cases they are relieved only by fever. White phlegm, which is dangerous if kept in, by reason of the air bubbles, is not equally dangerous if able to escape through the pores, although it variegates the body, generating diverse kinds of leprosies. If, when mingled with black bile, it disturbs the courses of the head in sleep, there is not so much danger; but if it assails those who are awake, then the attack is far more dangerous, and is called epilepsy or the sacred disease. Acid and salt phlegm is the source of catarrh.

Inflammations originate in bile, which is sometimes relieved by boils and swellings, but when detained, and above all when mingled with pure blood, generates many inflammatory disorders, disturbing the position of the fibres which are scattered about in the blood in order to maintain the balance of rare and dense which is necessary to its regular circulation. If the bile, which is only stale blood, or liquefied flesh, comes in little by little, it is congealed by the fibres and produces internal cold and shuddering. But when it enters with more of a flood it overcomes the fibres by its heat and reaches the spinal marrow, and burning up the cables of the soul sets her free from the body. When on the other hand the body, though wasted, still holds out, then the bile is expelled, like an exile from a factious state, causing associating diarrhoeas and dysenteries and similar disorders. The body which is diseased from the effects of fire is in a continual fever; when air is the agent, the fever is quotidian; when water, the fever intermits a day; when earth, which is the most sluggish element, the fever intermits three days and is with difficulty shaken off.

Of mental disorders there are two sorts, one madness, the other ignorance, and they may be justly attributed to disease. Excessive pleasures or pains are among the greatest diseases, and deprive men of their senses. When the seed about the spinal marrow is too abundant, the body has too great pleasures and pains; and during a great part of his life he who is the subject of them is more or less mad. He is often thought bad, but this is a mistake; for the truth is that the intemperance of lust is due to the fluidity of the marrow produced by the loose consistency of the bones. And this is true of vice in general, which is commonly regarded as disgraceful, whereas it is really involuntary and arises from a bad habit of the body and evil education. In like manner the soul is often made vicious by the influence of bodily pain; the briny phlegm and other bitter and bilious humours wander over the body and find no exit, but are compressed within, and mingle their own vapours with the motions of the soul, and are carried to the three places of the soul, creating infinite varieties of trouble and melancholy, of rashness and cowardice, of forgetfulness and stupidity. When men are in this evil plight of body, and evil forms of government and evil discourses are superadded, and there is no education to save them, they are corrupted through two causes; but of neither of them are they really

the authors. For the planters are to blame rather than the plants, the educators and not the educated. Still, we should endeavour to attain virtue and avoid vice; but this is part of another subject.

Enough of disease – I have now to speak of the means by which the mind and body are to be preserved, a higher theme than the other. The good is the beautiful, and the beautiful is the symmetrical, and there is no greater or fairer symmetry than that of body and soul, as the contrary is the greatest of deformities. A leg or an arm too long or too short is at once ugly and unserviceable, and the same is true if body and soul are disproportionate. For a strong and impassioned soul may 'fret the pigmy body to decay,' and so produce convulsions and other evils. The violence of controversy, or the earnestness of enquiry, will often generate inflammations and rheums which are not understood, or assigned to their true cause by the professors of medicine. And in like manner the body may be too much for the soul, darkening the reason, and quickening the animal desires. The only security is to preserve the balance of the two, and to this end the mathematician or philosopher must practise gymnastics, and the gymnast must cultivate music. The parts of the body too must be treated in the same way – they should receive their appropriate exercise. For the body is set in motion when it is heated and cooled by the elements which enter in, or is dried up and moistened by external things; and, if given up to these processes when at rest, it is liable to destruction. But the natural motion, as in the world, so also in the human frame, produces harmony and divides hostile powers. The best exercise is the spontaneous motion of the body, as in gymnastics, because most akin to the motion of mind; not so good is the motion of which the source is in another, as in sailing or riding; least good when the body is at rest and the motion is in parts only, which is a species of motion imparted by physic. This should only be resorted to by men of sense in extreme cases; lesser diseases are not to be irritated by medicine. For every disease is akin to the living being and has an appointed term, just as life has, which depends on the form of the triangles, and cannot be protracted when they are worn out. And he who, instead of accepting his destiny, endeavours to prolong his life by medicine, is likely to multiply and magnify his diseases. Regimen and not medicine is the true cure, when a man has time at his disposal.

Enough of the nature of man and of the body, and of training and education. The subject is a great one and cannot be adequately treated as an appendage to another. To sum up all in a word: there are three kinds of soul located within us, and any one of them, if remaining inactive, becomes very weak; if exercised, very strong. Wherefore we should duly train and exercise all three kinds.

The divine soul God lodged in the head, to raise us, like plants which are not of earthly origin, to our kindred; for the head is nearest to heaven. He who is intent upon the gratification of his desires and cherishes the mortal soul, has all his ideas mortal, and is himself mortal in the truest sense. But he who seeks after knowledge and exercises the divine part of himself in godly and immortal thoughts, attains to truth and immortality, as far as is possible to man, and also to happiness, while he is training up within him the divine principle and indwelling power of order. There is only one way in which one person can benefit another; and that is by assigning to him his proper nurture and motion. To the motions of the soul answer the motions of the universe, and by the study of these the individual is restored to his original nature.

