FRANCIS M. CORNFORD

Plato's Cosmology

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PLATO'S COSMOLOGY

The Timaeus of Plato translated
with a running commentary

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definite affinity to Plato’s eternal Forms. But there is more of Plato in the *Adventures of Ideas* than there is of Whitehead in the *Timaeus*. The modern reader is likely to be misled by the constant use of Whitehead’s ‘event’ as equivalent to Plato’s γεγονός. Moreover, Plato expressly declares that his Forms ‘never enter into anything else anywhere’ (52a)—a cardinal point of difference between himself and Aristotle. Yet Professor Taylor writes: ‘γεγονός . . . is, in fact, the “ingredient of objects into events”, by which the “passage” of nature is constituted . . . . The famous Forms . . . are what Whitehead calls “objects”, and the point of insistence upon their reality is that Nature is not made up of the mere succession of events, that the passage of nature is a process of “ingredient” of objects into events’ (p. 131). According to Professor Taylor’s main thesis, the philosophy of our dialogue belongs to a period which already seemed archaic to Aristotle: he regularly speaks of the fifth-century thinkers as ‘the primitives’ (of ἀρχαῖοι). Even if we restore this philosophy to Plato, it cannot usefully be paraphrased in terms which have first acquired their technical meaning in our own life-time. It is puzzling to find the contents of Timaeus’ discourse represented at one moment as more antique than Plato and at the next as more modern (and considerably more Christian) than Herbert Spencer. Accordingly, while every student must acknowledge a great debt to Professor Taylor’s researches, there is still room for a commentary based on the traditional assumptions and attempting to illustrate Plato’s thought in the historical setting of Plato’s century.

Friends and colleagues have generously helped me with their advice on matters in which I needed a judgment more competent than my own. Sir Thomas Heath, whose masterly works on Greek mathematics I have constantly consulted and never in vain, has written long and careful answers to my inquiries. Professor Onians has allowed me to use freely the proofs of his valuable book, *The Origins of Greek and Roman Thought*. I am also specially indebted to Dr. W. H. S. Jones, Professor D. S. Robertson, Mr. R. P. Winnington-Ingram, and Mr. R. Hackforth.

F. M. C.

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PLATO’S COSMOLOGY
INTRODUCTION

The Timaeus belongs to the latest group of Plato's works: Sophist and Statesman, Timaeus and Critias, Philebus, Laws. The whole group must fall within the last twenty years of his life, which ended in 347 B.C. at the age of eighty or eighty-one. The Laws is the only dialogue that is certainly later than the Timaeus and Critias. It is probable, then, that Plato was nearer seventy than sixty when he projected the trilogy, Timaeus, Critias, Hermocrates—the most ambitious design he had ever conceived. Too ambitious, it would seem; for he abandoned it when he was less than halfway through. The Critias breaks off in an unfinished sentence; the Hermocrates was never written. Only the Timaeus is complete; but its introductory part affords some ground for a conjectural reconstruction of the whole plan.

The conversation in this dialogue and its sequel is supposed to take place at Athens on the day of the Panathenaea. We are to imagine that, on the previous day, Socrates has been discussing to Critias, his two guests from Italy and Sicily, Timaeus of Locri and Hermocrates of Syracuse, and a fourth unnamed person who is to-day absent through indisposition. The Panatheniac festival would provide an obvious occasion for the strangers' presence in Athens, as it does for the visit of Parmenides and Zeno in another of the late dialogues.¹

The Athenian Critias is an old man, who finds it easier to remember the long-distant past than what happened yesterday, and speaks of his boyhood as 'very long ago', when the poems of Solon could be described as a novelty. He cannot, therefore, be the Critias who was Plato's mother's cousin and one of the Thirty Tyrants. He must be the grandfather of that Critias and Plato's great-grandfather.² He tells us that he was eighty

¹ Parm. 1270. The comparison is made by Pr. 1, 84. That 'the festival of the goddess' (Athena) mentioned at 214a and 266 is the Panathenaeas is clear from the context in both places and would never have been doubted but for the unfounded notion that Socrates is supposed to have narrated on the previous day the whole of the Republic, or a substantial part of it, as it stands in our texts. This will be considered below.

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Of such distinction has left not the faintest trace in political or philosphic history is against his claim to be a real person. The probability is that Plato invented him because he required a philosopher of the Western school, eminent both in science and statesmanship, and there was no one to fill the part at the imaginary time of the dialogue. Archytas was of the type required, a brilliant mathematician and seven times strategus at Tarentum; but he lived too late: Plato first met him about 388 B.C. In the first century B.C., a treatise On the Soul of the World and Nature was forged in the name of Timaeus of Locri. It was taken by the Neoplatonists for a genuine document, whereas it is now seen to be a mere summary of the Timaeus. In our dialogue, as Wilamowitz observes (Platon i, 501), Timaeus speaks dogmatically, but without any appeal to authority, and we may regard his doctrine simply as Plato's own. So in the Sophist Plato speaks through the mouth of an Eleatic, who is yet not a champion of Parmenides' system, but holds a theory of Forms unquestionably Platonic. Plato nowhere says that Timaeus is a Pythagorean. He sometimes follows Empedocles, sometimes Parmenides; indeed he borrows something from every pre-Socratic philosopher of importance, not to mention Plato's contemporaries. Much of the doctrine is no doubt Pythagorean, and this gave the satirist Timon a handle for his spiteful accusation of plagiarism against Plato. When the treatise ascribed to Timaeus had been forged, it was assumed that this was the book from which Plato had copied (Fr. 1, 1 and 7). As a consequence, all the doctrines which the forger had found in the Timaeus itself were supposed to be of Pythagorean origin. The testimony of later commentators is vitiated by this false assumption.

There is no ground for any conjecture as to the identity of the fourth person, who is absent. The only sensible remark recorded by Proclus is the observation of Atticus that he is presumably another visitor from Italy or Sicily, since Socrates asks Timaeus for news of him (Fr. 1, 20). Plato may have wished to keep open the possibility of extending his trilogy to a fourth dialogue and held this unnamed person in reserve. Socrates proposes that the three who are present (not Timaeus alone) shall undertake the whole task which the four were to have shared. He first recapitulates his own discourse of the previous day. Socrates, we are told, had been describing the institutions of a city on the lines of the Republic. He had ended by expressing his wish to see this city transferred from the plane of theory to temporal fact. He now

1 As Frank observes, Plato and d. sog. Pythagoreer, 129.
2 For the history of this document, see Tr., p. 30.
3 So Ritter, N. Unt., 181.
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gives a summary of his own discourse, in response to Timaeus' request to be reminded of the task to be performed by himself and his friends. Later (20c) it appears that such a reminder was really unnecessary, since the three have talked over the task required of them and have come prepared with a plan for its fulfilment. The summary is, in fact, entirely for the sake of informing the reader of Plato's design to identify the citizens of the ideal state with the prehistoric Athenians of Critias' romance.

From ancient times to the present day many false inferences and theories have been founded on the situation imagined by Plato, in spite of his own clear indication conveyed in the statement that the summary actually given is complete: nothing of importance has been omitted (19a, 8). Plato could not have stated more plainly that Socrates is not to be supposed to have narrated the whole conversation in the Republic as we have it. It follows at once that he did not intend the Republic to stand as the first dialogue in his new series.1 If he had, no recapitulation would have been needed; the stage should have been set in an introduction to the Republic itself. But some scholars have seen evidence here for an original edition of the Republic, containing only the parts summarised. Such speculations are baseless. The summary is confined to the external institutions of the state outlined in Republic ii, 360-3.471. It is impossible to imagine an edition of the dialogue omitting the whole of the analogy between the structure of the soul and that of the state, the analysis of the individual soul into three parts, and the discussion of the virtues of the individual and of the state; nor could the omission of these topics in the summary be called a matter of no importance. The simple and natural conclusion was drawn long ago by Hirzel.2 No doubt Plato was thinking of the contents of that part of the Republic and intending his readers to recall them; but he was not the slave of his own fictions. There was nothing to prevent him from imagining Socrates describing his ideal state on more than one occasion. He tells us here that Socrates has outlined its institutions, and nothing more, on the previous day. That day, moreover, was not the day after the feast of Bendis (Thargelion 19 or 20), when the conversation with Glaucon and Adeimantus at the house of Cephalus took place, though nothing would have been easier than to mention that date if Plato had meant to identify Socrates' discourse with the narration of the Republic. The present occasion is 'the festival of Athena',1 and one to which the projected discourse of Critias is appropriate. As Proclus remarks (7, 172), the Panathenian discourses regularly celebrated the Athenian victories by land and sea in the Persian Wars, while Critias celebrates Athens by recounting her victory over the invaders from Atlantis. Proclus himself had no doubt that the Lesser Panathenaea was meant; he knew no more than that this festival 'came after' the Bendidea and thought it took place 'about the same time' (i, 84-5), whereas he knew that the Greater Panathenaea fell in Hecatombaeon (i, 26). Neither festival, in fact, came within two months of the Bendidea. Plato probably intended the Greater Panathenaea. There is no other indication of the dramatic date; and it is unlikely that Plato had troubled himself about the question whether there was any such occasion on which Hermocrates could have visited Athens. The date is of no importance. In his earliest dialogues Plato was concerned to give the Athenians a true impression of Socrates' character and activity, and he was at great pains to recreate the atmosphere of the times. That interest was long past. In the latest group there was no motive to keep up the illusion that the conversations had really taken place. From all this it follows that the dramatic date and setting of the Republic have no bearing whatever on the dramatic date of the Timaeus trilogy. Also no ground remains for any inference that Plato meant the contents of the later books of the Republic to be superseded or corrected by the Timaeus.

The design of the present trilogy is thus completely independent of the Republic. What was that design? The political question answered in the Republic had been: What is the least change in existing society necessary to cure the evils afflicting mankind? Plato had imagined a reformed Greek city-state with institutions based, as he claimed, on the unalterable characteristics of human nature. It appeared to be just within the bounds of possible realisation. Referring to hopes founded on Dion or on the younger Dionysius, he had said that his state might see the light of day, if some prince could be found endowed with the philosophic nature, and if that nature could escape corruption. But towards the end of the Republic Plato seems less hopeful, and the state recedes as a pattern laid up in heaven, by which the merits and defects of all existing constitutions might be measured and appraised. Moreover, since that dialogue was written, Plato's Sicilian

1 As Pr., for example, imagined (i, 3). In consequence, he and other critics were puzzled how to explain why the Republic was to precede the Timaeus, and not follow it, as it obviously should (i, 200 ff.).
3 21a, 268. 268. πατέρας τῆς θεοῦ θεοῦ. There was no such festival on Thargelion 21. The Pyntheria came five days later.
INTRODUCTION

had ended in disappointment. Accordingly, the discourse recapitulated at the opening of the Timaeus covers only the outline of the state given in the earlier books of the Republic, ignoring all the later books, which had started from the question how it might be realised in the future and sketched its possible decline through lower forms of polity. The new trilogy is to transfer this state to the plane of actual existence, not in the future, but in the remote past, as the Athens of nine thousand years ago. This is the subject of the Critias, introduced at once as the central theme of the whole.

By way of preface, Timaeus is to recount his myth of creation, ending with the birth of mankind. The whole movement starts from the ideal world of the Demiurge and the eternal Forms, descending thence to the frame of the visible universe and the nature of man, whose further fortunes Critias will ‘take over’ for his story. Looking deeper, we see that the chief purpose of the cosmological introduction is to link the morality externalised in the ideal society to the whole organisation of the world.1 The Republic had dwelt on the structural analogy between the state and the individual soul. Now Plato intends to base his conception of human life, both for the individual and for society, on the inextricable foundation of the order of the universe. The parallel of macrocosm and microcosm runs through the whole discourse.

True morality is not a product of human evolution, still less the arbitrary enactment of human wills. It is an order and harmony of the soul; and the soul itself is a counterpart, in miniature, of the soul of the world, which has an everlasting order and harmony of its own, instituted by reason. This order was revealed to every soul before its birth (41e); and it is revealed now in the visible architecture of the heavens. That human morality is so based on the cosmic order had been implied, here or there, in earlier works; but the Timaeus will add something more like a demonstration, although in mythical form.

In the next dialogue Critias will repeat the legend learnt by Solon from an Egyptian priest: how primitive Athens (now to be identified with Socrates’ ideal state) had defeated the invaders from Atlantis. In the very hour when freedom and civilisation were saved for the Mediterranean world, the victorious Athenians had themselves been overwhelmed by flood and earthquake. Atlantis also sank beneath the sea and vanished. What was to follow? The story was not to end with the cataclysm of the Critias; and the Egyptian priest, discounting at some length to Solon on these periodic catastrophes in which all but a small remnant of mankind perishes, has explained how the seeds of a new civilisation are preserved either on the mountains or in the river valleys, according as the destruction is by flood or fire. When it is by flood, as at the end of Critias’ story, the cities on the plains are overwhelmed; only the mountain shepherds survive, and all culture is lost. Taking up the story at this point, what could Hermocrates do, if not describe the re-emergence of culture in the Greece of prehistoric and historic times? If so, the projected contents of the unwritten dialogue are to be found in the third and subsequent books of the Laws. There, after some preliminary ramblings about music and wine in Books i and ii, the Athenian settles down to business at the opening of Book iii with the question: What is the origin of society and government? In the immensity of past time myriadst of states have arisen and perished, reproducing again and again the same types of constitution. How do they arise? Mankind has often been almost destroyed by flood, plagues, and many other causes; only a small remnant is left. Imagine one such destruction—the Deluge. The herdsmen on the mountain-tops alone survived, while the cities on the plains or near the sea were overwhelmed. All arts and inventions perished; all statecraft was forgotten. Here is exactly the situation with which the Critias was to end, described in language very like that of the Egyptian priest. The Laws continues the story. After the deluge came a very long and slow advance towards the present state of things. Before the metals were rediscovered there was an idyllic phase of society, resembling descriptions of the Golden Age, under the rule of patriarchal custom. Next came the beginnings of agriculture and the formation of more permanent settlements. The coalescence of various tribes led to the growth of aristocracies, or perhaps monarchies, with kings and magistrates. A third stage saw the blending of different types of constitution. Mankind, forgetting the dangers of flood, ventured down from the hills. Cities like Homer’s Troy were built once more on the plains. (Here we reach what was for the Greeks the dawn of history.) Then followed the Trojan War; and the troubles consequent upon the warriors’ homecoming led to the migrations. Finally we reach the settlement of Crete and Lacedaemon. The Athenian recommends a study of this succession of social forms, to discover what laws preserve a city or tend to ruin it. The history of the Dorian states suggests that government should be a mixture of monarchy and democracy. It is then proposed to apply this principle by framing laws for a new colony. Book iv opens with the choice of a site, and the rest of the treatise outlines the institutions.

Since all this fits exactly to the end planned for the Critias, it may well have been Plato’s original purpose to use in the Her-
INTRODUCTION

mocrates the material he had been collecting from a study of the laws of Greek states. The whole trilogy would then have covered the story of the world from creation, through prehistoric legend and all historic time, to a fresh project for future reform. But Plato was getting old. The composition of the Critias seems to have been interrupted; it stops in an unfinished sentence. After the interruption Plato might well feel that he could not complete all this elaborate romance about the invasion from Atlantis before starting upon the subject nearest his heart, which now fills ten books of the Laws.1 There was, in fact, by this time far too much material for a continuation of the Timaeus trilogy, even with the assistance of the unnamed absentee. So he abandoned the Critias, and wrote the Laws in place of the Hermocrates.2

1 In the same way (sic ărăs licet) Mr. H. G. Wells has, with advancing years, grown impatient of the Utopian romance and taken to expressing his hopes and fears for the future through ever thinner disguises, ending with autobiography.

2 For the conjecture here elaborated see Raeder, 379.

THE TIMAEUS

17A–27B. INTRODUCTORY CONVERSATION

An account of the persons who take part in the conversation preface the discourse of TImaeus has already been given in the Introduction (pp. r–3). We may proceed at once to the text.

SOCRATES. TIMAEUS. HERMOCRATES. CRITIAS

17A. SOCRATES. One, two, three—but where, my dear Timaeus, is the fourth of those guests of yesterday who were to entertain me to-day?

TIM. He suddenly felt unwell, Socrates; he would not have failed to join our company if he could have helped it.

SOCR. Then it will fall to you and your companions to supply the part of our absent friend as well as your own.

B. TIM. By all means; we will not fail to do the best we can. Yesterday you entertained us with the hospitality due to strangers, and it would not be fair if the rest of us were backward in offering you a feast in return.

SOCR. Well, then, do you remember the task I set you—all the matters you were to discourse upon?

TIM. We can remember some; and you are here to remind us of any that we may have forgotten. Or rather, if it is not too much trouble, will you recapitulate them briefly from the beginning, to fix them more firmly in our minds?

C. SOCR. I will. Yesterday the chief subject of my own discourse was what, as it seemed to me, would be the best form of society and the sort of men who would compose it.

TIM. Yes, Socrates, and we all found the society you described very much to our mind.

SOCR. We began, did we not? by separating off the farmers and all the other craftsmen from the class that was to fight in defence of the city?

TIM. Yes.

D. SOCR. And when we assigned only one occupation to each man, one craft for which he was naturally fitted, these, we said, who were to fight on behalf of all, must be nothing else
INTRODUCTORY CONVERSATION

17D. but guardians of the city against the assault of any that would injure her, whether from within or from without, dealing justice to their subjects mildly, as to natural friends, and showing a stern face to those enemies who meet them in battle.

TIM. Quite true.

SOCR. There was, in fact, a certain temperament that we said a guardian should have, at once spirited and philosophic to an exceptional degree, enabling them to show a right measure of mildness or sternness to friend or foe.

TIM. Yes.

SOCR. And for their education, they were to be trained in gymnastic and music and in all the studies suitable for them.

TIM. Certainly.

B. And the men so trained, we said, were never to regard gold or silver or anything else as their private possessions. Rather, as a garrison drawing from those whom they protect so much pay for their services as would reasonably suffice men of a temperate life, they were to share all expense and lead a common life together, in the constant exercise of manly qualities and relieved from all other occupations.

TIM. So it was provided.

C. And then we spoke of women. We remarked that their natures should be formed to the same harmonious blend of qualities as those of men; and they should all be given a share in men’s employments of every sort, in war as well as in their general mode of life.

TIM. That too was prescribed.

SOCR. And then there was the procreation of children. Here, perhaps, the novelty of our regulations makes it easy to remember. We laid down that they should all have their marriages and children in common. They were to contrive that no one of them should ever recognise his own offspring, but each should look upon all as one family, treating as brothers and sisters all who fell within appropriate limits of age, and as parents and grandparents, or as children and grandchildren, those who fell above or below those limits.

TIM. Yes; that, as you say, is easy to remember.

SOCR. Then, in order that they might have the best possible natural dispositions from birth, we said, you remember, that the magistrates of both sexes must make secret arrangements

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1 ἀναμφίοτος refers to the proper blend of spirited and philosophic elements mentioned above, which exist in women as in men (Rep. 435a).

For ἀναμφίοτος cf. Rep. 443D.
INTRODUCTORY CONVERSATION 17A–27B

19D. myself is that to celebrate our city and its citizens as they deserve would be beyond my powers. My incapacity is not surprising; but I have formed the same judgment about the poets of the past and of to-day. Not that I have a low opinion of poets in general; but anyone can see that an imitator, of whatever sort, will reproduce best and most easily the surroundings in which he has been brought up; what lies outside that range is even harder to reproduce successfully in discourse than it is in action. The sophists, again, I have always thought, have had plenty of practice in making fine speeches on other subjects of all sorts; but with their habit of wandering from city to city and having no settled home of their own, I am afraid they would hardly hit upon 1 what men who are both philosophers and statesmen would do and say in times of war, in the conduct of actual fighting or of negotiation. There remain only people of your condition, equipped by temperament and education for both philosophy and statesmanship. Timaeus, for instance, belongs to an admirably governed State, the Italian Locri, 2 where he is second to none in birth and substance, and has not only enjoyed the highest offices and distinctions his country could offer, but has also, I believe, reached the highest eminence in philosophy. Critias, again, is well known to all of us at Athens as no novice in any of the subjects we are discussing; and that Hermocrates is fully qualified in all such matters by natural gifts and education, we may trust the assurance of many witnesses. 3 Accordingly this was in

1 δόρεν. This unusual word recalls the description of rhetoric in the Gorgias 463A as a branch of Parasitism—a profession which is not of the nature of an art, but demands a shrewd and virile spirit (φοινχή στρατιωτερίν σαυράς δόρεν) with a native cleverness in human relations. 4 Plato seems to have echoed Isocrates' eulogy of rhetoric as demanding 'a virile and imaginarius spirit' (φοινχή δόσιμος καὶ διοικητικός, κ. σοφ. 17), maliciously substituting στρατιωτερίν. In the Euthydemus (307c) Isocrates is evidently aimed at as one who is 'on the borderline' between philosophy and statesmanship and fails to make the best of either.

2 The constitution of Locri was attributed to Zaleucus (Ar. Pol. 1274A, 22). At Laws 638A the Athenian says that the Locrians are reputed to have the best laws of any western state. If Timaeus never existed, this would account for Plato's choice of Locri for his native place.

3 At 20A, 8 read εἰς χαίρειν F Y Pr., to avoid hiatus with καρπί. So Blume (Att. Burad. II, 453), who reckons hardly more than 50 cases of 'illegitimate' hiatus in the Timaeus, some of which can be removed by adopting other MS. readings, as, for example, here and at 33A, 2 and 38A, 4. The rest, he thinks, should be regarded with suspicion, and some can be easily removed by conjecture, e.g. πωδρα for ποδρα 78C, 1. According to Rader's figures, the instances of illegitimate hiatus in Lysis, Apol., Gorg., 12

20B. my mind yesterday when I was so ready to grant your request for a discourse on the constitution of society: I knew that, if you would consent to supply the sequel, no one could do it better; you could describe this city engaged in a war worthy of her and acting up to our expectations, as no other living persons could. So, after fulfilling my part, I set you, in my turn, the task of which I am now reminding you. You agreed

21C. to consult among yourselves and to require my hospitality to-day. So here I am in full dress for the entertainment, which I am most eager to receive.

Hermocrates. Indeed, Socrates, as Timaeus said, we shall not fail to do our best, and we have no excuse for refusing. Yesterday, as soon as we had reached Critias' guest-chamber, where we are staying, and even while we were still on the way there, we were considering this very matter. Critias then produced a story which he had heard long ago. Critias, will you repeat it now to Socrates, and he shall help us to judge whether or not it will answer the purpose of the task he is laying on us?

Critias. It shall be done, if our remaining partner, Timaeus, approves. Tim. Certainly I approve.

Crit. Listen then, Socrates, to a story which, though strange, is entirely true, as Solon, wisest of the Seven, once affirmed. He was a relative and close friend of Driopides, my great-grandfather, as he says himself several times in his poems; and he told my grandfather Critias (according to the story the old man used to repeat to us) that there were great and admirable exploits performed by our own city long ago, which have been forgotten through lapse of time and the destruction of human life. 4 Greatest of all was one which it will now suit our purpose to recall, and so at once pay our debt of gratitude to you and celebrate the goddess, on her festival, with a true and merited hymn of praise.

Soc. Good. But what was this ancient exploit that your grandfather described on Solon's authority as unrecorded and yet really performed by our city?

Phaedo, Republic range between 33 and 45 per page of the Didot edition. In Soph. and Polit. the figures drop to 0-6 and 0-4, and the Timaeus shows only a slightly higher figure, 1-1. There is a slight further rise in Philebus (37) and Laws (58).

1 I.e. the almost complete destructions of mankind outside Egypt by flood or fire, the ἤθικα δηλούσειν of 226 and Laws 677A, one of which overwhelmed the actors in this exploit (ἠθικὰ τῶν δηλούσαν, 21D). Both Plato and Aristotle believed that such catastrophes occur.
I will tell you the story I heard as an old tale from a man who was himself far from young. At that time, indeed, Critias, by his own account, was close upon ninety, and I was, perhaps, ten years old. We were keeping the Apatouria; it was the Children’s Day. For us boys there were the usual ceremonies: our fathers offered us prizes for reciting. Many poems by different authors were repeated, and not a few of us children sang Solon’s verses, which were a novelty in those days. One of the clansmen said—either because he really thought so or to please Critias—that he considered Solon to have shown himself not only extremely wise but, in his writings, the most free-spirited of poets. The old man—how well I remember it!—was much pleased and said with a smile:

‘Yes, Amyntander; if only he had taken his poetry seriously like others, instead of treating it as a pastime, and if he had finished the story he brought home from Egypt and had not been forced to lay it aside by the factions and other troubles he found here on his return, I believe no other poet—not Homer or Hesiod—would have been more famous than he.’

‘And what was the story, Critias?’ Amyntander asked. ‘It was about the greatest achievement ever performed by our city—one that deserved to be the most renowned of all, but through lapse of time and the destruction of the actors, the story has not lasted down to our time.’

‘Tell it from the beginning’, said Amyntander. ‘How and from whom did Solon hear this tale which he reported as being true?’

‘In Egypt,’ said Critias, ‘at the apex of the Delta, where the stream of the Nile divides, there is a province called the Saitic. The chief city of this province is Sais, from which came King Amasis. The goddess who presides over their city is called Egyptian Neith, in Greek, by their account, Athena; they are very friendly to Athens and claim a certain kinship with our countrymen. Solon said that, when he travelled thither, he was received with much honour; and further that, when he inquired about ancient times from the priests who knew most of such matters, he discovered that neither he nor any other Greek had any knowledge of antiquity worth speaking of. Once, wishing to lead them on

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1. The question from what, and by what, the Nile is ‘set free’ is discussed in the Appendix (p. 369).
2. ληφθέντα, cf. ληφθέντα 214, 5. Not ‘are said to be’: the Egyptian traditions are the oldest, because, although mankind is not completely destroyed anywhere, no records are kept elsewhere by the unlettered survivors of floods and confinements.
INTRODUCTORY CONVERSATION

23. times in larger or smaller numbers. Any great or noble achievement or otherwise exceptional event that has come to pass, either in your parts or here or in any place of which we have tidings, has been written down for ages past in records that are preserved in our temples; whereas with you and other peoples again and again life has only lately been enriched with letters and all the other necessaries of civilisation when once more, after the usual period of years, the torrents from heaven sweep down like a pestilence leaving only the rude and unlettered among you. And so you start again like children, knowing nothing of what existed in ancient times here or in your own country. For instance, these genealogies of your countrymen, Solon, that you were reciting just now, are little better than nursery tales. To begin with, your people remember only one deluge, though there were many earlier; and moreover you do not know that the bravest and noblest race in the world once lived in your country. From a small remnant of their seed you and all your fellow-citizens are derived; but you know nothing of it because the survivors for many generations died leaving no word in writing. Once, Solon, before the greatest of all destructions by water, what is now the city of the Athenians was the most valiant in war and in all respects the best governed beyond comparison: her exploits and her government are said to have been the noblest under heaven of which report has come to our ears."

On hearing this, Solon was astonished and eagerly begged the priest to tell him from beginning to end all about those ancient citizens.

"Willingly," answered the priest; "I will tell you for your own sake and for your city's, and above all for honour of the goddess, patroness of our city and of yours, who has fostered both and instructed them in arts. Yours she founded first by a thousand years, from the time when she took over the seed of your people from Earth and Hephaestus; ours only in later time; and the age of our institutions is given in the sacred records as eight thousand years. Accordingly those fellow-countrymen of yours lived nine thousand years ago; and I will shortly describe their laws and the noblest exploit they performed; we will go through the whole story in detail another time at our leisure, with the records before us.

24. "Consider their laws in comparison with ours; you will find here to-day many parallels illustrating your own institutions in those days. First, there is the separation of the priesthood from the other classes; next the class of craftsmen—you will find that each kind keeps to its own craft without infringing on another; shepherds, hunters, farmers. The soldiers, moreover, as you have no doubt noticed, are here distinct from all other classes; they are forbidden by law to concern themselves with anything but war. Besides, the fashion of their equipment is with spear and shield, arms which we were the first people in Asia to bear, for the goddess taught us, as she had taught you first in your part of the world. Again, in the matter of wisdom, you see what great care the law has bestowed upon it here from the very beginning, both as concerns the order of the world, deriving from those divine things the discovery of all arts applied to human affairs, down to the practice of divination and medicine with a view to health, and acquiring all the other branches of learning connected therewith. All this order and system the goddess had bestowed upon you earlier when she founded your society, choosing the place in which you were born because she saw that the well-regulated climate would bear a crop of men of high intelligence. Being a lover of war and of wisdom, the goddess chose out the region that would bear men most closely resembling herself and there made her first settlement. And so you dwell there with institutions such as I have mentioned and even better, surpassing all mankind in every excellence, as might be looked for in men born of gods and nurtured by them. "Many great exploits of your city are here recorded

1 Isocrates' *Busiris* (certainly earlier in date than the *Timaeus*) mentions the Egyptian caste system, and is itself based on Herod. ii. 164-8. But it is not unlikely that Plato himself had visited Egypt.
2 A.-H. suggests the soundness of the text here. The general sense seems to be that the Egyptians base all the arts applied to human life on the study of the heavens (for ἔμετρα ἀθώοι meaning the invention of arts, cf. Xenophanes frag. 18). οὐδὲ δὴ ἡμῖν μόνον θεῖον δημιουργόν ἔστω, ἀλλὰ γέρων εὔλογων ἄδειαν (καλλιτέχνων δεσμον). Plato's language recalls Isocrates, *Busiris* 21: *Busiris is τῆς ἑυτῆρες φύσεως ἐναέριον θεού. Τὸ τελευταῖόν περὶ τῶν φύσεων ἐναέριον ἐναέριον τελεύτητος. The leisure he provided for the priests enabled them to discover the art of medicine and to practise philosophy. The younger priests study astronomy, calculation, and geometry (perhaps the *μαθηματικα* Plato mentions in the last clause). According to Diod. i. 82, 3 Egyptian physicians were bound to follow the treatment laid down by ancient physicians in sacred books, and condemned to death for departing from it. Aristotle (Poet. iii, 1260A, 13) says that they were allowed to alter the treatment after the fourth day."
24D. for the admiration of all; but one surpasses the rest in
greatness and valour. The records tell how great a power
your city once brought to an end when it insolently advanced
against all Europe and Asia, starting from the Atlantic ocean
outside. For in those days that ocean could be crossed,
since there was an island, in it in front of the strait which
your countrymen tell me you call the Pillars of Heracles.
The island was larger than Libya and Asia put together;
and from it the voyagers of those days could reach the other
islands, and from these islands the whole of the opposite
continent bounding that ocean which truly deserves the name.
For all these parts that lie within the strait I speak of, seem
to be a bay with a narrow entrance; that outer sea is the
real ocean, and the land which entirely surrounds it really
deserves the name of continent in the proper sense. Now
on this Atlantic island there had grown up an extraordinary
power under kings who ruled not only the whole island but
many of the other islands and parts of the continent; and
besides that, within the straits, they were lords of Libya
so far as to Egypt, and of Europe to the borders of Tyrrhenia.
All this power, gathered into one, attempted at one swoop
to enslave your country and ours and all the region within
the strait. Then it was, Solon, that the power of your city
was made manifest to all mankind in its valour and strength.
She was foremost of all in courage and in the arts of war,
and first as the leader of Hellas, then forced by the defection
of the rest to stand alone, she faced the last extreme of
danger, vanquished the invaders, and set up her trophy;
the peoples not yet enslaved she preserved from slavery,
and all the rest of us who dwell within the bounds set by
Heracles she freed with ungrudging hand. Afterwards there
was a time of inordinate earthquakes and floods; there came
one terrible day and night, in which all your men of war
were swallowed bodily by the earth, and the island Atlantis
also sank beneath the sea and vanished. Hence to this day
that outer ocean cannot be crossed or explored, the way
being blocked by mud, just below the surface, left by the
setting down of the island.”

1 Serious scholars now agree that Atlantis probably owed its existence
entirely to Plato’s imagination. See Fruggeri, Mythische Flaat, 244 ff.

2 The Ellyn. Mag. connects τηρεοτος with τατοτος; land not bounded by
sea as an island is: τατοτος should be taken with τηρεοτος. The outer
continent is “unbounded” as forming a completely unbroken ring.

3 Reading καιρος βηθος. ‘at a slight depth’. See Appendix, p. 356.
INTRODUCTORY CONVERSATION 17a–27b

26E. find other characters, if we abandon these? No, you shall
27. speak and good luck¹ be with you; I have earned by my
discourse of yesterday the right to take a rest and listen.

Crtt. Then I will submit to you the plan we have arranged
for your entertainment, Socrates. We decided that Timaeus
shall speak first. He knows more of astronomy than the
rest of us and has made knowledge of the nature of the universe
his chief object; he will begin with the birth of the world
and end with the nature of man. Then I am to follow, taking
over from him mankind, whose origin he has described, and
from you a portion of them who have received a supremely
good training. I shall then, in accordance with Solon’s
enactment as well as with his story, bring them before our
tribunal and make them our fellow-citizens, on the plea that
they are those old Athenians of whose disappearance we are
informed by the report of the sacred writings. In the rest
of our discourse we shall take their claim to the citizenship
of Athens as established.

Socr. I see that I am to receive a complete and splendid
banquet of discourse in return for mine. So you, Timaeus,
are to speak next, when you have invoked the gods as custom
requires.

It has often been remarked that this introductory conversation,
right down to Critias’ last speech, might have been written for the
Critias only, as if the task set by Socrates could have been com-
pletely fulfilled by the story of Atlantis. Plato’s purpose may have
been to indicate that, now as ever, his chief interest lies in the field
of morals and politics, not in physical speculation. The whole
cosmology of the Timaeus is only a preface to the legendary picture
of the ideal state in action and in physical speculation. The reader
might be encouraged to persevere by the promise of an exciting
romance to follow. It is, at any rate, well to remember that the
unfinished state of the trilogy gives the Timaeus a prominence it
would not have had in the completed design.

¹ Good luck is invoked here, the gods below (27C). Cfr. Laws vi, 757ε τὰς
cαὶ ἀρχὴν τοῦ ὥρκου καὶ τὰν ὑπὸ τῶν συμμάχων. At Epin. 991d and 992a
θέτει καθερμαντία ύπερ τῶν κόσμων are treated as equivalent.

NATURE AND SCOPE OF PHYSICS

THE DISCOURSE OF TIMAEUS

27C–29D PREDIGE. The nature and scope of Physics

Timaeus’ prelude, marked off from what follows by Socrates’
expression of approval (29D), lays down the principles of the whole
discourse and defines the limitations of any treatment of physics.
It is constructed with great care. After the opening invocation
of the gods, the second paragraph states three general premisses
concerning anything that is not eternal, but comes to be. These
premisses are then applied successively to the visible universe. (1)
The eternal is the intelligible; what comes to be is the sensible.
Since the world is sensible, it must be a thing that comes to be.
(2) Whatever comes to be must have a cause. Therefore the world
has a cause—a maker and a father; but he is hard to find. (3) The
work of any maker will be good only if he fashions it after an eternal
model. The world is good; so its model must have been eternal.
Finally, the conclusion is drawn: any account that can be given
of the physical world can be no better than a likely story, because
the world itself is only a likeness of unchanging reality.

27C. TM. That, Socrates, is what all do, who have the least
portion of wisdom: always, at the outset of every under-
taking, small or great, they call upon a god. We who are
now to discourse about the universe—how it came into being
or perhaps had no beginning of existence—must, if our senses
be not altogether gone astray, invoke gods and goddesses
with a prayer that our discourse throughout may be above
all pleasing to them and in consequence satisfactory to us.¹

D. Let this suffice, then, for our invocation of the gods; but we
must also call upon our own powers,² so that you may follow
most readily and I may give the clearest expression to my
thought on the theme proposed.

¹ ἐνέπνευσεν ὧδε is usually taken to mean ‘consistently with ourselves’
and translated ‘consistent with itself’. But this should be ἐνέπνευσεν ὧδε
ἀπὸ αὐτῶν, and at 29C we are told not to expect ἐνέπνευσεν ἡμῶν ὧδε
ἀπὸ αὐτῶν. Proclus rightly understood ἐνέπνεαν as ‘secondarily’ or ‘conse-
quently’ (as at Ar. Met. iv 102, 22: the word ‘being’ applies primarily
to substances, ἐγενότοις to other categories): he writes τὸν γὰρ ὑδὲν τὰ
ἀρχηγάτων θεομασία τέλος, τὸ τῶν τενων ἐνδεχόμενον νόημα. . . . διενεργὸν δὲ τῷ καὶ ἐνόμισαν τοῖς τὰ κατὰ τὸν ἔνασμόν τοὺς διενεργῆσαι τὰ ἄρας θεώρημα (I, 2211). ἐνέπνευσεν depends on κατὰ νόημα, κατὰ τὰ ἐν
τὰς ἐνέπνειας ὧδε τῶν διενεργοταχῶν κατὰ νόημα, 290 ἐν κατὰ νόημα ὧδε
ἡμῶν ὧδε. ἐνέπνευσεν replaces the usual ἐνέπνευσεν particly for euphony, partly perhaps to suggest that the discourse, if
pleasing to heaven, should consequently be satisfactory to us.


22
NATURE AND SCOPE OF PHYSICS

27D. We must, then, in my judgment, first make this distinction: what is that which is always real and has no becoming, and what is that which is always becoming and is never real? That which is apprehensible by thought with a rational account is the thing that is always unchangeably real; whereas that which is the object of belief together with unreasoning sensation is the thing that becomes and passes away, but never has real being. Again, all that becomes must needs become by the agency of some cause; for without a cause nothing can come to be. Now, whenever the maker of anything looks to that which is always unchanging and uses a model of that description in fashioning the form and quality of his work, all that he thus accomplishes must be good. If he looks to something that has come to be and uses a generated model, it will not be good.

So concerning the whole Heaven or World—let us call it by whatsoever name may be most acceptable to it—we must ask the question which, it is agreed, must be asked at the outset of inquiry concerning anything: Has it always been, without any source of becoming; or has it come to be, starting from some beginning? It has come to be; for it can be seen and touched and it has body, and all such things are sensible; and, as we saw, sensible things, that are to be apprehended by belief together with sensation, are things that become and can be generated. But again, that which becomes, we say, must necessarily become by the agency of some cause. The maker and father of this universe it is a hard task to find, and having found him it would be impossible to declare him to all mankind. Be that as it may, we must go back to this question about the world: after which of the two models did its builder frame it—after that which is always in the same unchanging state, or after that which has come to be? Now if this world is good and

B. Again, these things being so, our world must necessarily be a likeness of something. Now in every matter it is of great moment to start at the right point in accordance with the nature of the subject. Concerning a likeness, then, and its model we must make this distinction: an account is of the same order as the things which it sets forth—an account of that which is abiding and stable and discoverable by the aid of reason will itself be abiding and unchangeable (so far as it is possible and it lies in the nature of an account to be incontrovertible and irrefutable, there must be no falling short of that); while an account of what is made in the image of that other, but is only a likeness, will itself be but likely, standing to accounts of the former kind in a proportion: as reality is to becoming, so is truth to belief. If then, Socrates, in many respects concerning many things—the gods and the generation of the universe—we prove unable to render an account at all points entirely consistent with itself and exact, you must not be surprised. If we can furnish accounts no less likely than any other, we must be content, remembering that I who speak and you my judges are only human, and consequently it is fitting that we should, in these matters, accept the likely story and look for nothing further.

SOCR. Excellent, Timaeus; we must certainly accept it as you say. Your prelude we have found exceedingly acceptable; so now go on to develop your main theme.

The chief point established in this prelude is that the visible world, of which an account is to be given, is a changing image or likeness (shew) of an eternal model. It is a realm, not of being, but of becoming. The inference is that no account that we or

1 With Fr. (I.240) I take δει κατα ταυτον δι — το ον ολε, γενονται δε ους ξυν above) and γενομενον και ἀποκλίμονα, διεται δε οθοδοτευν δι — το γεγομενον μην ολε, δε δοκεομεν αποκλιμον above) as the terms to be defined and το νοεμα ... συνοηστον and το ... δοκεομενον as the definitions demanded in the previous sentence. Cf. the repetition of this statement below at 288, 8 as we saw, sensible things, apprehensible by belief together with sensation, are things that come to be and can be generated.

2 Good, satisfactory; as at Gen. i. 8, 'God saw that it was good' (οικειον μην τον, LXX). The Greek word means also 'desirable', 'beautiful', and will be sometimes so translated.

3 Heaven (ουρανος) is used throughout the dialogue as a synonym of cosmos, the entire world, not the sky.

4 These things means the whole application to the world of the three foregoing premises. There should be a full stop before τοις δι ἐκαταρχης αδ as before τους δε ἐκπαρχουσα αδ at 300c, 2.

5 In this sense, 31A, 1.

6 Burnet's text. The uncertainty of the reading does not affect the sense.
anyone else can give of it will ever be more than 'likely'. There can
never be a final statement of exact truth about this changing
object.

(1) Being and Becoming. The first premiss lays down the
Platonic classification of existence into two orders. The higher is
the realm of unchanging and eternal being possessed by the Platonic
Forms. This contains the objects of rational understanding accom-
panied by a rational account (μετὰ λόγον), namely, the discursive
arguments of mathematics and dialectic which yield a securely
grounded apprehension of truth and reality.1 The lower realm
contains 'that which is always becoming', passing into existence,
changing, and perishing, but never has real being. This is the
world of things perceived by our senses. Sense-perception, as
Proclus remarks (i., 249), is 'unreasoning' in several ways: Sight
tells us that an apple is red, smell, that it is fragrant, taste, that it
is sweet; judgment (not sense) tells us that it is an apple. If
the sun looks to our eyes a foot in width, the reasoning which assures
us that the sun is really larger than the earth will never make it
look any bigger. Finally, sense can never apprehend what whiteness
is; sight is merely aware, by its own passive affection, that
some object is white. The judgments we pass on objects of percep-
tion are also unreasoned. They can only state what is, at best,
a fact when the judgment is made, though it may cease to be a fact
when the object changes. The reason why can only be appre-
hesended by the higher faculty of understanding.

The application of this premiss tells us that the visible world—
the object of physics, as distinct from mathematics and dialectic
—belongs to the lower order of existence. As having a visible and
tangible body, it is an object of perception and of judgments based
on perception. Accordingly, it belongs to the realm of 'things
that become and can be generated'. It is not eternal, but has a
beginning or source of becoming.

The ambiguity of the word 'becoming' (γίνεσθαι, γενεσθαι)
gave rise to a controversy on the question whether Plato really
meant, as he appears to mean, that the world had a beginning in
time. (a) A thing comes into existence at some time, either suddenly
or at the end of a process during which it has been developing
(if it is a natural object that is born and grows) or has been fashioned
(if it is a thing made by a craftsman). This sense of the word
corresponds to the notion of a cause imaged as a father who begets
his offspring, or as a maker who fashions his product out of his

1 So at 51ε rational understanding is 'always accompanied by a true
account' (διότι μὲν ἄλληρα λόγον), whereas 'true opinion' can give no
rational account of itself (is ἀλογος).

materials. The thing is not there at the beginning of the process;
it is there at the end: we can say 'it has become'. (b) To 'be-
come' can also mean to be in process of change. The word is used
of events that are happening; or changes that are 'going on'.
It is true that in such 'becoming' something new is always appear-
ing, something old passing away; but the process itself can be
conceived as going on perpetually, without beginning or end. For
this perpetual becoming the sort of cause needed is not a cause
that will start the process at some moment and complete it at
another, but a cause that can sustain the process and keep it going
endlessly. For such a cause both the images, 'father' and 'maker',
are inappropriate. We should need rather to think of some ideal
or end, constantly exercising a force of attraction, and perhaps
of some impulse in the thing itself, constantly aspiring towards the
ideal.

Which kind of becoming did Plato mean to attribute to the
physical world? On the surface, he speaks of becoming in the
first sense, as if the ordered world came into existence at some time
out of a previous state of disorder. It was made by a divine
Craftsman, and completed once for all (ἀποτελεῖθαι, 28b, 1).
The question is immediately prejudged where he simply substitutes
for the cause of becoming, mentioned in the second premiss, the
maker, mentioned in the third. We may compare the division of
production in the Sophist (265b) into the two kinds, divine and
human. Is the coming into being of natural things out of not-
being to be attributed to divine craftsmanship (θεοὶ δημιουργοῦς),
'a causation which, working with reason and art, is divine and
proceeds from divinity', or to 'Nature, giving birth to them as
a result of some spontaneous cause that generates without in-
telligence'? Both speakers accept the alternative of divine
craftsmanship. The suggestion in either case is that the world
had a beginning of existence in time. The only question is, whether
it was made upon a divine plan or grew by some blind spontaneous
impulse. Similarly in the Philebus (26c) we hear that all things
that become must have some cause (αἰτία), and this is immediately
identified with 'the maker' (τὸ ποιεῖν); 'what becomes' and
'what is made' are two names for one thing. As in the Timaeus,
the Craftsman (τὸ δημιουργοῦ) is substituted as the equivalent
of 'the maker' and of 'the cause'; and later (28b) this cause is
said to be Intelligence, the King of Heaven and Earth.

On the other hand, the statement that the world 'has become'
in this sense is formally contradicted by the language of the first
premiss, which contrasts with the eternally real 'that which is
always becoming, but never has real being'. This phrase can only
mean what 'becomes' in the second sense, what is everlastingly in process of change. The application of the premis to the visible world must mean that the world belongs to the lower order of existence so described. This is clear from the reason Plato gives for saying that the world "has become": 'for it is visible and tangible and has a body and all such things are sensible,' and what is sensible belongs to the lower order, in contrast with the realm of eternal being. Modern authorities, accordingly, agree with Proclus, who contrasts the undivided and eternal being of the intelligible, which is not in time, with the everlastingly existing in time of the world. The phrase "it has become" he understands as meaning that the world possesses 'the existence that is measured by time', a derivative and dependent existence which is not self-sufficing. In this matter Proclus was following the main tradition of the Academy, from Xenocrates, Plato's second successor, onwards. Speaking of contemporaries at the Academy, Aristotle writes: 'They say that in describing the generation of the world they are doing as a geomater does in constructing a figure, not implying that the universe ever really came into existence, but for purposes of exposition facilitating understanding by exhibiting the object, like the figure, in process of formation' (de caelo, 279b, 33). Professor Taylor finds that apparently this tradition was steadily maintained by almost all the Platonists down to the time of Plotinus (in the third century A.D.). Proclus mentions only two dissentients, Plutarch himself and Atticus, an acute and learned Platonist of the age of the Antonines. Though Aristotle chose to criticise Plato's statement in its apparently literal meaning, his colleague Theophrastus recorded the Academic interpretation as at least possible. This question is, of course, bound up with the question whether the Demiurge, as such, is mythical. If he was not really a 'maker', then there was no moment of creation. We shall presently argue in support of this position. For the present we may accept the Academic tradition.