Thus we have finished the discussion of the universe, which, according to our original intention, has now been brought down to the creation of man. Completeness seems to require that something should be briefly said about other animals: first of women, who are probably degenerate and cowardly men. And when they degenerated, the gods implanted in men the desire of union with them, creating in man one animate substance and in woman another in the following manner: – The outlet for liquids they connected with the living principle of the spinal marrow, which the man has the desire to emit into the fruitful womb of the woman; this is like a fertile field in which the seed is quickened and matured, and at last brought to light. When this desire is unsatisfied the man is over-mastered by the power of the generative organs, and the woman is subjected to disorders from the obstruction of the passages of the breath, until the two meet and pluck the fruit of the tree.

The race of birds was created out of innocent, light-minded men, who thought to pursue the study of the heavens by sight; these were transformed into birds, and grew feathers instead of hair. The race of wild animals were men who had no philosophy, and never looked up to heaven or used the courses of the head, but followed only the influences of passion. Naturally they turned to their kindred earth, and put their forelegs to the ground, and their heads were crushed into strange oblong forms. Some of them have four feet, and some of them more than four, – the latter, who are the more senseless, drawing closer to their native element; the most senseless of all have no limbs and trail their whole body on the ground. The fourth kind are the inhabitants of the waters; these are made out of the most senseless and ignorant and impure of men, whom God placed in the uttermost parts of the world in return for their utter ignorance, and caused them to respire water instead of the pure element of air. Such are the laws by which animals pass into one another.

And so the world received animals, mortal and immortal, and was fulfilled with them, and became a visible God, comprehending the visible, made in the image of the Intellectual, being the one perfect only-begotten heaven.

Section 2

Nature in the aspect which she presented to a Greek philosopher of the fourth century before Christ is not easily reproduced to modern eyes. The associations of mythology and poetry have to be added, and the unconscious influence of science has to be subtracted, before we can behold the heavens or the earth as they appeared to the Greek. The philosopher himself was a child and also a man – a child in the range of his attainments, but also a great intelligence having an insight into nature, and often anticipations of the truth. He was full of original thoughts, and yet liable to be imposed upon by the most obvious fallacies. He occasionally confused numbers with ideas, and atoms with numbers; his a priori notions were out of all proportion to his experience. He was ready to explain the phenomena of the heavens by the most trivial analogies of earth. The experiments which nature worked for him he sometimes accepted, but he never tried experiments for himself which would either prove or disprove his theories. His knowledge was unequal; while in some branches, such as medicine and astronomy, he had made considerable proficiency, there were others, such as chemistry, electricity, mechanics, of which the very names were unknown to him. He was the natural enemy of mythology, and yet mythological ideas still retained their hold over him. He was endeavouring to form a conception of principles, but these principles or ideas were regarded by him as real powers or entities, to which the world had been subjected. He was always tending to argue from what was near to what was remote, from what was known to what was unknown, from man to the universe, and back again from the universe to man. While he was arranging the world, he was arranging the forms of thought in his own mind; and the light from within and the light from without often crossed and helped to confuse one another. He might be compared to a builder engaged in some great design, who could only dig with his hands because he was unprovided with common tools; or to some poet or musician, like Tynnichus (Ion), obliged to accommodate his lyric raptures to the limits of the tetrachord or of the flute.

The Hesiodic and Orphic cosmogonies were a phase of thought intermediate between mythology and philosophy and had a great influence on the beginnings of knowledge. There was nothing behind them; they were to physical science what the poems of Homer were to early Greek history. They made men think of the world as a whole; they carried the mind back into the infinity of past time; they suggested the first observation of the effects of fire and water on the earth's surface. To the ancient physics they stood much in the same relation which geology does to modern science. But the Greek was not, like the enquirer of the last generation, confined to a period of six thousand years; he was able to speculate freely on the effects of infinite ages in the production of physical phenomena. He could imagine cities which had existed time out of mind (States.; Laws), laws or forms of art and music which had lasted, 'not in word only, but in very truth, for ten thousand years' (Laws); he was aware that natural phenomena like the Delta of the Nile might have slowly accumulated in long periods of time (Hdt.). But he seems to have supposed that the course of events was recurring rather than progressive. To this he was probably led by the fixedness of Egyptian customs and the general observation that there were other civilisations in the world more ancient than that of Hellas.

The ancient philosophers found in mythology many ideas which, if not originally derived from nature, were easily transferred to her – such, for example, as love or hate, corresponding to attraction or repulsion; or the conception of necessity allied both to the regularity and irregularity of nature; or of chance, the nameless or unknown cause; or of justice, symbolizing the law of compensation; are of the Fates and Furies, typifying the fixed order or the extraordinary convulsions of nature. Their own interpretations of Homer and the poets were supposed by them to be the original meaning. Musing in themselves on the phenomena of nature, they were relieved at being able to utter the thoughts of their hearts in figures of speech which to them were not figures, and were already consecrated by tradition. Hesiod and the Orphic poets moved in a region of half-personification in which the meaning or

principle appeared through the person. In their vaster conceptions of Chaos, Erebus, Aether, Night, and the like, the first rude attempts at generalization are dimly seen. The Gods themselves, especially the greater Gods, such as Zeus, Poseidon, Apollo, Athene, are universals as well as individuals. They were gradually becoming lost in a common conception of mind or God. They continued to exist for the purposes of ritual or of art; but from the sixth century onwards or even earlier there arose and gained strength in the minds of men the notion of 'one God, greatest among Gods and men, who was all sight, all hearing, all knowing' (Xenophanes).

Конец ознакомительного фрагмента.