(2) The Cause of Becoming. It follows that the 'cause' of this becoming must be a perpetually sustaining cause. The application of the second premis merely states that the maker and father of the universe is hard to find and impossible to declare to all men. Plato, in fact, does not pretend to have solved the mystery of the universe; and had he done so, he would not (as the Seventh Letter declares) have set down the solution in writing for all men to read

1 The evidence is collected by Tr., p. 67. 2 See Tr., p. 69, note. Add the testimony of Albinus (Alcinous): "When Plato speaks of the world as 'generated', it is not to be understood that there ever was a time when the world did not exist" (Didasc., ch. xiv). Cf. Macrobius, Somn. Seip. II. a. 9.

Model and Copy

and misunderstand. He was certain that the visible world exhibited the working of a divine intelligence aiming at what is good, and he held it to be of the utmost importance for the conduct of human life that this should be believed. The truth is best conveyed by the image of the divine maker, pictured as distinct (like the human craftsman) from his model, his materials, and his work. But he here warns us not to imagine that, in using this image, he has declared the true nature of the cause. It is to be taken, not literally, but as a poetical figure. The whole subsequent account of the world is cast in a mould which this figure dictates. What is really an analysis of the elements of rational order in the visible universe and of those other elements on which order is imposed, is presented in mythical form as the story of a creation in time. Plato had used a similar device in the Republic, where the analysis of the ideal State is cast into the form of a history, starting from the barest necessities of social life and adding storey upon storey to the fabric. He did not mean that any actual state ever came into existence by these stages. What the sustaining cause is, Plato does not tell us and could not tell us without stepping outside the framework of the very myth he is constructing. This question, again, must be held in reserve till we have considered the status of the Demiurge.

(2) Model and copy. The third premis and its application develop the further image of the craftsman and his model. If a craftsman copies an eternal model, his work will be good; if the model is a generated thing, it will not be so. The reference is to Republic X, where the good type of craftsman is the carpenter who makes an actual bed, taking for his model "the real bed"—a Form which he does not create or invent, but which exists in the nature of things. The bad type is the painter who takes a generated thing, the carpenter's bed, for his model, and produces only an appearance of a thing which itself is not wholly real, an image of an image. The same analogy is drawn in the Sophist, 265g. The "divine production of originals" (the contents of the visible world, made by the Demiurge in the Timaeus) is parallel to the human craftsmanship which builds an actual house. In nature there are also dream-images, shadows, reflections, parallel to the painter's
picture of a house, 'a man-made dream for waking eyes.' In the application here it is argued that, since the visible world is, in fact, good, its maker must have copied a model that is eternal. The world, then, is a copy, an image, of the real. It is not, indeed, like an artist's painting, at the third remove from reality; but on the other hand it is not wholly real. Plato will return to consider the nature of the model at 30c.

*Physics only a 'likely story'.* Hence follows the conclusion in the last paragraph: the visible world being only a likeness of the real, no account of it can be more than a likely story.

Here it is important to observe that the statement that the world is an image or likeness is independent of the symbolism of the Demiurge creating his work after a model. Not all images are made by artists. Among likenesses, Plato often instances reflections in water or in a mirror. For these all that is required is the thing reflected, the reflection, and the medium which holds it. If the world is an image of that sort, we can dispense with the maker in any literal sense. The realm of Forms will be the original, the visible world the reflection; and the medium will be that Prospectacle of becoming which is later provided. We shall, in fact, find in the second part of the dialogue that the three factors needed are Being, Becoming, and Space (320), and the symbol of the father is there transferred to Being, which serves as the model for Becoming (500), as if the Forms themselves could be credited with the power to beget Becoming in the womb of Space, or to cast their reflections on that medium. It is true that this symbolism again cannot be taken literally: the Forms can possess no generating power. There must also be a rational soul to cause motion. But, however this moving cause may be mythically represented, the conclusion that the visible world is an image of the eternal remains. It is supported by many passages in other dialogues which are not mythical in form. It is, indeed, the cardinal doctrine of Platonism.

The doctrine carries with it the conclusion that since the world is only a likeness of the real, any account of it can be no more than a 'likely' story. This means that there can be no exact, or even self-consistent, science of Nature. The view is characteristically Platonic. There is no evidence that any of the earlier Pythagoreans doubted the possibility of physical science. On the contrary, Aristotle says that they did not distinguish sensible bodies from the solids of mathematics, as if they agreed with the physical philosophers in general that the visible world is the real.\(^1\) In fact, they ignored the distinction here drawn by Plato between the field of eternal truth, which includes mathematics, and the region of physics.

In Plato's view there can be no exact science or knowledge of natural things because they are always changing.\(^1\) The objects of mathematical science are timeless and invariable; the things of sense are always in process of becoming. An 'account' must be of the same order as its objects. The objects of physics are of the lower order, apprehensible only by belief involving sense-perception. The substance of our account of them must be related to truth in the same way as Becoming to Being—the relation of a 'likeness' to reality. This analogy was symbolised in *Republic* vi by the Divided Line, of which the lower part stands for belief (βίσον or τύχε) and its changing objects, the higher part for rational understanding and true reality. There is, accordingly, no such thing as a science of Nature, no exact truth to which our account of physical things can ever hope to approximate.

I here differ from Professor Taylor, who says that the cosmology of the *Timaeus* 'properly speaking is not "science" but "myth", not in the sense that it is baseless fiction, but in the sense that it is the nearest approximation which can " provisionally " be made to exact truth' (p. 59, my italics). Things which change or move or grow are always 'turning out to be more or less than we had supposed them to be', and so, in all the natural sciences, we need 'to be perceptually revising and improving on the results' we have reached about them. 'Physical laws' are always being revised and 'corrected' in the light of newly discovered 'facts' or of more accurate measurements of 'facts' which were already familiar. This is a materialism. It implies that there is an exact truth in physics, to which we can constantly approximate. Plato denies this. The becoming which makes physical things unknowable cannot be reduced to their 'turning out' to be more or less than we had supposed. A similar confusion is suggested by Burnet's account of the *Timaeus* (Greek Phil. i, 340): Our account of the world 'will be truth in the making, just as the sensible world is the intelligible world in the making'. The phrase 'in the making' suggests that the sensible world is on the way to become, and might end by becoming, the intelligible world, and similarly that our accounts of it are on the way to become, and might end by becoming, truth. The one result is as impossible as the other.

\(^1\) Aristotle, *Met. A* 6: 'Plato, having in his youth become familiar with Cratylus and with the Heraclitean doctrine that all sensible things are ever in a state of flux and there is no knowledge about them, continued to hold these views in later years.'
Plato's word 'likely' (εἰκόν) has a history going back to Parmenides and Xenophanes, and even to Hesiod. It means 'probable' or 'plausible'. In Parmenides' poem the goddess, after revealing the nature of the real, turns to the region of false appearance and mortal opinion; this she calls a 'plausible' world-order. Xenophanes had used the full phrase: 'Let these be taken as fancies, something like the truth.' Diels compares Parmenides' goddess to Hesiod's Muses, who 'know how to tell many fictions that are like the truth, or, when they will, to speak the truth itself.' Poetry may be fiction that is like the truth, not wholly false. The cosmology of the Timaeus is poetry, an image that may come nearer to conveying truth than some other cosmologies. But the truth to which it can approximate is not an exact and literal statement of 'physical laws', such as modern science dreams of; it is the truth, firmly believed by Plato, that the world is not solely the outcome of blind chance or necessity, but shows the working of a divine intelligence. Plato would have claimed that, considered as an explanation of sensible appearances, his own theory of the simple primary bodies and their transformations was quite as plausible as the atomic theory of Democritus. He would also have claimed that it was a better explanation and nearer to the truth in that it attributes to intelligible design much that Democritus left to mere chance. This nearness to truth has nothing to do with the modern notion of 'approximation' indicated, for example, in the following passage: 'The accuracy of the observations is dependent on the limits to the discriminative fineness of our senses, and on the delicacy of our "instruments of precision" ... When all possible precautions have been taken, the measurements of physical magnitudes are necessarily approximate and would remain so even if we had not to allow for the possible modifications of every hypothesis in natural science by the discovery of new "appearances".'

1 Parm. 8, 60, τον αυτοθαλήθη μεν ἑνας πιστεύει, ἐν οἷς μὴν τις σε βραστον γνώμην κατάθηκε. A possible interpretation of the second line would assimilate it to Plato's λόγον μεθέων οὐκ εἰστε ἐλεκτρον. Proclus (i. 343) rightly connects Parmenides' distinction between Truth and Belief with Plato's here.

2 Xenoph. 35, ταῦτα διδασκόντα μὴ λοιπον ταῖς κτήσεωι.

3 Hesiod, Thog., 27

4 Xenoph. 35, ταῦτα διδασκόντα μὴ λοιπον ταῖς κτήσεωι.

5 Plato, Gorgias, 496b, ἀναγκαίαν ἀποκαλεῖν, ἀλλὰ χαιρέτως.

6 Odyssey, 19, 203, means a false but plausible story.

7 Tr. p. 73. I hope I am not misrepresenting Professor Taylor. These sentences come from a passage which professes to state Plato's conclusion, 'as we should put it'. If all that Plato meant by calling physics a 'likely story' was that natural science must always be provisional and progressive, we should expect him to state what he believed to be the nearest approxima-

The Timaeus is a poem, no less than the De rerum natura of Lucretius, and indeed more so in certain respects. Both poets are concerned, in the first instance, with our practical attitude towards the world—what we should make of our life there and how face the prospect of death. Lucretius believed that atoms and void are the ultimately real things of which everything that exists is built. Plato denied reality to what is commonly called matter; his real things are the Forms, and the bodies we touch and see are not built of Forms, nor are the Forms in them (528, c). Accordingly, for Lucretius reality is in the world of sensible things and he can offer statements about its nature which claim to be literally true; for Plato that whole world is an image, not the substance. You cannot, by taking visible things to pieces, ever arrive at any parts more real than the whole you started with. The perfection of microscopic vision can bring you no nearer to the truth, for the truth is not at the further end of your microscope. To find reality you would do better to shut your eyes and think.

There are two senses in which the Timaeus is a 'myth' or 'story' (μυθικός). One we have already considered: no account of the material world can ever amount to an exact and self-consistent statement of unchangeable truth. In the second place, the cosmology is cast in the form of a cosmogony, a 'story' of events spread out in time. Plato chooses to describe the universe, not by taking it to pieces in an analysis, but by constructing it and making it grow under our eyes. Earlier cosmogonies had been of the evolutionary type, suggesting a birth and growth of the world, due to some spontaneous force of life in Nature, or, as in Atomism, to the blind and undirected collision of lifeless atoms. Such a story was, to Plato, very far from being like the truth. So he introduced, for the first time in Greek philosophy, the alternative scheme of creation by a divine artificer, according to which the world is 'a work of art designed with a purpose. The Demiurge is a necessary part of the machinery, if the rational ordering of the universe is to be pictured as a process of creation in time. But the important point is that, no matter whether you prefer to analyse the world or to construct it piece by piece, the account can never be more than 'likely', because of the changing nature of its object; it can never be revised and amended into exact truth. We may here read a warning to the interpreter of the Timaeus.
Some have regarded the mythical character of the dialogue as a ‘veil of allegory’, which can be ‘stripped off’, and have imagined that they could state in literal terms the meaning which Plato has chosen to disguise. It is true that we can say, with a fair degree of certainty, that some features are not to be taken literally. We shall soon find reason to say this much of the Demiurge. But there remains an irreducible element of poetry, which refuses to be translated into the language of scientific prose. Plato declares that his account, so far from being exact, cannot even be consistent with itself. The inexactness and inconsistency are inherent in the nature of the subject; they cannot be removed by ‘stripping off the veil of allegory’. An allegory, like a cypher, has a key; the Pilgrim’s Progress can be retranslated into the terms of Bunyan’s theology. But there is no key to poetry or myth.

Plan of the Discourse. The discourse on the nature of the universe and of man which now begins and continues without interruption to the end of the dialogue, is divided into three main sections.

1. The first (29d–47e) is described as containing the works of Reason (πάντα ἕνας διάδοχος συναρµόνησα, 47e), those elements in the visible world, and especially in the heavens, which most clearly manifest an intelligent and intelligible design. Here Plato approaches the world (so to say) from above, from the realm of the benevolent maker and the Form which provide his model. The Demiurge himself is responsible for the main structure and ordered movements of the world’s soul and body, and for the creation of the heavenly gods: stars, planets, and Earth. These created gods are then associated in the task of fashioning mankind and the other animals. A preliminary account of the human soul, disordered at its incarnation by the assaults of the material world, leads to the physical mechanism of sense-perception. This is contrasted with the rational purpose of sight and hearing, as revealing the order and harmony which our souls need to relearn and re-establish in themselves. The physical process whereby light acts upon the eyes or sound upon the hearing is a secondary and subordinate type of causation, the means by which the true purpose is attained. Such causation is connected with the notion of Necessity, as opposed to Reason.

2. The second section (47e–60a) contains ‘what comes about of Necessity’ (πάντα δι’ Ἀνάγκης γεγόνα, 47e). Making a fresh start, the discourse plunges into the obscure region of the bodily and of blind causation, approaching the world this time from below. A new factor, Space, is introduced, as the necessary condition or medium in which Becoming images reality. The unlimited and unbroken qualities and powers of the bodily are pictured as a chaos. The Demiurge imposes upon them a rational element of geometrical form in the shapes of the four primary bodies. The properties of these regular figures are then connected with certain qualities in the sensations we receive; and so, from the opposite pole, we return to the point of contact between the human organism and the outer world, where the first part ended.

3. In the third section (69a–end), the two strands of rational purpose and necessity are woven together in a more detailed account of the human frame, the working of its organs, and the disorders of body and soul.

I. The Works of Reason

29d–30c. The motive of creation

Foreshadowing the contrast between rational purpose and the blind operation of Necessity, Plato opens with the creator’s motive, the true reason (τέλος) for the existence of an ordered world in the realm of Becoming.

29d. TIM. Let us, then, state for what reason becoming and

ε. this universe were framed by him who framed them. He was good; and in the good, no jealousy in any matter can ever arise. So, being without jealousy, he desired that all things should come as near as possible to being like himself. That this is the supremely valid principle of becoming and of the order of the world, we shall most surely be right to accept from men of understanding. Desiring, then, that all things should be good and, so far as might be, nothing imperfect, the god took over all that is visible—not at rest, but in discordant and unordered motion—and brought it from disorder into order, since he judged that order was in every way the better.

Now it was not, nor can it ever be, permitted that the work of the supremely good should be anything but that which is best. Taking thought, therefore, he found that, among things that are by nature visible, no work that is without intelligence will ever be better than one that has intelligence, when each is taken as a whole, and moreover that intelligence cannot be present in anything apart from soul. In virtue of this reasoning, when he framed the universe, he fashioned reason within soul and soul within body, to the end that the work he accomplished might be by nature as excellent and
THE DEMIURGE

30b. perfect as possible. This, then, is how we must say, according to the likely account, that this world came to be, by
the god's providence, in very truth a living creature with
c. soul and reason.

The Demiurge. The dialogue yields no more information about the Demiurge than is conveyed in this passage. Here, then, we
may take up the question, how far this figure is mythical and what it really stands for. The temptation to read into Plato's words
modern ideas that are in fact foreign to his thought has proved too
much for some commentators.

Plato is introducing philosophy for the first time the image
of a creator god. Recalling the punishment inflicted by jealous
Olympians upon Prometheus for his benefits to mankind, he denies,
as he had done before, the current notion that the gods grudge
to man a perfection and felicity like their own. The kernel of
Plato's ethics is the doctrine that man's reason is divine and that
his business is to become like the divine by reproducing in his
own nature the beauty and harmony revealed in the Cosmos,
which is itself a god, a living creature with soul in body and reason
in soul, as here described. Hence he repudiates the old maxim
warning man not to provoke nemesis by harbouring aspirations
too high for mortals. Near the end of the dialogue he explicitly
enjoins the duty of 'thinking thoughts immortal and divine' and
endeavouring 'to possess immortality in the fullest measure that human nature permits' (60c). By calling the Demiurge ungrudging,
he may also imply that the imperfection of the world is due
to Necessity, not to the deliberate withholding of any excellence
that it might possess.

This is all that is meant by the statement, in the first paragraph,
that the god is not jealous or grudging. The reader must be warned
against importations from later theology. Professor Taylor, for
instance, after pointing out that Timaeus is thinking of the common
Greek view that the divine (to deios) is grudging in its bestowal
of good things, proceeds: 'So just because God is good, He does
not keep His blessedness selfishly to Himself. He seeks to make
something else as much like Himself in goodness. It is of the very
nature of goodness and love to "overflow". This is why there
is a world and why, with all its defects, it is "very good"' (p. 78).
If this is intended as a paraphrase of Plato's words, it is misleading.
There is, in the first place, no justification for the suggestion,

1 It is literally true (not merely 'probable') that the world is an intelligent living creature.
2 Phaedrus 247a, μόριον γὰρ ζῶντα δεῖ αὐτοῖς ἰσότοιο νόειν.

conveyed by 'God' with a capital letter, that Plato was a mono-
thetist. He believed in the divinity of the world as a whole and
of the heavenly bodies. The Epinomis recommends the institution
of a cult of these celestial gods. Neither in the Timaeus nor
anywhere else is it suggested that the Demiurge should be an object
of worship: he is not a religious figure.1 He must, therefore, not
be equated with the one God of the Bible, who created the world
out of nothing and is also the supreme object of worship.2 Still
less is there the slightest warrant in Greek thought of the pre-
Christian centuries for the notion of 'overflowing love', or love of
any kind, prompting a god to make a world. It is not fair either
to Plato or to the New Testament to ascribe the most characteristic
revelations of the Founder of Christianity to a pagan polytheist.

The nature and position of the Demiurge cannot be finally
determined without considering that central utterance of the whole
dialogue which declares that the universe is produced by a combina-
tion of Reason and Necessity: 'Reason overruled Necessity by
persuading her to guide the greatest part of the things that become
towards what is best' (48A). When we come to that passage, we
shall ask what Necessity stands for, how Necessity can be 'per-
suaded' by Reason, and why she should need to be persuaded.
Further on still (52n), we shall find a more detailed picture of that
chaos of disorderly motions and powers which the Demiurge has
just been described as 'taking over' and reducing, so far as may
be, to order. Necessity and chaos are represented as factors in
the visible world which confront the divine intelligence, like the
given materials which the human craftsman must use as best he
can, though their properties may not be wholly suitable to his
purpose. It will be argued that this second factor in the world

1 The 'Maker' in some primitive mythologies has been similarly mis-
interpreted. Professor Nilsson writes: 'Just as man arranges matters
as conveniently as he can to suit his simple needs, building a hut and
making his few tools, and just as the advance of culture is brought about
by culture-heroes, so, it is said, there was at the beginning of time one
though much more powerful than man, who arranged the world as con-
veniently as possible to supply man with all that he needed. This creator,
who is found among many primitive peoples, is called by the Australians
characteristically enough "the Maker" (Baianme). He has also fixed the
customs and institutions of the tribe. At first sight it would seem as though
we had here a highly developed monothestic type of divinity, but the idea
is in reality due to the indolence of primitive habits of thought. The creator
is a mythological, not a religious divinity; and, therefore, he has no cult
and no one troubles about him' (A History of Greek Religion, 1925, p. 72).
2 The contrast between the Demiurge and the Christian Creator is developed
in an interesting paper by Dr. M. H. Foster in Christian Theology and Modern
must not be explained away so as to give Plato's Demiurge the status of the omnipotent Creator of Jewish-Christian theology. We shall find that if Plato's language is to keep any substantial meaning, we must not ascribe to him either the belief in an omnipotent creator or the notion of natural law as a closed system of causes and effects. His Necessity is irregular and disorderly, and not inexorably determined, but open to the persuasion of Reason; and Reason has need to persuade her, not having unlimited power to compel. This is not easy for us to understand; but there is no need to explain it away. The omnipotent Creator and the modern notion of natural law were equally foreign to the minds of ancient Greece. Galen truly observed that, with respect to omnipotence, 'the doctrine of Moses differed from that of Plato and of all the Greeks who have correctly approached the study of Nature.' For Moses, God has only to will to bring matter into order, and matter is ordered immediately. We do not think in that way; we say that certain things are impossible by nature and these God does not even attempt; he only chooses the best among the things that come about (U.P. xi, 14). To this I would add a quotation from Professor G. C. Field. He points out that omnipotence is incompatible with the ordinary and familiar notion of purpose, which we never regard as a complete and sufficient explanation of anything: 'it is always purpose working in certain materials, or under certain conditions, which make it intelligible why this has to be done rather than that in order to fulfil the purpose'. He concludes that the appeal to purpose as a satisfying principle of explanation cannot claim to be decisively established, and if it points to anything, it points in the direction of the idea of a Highest Purpose working in a universe which includes him as a part only of the whole, and a part which, however powerful and important, is at some point limited and restricted by other elements in the whole. I do not myself see any insuperable philosophic objection to such an idea. It appealed, if I interpret him aright, to Plato, in the final development of his doctrine.

This conclusion is unquestionably consistent with what Plato actually says. Again and again, throughout the Timaeus, we are told that the benevolent Demiurge designed that such and such an arrangement should be 'as good as possible', with the clear implication that his purpose was restricted by that other factor called Necessity. We must accept this, on pain of reducing much of his language to nonsense. There is nothing against it, except the desire to bring Plato into conformity with Christian doctrine or


with some modern form of idealism. If this desire is brought into consciousness, it can be resisted; for to yield to it is to do Plato no service. If we make his Demiurge omnipotent and at the same time attribute to him the modern conception of natural law, we shall involve him in the nineteenth-century 'conflict of religion and science'; for this arose largely out of the attempt to believe at once in the providence of an all-powerful God and in a completely determined chain of causes and effects which left no room for his intervention.

Here, then, we may conclude that Plato's Demiurge, like the human craftsman in whose image he is conceived, operates upon materials which he does not create, and whose inherent nature sets a limit to his desire for perfection in his work. He has been pictured as confronted with 'all that is visible' in a chaos of disorderly motion. For this disorder he is not responsible, but only for those features of order and intelligible design which he proceeds to introduce, 'so far as he can'. These form the subject of the first part of the discourse. In the second part it will be made clear that the Demiurge is not the sole cause of Becoming. There are secondary causes, partly but not wholly amenable to the persuasion of Reason. Nor does the Demiurge create that Receptacle of Becoming in which the images of the Forms are mirrored. This is not mentioned among the works of Reason; it is as independent of the Demiurge as the world of Forms. The Forms, again, he does not create; they are not made or generated, but eternally real and self-subsisting. The function of the Demiurge is to contribute an element of order to Becoming, because his ordered world will be more 'like himself', that is to say, better, than a disorderly one.

We shall be led to the conclusion that both the Demiurge and chaos are symbols: neither is to be taken quite literally, yet both stand for real elements in the world as it exists. If there was never a moment of creation, chaos cannot have existed before that moment; and this part of the mythical imagery is not to be taken at its face value. But what was later called 'matter' is the subject of the second part of the dialogue, not to be anticipated here. We can only remark that chaos, if it never existed before cosmos, must stand for some element that is now and always present in the working of the universe. Its nature will be disclosed in the analysis of 'what comes about of Necessity'.

1 Against Plutarch and Atticus, who took the pre-existing chaos literally, Proclus (i, 38b) cites Porphyry and Iamblichus: 'They say that Plato, desiring to exhibit the Maker's providence descending into the universe, the government of reason and the presence of soul, and all the great benefits
THE DEMIURGE  29d-30c

It may equally be said of the Demiurge that, as a mythical symbol, he must stand for something that is seriously meant. He is mythical in that he is not really a creator god, distinct from the universe he is represented as making. He is never spoken of as a possible object of worship; and in the third part of the dialogue the distinction between the Demiurge and the celestial gods, whom he makes and charges with the continuation of his work, is obliterated. The evidences of design in the human frame are there attributed sometimes to ‘the god’, sometimes to the celestial gods, who are the stars, planets, and Earth. On the other hand, there is no doubt that he stands for a divine Reason working for ends that are good. The whole purpose of the Timaeus is to teach men to regard the universe as revealing the operation of such a Reason, not as the fortuitous outcome of blind and aimless bodily motions. If this Reason is not a creator god, standing apart from his model and materials, where is it to be found? Now this is precisely the question which Plato has refused to answer. It is a hard task, he says, to find the maker and father of this universe, and having found him it would be impossible to declare him to all mankind. This can only mean that the mythical imagery is not a ‘veil of allegory’ that we can tear aside and be sure of discovering behind it a literal meaning which Plato himself would endorse. Commentators have not hesitated to essay this ‘impossible’ task; but the bewildering variety of their disclosures lends little encouragement for a further venture, and gives rise to a suspicion that each has found what he set out to look for.

We shall be on safer ground if we turn from the maker to consider what Plato says here about his work. The visible universe is a living creature, having soul (nous) in body and reason (nous) in soul. It is called a god (348) in the same sense in which the term is applied to the stars, planets, and Earth—the ‘heavenly gods’. All these gods are everlasting, coeval with time itself; though theoretically dissoluble, because composite of reason, soul, and body, they will never actually be dissolved (418). Man is also composed of reason, soul, and body; but his body will be dissolved back into the elements, and the two lower parts of his soul are also mortal. Only the divine reason in him is imperishable. There is thus a contrast between macrocosm and microcosm, but also an analogy, which runs all through the discourse. The world itself, like the heavenly gods and man, is divine because it contains the divine element, reason. Reason, moreover, as Plato says here and elsewhere, ‘cannot be present in anything apart from soul’; if it is ‘present’ in the body of the universe and in man’s body, that body must be alive, endowed with soul, which is defined in the Laws and the Phaedrus as the self-moving source of all motion. The statement is consistent with the belief that the reason, as divine and immortal, can nevertheless exist in separation from the body and divested of the mortal parts of soul. There is, then, in the soul and body of the universe a divine Reason analogous to man’s; and we shall find that the unchanging movement of its thought is symbolised, or even visibly embodied, in the circular revolutions of the heavenly gods and of the universe as a whole.

We may ask how this divine Reason in the world is related to that divine Reason which is symbolised by the Demiurge. Can we simply identify the two? In that case the Demiurge will no longer stand for anything distinct from the world he is represented as making. The desire for goodness will then reside in the World-Soul: the universe will aspire towards the perfection of its model in the realm of Forms, and the model will hold a position analogous to that of Aristotle’s Unmoved Mover, who causes motion as the object of desire. But this solution of the problem is no more warranted by Plato himself than others that can be supported by a suitable selection of texts. We shall do better to hold back from any other conclusion and confine our attention to the world with its body and soul and the reason they contain.

30c-31a. The creator’s model

The visible world has been declared to be a living creature made after the likeness of an eternal original. This model is now further described. It can only be the ideal Living Creature in the world of Forms, not to be identified with any species of animate being, but embracing the ideal types of all such species, ‘all the intelligible living creatures’.

30c. This being premised, we have now to state what follows next: What was the living creature in whose likeness he

1 It has been observed that Aristotle’s personified Nature, who aims at a purpose and does nothing in vain, may be regarded as equivalent to Plato’s Demiurge.
THE CREATOR’S MODEL

30c–31a

We must not suppose that it was any creature that ranks only as a species; for no copy of that which is incomplete can ever be good. Let us rather say that the world is like, above all things, to that Living Creature of which all other living creatures, severally and in their families, are parts. For that embraces and contains within itself all the intelligible living creatures, just as this world contains ourselves and all other creatures that have been formed as things visible. For the god, wishing to make this world most nearly like that intelligible thing which is best and in every way complete, fashioned it as a single visible living creature, containing within itself all living things whose nature is of the same order.

We have seen that, although the creator god, as such, is a mythical figure, the relation of likeness to model none the less subsists between the visible world and the intelligible. The model is not a piece of mythical machinery. The visible world, being “in very truth” a living creature with soul and body, has for its original a complex Form, or system of Forms, called the intelligible Living Creature. This is a generic Form containing within itself the Forms of all the subordinate species, members of which it inhabit the visible world. The four main families, contained in the Living Creature that truly is, are enumerated at 39g: the heavenly gods (stars, planets, and Earth), the birds of the air, the fishes of the sea, and the animals which move on the dry land. These main types, as well as the indivisible species of living creatures and their specific differences, are all, in Platonic terms, “parts” into which the generic Form of Living Creature can be divided by the dialectical procedure of Division (dialoγενς). The generic Form must be conceived, not as a bare abstraction obtained by leaving out all the specific differences determining the subordinate species, but as a whole, richer in content than any of the parts it contains and embraces.

It is an eternal and unchanging object of thought, not itself a living creature, any more than the Form of Man is a man. It is not a soul, nor has it a body or any existence in space or time. Its eternal being is in the realm of Forms.

Plato does not say, here or anywhere, that this generic Form of Living Creature contains anything more than all the subordinate generic and specific Forms and differences that would appear in

1 μόρος or μόρον, “part”; is Plato’s normal term for “species”.

2 This is the probable meaning of γένος in καὶ ἐκ καὶ ἑκατό γένος (30a, 6); καὶ ἐκ will mean the Forms of indivisible species, a class of Forms explicitly recognised at Philebus, 112a.

3 Cf. F. M. Cornford, Plato’s Theory of Knowledge (1933), pp. 268 ff.

ONE WORLD, NOT MANY

the complete definitions of all the species of living creatures existing in our world, including the created gods. We have no warrant for identifying it with the entire system of Forms, or with the Form of the Good in the Republic, or for supposing that it includes the moral Forms of dialectic or the mathematical Forms, or even the Forms of the four primary bodies, whose existence is specially affirmed at 51B ff. Plato looks upon the whole visible universe as an animating being whose parts are also animate beings. The intelligible Living Creature corresponds to it, whole to whole, and part to part. It is the system of Forms that are, together with the Forms of the four primary bodies, relevant to a physical discourse, because they are the patterns of which the things we see and touch are sensible images, coming to be and passing away in time and space. We are not here concerned with the moral Forms, of which there are no sensible images (Phaedrus 250d).

The model, as strictly eternal, is independent of the Demiurge, whose function is to be the cause, not of eternal Being, but only of order in the realm of Becoming. However we may interpret the divine Reason symbolised by the Demiurge, this model is one among the objects of its thought. It is the ideal, whose perfection the visible universe, as a living being, is to reproduce in its own structure, so far as is permitted by the conditions of temporal existence in space. “Intelligible” means that it is an object for rational thought, divine or human. Plato gives no more ground for supposing that the divine Reason creates its objects by thinking them than for supposing that our own reasons create these same objects when we think of them. The Forms are always spoken of as existing eternally in their own right.

31a–b. One world, not many

The concluding words of the last paragraph spoke of the world as a single living creature. This suggests the possibility that there should be more than one copy of the model—a plurality of visible worlds.

31a. Have we, then, been right to call it one Heaven, or would it have been true rather to speak of many and indeed of an indefinite number? One we must call it, if we are to hold that it was made according to its pattern. For that which embraces all the intelligible living creatures that there are, cannot be one of a pair; for then there would have to be

1 κατεσχοτος is used of the whole which includes all its parts, e.g. Soph. 2530. This use has nothing to do with the Ionian use of κατησχοτος for the element which extends beyond and encompasses the world, referred to in Tr.’s note.
ONE WORLD, NOT MANY

31A. yet another Living Creature embracing those two, and they would be parts of it; and thus our world would be more truly described as a likeness, not of them, but of that other which would embrace them. Accordingly, to the end that this world may be like the complete Living Creature in respect of its uniqueness, for that reason its maker did not make two worlds nor yet an indeﬁnite number; but this Heaven has come to be and is and shall be hereafter one and unique.¹

There is no satisfactory evidence for the doctrine of a plurality of coexisting worlds before the atomism of Leucippus in the second half of the ﬁfth century.² The Atomists’ belief in innumerable worlds, some always coming into existence, others passing away, was an inference from their assertion of a strictly inﬁnite void partly occupied by an inﬁnite number of atoms in motion. It was probable, they argued, that world-forming vortices would arise at any number of different places. Granted that our world is ﬁnite, that there is unlimited space outside its boundary, and that there are materials left over, from which other worlds might be formed, why should there not be any number of copies of the same model? The world, according to Plato, is ﬁnite. On the other hand, like Aristotle, he would have denied an unvisited world outside; and he certainly denies that any materials are left over (32c ff). The point, however, is not argued on those grounds here. He is not offering a proof that there cannot be more than one world; he merely asserts that only one was made, because it seemed better that the copy should be unique, like the model. His argument is: (1) The model must be all-inclusive (παντελεῖς), containing all the species of animal that there are; otherwise our world, being a copy of it, would not be as perfect as it might be. (2) There cannot be a second all-inclusive model; for then the two models would be duplicate instances of the same Form, and that Form would become the true model. The model, therefore, is unique.

³I cannot see in γεγονός ἐστιν καὶ ἐστιν ἐκτὸς any more than ’has been and is and shall be’ or ‚is at all times‘, though the word γεγονός preserves the fiction of creation. Cf. 32c γεγονός ἐστι καὶ ἐστι καὶ ἐστιν. Tr. discovers an allusion to a doctrine of γεγονός εἰς ἐκτὸς in the Philolaus, which ’Timeaus is not allowed to explain but only to imply’, because ‚the clear conception of a γεγονός ἐκτὸς is a result of Plato’s own personal thought‘, which a ﬁfth-century Pythagorean has no business to know about. But the doctrine of the Philolaus should not be read into this simple phrase. All the emphasis falls on ‚one and unique‘, as in Tr.’s translation: ’sole and single this our heaven came into being, it is, and it shall remain‘.

³I have discussed this question in detail in Classical Quarterly, XXVIII (1934), pp. 1 ff.
31B. tangible without something solid, and nothing is solid without earth. Hence the god, when he began to put together the body of the universe, set about making it of fire and earth. But two things alone cannot be satisfactorily united without a third; for there must be some bond between them drawing them together. And of all bonds the best is that which makes itself and the terms it connects a unity in the fullest sense; and it is of the nature of a continued geometrical proportion to effect this most perfectly. For whenever, of three numbers, the middle one between any two that are either solids (cubes?) or squares is such that, as the first is to it, so is it to the last, and conversely as the last is to the middle, so is the middle to the first, then since the middle becomes first and last, and again the last and first become middle, in that way all will necessarily come to play the same part towards one another, and by so doing they will all make a unity.

Now if it had been required that the body of the universe should be a plane surface with no depth, a single mean would have been enough to connect its companions and itself; but in fact the world was to be solid in form, and solids are always conjoined, not by one mean, but by two. Accordingly the god set water and air between fire and earth, and made them, so far as was possible, proportional to one another, so that as fire is to air, so is air to water, and as air is to water, so is water to earth, and thus he bound together the frame of a world visible and tangible.

For these reasons and from such consequents, juncture in number, the body of the universe was brought into being, coming into concord by means of proportion, and from these it acquired Amity, so that coming into unity with

1 Solid, i.e. resistant to touch (Pr. ii, 1284).
2 That ἀκόλουθος means this type of proportion par excellence will be explained below.
3 The reason for taking the genitives εἰς δύναμις εἰς ἐνδύναμος ἐντομοσώματος as depending on τῷ ὑδάτω will be explained below (p. 47). Grammatically, the words can be construed: (1) 'Whenever of any three numbers, whether solids or squares, the middle one is such . . . .' (So Heath, A.-H.), or (2) 'Whenever of any three numbers or solids or squares the middle one is such . . . .', taking 'numbers' to mean numbers that are neither solids nor solids.
4 A reference to the Phaistos of Empedocles' system. But there is no contrary principle of Neikos in Plato's scheme, and hence no periodic destruction of the world. Cf. Georg. 508a: the wise say that heaven and earth, gods and men, are held together by ψύξ and κοσμότορ— a truth which has escaped Callicles because he has neglected geometry and not perceived the significance of geometrical proportion (§ 508b & 600a).

The World's Body

32C. itself it became indissoluble by any other save him who bound it together.

Empedocles had taken the four elements as given fact; Plato deduces the need of four primary and simple bodies by an argument. (1) There must be two (not one primary form of matter, as the Ionian monists had held), because fire is needed to make the world's body visible, earth to make it resistant to touch. Fire and earth had been commonly regarded as the two extreme elements, since fire belongs to the heavens, and air and water are between Heaven and Earth. (2) But two cannot hold together without a third to serve as bond. The three must be in proportion, and the most perfect bond is that proportion which makes the most perfect unity out of mean and extremes. (3) The most perfect type of proportion is the continued geometrical proportion (ἀρίθμοι), which Plato next proceeds to define. That geometrical proportion was the proportion par excellence and primary, all other types of proportion being derivable from it, was stated by Aderastus, the Peripatetic (early second century A.D.), who wrote a commentary on the Timaeus, parts of which are preserved by Theon of Smyrna.1

If we ignore for the moment the words εἰς δύναμις εἰς ἐνδύναμος, which specify certain classes of numbers,2 the sentence simply gives a definition of a continued geometrical proportion with three terms. Take the progression 2, 4, 8 for purposes of illustration. The terms are related so that 'as the first is to the middle, so is the middle to the last (2 : 4 = 4 : 8), and conversely, as the last is to the middle, so is the middle to the first' (8 : 4 = 4 : 2). Then 'the middle becomes first and last, and again the last and the first both become middle' (4 : 8 = 2 : 4 or 4 : 2 = 8 : 4). Thus any of the three can stand as first or as last or as middle, and the unity they constitute is as perfect as possible. (4) The terms, however, are not enough, because all the primary bodies are solids, and must accordingly be represented by solid numbers (a solid number

1 The statement is repeated by Nicomachus (Intro. Arith. ii, 24, p. 126 Hoche), by Iamblichus [in Nicom. Ar. Intro., p. 100 Prefaces, as 'an opinion of the ancients', and p. 104 citing our passage], and by Pr. ii, 20 (referring to Nicomachus). Cf. Heath, Euclid, ii, 392. Pr. records the (obviously correct) view that Plato here speaks of geometrical proportion only. Others, with whom Proclus himself agrees, made an unfortunate attempt to drag in arithmetical and harmonic proportion, connected with the false notion that ὑδάτω in our passage has a physical sense, and means the sensible qualities elsewhere called 'powers' (cf. Chalcid. p. 85, and Occulus, ii). Such qualities (pairs of opposites) form, in Plato's view, an ἀρίθμος, and could not possibly stand as terms in a numerical proportion.

2 These words are omitted by Tim. Locr. 95, who has simply ὑδάτω τὸ ἐνδύναμος ἐντομοσώματος.
is the product of three numbers). To connect two plane numbers a single mean is sufficient; but if fire and earth, the extremes, are to be connected, two means will be required.

As the ancients saw, this last statement is true only if the plane and solid numbers in question are \textit{similar} (i.e. having their sides proportional)—a class which includes all squares and cubes. Some held that Plato meant it to be taken for granted that the terms in his proportion are all similar numbers \textsuperscript{1}; but he has not said so. It has, accordingly, been inferred that the words \textit{ἐκείνης ἐκείνων}, which serve no purpose in a mere description of a geometrical proportion with three terms, were inserted in order to restrict the numbers in question to cubes and squares. Sir Thomas Heath writes: \textsuperscript{2}

\begin{quote}
'It is well-known that the mathematics of Plato's \textit{Timaeus} is essentially Pythagorean. It is therefore \textit{a priori} probable (if not perhaps quite certain) that Plato \textit{πολύωνες} even in the passage (32a, 3b) where he speaks of numbers \textit{whether solid or square} \textit{in continued proportion}, and proceeds to say that between \textit{planes} one mean suffices, but to connect two \textit{solids} two means are necessary. This passage has been much discussed, but I think that by "planes" and "solids" Plato certainly meant \textit{square} and \textit{solid numbers} respectively, so that the allusion must be to the theorems established in Eucl. viii, xi, xii, that between two square numbers there is one mean proportional number and between two cube numbers there are two mean proportional numbers.'
\end{quote}

In a note Heath adds:

\begin{quote}
'It is true that \textit{similar} plane and solid numbers have the same property (Eucl. viii. 18, 19); but, if Plato had meant \textit{similar plane} and solid numbers generally, I think it would have been necessary to specify that they were "similar", whereas, seeing that the \textit{Timaeus} is as a whole concerned with regular figures, there is nothing unnatural in allowing \textit{regular or equilateral} to be understood. Further, Plato speaks first of \textit{διάμετρος} and \textit{άρμος} and then of "planes" (ἐπίστεια) and "solids" (στεφάνια) in such a way as to suggest that \textit{διάμετρος} correspond to \textit{ἐπίστεια} and \textit{άρμος} to \textit{στεφάνια}. Now the regular meaning of \textit{διάμετρος} is \textit{square} (or sometimes \textit{square root}), and I think it is here used in the sense of \textit{square}, notwithstanding that Plato seems to speak of \textit{three} squares in continued proportion, whereas, in general, the
\end{quote}

\textsuperscript{1} See Fr. ii. 30\textsuperscript{a} and 33\textsuperscript{a} (quoting Democritus, the third-century Platonist).

\textsuperscript{2} \textit{Thirteen Books of Euclid}, ii, p. 294.

\textbf{THE WORLD'S BODY}

mean between two squares as extremes would not be square but oblong. And, if \textit{διάμετρος} are squares, it is reasonable to suppose that the \textit{άρμος} are also equilateral, i.e. the "solids" are cubes.' Elsewhere\textsuperscript{3} Heath writes:

'By \textit{planes} and \textit{solids} he [Plato in this passage] really means square and cube numbers, and his remark is equivalent to stating that, if \(p^4\), \(q^4\) are two square numbers,

\[ p^4 : pq = pq : q^4, \]

while, if \(p^3\), \(q^3\) are two cube numbers,

\[ p^3 : p^2q = p^2q : pq^2 = pq^2 : q^3, \]

the means being of course in continued geometric proportion. Euclid proves the properties for square and cube numbers in viii. 11, 12 and for similar plane and solid numbers in viii. 18, 19. Nicomachus (ii. 24, 6, 7) quotes the substance of Plato's remark as a "Platonic theorem", adding in explanation the equivalent of Eucl. viii. 11, 12.'

This interpretation of the ambiguous words \textit{άρμος} and \textit{διάμετρος} as 'cubes' and 'squares' seems to be better supported than any other. It rules out the notion that \textit{άρμος} and \textit{διάμετρος} are alternatives to \textit{ἀρμονικοί}. They are subdivisions of \textit{numbers}, restricting the statement to cubes and squares, for the sake of the subsequent statement about one mean connecting squares, two means connecting cubes. The objection stated by Heath, that 'Plato seems to speak of \textit{three} squares in continued proportion, whereas in general the mean between two squares as extremes would not be square but oblong', can be obviated by construing the genitives \textit{ἐκείνης ἐκείνων} \textit{διάμετρος} \textit{άρμος} not (as is commonly done) as in apposition to \textit{ἀρμονικοί}, but as depending on \textit{τὸ μέσον}. The effect is to make the limitation to cubes and squares apply only to the extremes. Here, as in many other places, Plato is compressing his statement of technical matters to such a point that only expert readers would fully appreciate his meaning.

The interpretation can be further supported by a consideration of Adrastus' treatment of geometrical proportion.\textsuperscript{4} He says that geometrical proportion is the only proportion in the full and proper sense (ἐπικείμενον) and the primary one, because all the others require it, but it does not require them. The first ratio is equality \(\left(\frac{1}{1}\right)\), the element of all other ratios and of the proportions they yield.

\textsuperscript{3} \textit{Greek Mathematics}, i. 89.

\textsuperscript{4} Theon (p. 174, Dupuis) quotes the passage in full. It is presumably taken from Adrastus' commentary on our passage.
THE WORLD'S BODY

32c–33b. The world's body contains the whole of all the four primary bodies.

The next paragraph explicitly rejects the old Ionian conception of an indefinite circumambient mass of body, surrounding the cosmos and providing a reservoir of materials from which a series of successive worlds could be formed; and also the Atomists’ conception of an unlimited quantity of matter scattered throughout an infinite void. In this respect the body of the world is once more all-inclusive, like its model. It must be (1) a whole and complete, consisting of parts each of which is whole and complete; (2) single or unique (not one of many coexistent worlds); (3) everlasting (not destroyed and superseded by another world), which it could hardly be, if it were exposed to assaults from outside.

32c. Now the frame of the world took up the whole of each of these four; he who put it together made it consist of all the fire and water and air and earth, leaving no part or power of any one of them outside. This was his intent:

33. first, that it might be in the fullest measure a living being whole and complete, of complete parts; next, that it might be single, nothing being left out, of which such another might come into being; and moreover that it might be free from age and sickness. For he perceived that, if a body be composite, when hot things and cold and all things that have strong powers beset that body and attack it from without, they bring it to untimely dissolution and cause it to waste away by bringing upon it sickness and age. For this reason and so considering, he fashioned it as a single whole consisting of all these wholes, complete and free from age and sickness.

We are here given one of the reasons why the Demiurage thought it better that the visible world should resemble its model in respect of uniqueness (31b). The primary bodies are described as ‘hot and cold things and whatever has strong powers’. ‘Powers’ (δύναμες) means the qualities or properties of bodies considered as having the ‘power to act and be acted upon’ (δύναμις τοῦ ποιεῖν καὶ παθοῖν). Hotness is the property of fire that is manifest when fire makes something else hot or causes in sentient beings a sensation of heat. Coldness is the answering property of the thing which suffers the affection. The ‘powers’ of the primary bodies are these qualitative properties, as distinct from the quantitative element of form, the regular geometrical shapes later imposed upon these qualities by the Demiurge (53b). Outside the cosmos, fire and the rest, if they could exist at all, could only exist as unformed ‘powers’, as in the chaos described at 52b. They would then act upon the contents of the formed world and impair its health and stability.

The argument is Eleatic, or at least reminiscent of Melissus’ proof (frag. 7) that the unchangeable Being cannot suffer pain: ‘for if it did, it could not be completely real, since nothing that suffers pain could be forever or have the same power as the healthy, nor could it be alike, if it suffered pain; since it would suffer pain when something was taken from it or added to it, and then it would no longer be alike.’ Proclus (ii, 63) compares the description of the enfeebled and wasting away of mortal living creatures when the particles of the body, instead of assimilating food from without, are broken down under its too powerful action (81c, 9). Plato may also have in view the belief ascribed to Democritus that some of the innumerable worlds of his system are growing, others reaching their prime, others again in decay, and even that they destroy one another by collision. Plato’s world is saved from such calamities by its uniqueness. Aristotle appears to have repeated Plato’s argument in his dialogue On Philosophy: The cosmos must be ungenerated and indestructible, since the causes of destruction must be some power (δύναμις) either external or contained within it. There is nothing outside, since the cosmos contains everything. It is one, because if anything were left over, another like it might come into being; whole, because all being is used up in forming it; free from age and sickness, because bodies subject to sickness and age are upset by the strong assaults from outside of heat and cold and the other opposites, but no such power (δύναμις) is left outside the world. Nor can anything inside it cause its dissolution, since then the part would be stronger than the whole.

2 Frag. 19 (Fr.-Philo, de aetern. mundi). Cf. Ocelus Lucanus I.
33b. And for shape he gave it that which is fitting and akin to its nature. For the living creature that was to embrace all living creatures within itself, the sitting shape would be the figure that comprehends in itself all the figures there are; accordingly, he turned its shape round and spherical, equidistant every way from centre to extremity—a figure the most perfect and uniform of all; for he judged uniformity to be immeasurably better than its opposite.

Diels has quoted this description as the best commentary on Parmenides’ comparison of his One Being, “complete on every side”; to “the mass of a well-rounded sphere, equally poised from the centre in every direction.” Proclus (fi, 71) suggests two explanations of the statement that the sphere embraces all other figures. Geometers have demonstrated that the sphere has a greater volume than any solid figure with plane sides, having the same perimeter. Also, the sphere is the only figure in which every equilateral polygon can be inscribed; so the reference might be to the five regular solids later where the primary bodies are constructed. It is curious that Euclid xi, def. 14, defines the sphere, not in the usual terms, here quoted by Plato, as having its extremity everywhere equidistant from the centre, but by the mode of generating it: “When, the diameter of a semicircle remaining fixed, the semicircle is carried round and restored again to the same position from which it began to be moved, the figure so comprehended is a sphere.” As Heath points out, the last proposition of Book xiii show why Euclid put the definition in this form: “it is this particular view of a sphere which he uses to prove that the vertices of the regular solids which he wishes to comprehend” in certain spheres do lie on the surfaces of those spheres.

33b. And all round on the outside he made it perfectly smooth, for several reasons. It had no need of eyes, for nothing visible was left outside; nor of hearing, for there was nothing outside to be heard. There was no surrounding air to require breathing, nor yet was it in need of any organ by which to receive food into itself or to discharge it again when drained of its juices. For nothing went out or came into it from anywhere, since there was nothing: it was designed to feed itself on its own waste and to act and be acted upon entirely by itself and within itself; because its framet thought that it would be better self-sufficient, rather than dependent upon anything else.

It had no need of hands to grasp with or to defend itself, nor yet of feet or anything that would serve to stand upon; so he saw no need to attach to it these limbs to no purpose. For he assigned to it the motion proper to its bodily form, namely that one of the seven which above all belongs to reason and intelligence; accordingly, he caused it to turn about uniformly in the same place and within its own limits and made it revolve round and round; he took from it all the other six motions and gave it no part in their wanderings. And since for this revolution it needed no feet, he made it without feet or legs.

Once more the argument is Eleatic, rather than Pythagorean. Xenophanes had declared that his limited and spherical world had no special organs of sense: “it sees, thinks, and hears as a whole” (frag. 24). The statement may possibly be directed against a primitive doctrine which figures in some Orphic verses frequently quoted by the Neoplatonists: “Zeus is first and last, one royal body, containing fire water earth and air, night and day, Metis and Eros. The sky is his head, the stars his hair, the sun and moon his eyes, the air his intelligence (nous), whereby he hears and marks all things; no sound nor voice escapes his ears, and so on. The Pythagoreans certainly regarded the Heaven as a living creature which breathed the circumambient air. Xenophanes again had denied this, like Plato here. Parmenides had said that the one Being was not born and did not grow and Empedocles had echoed

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1 Farm., frag. 8, 42 (cited by Pr. ii, 69, on our passage). 2 Cf. also Iamblichus in Nicom. p. 61 l. 10 Pestelli. 3 Euclid iii, 269.
him. All these statements must be taken as repudiating the primitive notion, traceable in the earliest Pythagorean cosmology, that the whole starts from a seed and grows like a living thing by taking in, as nourishment, more and more of the body that enwraps it.

A creature which requires no nourishment has no need to seek it by moving from place to place. So the sphere has no limbs, as Empedocles said: ‘No two branches (arms or wings?) spring from his back, no feet, no swift-moving knees, no parts of generation; but he was a Sphere every way equal to itself’ ([frag. 29]). ‘He always remains in the same place, altogether unmoved, nor does it beseech him to go from place to place’ (Xenophanes, 26). There remains, as the only possible movement, the rotation proper to a sphere. That this is the only ‘rational’ movement is here stated without any explanation. The point is argued for the first time in the Laws (870 ff.), where the Athenian asks: ‘Of what nature is the motion of reason? He replies that rotation in one place is most akin to the revolution of reason: both motions are regular and uniform, in the same place, round the same things and in relation to the same things, according to one rule and system. Motion that has not these characteristics, but involves change of place without order, system, or rule, is akin to all unreason (ēkousia). So here the six rectilinear motions (up and down, forwards and backwards, to right and left) are associated with the irrational. They are “wanderings” in which the body of the universe, as a whole, has no share (dialänai), though its constituents, the primary bodies, will be found to possess them.

It is clearly meant that this rational movement of rotation is not confined to the fixed stars; it is a motion of the whole universe carrying with it all its contents, as the Laws explicitly declares. Nothing has yet been said of the stars, the planets, and the Earth. We shall find that the planets are involved in this motion, though they have also independent motions of their own. The rotation

1 Parm. 8, 6, πάνι γαρ γίνοντα διάφορον αὐτῷ | πάνι μέλει λαμψάθη; Emped. 17, 32, τούτο δ’ ἑπραξόντα τὸ πάνι τῇ κε καὶ πάλιν ἔδωκε;

2 Cf. Ael. ii. 5, 1, ‘Aristotle: “If the world is nourished, it will perish; but in fact it needs no nourishment; hence it is everlasting’.

3 Parmenides also ([frag. 8, 26–33]) seems to connect the immovableness of his Being with its perfection and its ‘having no needs’ (οὐκ ἐνδοικεῖται), a divine characteristic (Xenophanes, Vors. 17, A 32, ἐνδοικεῖται δὲ μηθεῖν ἀναμένα (ῥυμὸς θεῶν) μηθεῖν. Xen. Mem. 1, 6, 10 νῦν μηθεῖσθαι βοῶν όμοιον δεμ. Eur. H.E. 1341. Cf. Ar. de caelo 1, 2790, 34.)

4 Cf. below, 40a.

5 Sayce, ‘If we are to assert that the whole course and motion of the Heaven and of all that it contains are of like nature to the motion and revolution and reflections of reason... .

of the whole must also affect the Earth, a point that will come up again when we have to consider whether the Earth has any proper movement (p. 130). Here the rotation of the world with all its contents, from axis to circumference, symbolises that reason penetrates and governs the entire universe. On the other hand, the six irrational motions do occur in nature. Since all physical motions are ultimately caused by the self-moving soul, this passage supports the view that the World-Soul has an element of unreason and, like our own souls, is not perfectly controlled by the divine reason it contains. Plato will deny that the so-called ‘planets’ really ‘wander’ from one course to another, but the primary bodies have rectilinear motions which are constantly changing their direction. These will be associated with ‘what happens of necessity’ and the ‘wandering cause’ in the second part of the dialogue.

On the whole, this curiously archaic account of the world’s body owes much more to the Eleatics and to Empedocles than to the early Pythagoreans. Where Xenophanes and Parmenides differed from the Pythagoreans Plato takes their side, except in Parmenides’ denial of all motion. In particular, he rejects the primitive Pythagorean cosmogony, in which the living world expanded from a fiery seed by taking in the surrounding darkness, and, when formed, continued to breathe the vacant air from without. The sphere has always existed in its perfection and self-sufficiency, and outside it there is neither body nor void.

It everlasting fills the whole of space.

THE WORLD-SOUL

The next section, on the World-Soul, opens with a short summary enumerating the perfections which the world’s body owes to divine forethought, and adding that its circular motion, already mentioned, is due to its soul, extending from centre to circumference. The soul is coeval with the body; both exist everlasting. The composition of the soul is next described: it consists of certain intermediate kinds of Existence, Sameness, and Difference. When these constituents have been compounded, the mixture is divided in the proportions of a musical harmonia. Out of the stuff so compounded and divided the Demiurge then constructs a system of circles, representing the principal motions of the stars and planets. The

1 Pr. repeatedly asserts that there is no void outside the cosmos for Plato any more than for Aristotle (II, 73, 89, 91, etc.). In order to maintain his thesis, Tr. has to suppose that Plato is attributing to Timaeus a ‘development within Pythagoreanism which reproduces prominent features of the original doctrine’ (p. 100).
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addition of these motions of soul to the bodily frame previously described starts the world upon its unceasing course of intelligent life. Finally, it is explained that, on the principle that like knows like, the composition of the World-Soul out of three elements, Existence, Sameness, and Difference, enables it both to know unchangeably real objects and to have true beliefs about changing things of the lower order of existence.

34A-B. Summary. Transition to the World-Soul

34A. All this, then, was the plan of the god who is for ever for the god who was sometime to be. According to this plan he made it smooth and uniform, everywhere equidistant from its centre, a body whole and complete, with complete bodies for its parts. And in the centre he set a soul and caused it to extend throughout the whole and further wrapped its body round with soul on the outside; and so he established one world alone, round and revolving in a circle, solitary but able by reason of its excellence to bear itself company, needing no other acquaintance or friend but sufficient to itself. On all these accounts the world which he brought into being was a blessed god.

The statement (here and at 36ε) that the soul is wrapped round the body of the world ‘on the outside’ does not mean that the soul extends beyond the body, but only that it reaches the extremest circumference. Similarly, the yellow colour of an orange might be said to cover it all over on the outside. At Soph. 233d the specific Forms are ‘embraced on the outside’ (ἐξωθεὶς περιαγομένης) by the generic Form, but the genus does not extend farther than the species it contains. Aristotle again speaks of ‘the parts of animals on the outside’ (τὰ ἐξωθεὶς μόρια τῶν ζώων, H. A. 494a, 22), and Plotinus of ‘the circumference on the outside’ of a circle (Ἔξωθεν περιελεύθερον, Enn. ii. 2, 1). There may, however, be a suggestion that the presence of a rational soul is most clearly revealed at the circumference, where the diurnal revolution of the whole world is visibly manifested by the stars, unmodified by other motions. This is the movement of the Same, which has the ‘supremacy over all the interior motions, as Albinus observes in explaining this phrase.1

34 B-C. Soul is prior to body

34B. Now this soul, though it comes later in the account we are now attempting, was not made by the god younger than the body; for when he joined them together, he would not have

1 Cf. Tr., p. 105.
2 Didasc., ch. xiv. Cf. 35c.

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suffered the elder to be ruled by the younger. There is in us too much of the casual and random,1 which shows itself in our speech; but the god made soul prior to body and more venerable in birth and excellence, to be the body’s mistress and governor.

The words ‘elder’ and ‘prior’ here obviously do not mean that the world’s soul existed before its body. Plato’s point is made at length in Laws X, where it is argued that all motion must have its source in a self-moving thing, which is precisely the definition of soul (866a). Accordingly, the characteristic motions of soul—wish, reflection, forethought, etc.—must be the motions whose operation is primary (πρωτοσυνεισάγως, 837a) and which ‘take over’ the secondary motions of bodies and control them. Soul itself may be associated with reason and guide all things aright, or with unreason. Plato is combating the atheistical view that the world order has arisen by chance and necessity from the blind working of lifeless powers in the bodily elements. That the world should have a body without a soul is as impossible as that it should have a soul without a body.

35A. Composition of the World-Soul

We now come to the composition and structure of the World-Soul. The next sentence states that it is compounded of three ingredients, which are described. The sentence (which, for convenience, I have divided into three numbered parts) is one of the most obscure in the whole dialogue, but not so obscure as it has been made by critics, who have altered the text and thereby dislocated the grammar and the sense. Proclus construed it in the only possible way, and his interpretation, once disengaged from the irrelevant intricacies of his own theology, is obviously correct.2

35A. The things of which he composed soul and the manner of its composition were as follows: (1) Between the indivisible Existence that is ever in the same state and the divisible Existence that becomes in bodies, he compounded a third form of Existence composed of both. (2) Again, in the case of Sameness and in that of Difference, he also on the same

1 Because we are not wholly rational, but partly subject to those wandering causes which, being devoid of intelligence, produce their effects casually and without order (46b).
2 This was pointed out by Professor G. M. A. Grube of Toronto in Class. Philol. xxvii (1932), p. 80. Other interpretations, ancient and modern, are reviewed by Tr. (pp. 106 ff.); but he has (very excusably) overlooked the valuable part of Proclus’ discussion.
principle made a compound intermediate between that kind of them which is indivisible and the kind that is divisible in bodies. (3) Then, taking the three, he blended them all into a unity, forcing the nature of Difference, hard as it was to mingle, into union with Sameness, and mixing them together with Existence. 1

The sentence falls into three clauses: (1) The first describes the compounding, out of indivisible, unchanging Existence and the divisible Existence which becomes in the region of the bodily, of a third kind of Existence intermediate between them. This intermediate sort of Existence is one of the three ingredients in the final mixture of the last clause. (2) The second clause states that the Demiurge proceeded on the same principle (κατὰ ταῦτά ὑπέρ) also in the case of Sameness and in that of Difference. As there were two kinds of Existence, the indivisible and the divisible, so Sameness and Difference have each two corresponding kinds, described as 'that kind of them which is indivisible, and the kind that is divisible in bodies' (τὸ ἀμηρός αὐτῶν καὶ τὸ κατὰ τὰ σώματα μεριστά). Accordingly, as before, the Demiurge made a third intermediate kind of Sameness (and again of Difference), composed of the indivisible and divisible kinds of Sameness (and of Difference). These intermediate kinds of Sameness and of Difference are the second and third ingredients in the final mixture. 2 (3) Finally, taking the

1 The text is as follows: (1) τῆς ἀμηρότητος καὶ δὲ κατὰ τάδε ἤχοντος ὀνόματι καὶ τῆς αὐτὶ πάντα σώματα γενομένης μεριστάς τριῶν ἐμφύλοι ἐν μέσῳ συνεκαρπῶσθαι ὄνομα νεώσας ἐδοξο- (2) τῆς τὸ παῦσιν φύσεως αὐτῷ πάντα καὶ τῆς τοῦ ἄνεγκροτος καὶ κατὰ τάδε συνεκαρπῶσθαι ἐν μέσῳ τὸ σε ἀμηροῦσα αὐτῶν καὶ τὸ κατὰ τὰ σώματα μερισμένον (3) καὶ τρία λέξεις αὐτὰ ἄνοι ἔδοξεν συνέκαρποται εἰς μίαν σίδην ὄνομα, τῆς θερίδος φύσεως δοξομένου ὀνόματι εἰς παῦσι των συμμαχῶν βιού, μεγάλον δὲ μετὰ τῆς ονομασίας. Against all the MSS., editors have omitted αὐτῷ πάντα σοὶ τῆς τοῖς παῦσιν φύσεως. But cf. τῆς δὲ ἀμηρότητος αὐτῷ πάντα φύσεως (154 b 7); τοῦ δὲ πᾶρ τῆς φύσεως (149, 7). At the end, Jackson saw that μεγάλον δὲ μετὰ τῆς ονομασίας goes with the other present participle συμμαχῶν, not with the following aorist participle, and punctuated as above.

2 Commenting on clause (2) Proclus (ii, 155) says that among the kinds, Existence ranks first, Sameness second, Difference third. As the intermediate sort of Existence is subordinate to intelligible Existence but superior to divisible Existence in the corporeal, so the Sameness of the soul is inferior to indivisible Sameness, but has a superior unity to divisible Sameness; and this is true also of its Difference. He recognises what (in the terms of his own theology) he calls the 'demiurgical genus' of Sameness (and of Difference), as having three species—the indivisible, the divisible, and the intermediate. He assigns to the latter the intermediate species of both Sameness and Difference, and says they are combined (in the final mixture) with the intermediate species of Existence. 'For Plato says that, just as in the case of Existence, so in the case of Sameness and Difference the Demiurge compounded a third sort consisting of both, and ‘on the same principle’ (reading κατὰ ταῦτα ὑπέρ) here

so much for the interpretation of the words; it remains to consider what Plato's symbolism means. This passage is one of many in which he is writing for readers already versed in his own later thought, without regard for the un instructed, who would be left wholly in the dark. The terms Existence, Sameness, Difference, would be simply unintelligible to anyone who had not read and understood the Sophist. 3 In that dialogue 4 these three 'kinds' or Forms are singled out for the purpose of showing how Forms in general can be connected in true affirmative statements and disjoined in true negative statements. It was necessary to point out that the words 'is', 'is not', 'is either', 'is not' can mean either 'does exist', or 'is the same as', 'is not', 'is different from'. Non-existence has been ruled out of the discussion, because there are no true statements asserting that any Form does not exist. We are thus left with Existence, Sameness, Difference. It is carefully shown that these three Forms are wholly distinct. They are, indeed, 'all-pervading', in that every one of them 'combines' with every other and with every Form there is. You can say truly of any Form whatsoever (1) that it exists, (2) that it is the same as itself, and (3) that it is and at 155 and 155 a: so Tr.]: as in the former case the 'compound of both' was a species of Existence, so in the case of these the intermediate is a species of Sameness or Difference. This paraphrase clearly shows that he construed clause (2) in the only way consistent with the reading of the MSS. The confusions introduced by other commentators arise chiefly from omitting the words αὐτῷ πάντα, and then imagining that τὸ σε ἀμηροῦσα αὐτῶν καὶ τὸ κατὰ τὰ σώματα μεριστά means the indivisible and divisible kinds (not 'of them' (αὐτῶν), i.e. Sameness and Difference, but) of Existence. This reduces the second clause to a pointless repetition of the first, and leads to an identification of Sameness and Difference with Indivisible and Divisible Existence, which is flatly inconsistent with the Sophist.

3 For a fuller discussion see F. M. Cornford, Plato's Theory of Knowledge (1933), pp. 273 ff. and 61.
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in some medium (space), ‘clinging to existence somehow or other, on pain of being nothing at all’ (52c).

Between these two orders he now inserts a third form of Existence, compounded of both, which is proper to the soul. All this is correctly pointed out by Proclus. Throughout his commentary, he speaks of soul as an intermediate entity, composed of the intermediate kinds of Existence, Sameness, and Difference. He recognises three orders of Existence: intelligible and ungenerated things; perceptible and generated things; and intermediate things that are intelligible and generated. The first are altogether incomposite and indivisible and hence ungenerated; the second composite and divisible and hence generated; the intermediate kind are intelligible and generated, being by nature both indivisible and divisible, both simple and composite, though in different ways. ‘That by indivisible Existence Plato means the intelligible Existence which, in its entirety, partakes of eternity, and by divisible Existence in bodies the Existence which is inseparable from corporeal bulk and has its being in the whole of time, he himself makes plain by speaking of the former as “unchanging”, of the latter as “becoming”, in order to call the soul not only at once indivisible and divisible, but also “intelligible” and “the first among things that become”. There is a difference between the everlastingness which is eternal and the everlastingness which is spread out along the infinity of time; and there is yet another, composed of both, such as belongs to the soul. For in its being the soul is unchangeable and eternal, but in respect of its thoughts it is in change and in time."

If this statement is substantially right, the World-Soul and all individual souls belong to both worlds and partake both of being and of becoming. As immortal and imperishable, the soul is most like the divine, immortal, intelligible, simple, and indissoluble (because incomplete); whereas the body is most like the mortal, multiform, unintelligible, dissoluble (because composite) and perpetually changing” (Phaedo 76a). To that extent the soul is akin to the unchanging Forms in the eternal world. But the

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different from any other Form. But a main point of the argument is that no one of these three Forms can be identified with, or derived from, any other.1 In this part of the Sophist Existence (οὐδὲν) means, not ‘that which exists’, but simply what is meant by the word ‘exists’ in such a statement as ‘Motion exists [partakes of Existence]’. Since the Sophist (as the ancient critics say) provides the sole clue to the sense of our passage, the word οὐδέν here must bear this meaning; it should not be rendered by ‘essence’ or ‘substance’. The upshot is that the soul has a sort of existence which is not simply identical with the real ‘being’ of immutable and eternal things, nor yet with the ‘becoming’ of the things of sense, but has some of the characteristics of both these sorts of Existence.

In the Sophist only Forms are in question, and the sort of Existence which Forms possess. This is evidently what Plato, in our passage, calls ‘indivisible and always unchanging Existence’. When we say that a Form exists, we mean that it has the eternal and immutable being assigned to the higher order of existents at the opening of Timaeus’ discourse (52a). With this Plato contrasts here, as before, the ‘divisible Existence which becomes in bodies’ or in the region of the bodily. This belongs to that lower order of existents which is ‘always becoming, but never has real being’, in the realm of the perceptible. The Sophist (240b) recognises images (εἰκόνα) as a class of entities which have ‘some sort of existence’ (as οὐδέν πάντα), but not the real being of the real things (οὖσαν οὐδέν) of which they are likenesses. These images of reality include all the contents of the visible world produced by the divine Demiurge, whose activity is compared in a later passage of the Sophist 2 to that of the human craftsman. They are those copies of the Forms which Timaeus (52a) describes as like the Forms with these names they bear, sensible, generated, perpetually in motion, coming to be in a certain place and vanishing out of it, apprehended by belief involving perception. As likenesses (εἰκόνες) they are contrasted with real appearances
soul is unlike the Forms in that it is alive and intelligent, and life and intelligence cannot exist without change (Soph. 248E). All souls, therefore, must partake also of the lower order of existence in the realm of change and time.

The epithets ‘indivisible’ and ‘divisible’ call for some explanation. 1 The being of a Form is indivisible. A Form may, indeed, be complex and hence definable; but it is not ‘composite’ (kóuteron), not ‘put together’ out of parts that can be actually separated or dissolved. Also every Form is unique; it cannot be multiplied. It is not extended in space, and never leaves its own intelligible region to pass into the multitude of things that become in the world of change (32A–C). There is a sense in which every soul is unique and everlasting preserves its identity; the soul, too, or at least the immortal part of soul, is ‘incomposite’ and indivisible. But souls do enter the world of time and change. They exist separately in different bodies, which exclude one another in space; and a soul may be conceived as permeating every part of the body it animates. To this extent it shares in the divided or dispersed (nuktortry, 37A) Existence of body; though it cannot be cut into pieces as the body can. The World-Soul is described as extended throughout the whole body from centre to circumference (34B, 36B). It is not clear that we have any right to explain this away. If we recognize such a thing as a soul, an animating principle of motion and consciousness somehow distinct from the bodily elements that continue to exist in a corpse, it is natural to think of it as extending to every part of the living creature. 2 Such, then, is the intermediate form of Existence which, in the imagery of the myth, is produced by mixing the two original kinds of Existence, so as to form a third between them. 2

It is less easy to see what is meant by the remaining ingredients, the intermediate kinds of Sameness and Difference. The question is best approached from the side of the cognitive functions of the soul, and the principle that like knows like. 3 Aristotle remarks

1 Their meaning as applied to the soul is discussed by Plotinus from his own standpoint at Enn. iv, ii.

2 There is a further question, too speculative to be here pursued, whether the intermediate existence of the soul is to be connected with the intermediate position of the objects of mathematics between the Intelligible and the Sensible in Plato’s later ‘Ableitungssystem’ as reconstructed by Robin and H. Goemperz. See Robin, Places de la Physique dans la Phglos. de Platon (1910), pp. 51 ff., and P. Merlan in Phthologus lexxix, 109 ff.

3 Cf. Cantor’s explanation preserved by Flutarch de anim. proc. 1012B (summarized in Tr., p. 113). Flutarch’s brief summary does not make it clear whether Cantor was really open to the objections Plutarch advances (1013 A–B); but Cantor appears to have misconstrued Plato’s sentence like almost everyone else, except Proclus. Albinus in his Didascallius starts his
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The activity of the soul's ceaseless and intelligent life is based on the principle that like knows like. As Proclus says, 'Since the soul consists of three parts, Existence, Sameness, and Difference, in a form intermediate between the indivisible things and the divisible, by means of these she knows both orders of things; ... for all knowing is accomplished by means of likeness between the knower and the known.'

Now the body of the heaven has been created visible; but she is invisible, and, as a soul having part in reason and harmony, is the best of things brought into being by the most excellent of things intelligible and eternal. Seeing, then, that soul had been blended of Sameness, Difference, and Existence, these three portions, and had been in due proportion divided and bound together, and moreover revolved upon herself, whenever she is in contact with anything that has dispersed existence or with anything whose existence is indivisible, she is set in motion all through herself and tells in what respect precisely, and how, and in what sense, and when, it comes about that something is qualified as either the same or different with respect to any given thing, whatever it may be, with which it is the same or from which it differs, either in the sphere of things that become or with regard to things that are always changeless.

1 Pr. ii. 298. Cf. ii. 135-11 ff.
2 Plutarch 1016c (rightly) took ἀνὴρ νοετῶν δὲ τοῦ ἄϑρωνος as depending on τοῦ ἄνθρωπου. Pr. ii. 294, mentions this as a possible construction, though he suggests, as perhaps preferable, the meaning that soul is the best among those intelligible and everlasting things which are generated, or taking τοὺς νοετὰς δὲ τοῦ ἄϑρωνος with λογισμῷ καὶ ἀμφιβολία (cf. Robin, Physiogr. de Pl. 50). That ἄϑρων means the soul (not 'the heaven itself'), Tr. is plain from 400, 6. A. H., Wilamowitz (Fiedern ii. 396), and others are (I think, rightly) inclined to omit ἄϑρων, though it was read by Plutarch (loc. cit.).
3 Proportion acts as a bond, 31c.

The construction is doubtful. (1) It can be taken (in accordance with the above translation) as follows: 'The soul tells (ὅτι (which is) δὲ τοῦ ἄϑρωνος καὶ τοῦ ἄνθρωπου) whatever it may be (σὰς (that) something (is) the same as or different from—in what respect precisely and how and in what sense and when it comes about (ἕνα ὡς καὶ ἀπειλοῦσι) that it (to) is, or is qualified by, each of these terms (same and different) (ὁδὸς ἡμῶν) in respect of any such thing (ὅθεν), either in the sphere, etc. Grammatically, ἡμῶν (n. 2) is the antecedent of ὅτι (A, 7), and the of the 3rd ξουμ ον ξουμ Μ
DISCOURSE IN THE WORLD-SOUL 36c–37c

37c. which this pair¹ come to exist by any name but 'soul', his words will be anything rather than the truth.

Like the earlier description (35a) of the composition of soul out of the three intermediate kinds of Existence, Sameness, and Difference, this compressed account of the discourse carried on in the World-Soul can only be understood by reference to the Sophist.² There all philosophic discourse is regarded as consisting of affirmative and negative statements about Forms. Discourse is guided by the science of Dialectic, whose task is 'to divide according to kinds, not taking the same form for a different one or a different one for the same' (253d). The dialectician discerns the true structure of the realm of Forms, what each Form is in itself and how it differs from others—what it is and what it is not. A false judgment is described as mistaking one Form for another. Similar language is used below (44a): in infancy the motions of the soul-circles of human beings are perturbed and distorted by the inflow of nourishment and of sense-impressions, and 'when they meet with something outside that falls under the Same or the Different they speak of it as 'the same as this' or 'different from that' contrary to the true facts, and show themselves mistaken and foolish'. When the tide of growth and nutriment flows in less strongly, the revolutions settle down into their natural course, 'and giving their right names to what is different and what is the same, they set their possessor in the way to become rational'. So in our passage, the true judgment correctly identifies its object (whether a Form or an individual thing which becomes) with whatever it is the same as, or distinguishes it from whatever it is different from. Dialectic is concerned solely with Forms, but here the discourse of World-Soul is directed both to the indivisible being of Forms and to the existence that is 'dispersed' in the perceptible things of time and space. The same is, of course, true of human souls, from which, in fact, the analogy is extended to the soul of the World. We have been told that the World's body has no sense-organs, because there is nothing outside it to be perceived. But the World's Soul differs from ours in that its revolutions can never be disordered

¹ I incline to think (with A.-H.) that this pair means rational understanding and knowledge, because Plato thinks it worth while repeatedly to assert that only can exist only in soul (30b, 46b, Soph. 249a, Philebus 30c), though the same is true of judgments and beliefs.

² 332x ff. See F. M. Cornford, Plato's Theory of Knowledge, pp. 260 ff.
³ Cf. for instance Theaet. 156b and the list of feelings at 42a below.

TIME

(47c). Hence Plato speaks of its discourse as always true, although it contains, besides rational understanding and knowledge, judgments and beliefs associated with the revolution of the Different—a revolution which is controlled by the superior motion of the Same, but moves in another plane.

(Aristotle, after mentioning how Empedocles recognised the principle that like is known by like, continues: ‘In the same way Plato in the Timaeus fashions the soul out of his elements; for like, he holds, is known by like, and things are formed out of the principles or elements, so that soul must be so too. Similarly also in his lectures “On Philosophy” it was set forth that the Animal itself is compounded of the Idea itself of the One together with the primary length, breadth, and depth, everything else, the objects of its perception, being similarly constituted. Again he puts the view in yet other terms: Mind is the monad, science or knowledge the dyad (because it goes undeviatingly from one point to another), opinion the number of the plane, sensation the number of the solid: the numbers are by him expressly identified with the Forms themselves or principles, and are formed out of the elements;¹ now things are apprehended either by mind or science or opinion or sensation, and these same numbers are the Forms of things’ (de anim. 404b, 16 ff., trans. J. A. Smith).

37c–38c. Time, the moving likeness of Eternity

We turn now from the spiritual motions of the World-Soul—its thoughts and judgments—to the physical motions of perceptible bodies in the Heaven. Planets, stars, and Earth have yet to be created and set in the revolutions symbolised earlier by the eight circles of the celestial mechanism. This work is prefaced by a description of Time, which cannot exist apart from the heavenly clock whose movements are the measure of Time.

³ When the father who had begotten it² saw it set in motion and alive, a shrine brought into being for the everlasting gods, he rejoiced and being well pleased he took thought to make it yet more like its pattern. So as that pattern

¹ 7. For a discussion of the Dyad as a living and self-moving creature (ενεργον εις καλ. ζωην).

² According to the primary sense of the word, the world is to be understood as the living and self-moving creature.
on the generated thing. But he took thought to make, as it were, a moving likeness of eternity; and, at the same time that he ordered the Heaven, he made, of eternity that abides in unity, an everlasting likeness moving according to number — that to which we have given the name Time.

For there were no days and nights, months and years, before the Heaven came into being; but he planned that they should now come to be at the same time that the Heaven was framed. All these are parts of Time, and 'was' and 'shall be' are forms of time that have come to be; we are wrong to transfer them unthinkingly to eternal being. We say that it was and is and shall be; but 'is' alone really belongs to it and describes it truly; 'was' and 'shall be' are properly used of becoming which proceeds in time, for they are motions. But that which is for ever in the same state immovably cannot be becoming older or younger by lapse of time, nor can it ever become so; neither can it now have been, nor will it be in the future; and in general nothing belongs to it of all that Becoming attaches to the moving things of sense; but these have come into being as forms of time, which images eternity and revolves according to number. And besides we make statements like these:

that what is past is past, what happens now is happening now, and again that what will happen is what will happen, and that the non-existent is non-existent: no one of these expressions is exact. But this, perhaps, may not be the right moment for a precise discussion of these matters.

1 μένωνας αἰῶνος καὶ αἰῶνες οὐκ ὕπονομος ἀναγεννήσεως ἄνωθεν εἰκόνα εἶναι. Even here, where he is contrasting eternal duration (αἰῶνα) with everlastingness in time, Plato will not reserve αἰῶνας for 'eternal' and διάκος for 'everlasting.' διάκος is applied both to the model and to the everlasting gods. But in this particular phrase it is certainly strange that the moving likeness contrasted with abiding duration should be called αἰῶνας. It is tempting to conjecture διάκος εἴκοσι, 'ever-flowing likeness,' and to compare Laws 696c where the motion of soul gives to Becoming an ever-flowing existence (διάκος οἰκοδομή), and Critias, Philemon, frag. 16, διάκος τε χρόνος νυμφία τε διάκος βοήθα τε κυρήνης διάκονος δούλος...

2 Read ἰδοὺ γενόμενον (F. E. Sch. Stob. Fr. [femina]): ἰδοὺ γενόμενον, cet. is odd, to avoid an intolerable hiatus. See note on 20a.

3 ἴδον ἀπίθανον, remotely governed by λόγος (37b, 5).

4 The objection is to using the word 'is' in statements about things that become or happen in time or are non-existent. 'Being', in contrast here with Becoming, ought strictly to be reserved for the real unchanging Being of eternal things. Its application to Becoming is at least ambiguous, not 'exact.' The last sentence hints that a discussion of the ambiguity of 'is' will be found in the Sophist. 'The non-existent' means (as in ordinary speech) the absolutely non-existent, of which, as the Sophist shows, nothing whatever can be truly asserted.

In the first sentence above, 'a shrine brought into being for the everlasting gods' is a paraphrase of τὸν ἴδον θεοῦ γεγονός δημιουργία which calls for some justification. The words are usually translated 'a created image of the everlasting gods,' and this expression has troubled commentators, who have assumed that the word αἰκόν (image) is simply equivalent to ἔτοι (likeness), and that consequently the everlasting gods must be the Form after whose pattern the world is made, or else (in spite of the plural) the Demiurge himself. But the Demiurge is nowhere in the Timaeus identified with his model, and the Forms are nowhere spoken of as gods.

The word αἰκόν, however, contains no implication of likeness and is not a synonym of ἔτοι. It is true that ἔτοι ἄκτισμα is the common phrase for 'images of the gods,' cult-statues; but the word itself has two main meanings: (1) object of worship, and (2) something in which one takes delight. 'Image' to our ears suggests a likeness; 'statue,' a solid and uninteresting effigy in a park. We do not think of a statue as enshrining the spirit of a departed general or politician. It is never an object of worship and seldom a cause of delight. The different associations of αἰκόν may be illustrated from other passages in Plato. In the Phaidros (230e) the lover chooses his lover (φιλός) according to his disposition and 'as though that love were a god in his eyes, he fashions and adorns him like an object of worship (ὁ ποιῶν ἄκτισμα), as with the intent to celebrate rites in his honour.' Here the beloved person is worshipped as an incarnation or embodiment of the god answering

1 ἴδον, sc. ἐκκοσμεῖν (Pr. iii, 50). The existence of the world is spread out all through past, present, and future time. Cf. 319, ἐκκοσμεῖν γεγονός ἐστιν τε νεκροῦ τε ἐστιν ἔκκοσμος. Comparison with 37c, 8, and 390, 1, suggest that αἰκόν is already the subject of ἰδος ὀμοιότατος αὐτῷ κατὰ διάκος ἑμι, 8
2 At 92c, 7, ἐκκοσμεῖν τοῦ κατοικία (sc. ἔσχον) should be read, not κατοικία.
3 As object of worship ἄκτισμα is ἐκ τῆς ἀγαθῆς (worshippers); in the other sense it is ἐκ τῆς ἀγαθῆς, a phrase by which ἄκτισμα is frequently glossed. The second appears to be the earlier sense in literature. It is recognised by Proclus with reference to our passage: καὶ γὰρ παντὸς ἄγαθον ἀπὸ τῆς ἀγαθῆς ἄκτισμα τὸν τοῦ ἱεροῦ ἄκτισμα λεγεῖναι (iii, 63), and perhaps hinted at by the words ἐκκοσμεῖν and ἐκκοσμεῖσθαι in the text.
being actual gods, or consider as likenesses of gods, like ἀγαλματα which the gods themselves have made. They are not the work of worthless makers, but we must honour them above all other ἀγαλματα; for never will there be seen ἀγαλματα more lovely or more truly a common possession of all mankind, or any set up (ἀθοποίητα) in more excellent regions or of higher purity, majesty, and fullness of life. Here the stars either are actual gods or ἀγαλματα made by gods for their own habituation. In our passage, the cosmos with its eight moving circles is thought of as an ἀγαλμα which awaits the presence of the divine beings who are to possess the motions symbolised. The addition of the heavenly gods and (later) of the three inferior kinds of living creatures is to complete the resemblance of the cosmos to its model (52c).

First, however, it must be explained that all these living creatures, even the heavenly gods themselves, are endowed with temporal life that moves in time and lasts throughout all time, but is not the eternal unchanging duration (αἰών) proper to the model. The concept of duration without change, as the attribute of real being, was first formulated by Parmenides. Plato echoes his words about the One Being: ‘It never was nor ever will be, since it is now all at once’ (frag. 5, 5). The ‘indivisible’ being of Plato’s intelligible world demands a duration that ‘abides (rests) in unity’. Time is essentially divided into the three ‘forms’, past, present, future; and it ‘moves according to number’, being measured by a plurality of recurrent ‘parts’, the periods called day, month, year. Nothing that was ever called Time can exist without these units of measurement; and these again cannot exist without the regular revolutions of the heavenly bodies, the motions of the celestial clock. Time, accordingly, is said to ‘come into being together with the Heaven’, in the sense that neither can exist without the other.

Plato’s treatment of Time presents an important contrast to his treatment of Space. We are apt to speak of Becoming as going on ‘in time and space’, as if these two conditions were on the same footing. Plato does not so regard them. Time is here included among the creatures of the divine intelligence which orders the world. It is a feature of that order, not a pre-existing framework.

Space, on the other hand, is introduced in the second part of the dialogue, under the heading of ‘what happens of Necessity’. The Receptacle of Becoming is there brought into account, as a third factor (besides Being and Becoming) which has hitherto been ignored (48c). This Receptacle, finally identified with Space (52a), is treated as a given frame, independent of the Demiurge and a

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wheel of becoming—birth, growth, maturity, decay, death, and rebirth. These words at once suggest the origin of the circular image of Time. It is borrowed from the revolving year—annus, annius, the ring. Hermippus, in his comedy The Birth of Athena, thus describes the year, Enniatus:

'The year, says Hermippus, 'contains all things in himself' (ἐν αὐτῷ). There is an allusion to the derivation of Ennaius from ἐν ἑαυτῷ, which we also find in Plato's Cratylus. Socrates there explains the two words for 'year'—eniatos and etos—as significant when taken together: they express that which seeks within itself (τὸ ἐν ἑαυτῷ ἑαυτῷ) and brings forth into the light all things, in turn, that are born and come into being.

In Empedocles' system the old seasonal 'powers' of summer and winter—the hot, the cold, the moist, the dry—are erected into elements by identification with fire, air, water, and earth. These four 'prevail in turn as the circle of Time comes round,' just as earlier they had prevailed in turn as the seasons came round in the circle of the year. Like Empedocles, Plato speaks here of Time 'revolving' according to number.3 Proclus remarks on this that Time revolves as the first among things that are moved; by its revolution all things are brought round in a circle. He says explicitly that the advance of Time is not like a single straight line of unlimited extent in both directions, but limited and circumscribed.4 He understands Plato's phrase 'throughout all time' (ὅπως) as meaning the Great Year, the 'single period of the whole,' which embraces all the periods of the planets and contains all Time, 'for this period has as its measure the entire extent and evolution of Time, than which there can be no greater extent, save

3 Cf. Plat. def. orac. 12, 410a, ἐν αὐτῷ ἐχθροὶ ἐν αὐτῷ καὶ ἐν αὐτῷ ὡμοὶ τὰ πάντα ἐν δύο πόλεις ἐν δύο φύσεσι. Ἔτοις ἐν πέντε ἐν τοῖς ἐν ἑαυτῷ κυκλώσεις αὐτοῖς κόσμοι γὰρ ἐντὸν κόσμον εἰσέβαλαν. Ph. Hippoc. n. 286. 16. Soph. Aj. 646, ἐναῦθαι ὁ μάρτυς καθαύρισθης χρόνος φθαρε ἠθίκα καὶ σωφρονεὶ κἀκεφαλά. 2 Vors. 218, 17, 29, καὶ ἐκ μὲν κρατοῦν παραλόγου κρήνην. The same line recurs 262, 1, with κόσμου for χρόνου. 3 Cf. pl. 38a, χρόνος...καὶ...ἀρμόδιον κυκλώματον. 4 Pr. iii. 29, ἀναγμένη τε καὶ περιγεγομένη... Contrast Locke (Essay, Bk. ii. ch. 13, § 11), 'duration is but as it were the length of this straight line, extended in infinitum.' It is interesting that Locke (in ch. 14) requires a long argument to dissociate Time from the celestial revolutions.

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by its recurring again and again; for it is in that way that Time is unlimited' (H. 289). 'The motion of Time joins the end to the beginning, and this an infinite number of times' (iii, 303).

38c–39e. The Planets as instruments of Time

Before proceeding to the creation of all the everlasting heavenly gods who are to be enshrined in the system of revolutions already prepared, Plato takes first those among their number, namely the Planets, whose special utility to mankind lies in their marking off the periods of time and so teaching men to count and calculate. He remarks later (474a) that the observation of these regular periods led to the discovery of number, to all inquiry into nature, and to philosophy itself.

38c. In virtue, then, of this plan and intent of the god for the birth of Time, in order that Time might be brought into being, Sun and Moon and five other stars—'wanderers,' as they are called—were made to define and preserve the numbers of Time. Having made a body for each of them, the god set them in the circuits in which the revolution of the Different was moving—in seven circuits seven bodies: the Moon in the circle nearest the Earth; the Sun in the second above the Earth; the Morning Star (Venus) and the one called sacred to Hermes (Mercury) in circles revolving so as, in point of speed, to run their race with the Sun, but possessing the power contrary to his; whereby the Sun and the star of Hermes and the Morning Star alike overtake and are overtaken by one another.

3 As Pr. (iii, 520b) remarks, the revolution (περιβάλλων) of the Different is still spoken of as a single movement of the soul as a whole, going on in all the seven circuits (περιβάλλοντας) among which it is distributed. περιβάλλω means primarily the circular motion, rather than the circular track; cf. circumvallatus. 4 Venus and Mercury are put into circles which have the same period as the sun, but not into one and the same circle. The construction is εἰς (εἰς) ἐντὸς ἐντὸς ἐντὸς ἐντὸς ἐντὸς being an accusative of the internal object after ἐντὸς (i.e.), A. H. followed Stallbaum in accepting τῶν, which appears as a correction in Y and yields the same sense as the omission of τῶν. The reading τῶν is as old as Albinus, Didasc. xiv. 3, φασάρον δὲ καὶ τῶν Ἰερών Ἰερών λεγόμενον ἄνταροι τῆς τοῦ θεοῦ καὶ τοῦ θεοῦ καὶ τοῦ θεοῦ καὶ τοῦ θεοῦ καὶ τοῦ θεοῦ τῶν, νοῦν δὲ ἄνθρωπου. It is possible that those who read τῶν understood Plato to have held Hesiod's theory that Venus and Mercury revolve as satellites round the Sun.

There would then be only one main circle for all three, the Sun's. But Plato certainly did not hold this. See Heath, Aristarchus, pp. 253 ff.

The three outer planets, Mars, Jupiter, Saturn, are called 'fixed' rather over- translates ἀμφωθείσαι, but the planets are gods and ἀμφωθείσαι they means 'setting up (a statue of) a god' for cult purposes.
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38c–39e

39c. gone round his own circle. The periods of the rest have not been observed by men, save for a few; and men have no names for them, nor do they measure one against another by numerical reckoning. They barely know that the wanderings of these others are time at all, bewildering as they are in number and of surprisingly intricate pattern. None the less it is possible to grasp that the perfect number of time fulfils the perfect year at the moment when the relative speeds of all the eight revolutions have accomplished their courses together and reached their consummation, as measured by the circle of the Same and uniformly moving.

In this way, then, and for these ends were brought into being all those stars that have turnings\(^1\) on their journey through the Heaven; in order that this world may be as like as possible to the perfect and intelligible Living Creature, in respect of imitating its ever-enduring nature.

Men have no names like ‘month’, ‘year’, for the periods of planets other than the Moon and Sun. These two are the most conspicuous and they both proceed uniformly on their course. The five remaining planets exhibit apparent irregularities, some of which have been mentioned. The complete analysis of their composite motion involves factors additional to the two great motions of the World-Soul. The result is a ‘bewildering’ (ἀνυξάρω, not ‘incalculable’) number of motions of surprisingly intricate pattern. Plato must have been acquainted with the system of Eudoxus, which required for each of these five planets not less than four spheres revolving on different axes, in order to reduce their apparent irregularity to a compound of circular motions. Three spheres each were enough for the Sun and Moon. The total of twenty-seven spheres would certainly make a pattern whose intricacy would bewilder a layman. Plato does not commit himself to Eudoxus’ system, which may have been recognised at the time as only giving an approximate picture, and was soon to be still further complicated by Callippus and Aristotle. If the ‘contrary power’ of the five planets has been rightly explained above as causing variations in speed without change of track, Plato’s own system is different, and an armillary sphere representing the planetary movements, if it were not required to work mechanically, would be of much simpler construction.

Though the readers of the Timaeus would be bewildered by these complications, ‘none the less it is possible to grasp’ the notion of

\(^1\) The Sun, for instance, ‘turns back’ at the top of its spiral when it touches the tropic of Cancer at midsummer.

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a Great Year, completed when all the heavenly bodies come back to the same relative positions. This notion was an ancient one, going back to the earliest attempts to arrive at a period of years which would coincide with a number of complete months. Plato extends it to include the periods of the remaining planets. He gives no estimate of its length.\(^2\) There is, as Taylor remarks, no suggestion that the end of the period is marked by any cosmic cataclysm. Such a catastrophe is, in fact, out of the question. The hands of a perfect clock would regain at every moment the position at which they were twelve hours before. Since the celestial clock was never set going at any moment of time, there was never any original position to serve as starting-point.\(^3\) The period, whatever it may be, is beginning and ending at every moment of time. This perpetual recurrence, as the concluding sentence remarks, is the nearest approach that the visible world can make to the eternal duration of the unchanging model. If the language of our passage suggests a period beginning at some one date and ending at another, that is only because the myth speaks as if Time and its instruments had been created at some moment which would mark the beginning of such a period.

39e–40b. The four kinds of living creature. The heavenly gods

So far, the planets are the only living creatures, within the universal frame, whose creation has been described. Among the everlasting gods who were to take up their positions in that frame, the planets were singled out because they are, in a special way, the ‘instruments of Time’; and Plato wished first to define Time in order to contrast the temporal existence of even the everlasting gods with the unchanging duration of the eternal model. Time cannot exist without the clock. Plato, accordingly, had to anticipate the creation of the heavenly gods by mentioning the planets. He now repeats the statement (37c, 38d) that the Demiurge designed to make his image as like as possible to the model. This is to be done by making all the four chief families of living creature, corresponding to the four regions of fire, air, water, and earth.

39e. Now so far, up to the birth of Time, the world had been made in other respects in the likeness of its pattern; but it was still unlike in that it did not yet contain all living creatures brought into being within it. So he set about accomplishing this remainder of his work, making the copy after the nature of the model. He thought that this world must possess all the different forms that intelligence discerns contained in the Living Creature that truly is. And there

\(^3\) So Macrobi. Somn. Scip. ii. xi. 13.
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38c-39e

39e. are four: one, the heavenly race of gods; second, winged things whose path is in the air; third, all that dwells in the water; and fourth, all that goes on foot on the dry land.

The Demiurge himself, however, makes only the living creatures of the first class, the gods within the heaven. These are the fixed stars, the planets, and Earth. Since the planets and some of their motions have already been mentioned, the following sentences refer specially to the fixed stars. But the planets are brought in at the end of the paragraph.

40. The form of the divine kind he made for the most part of fire, that it might be most bright and fair to see; and after the likeness of the universe he gave them well-rounded shape, and set them in the intelligence of the supreme to keep company with it, distributing them all round the heaven, to be in very truth an adornment (κοσμία) for it, embroidered over the whole. And he assigned to each two motions: one uniform in the same place, as each always thinks the same thoughts about the same things; the other a forward motion, as each is subjected to the revolution of the Same and uniform. But in respect of the other five motions he made each motionless and still, in order that each might be as perfect as possible.

For this reason came into being all the unwandering stars, living beings divine and everlasting, which abide for ever revolving uniformly upon themselves; while those stars that have turnings and in that sense wander came to be in the manner already described.

The stars have spherical bodies, mostly composed of fire, but containing some portions of the other primary bodies. Without earth, as Proclus says, they would not be solid masses resistant to touch; and the other two primary bodies are the means which hold fire and earth together (31b). Their composition is similarly described in the Epinomi (981D) in a passage which refers to all the heavenly bodies. There is no reason to doubt that the statement here applies to the planets, as Proclus held.

The intelligence of the supreme, in which the stars are set, is a short expression for the revolution of the Same, that rational

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1 At Rep. 508 the heavenly bodies are called 'the gods in the heaven' (τῶν ἐν οὐρανῷ θεῶν).
2 ἐσφαίρων for 'spherical' is reminiscent of Parmenides 8, 43. ἐσφαίρων ὀφθαλμοῖς, quoted by Plato at Soph. 244E.
3 τοιούτῳ. But only in that sense. They are not really 'wanderers', but keep to their regular paths, though they 'turn' back at the limits of their spiral tracks.

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THE HEAVENLY GODS

motion of the World-Soul which was described (36c) as having the primacy over the interior motion and in fact affects the whole universe. The circle symbolising the plane of that motion is the equatorial circle of the sphere, over the whole of whose surface the stars are scattered. All the fixed stars move together in the daily revolution, as if they were set in a solid sphere. But there is no material sphere; the stars move freely, though they keep their relative positions. The rotation of the heaven thus becomes for each individual star an imparted motion of translation: the star moves 'forward' along its circular track parallel to the equator. Every star has also, we are now told, a second motion, rotation on its own axis. The reason is that 'each always thinks the same thoughts about the same things'. Here, for the first time in the Timaeus, it is explained why axial rotation is regarded as 'that one of the seven motions which above all belongs to reason and intelligence' (34A).

Every star has its own intelligent soul, 'and accordingly its own proper motion; for the soul is the source of motion' (Pr. iii, 119). The same is true of the planets, as Proclus remarks. They also must have axial rotation; and, in fact, the Moon is the only heavenly body whose rotation could actually be observed. She must rotate on her axis in order to keep the same face always towards the Earth. This is a consequence of the free movement of stars and planets. If they were set rigidly in material spheres or rings which carried them round, they would, of course, all have the same face always turned towards the Earth, but it would be possible to deny (as Aristotle does) that they have an independent motion of rotation. Since Plato's circles symbolise movements only and are not material rings, he recognises this rotation as an independent proper movement, due to the individual soul of star or planet.

The last sentence is intended to convey that the statements about the composition and proper movements of the heavenly gods cover the planets, which are, just as much as the 'unwandering stars', divine and everlasting living beings, and must have the movement proper to their intelligent souls. Earlier the planets were treated merely as the instruments of Time, and the periodic motions relevant to this function were alone described. Their axial rotation was not there relevant; we are to understand that it is added here, as the movement of intelligence, which they possess equally with the fixed stars.

1 Cf. 47b, 7, 'the circuits of intelligence (τῶν ὠρίων) in the heaven'.
2 So also Albinius, Didasc. xiv, 'All these (stars and planets) are intelligent living beings and gods and spherical in shape'. The Laws and Epinomi leave no doubt on this point.

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ROTATION OF THE EARTH

ROTATION OF THE EARTH
genuine Pythagoreans identified with the fire at the centre of the Earth.¹

What is certain is that Theophrastus’ statement is, in any case perfectly consistent with the repentant Plato’s recognising a fire properly situated at the centre of the Earth. It provides no ground for rejecting Aristotle’s plain assertion that the Earth in the Timaeus is not a planet but situated at the centre.² In the history of astronomy the planetary theory was an aberration, confined, according to Aristotle, to a section of the Italian philosophers who called themselves Pythagoreans, in the early fourth century. As he remarks, they were not trying to account for observed facts, but constructing a system to fit preconceived notions. They did not stick at inventing two non-existent bodies which could never be observed, but without visiting the antipodes—the Central Fire and the Counter-earth—in order to give fire the most honourable position and to raise the number of circles to the sacred number ten. Plato, we know, had set his own school the task of working out a scheme which should best account for the observed facts; and Eudoxus, among others, took up the challenge. Plato’s attitude towards astronomy had become more scientific since the Republic, which recommends the student to dispense with the starry heavens. I cannot believe that in his old age he repented of this attitude and adopted a system which had no future among serious

¹ Hellas (loc. cit.) develops further the connection between the θέσεως διε πολλοις τονόμασιν. Tim. 30c, the διε πολλοις τονόμασιν και γι’ αυτό το ανάβασις της καινής ακτής, αλλ’ αυτόν από την Ερέμουντα της Κρήτης. This suggests that the earth is not only the place of the most honourable habitation (τιμωρδένη ουσία) which stands at the midst of the universe and surveys all that has part in becoming. This is, of course, mythical language; it recalls the procession of the gods in the Phaedrus, where ‘Hestia alone stays in the house of the gods’. If Hestia there is the Earth, the name at least suggests that Earth is the central heart of the world. The Politicus myth (272£) leaves doubtful the situation of that ‘place of outlook’ (τρεχωνικός), to which the Governor of the universe retires when he abandons control. But all these passages suggest that Plato was familiar with that ‘Tower of Zeus’ which the more

² See Ar. frag. 204R.

³ Proclus (who assumes as a matter of course that Plato’s Earth is at the centre) mentions that ‘the Pythagoreans called the centre of the universe Zeus πληρώ, δι’ δημοκρατίας φωτισμός και ἐκείνης τεκμηρίας’, and says that this Tower of Zeus is inside the Earth (iii. 141r. 142r). In the context he refers to the Phaedo as authority for the Earth containing all the elements—rivers of fire, water, and air—and so being a sort of microcosm.
THE TRADITIONAL GODS (40d-41a)

the Living Creature that truly is’ (398). These are neither gods
nor everlasting, but subject to birth, change, and death, in
the inferior regions of air, water, and earth. The making of them is,
accordingly, now to be delegated to the created gods, whose handi-
work will not be indissoluble, like that of the Demiurge himself.
Before proceeding to this next stage, Plato finds it necessary to
make some mention of the anthropomorphic gods of traditional
religion.

40d. As concerning the other divinities, to know and to declare
their generation is too high a task for us; we must trust
those who have declared it in former times: being, as they
said, descendants of gods, they must, no doubt, have had
certain knowledge of their own ancestors. We cannot, then,
mistrust the children of gods, though they speak without
probable or necessary proofs; when they profess to report
their family history, we must follow established usage and
accept what they say. Let us, then, take on their word this
account of the generation of these gods. As children of
Earth and Heaven were born Oceanus and Tethys; and of
these Phorkys and Kronos and Rhea and all their company;
and of Kronos and Rhea, Zeus and Hera and all their brothers
and sisters whose names we know; and of these yet other
offspring.

Plato has given his own ‘likely account’ of the creation of the
celestial gods. The authors of the theogonies attributed to Orpheus,
Muses, and other descendants of the Olympian gods, had professed
to speak with knowledge, but had not given even probable, much
less necessary, proofs of their assertions. In an earlier dialogue
Plato had not hesitated to make Socrates echo the famous saying
of Protagoras in the remark: ‘We know nothing about the gods—
neither about the gods themselves nor about the names they may
call one another by’ (Crat. 400d). If Protagoras had scandalised
the contemporaries of Pericles, the Athenians of fifty years later,
who had assimilated the plays of Euripides, were perhaps no longer
to be shocked. But Plato stops short at the agnostic position
which may well have been taken up by Socrates himself; he does
not flatly deny that the traditional gods exist. In the Phaedrus
again (245c) Socrates says that to speak of an ‘immortal living
creature’, compact of soul and body, as the author of the
universe, addressed them in these words:

1. The Theogonies are again dismissed at Laws 860c as hard to
enumerate because of their antiquity, but certainly false and unhelpful with respect to
the honour due to parents. The same view is expressed at Epim. 488c.

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THE ADDRESS TO THE GODS

one, but we imagine (παθόμενοι) him as a kind of immortal living
creature possessing both a soul and a body combined in a unity
which is to last for ever.’ The Demiurge, whom we can see; it means that we have
no evidence in reasoning or in perception for the existence of gods
in human form. But if we reject the human form and the mythical
genealogies, it does not follow that we must deny altogether any
invisible beings answering to the divinities of recognised belief.
The Epinomis (982a), like the Timaeus, lays emphasis on the
divinity of the visible celestial gods; but it adds invisible spirits
in the air and spirits sometimes visible in water, so that the heaven
may be completely filled with living beings. Mankind has come
to have many real beings, perhaps in visions, dreams, prophecies, or clairvoyance at the hour of death; and hence have
arisen beliefs in individuals and in States and widespread forms of
worship. No wise lawgiver will wish to innovate here or ‘turn
away his own State to a form of piety which has no certainty; he
will not prevent men from obeying traditional laws about sacrifices,
seeing that he has no knowledge at all about them, as in fact it is
not possible for our mortal nature to have knowledge about such
matters’. He ought, however, to insist on the worship of the
visible gods as well. The attitude towards the traditional gods is
still that of an agnostic, not of an atheist. There is no reason to
question its sincerity or to suggest that Plato is hedging in order
to escape a criminal charge of impiety. The irony in our passage
is aimed, not at the pious beliefs of the common man, but at the
pretensions of the ‘theologians’ to know the family history of anthropo-
morphic deities.

41a-d. The address to the gods

The speech in which the Demiurge now delegates the task of
making inferior living creatures, is addressed to all the visible gods
as well as to those invisible powers which reveal themselves, so far
as they will, and thereby occasion the current beliefs in the
deities of tradition.

41a. Be that as it may, when all the gods had come to birth—
both that revolve before our eyes and all that reveal
themselves in so far as they will—the author of this universe
addressed them in these words:

2. Cf. Laws 860c ἄλλοτε ἴδεν γενόμενον, ἄλλος γὰρ ἑλάντος, ἰδοὺ καὶ σώμα, καθάπερ τι καθάνων ὄν τοὺς ἔοι.
3. Cf. the judicious remarks of Mr. W. K. C. Guthrie in his excellent book,
THE ADDRESS TO THE GODS

41A. 'Gods, of gods whereof I am the maker and of works the father, those which are my own handiwork are indissoluble, save with my consent. Now, although whatsoever bond has been fastened may be unloosed, yet only an evil will could consent to dissolve what has been well fitted together and is in a good state; therefore, although you, having come into being, are not immortal nor indissoluble altogether, nevertheless you shall not be dissolved nor taste of death, finding my will a bond yet stronger and more sovereign than those wherewith you were bound together when you came to be.

'Now, therefore, take heed to this that I declare to you. There are yet left mortal creatures of three kinds that have not been brought into being. If these be not born, the Heaven will be imperfect; for it will not contain all the kinds of living being, as it must if it is to be perfect and complete. But if I myself gave them birth and life, they would be equal to gods. In order, then, that mortal things may exist and this All be truly all, turn according to your own nature to the making of living creatures, imitating my power in generating you. In so far as it is fitting that something in them should share the name of the immortals, being called divine and ruling over those among them who at any time are willing to follow after righteousness and after you—that part, having sown it as seed and made a beginning, I will hand over to you. For the rest, do you, weaving mortal to immortal, make living beings: bring them to birth, feed them, and cause them to grow; and when they fail, receive them back again.'

If the slight correction I have proposed in the first sentence of this address be accepted, the sense is satisfactory. 'Gods and works whereof I am father and maker' means the whole universe, of which the Demiurge has been called maker and father at 28c and just above (41A). Among all these creatures, those which have so far been described—the body and soul of the living world and the heavenly gods—are 'my own handiwork'; and these, we are now told, are indissoluble save with their maker's consent. That consent, it is added, will never in fact be given; hence the created

gods are everlasting and can never die.1 But the world, as a living creature that must embrace all kinds of lesser living creatures, is not yet complete. The mortal kinds must now be added, and since they are to die, they must be made indirectly through the agency of the created gods. The Demiurge himself will supply only the immortal element of the human soul.

This delegation of the rest of the work to the celestial gods may perhaps be connected with the notion that the heavenly bodies, especially the Sun, are active in generating life on the Earth. The male, says Aristotle, is that which generates in another, the female that which generates in itself; hence in the universe also men call the Earth female and mother, and speak of the Heaven and the Sun or some other such thing as begetters and fathers (de gen. anim. 716a, 14). In the Republic vi the Sun is singled out among the heavenly gods as 'the offspring of the Good which most resembles his parent'. He is the cause of the birth, growth, and nourishment of things in the visible world (509b). Aristotle elaborates the doctrine that the cause of coming to be and passing away is not the revolution of the First Heaven, but the annual movement of the Sun in the ecliptic or zodiac circle. This motion of the generator is a compound of two motions. It includes the motion imparted by the revolution of the First Heaven (Plato's motion of the Same): this secures that coming to be shall be perpetual. The other motion in the reverse sense along the ecliptic, by causing the Sun to approach and retreat alternately, provides that generation shall alternate with decay, birth with death. If we were right in supposing that the annual motion of the Sun actually is the motion of the Different, unmodified in the Sun's case and variously retarded or accelerated by the other planets, Aristotle's explanation fits Plato's scheme. The activity of the created gods in making perishable things can be associated with the combined motions of the fixed stars (the Same) and of the planets (the Different).

The only mortal creatures whose making will be described in detail are human beings. Timaeus' task was at the outset defined as ending with the birth of mankind. Even the plants on which man is to feed are not mentioned till far on at 77a. The lower animals are dealt with very briefly at the end (91b) and treated

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1 Reading θεοὶ, θεῖος = ἡ τιμὴ ἡ πατέρας τῆς ἐπαγγελίας τῆς ἡμῶν τάς (τοῖς θεοῖς) ἐκ τοῦ κεντρίου τῆς ἐπαγγελίας τῆς μη ἐθνοῦς. This conjecture and other interpretations are discussed in the Appendix (p. 367).

2 The 'living bonds connecting the souls and bodies of the celestial gods, mentioned at 38b.

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1 The Epinomenes 982a says that 'opinion' must assign to the stars one of two destinies: either they are wholly indestructible and divine by all necessity, or each has a length of life sufficient to him and of such duration that no longer span could ever be required.


P.C.

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only as degraded forms suitable for the reincarnation of men who have lived unwisely. The physical differences between men and women are postponed to the same context (90c ff.), because they are irrelevant to the whole account of our common human nature which fills most of the remaining discourse. Plato does not mean that men ever existed without women and the lower animals.

41D-42D. The composition of human souls. The Laws of Destiny

The Demiurge next fulfills his promise to fashion with his own hands the immortal part of the individual souls which are to be incarnated first in human form. They are composed of what was left of the original ingredients used to compound the World-Soul, namely the intermediate kinds of Existence, Sameness, and Difference (35A).1

41D. Having said this, he turned 2 once more to the same mixing bowl wherein he had mixed and blended the soul of the universe, and poured into it what was left of the former ingredients, blending them this time 3 in somewhat the same way, only no longer so pure as before second or third in degree of purity. And when he had compounded the whole, he divided it into souls equal in number with the stars, and

E. distributed them, each soul to its several star.

The human soul, no less than the World-Soul, must be so composed as to be like the objects it is to know, and it must possess the faculties of intelligence and knowledge, opinion and belief (37A-C). It is assumed later (43D), though not mentioned here, that its substance is divided into the ratios of the same harmonies, and given the motions of the Same and the Different. Human souls

1 So Pr. here (iii. 2541b): 'Soul is a substance intermediate between the substance that has real Being and Becoming, being a compound of the intermediate kinds.'
2 Reading καὶ πέλας ἐν τῷ πρότερῳ κλός οὐ τρεπόμενος κρατήρα. Anyone reading the words as they stand in the MSS. would expect τρεπόμενος or its equivalent to follow, not καταχρήστος: καταχρήσις ἐν τῷ κρατήρα is not Greek for 'poured into the bowl.' Cf. above τρεπόμενος ἐν τῷ τούτῳ ἐμφάνισεν (40c). Pr. evidently felt this (though he had our text), for he writes ἐπισταντα γὰρ τὸν δημιουργὸν ἐκόπτα ἐν τῷ κρατήρα τρέφει (ἐπὶ λόγον). I conjectured κλός, but Professor Robertson points out to me that τρεπόμενος has many letters in common with πρότερος and might easily disappear after it.
3 I suggest καταχρήσις (cf. At. Plit. 1021, ἐνότητος ποτέ σύμφως μέγαν. I can see no sufficient justification for the middle καταχρήσις, which is correctly used at Laws 637e, κατα τῶν λυκάδων καταχρήσις, Peter it pour down over their garments'. The active occurs at Rep. 506h, μέρος κατὰ τὴν καθολικὰ καταχρήσις and At. Ach. 1127, κατάγειν ἢ, παλ. καθολικὰ. For τρέπει = 'now,' cf. 37b, 2, 43c, 7.

41E. There mounting them as it were in chariots, he showed them the nature of the universe and declared to them the laws of

2. Destiny.1 There would be appointed a first incarnation one and the same for all, that none might suffer disadvantage at his hands; and they were to be sown into the instruments of time, each one into that which was meet for it, and to be born as the most god-fearing of living creatures; and human nature being twofold, the better sort was that which should thereafter be called 'man'.

Whencever, therefore, they should be necessary 2 have been implanted in bodies, and of their bodies some part should always be coming in and some part passing out, there must needs be innate in them, first sensation, the same for all, arising from violent impressions; second, desire, blended with pleasure and pain, and besides these fear and anger and all the feelings that accompany these and all that are of a contrary nature: and if they should master these passions, they would live in righteousness; if they were mastered by them, in unrighteousness.

1 νομοσ τοῦ εὐσωμενοῦ. Cf. Laws 904c (referring to the promotion and degradation of souls according to character): Whatever has soul contains in itself the cause of change and in changing moves from place to place according to the disposition and law of Destiny.' (ἐν τῇ ὑπὸ τοῦ δημιουργοῦ πάντας καὶ νομοσ).
2 A.-H. notes the recurrent references to Necessity in this sentence: ἐδύνασθαι . . . ἀναγεννᾶται ἐν . . . βασιλεὺς πατημένον, echoed in the parallel passage (59c, b) where the created gods, after the long intervening section on 'What happens of Necessity,' fashion the mortal soul: τὰ θεονὶ, διὰ καὶ διανοεῖ . . . ἐν τῶν . . . ἀναγεννᾶται τῶν ἀναγεννήτων: ὡς μὲν πάντα τὸν ἀναγεννήτων. All the feelings and emotions mentioned come under the term aestheisis in its widest sense (Theaet. 159b), and have bodily concomitants. Aestheisis in the narrower sense was not present in the World-Soul, whose body has no organs of sense or nourishment and cannot be attacked by any 'strong powers' from without (33a-30).
And he who should live well for his due span of time should journey back to the habituation of his consort star and there live a happy and congenial life; but failing of this, he should shift at his second birth into a woman; and if in this condition he still did not cease from wickedness, then according to the character of his depravation, he should constantly be changed into some beast of a nature resembling the formation of that character, and should have no rest from the travail of these changes, until letting the revolution of the Same and uniform within himself draw into its train all that turmoil of fire and water and air and earth that had later grown about it, he should control its irrational turbulence by discourse of reason and return once more to the form of his first and best condition.

The souls are set in the stars as it were in chariots, an image intended to recall the procession of the gods in the Phaedrus, where the soul-chariots are taken round the outside of the heaven, and the charioteers are vouchsafed a vision of the realm of Forms. Here they are shown the nature of the universe. Such knowledge of reality as they will acquire in earthly life will be gained by reflection (nemeseote). They are also taught the laws of their own destiny, as the souls in the Myth of Er, between their incarnations, hear the discourse of Lachesis, daughter of Necessity. The chief lesson, here as there, is that the soul is responsible for any evil that it may suffer. Proclus reproduces the genuinely Socratic doctrine that moral evil is the only real evil: neither disease nor poverty nor any other such thing is really an evil, but only wickedness of the soul, intemperance, cowardice, and vice in general; and we are responsible for bringing these upon ourselves (iii, 331B).

In Pindar, Ol. ii, and Phaedrus, 249a, the soul which has kept pure for three lives finally escapes from the wheel of reincarnation. The present passage might mean this, or that the soul waits on its star before being reincarnated as man. So Pindar provides a paradise where good souls, between their incarnations, spend a life free from tears in the presence of gods high in honour (Ol. ii, 63). The hiatus σωμάτως ξίμως suggests that και σωμάτως should be omitted with FY. Stob. Cf. note on 20A.

The rational revolution in the human soul's movements is to establish its supremacy over the irrational motions, as the Same in the World-Soul has supremacy (ἐξήρωτο) over the circles of the Different (36C). Cf. 44A, where the revolutions assailed by sensations from without, which 'draw in their train' (συνεργοῦντα) the whole vessel of the soul, only seem to be in control (ἐπιβλέπει). Flut. PT. Κπ. 1003A, ἐντὸς δὲ ψυχῆς καὶ μεταλληθῆς καὶ ἀναγνώστη διὰ συνοπτικῶν ἐμφανών μεταβολῆς αἰτία γέγονε τῇ καὶ κρίσισα ταύτα αὐτῆς καταφέξα τὸ καθάρισμα ἐκεῖνον ἐκεντράπιτα καὶ ἐπεξεργασίης . . . . The word προσφέρεται recalls the comparison of the incarnate soul to the image of Gaucius encrusted with shells and seaweed (προσφέρεται, Rep. 611B).
SOULS SOWN IN PLANETS

however, Plato leaves open the alternatives that either the human race always has been and always will be, or it must have existed for an incalculable length of time. In any case, the details of the mythical story here are not to be taken literally.

42D-E. Human souls born in Earth and the planets

After the journey in their star chariots, the immortal souls are next sown like seed in the planets and committed to the care of the created gods. Only the immortal element in the soul, as the immediate creation of the Demiurge, is indissoluble. The subordinate divinities must add the body and those mortal parts of the soul which temporary association with the body entails.

42D. When he had delivered to them all these ordinances, to the end that he might be guiltless of the future wickedness of any one of them, he sowed them, some in the Earth, some in the Moon, some in all the other instruments of time. After this sowing he left it to the newly made gods to mould mortal bodies, to fashion all that part of a human soul that there was still need to add and all that these things entail, and to govern and guide the mortal creature to the best of their powers, save in so far as it should be a cause of evil to itself.

In the machinery of the myth, it is natural to suppose that the first generation of souls is sown on Earth, the rest await their turn, unembodied, on the planets. The sowing of the immortal souls in the Earth and the planets, the instruments of Time, may symbolise that the soul possesses that intermediate kind of existence which partakes both of real being and of becoming. The soul is subject to Time and change; and her earthly life is spent in the region where the government of Reason is conditioned by Necessity. She

1 The comma after ἀρχή should be omitted. A.-H. prints it, but rightly ignores it in his translation.

2 So Chalcidius, p. 241. I cannot see why this notion is ‘foolish’, as Tr. calls it (p. 249). Some of the ancients who thought the moon was composed of earth imagined that it might be inhabited (or at least habitable, as Anaxagoras said: αὐθηρίων does not necessarily mean actually inhabited). Tr. produces no evidence that anyone regarded any other planet as habitable by men, except a statement by Chalcidius that Pythagoras believed that men exist on all the planets, though Plato does not. (At Pr. iii, 280, φυσική does not mean ‘planets’ but ‘elements’, as elsewhere in the commentary.) Plato, who speaks of all the heavenly gods (including all the planets, as I have argued, p. 148) as mainly composed of fire, was not likely to think of men living on them. Did any ancient ever hold that men lived in the Sun? Cf. Guthrie, Orphicus and G. Relig., pp. 234, 247, note 10, for Anaxagoras and the Orphic belief in an inhabited Moon.
STRUCTURE OF HUMAN BODY 44D–45B

But when the current of growth and nutrient flows in less strongly, and the revolutions, taking advantage of the calm, once more go their own way and become yet more settled as time goes on, thenceforward the revolutions are corrected to the form that belongs to the several circles in their natural motion; and giving their right names to what is different and to what is the same, they set their possessor in the way to become rational. And now if some right nurture lends help towards education, he becomes entirely whole and unblemished, having escaped the worst of maladies; whereas if he be neglectful, he journeys through a life hait and maimed and comes back to Hades uninitiate and without understanding.

These things, however, come to pass at a later stage. Our present subject must be treated in more detail; and its preliminaries, concerning the generation of bodies, part by part, and concerning soul, and the reasons and forethought of the gods in producing them—of all this we must go on to tell, on the principle of holding fast to the most likely account.

44D–45B. Structure of the human body: head and limbs

The matter in hand, to which Timaeus now returns, is the implanting of souls in bodies possessed of sense-organs and of all the feelings and emotions that accompany sense (42A). The first duty of the gods is to provide a residence for the immortal part of the soul, which they have just received from the hands of the Demiurge. We have not yet come to the addition of the two mortal parts of the soul (69c). So the body is here regarded as consisting of the head, which houses the immortal, rational part, and an apparatus of limbs to carry the head about, together with the organs of sight to direct its movements.

45D. Copying the round shape of the universe, they confined the two divine revolutions in a spherical body—the head, as we now call it—which is the divinest part of us and lord over all the rest. To this the gods gave the whole body, when they had assembled it, for its service, perceiving that it

1 Cf. 47c: the observation of the unperturbed revolutions of the heavens will lead to philosophy, and we shall learn "to reproduce the perfectly unerring (δεκαλεύτερος) revolutions of the god (the Heaven) and reduce to settled order the wandering (διερευνόμενα) motions in ourselves". Cf. 490, and 876, διά τρόπον καὶ διά τε ἐπιστημονικὰ γέγονεν, ὁλῷ ἥλιον.

2 Plato uses terms borrowed from Mystery ritual. A. H. Comnons Phainareis 250c. Luios 750c (δεκαλεύτερος), and Dem., de cor. 250, ἐξοροφός καρδιὰ, ἑδρον ἄμεσον. Cf. also Phainareis 248b, ἀνάλογος τῆς θεᾶς; Gorg. 449b, τοῦ ἀνωτέρου ἀμφώνει.

THE MECHANISM OF VISION

44D. possessed all the motions that were to be.1 Accordingly, that the head might not roll upon the ground with its heights and hollows of all sorts, and have no means to surmount the one or to climb out of the other, they gave it the body as a vehicle for ease of travel; that is why the body is elongated and grew four limbs that can be stretched out or bent, the god contriving thus for its travelling. Clinging and supporting itself with these limbs, it is able to make its way through every region,2 carrying at the top of us the habituation of the most divine and sacred part. Thus and for these reasons legs and arms grow upon us all.3 And the gods, holding that the front is more honourable and fit to lead than the back, gave us movement for the most part in that direction. So man must needs have the front of the body distinguished and unlike the back; so first they set the face on the globe of the head on that side and fixed in it organs for all the forethought of the soul, and appointed this, our natural front, to be the part having leadership.

This description of the human body has the same oddly archaic character as that of the World's body at 33a–34a; but it is hard for a modern reader to gauge the effect. Many passages in Sir Thomas Browne strike us as 'quaint' or funny, that may not have seemed so to his contemporaries. The evidences of design in the human body were a serious matter to Plato. A more systematic account of the body's structure will be given in the third section of the dialogue. This paragraph is mainly intended to compare and contrast the human body and its motions with the body and motions of the universe.

45B–46A. The eyes and the mechanism of vision

Plato singles out the sense of sight, first because it is useful for locomotion, and secondly because sight and hearing, which will presently be added, are the two senses which above all reveal the

1 The bodies of the universe and secondly of the created gods possessed only rotation and orbital revolution—the rational motions. Inferior creatures have all the six rectilinear motions proper to the primary bodies, portions of which are 'assembled' to compose their bodies.

2 The six regions (νῦμος) of 43b, answering to the six motions (34a), 'up and down', 'forward and backward', 'right and left', which the World's body has not.

3 ἀντανακλᾶται πάνω, πάνω is at least superfluous: why 'all'—as if some of us might be expected to do without arms and legs? It is, accordingly, tempting to conjecture ἀντανακλᾶται, which removes the very unusual construction of the singular ἀντανακλᾶται. Chalcidius ignores πάνω: addita est crurum quoque et brachiorum perrigibilis et flexuosa substantia; but his version is loose.
THE MECHANISM OF VISION 458-46A

harmony of the world. He begins with the bodily mechanism of vision, for the sake of leading up to the contrast between these 'secondary causes' and the true reason or purpose, which is that man may learn number by seeing the heavenly bodies and so pass on through the sciences of number to all philosophy.

The mechanism of vision involves three kinds of 'fire' or light. (Several varieties of fire will be enumerated at § 58c.) These are:

1. Daylight, a body of pure fire diffused in the air by the Sun. This (like 2) is 'pure', not admixed with other primary bodies. At 58c it is contrasted with flame (φόλαθρα) as 'that which flows off from flame, and does not burn but gives light to the eyes'.

2. The visual current, a pure fire of the same kind as daylight, contained in the eye-ball and capable of issuing out in a stream directed towards the object seen. At 67p it appears that the visual current or ray is not composed of the very smallest grade of fire.

3. The colour of the external object, defined at 67c as 'a flame (φόλαθρα) streaming off from every body, having particles proportioned to those of the visual current, so as to yield sensation'.

Plato begins by describing (1) Daylight.

45b. First of the organs they fabricated the eyes to bring us light, and fastened them there for the reason which I will now describe. Such fire as has the property, not of burning, but of yielding a gentle light, they contrived should become the proper body of each day.

For the pure fire within us is akin to this, and they caused it to flow through the eyes, making the whole fabric of the eye-ball, and especially the central part (the pupil), smooth and close in texture.

c. so as to let nothing pass that is of coarser stuff, but only

1 So At., Eudemos, frag. 47. 48, speaks of sight and hearing as heavenly and divine senses, revealing the harmony to mankind with sound and light. The other senses are for the sake of mere existence, these for well-being.

2 Taking ἐκδρομή ἐφαρμοσμένη ἄναγκα with Mavrog and A. H. Each day, as it follows night, has a 'body of its own' (ἐκδρομή), consisting of sunlight diffused in the air, which 'withdraws' at nightfall (45p), following the sinking sun. This body actually is daylight, not 'similar' to daylight or 'akin' to it (as A. H. renders). But ἐκδρομή contains the suggestion that a 'gentle' (παποῦς) light is naturally appropriate to day (φῶς, a word which some modern authorities agree with Plato in connecting with παποῦς; cf. Crat. 415c). Tr.'s translation, 'a gentle light proper to day', ignores ἐκδρομή.

3 The connection of thought ("for") is: the gods made daylight, essentially a visible thing) of a suitable kind of fire, for they wanted the eye to see and so arranged that the fire within the eye should be similar and capable of coalescing with daylight.

4 Empedocles (89a), whom Plato is following, compares the eye to a born lantern, and explains that the fire confined in the eyeball is so fine as to pass through tissues impervious to water.

THE MECHANISM OF VISION 45c.

fire of this description to filter through pure by itself. Accordingly, whenever there is daylight round about the visual current issues forth, like to like, and coalesces with it and is formed into a single homogeneous body in a direct line with the eyes, in whatever quarter the stream issuing from within strikes upon any object it encounters outside. So the whole, because of its homogeneity, is similarly affected and passes on the motions of anything it comes in contact with or that comes into contact with it, throughout the whole body, to the soul, and thus causes the sensation we call seeing.1

But when the kindred fire (of daylight) has departed at nightfall,2 the visual ray is cut off; for issuing out to encounter what is unlike it, it is itself changed and put out, no longer coalescing with the neighbouring air, since this contains no fire. Hence it sees no longer, and further induces sleep. For when the eyelids, the protection devised by the gods for vision, are closed, they confine the power of the fire inside, and this disperses and smooths out the motions within, and then quietness ensues. If this quiet be profound, the sleep that comes on has few dreams; but when some stronger motions are left, they give rise to images answering in character and number to the motions and the regions in which they persist—images which are copies made inside and remembered when we awake in the world outside.3

1 What is transmitted along this sympathetic chain is motion partly originated by qualitative changes (ἐνάλληλον) in the object, as the Theaetetus explains. This motion reaches the bodily organ and causes qualitative changes there, which when they penetrate to the soul (but not before) are called 'sensations' (43c). There is no ground for Tr.'s notion of a pencil of light, a temporary extension of my body which may be miles long and 'sensitive throughout, and so' 'transmits' 'sensation from one extremity to the other'. Sensation, as Plato clearly says, occurs in the soul, not at the surface of a mountain ten miles distant and throughout the interval.

2 ἐν φώς, τὸν νομοῦν, as at Xen., Hell. 4. 6. 7; not 'into night'. Alcibiades, Dialect. xviii. paraphrases: τὸν ἄνθρωπον ἐν τῇ ἀντωπείᾳ. Plato seems to imagine the 'proper body of each day' 'moving away, following the sinking sun and superseded by the night air with little or no fire in it. He was probably thinking of Empedocles' two hemispheres of night and day' 'revolving round the earth, the one altogether composed of fire, the other of a mixture of air and a little fire' (Pl.-Plut., Strom. 109). The night-air, being damp, 'puts out' the fire issuing from the eye.

3 The last words may mean 'when we have emerged into the waking world', or that, when we recall a dream, the persons and things we dream of appear to be outside us, as they do in the dream itself. The latter interpretation is perhaps favoured by Rep. 476c (cited by Beare, Gh. Theories of Elementary Cognition 46): 'Dreaming, whether we are awake or asleep, consists in taking an image for the real thing it resembles. I am not convinced that Plato could not write: 'made inside and remembered outside.' in this sense.
MIRROR IMAGES

46a-c. Mirror images

A short appendix on mirror images is added here, seemingly for its own sake rather than as contributing to the main argument. It has, however, the effect of emphasising the purely mechanical processes of vision, which will presently be contrasted with its rational purpose.

46a. There will now be little difficulty in understanding all that concerns the formation of images in mirrors and any smooth reflecting surface. As a result of the combination of the two fires inside and outside, and again as a consequence of the formation, on each occasion, at the smooth surface, of a single fire which is in various ways changed in form, all such reflections necessarily occur, the fire belonging to the face (seen) coalescing, on the smooth and bright surface, with the fire belonging to the visual ray. Left appears right because reverse parts of the visual current come into contact with reverse parts (of the light from the face seen), contrary to the usual rule of impact.

In interpreting this short account of mirror images we must beware of ascribing to Plato too much knowledge of optics. There is no reference to the lens or the retina. He knew that the angles of incidence and reflection of a ray are equal. This proposition is assumed in Euclid’s Optics, where Def. 1 ‘embodies the same idea of the process of vision as we find in Plato, namely that it is due to rays proceeding from our eyes and impinging upon the object, instead of the other way about: ‘the straight lines (rays) which issue from the eye traverse the distances (or dimensions) of great magnitudes’; Def. 2: ‘The figure contained by the visual rays is a cone which has its vertex in the eye, and its base at the extremities of the object seen’; Def. 3: ‘And those things are seen on which the visual rays impinge, while those are not seen on which they do not.’’

Plato speaks first of ‘the combination of the two fires inside and outside’. As above, this means ‘inside and outside the eye’. He has just been explaining that such combination of the visual ray with the sunlight does not occur at night, and how in sleep the visual fire confined inside gives rise to dream images. He now returns to the case where combination does occur, resulting in coalescence of the internal fire with the external into one homogeneous body which can transmit the motions from object to eye. That is the first condition of all vision.

1 Heath, Gk. Math. 1, 441.
ACCESSORY CAUSES

46c. left, and the left to the right. The same curvature turned lengthwise to the face makes the whole appear upside down, throwing the lower part of the ray towards the top and the upper part towards the bottom.

This disposition on optics will seem less intrusive if we remember that the whole apparatus of vision was peculiarly significant to Plato because of the analogy between the bodily eye and the eye of the soul, and between the sunlight and truth. Dream images, shadows, and reflections occupied in the Republic (510a) the lowest section of the Divided Line. The relation of these eidola to the actual visible things whose images they are was there used to illustrate the relation not only of the lower objects of intelligence to the higher, but also of the whole visible world to its intelligible pattern. In the Sophist (266e) a parallel is drawn between divine and human production. Divine production covers the same field as the work of the Demiurge in the Timaeus: it is the creation of the whole visible world, divided into (1) originals, 'ourselves and all other living creatures and the elements of natural things—fire, water, and their kindred', and (2) images which attend on all these products: dream images, shadows, reflections. In human production the two classes have their analogues in (1) the production of useful things by crafts such as the builder's, who makes an actual house, and (2) images, such as the painter's, who makes, as it were, 'a man-made dream for waking eyes'. In this lower class rank all the fine arts, political rhetoric, and sophistry. Thus the relation of dreams and reflections to their originals was associated with what may be called the metaphysical problem of the eidolon, a problem raised but not answered in the Sophist: How can there be such a thing as a visible world, which is not perfectly real (ὁρτος ὁρ) and yet has some sort of existence (ὑπὸ ποιήμα)? The problem was there consciously shelved; if Plato meant to deal with it in the Philosopher that dialogue was never written. We must look for the answer, if anywhere, in the Timaeus. We are now approaching the second section of the dialogue, which brings into account a hitherto neglected factor in Becoming—the Receptacle. This, we shall find, plays a part analogous to the mirror holding the reflections of actual things (52b, c).

46c–47e. Accessory causes contrasted with the purpose of sight and hearing

The account of eyesight has brought us to the point of contact between the knowing soul and the external world of visible bodies.


1 ἡς ἐξουσίας ἀκοής, i.e. ἡς ἐκπλήρωσις genitive. For ἀκοὴ (ἀκοής) γίγνεται, cf. Soph. 265c. θεῖα (ἕκ. ἀκοής) ἄν καὶ θεός γίγνεται. 'causation which has its origin in deity'.

2 ομοεκαίνια recalls Soph., Antig. 537, καὶ συμπλήρωμα καὶ φύσις τῆς ἄκοης. 'I take my share with you in the burden of the accusation (or responsibility).'
WHAT HAPPENS OF NECESSITY

47b. bestowed upon us by the same hands to the same intent, e. because in the most part of us our condition is lacking in measure and poor in grace.

II. WHAT COMES ABOUT OF NECESSITY

The distinction drawn in the last paragraph between subsidiary causes and rational purpose has provided the transition to the second part of the dialogue, which begins here. The opening sentence describes the contents of the first part as the works wrought by the craftsmanship of divine intelligence (τα διὰ Νοῦς δημιουργικῆς). We have traced, in the structure of the visible universe and of man, the manifestations of benevolent purpose; but we have been perpetually reminded that the work of the most ungrudging benevolence cannot be perfect; it can only be 'as good as possible'. The Demiurge has been operating all through under certain given conditions, which he did not originate and which set a limit to the goodness of his work. We have now to bring into account that 'other principle' concerned in the production. It is introduced under the names of Necessity and the Errant Cause.

If we consider the plan of the whole discourse, we see that Plato, who has hitherto been looking at the world, as it were, from above, and following the procedure of intelligence as it introduces order into chaos, now shifts to the opposite pole and approaches the world from the dark abyss that confronted its maker. Step by step he analyses those elements which were pictured at the outset as 'taken over' by the Demiurge—all that was visible, not at rest, but in discordant and unordered motion (39a). These factors are gradually distinguished, until we reach the fundamental factor, Space. Space being given, Plato can then proceed to discover elements of rational design even in the 'tumultuous welters of fire, air, water, and earth'. The geometrical shapes of the primary bodies are constructed; and once they are formed into regular particles of determinate size and shape, the transformation of one into another, which had bulked so large in earlier physical systems, can be translated into terms of the disintegration and reformation of these solids. In some degree, the sensible qualities (or 'powers') which act upon our sense-organs can then be correlated with the peculiarities of geometrical shape; and so we shall come back once more, at the end of this second part, to the mechanism of sensation and perception—of that point of contact between the knowing soul and the external world, to which the first part has brought us here.
NECESSITY. THE ERRANT CAUSE

47E-48E. Necessity. The Errant Cause

The opening paragraph is of fundamental importance for the understanding of the whole discourse. It describes the relations between Reason and Necessity, and how they co-operate to produce the visible world.

47E. Now our foregoing discourse, save for a few matters, has set forth the works wrought by the craftsmanship of Reason; but we must now set beside them the things that come about of Necessity. For the generation of this universe was a mixed result of the combination of Necessity and Reason. Reason overruled Necessity by persuading her to guide the greatest part of the things that become towards what is best; in that way and on that principle this universe was fashioned in the beginning by the victory of reasonable persuasion over Necessity. If, then, we are really to tell how it came into being on this principle, we must bring in also the Errant Cause—in what manner its nature is to cause motion. So we must return upon our steps thus, and taking, in its turn, a second principle concerned in the origin of these same things, start once more upon our present theme from the beginning, as we did upon the theme of our earlier discourse.

We must, in fact, consider in itself the nature of fire and water, air and earth, before the generation of the Heaven, and their condition before the Heaven was. For to this day no one has explained their generation, but we speak as

1 Namely, the account of the physical processes of vision, which are only secondary causes, subservient to the true 'reason' for the gift of sight.
2 ἐπί τό μανόμου ἐστο ἀπειρούμενον, δοκεί σύνεται. 'Literally' 'how it is its nature to set in motion' (A.-H.). For this use of ἰδίου cf. ἐπί μ. p. 383B, ὅτι δὲ τοῦτο ἔστω ἵνα τις ἐσταύρωσθαι, ὅσον ἄλλου ἀπειρούμενον ὕπόκειται τῷ πράγματι τῆς ἱδίου ἐνεργείας τῶν σώματος καὶ δόξης συνεχείας, ἐκεῖνα ἐν τῷ ἐκείνους βλέποντας, παρὰ τὰς ἰδίους.' And since God can do this, it is the easiest of things for him, first to put life into any body and the whole of any bulk, and then to make it move as he has thought best' (trans. Harward). Cf. also 43, where the soul-circles 'cause and suffer violent motions (ἐκ θυσίας θεωρουμένοι) every way in all the six directions', and note there (p. 148). The meaning will be further discussed below. (2) Some critics have followed Stallbaum in taking ἰδίου to mean 'endures' and so 'admits', raietone nos ἵπτεισιν νύμφη χεὶς; 'comme la nature des choses le comporte' (Martin); 'so far as its own nature admits' (Tr.). It may be questioned whether ἰδίου with no expressed object can bear this sense.
3 (3) Robin (Phys. d. Phil. 14): et la suire distinctement par où sa nature est de sentir. 'This is impossible, because la nature is not in the Greek.'

4 Ἰδία is vague. It might cover the chaotic condition and behaviour of the 'powers' before the elementary bodies received geometrical form, and what happened to them', namely the construction of those bodies, which no one has yet explained.

48b. if men knew what fire and each of the others is, positing them as original principles, elements (as it were, letters) of the universe; whereas one who has ever so little intelligence should not rank them in this analogy even so low as syllables. On this occasion, however, our contribution is to be limited as follows. We are not now to speak of the 'first principle' or 'principles'—or whatever name men choose to employ—of all things, if only on account of the difficulty of explaining what we think by our present method of exposition. You, then, must not demand the explanation of me; nor could

D. I persuade myself that I should be right in taking upon myself so great a task; but holding fast to what I said at the outset—the worth of a probable account—I will try to give an explanation of all these matters in detail, no less probable than another, but more so, starting from the beginning in the same manner as before. So now once again at the outset of our discourse let us call upon a protecting deity to grant us safe passage through a strange and unfamiliar exposition to the conclusion that probability dictates; and so let us begin once more.

In this preface passage the word διώξις (beginning', 'principle', starting-point') is reiterated many times, with a certain fluctuation of sense.

The discourse needs a fresh starting-point. The previous part started from the question, for what reason (purpose, motive, αἴτια) the world was made (429). The answer was found in the maker's desire that all things should be as like himself, that is to say, as good, as possible. This was the 'supremely valid principle' (or starting-point, ἰδίου) to be accepted from men of understanding; and we have followed its guidance to the point where rational design came into contrast with factors in the visible world that are 'incapable of any plan or intelligence for any purpose' (460). We must now start afresh upon a study of these irrational factors. They are at once connected with the nature of fire and air, water and earth'. These four so-called 'elements', or some one

1 στράτηγος. letters of the alphabet, first used in extant literature of the physical elements at Herodot. 12. 18. It is, however, not unlikely that Leucippus or Democritus illustrated the infinitely various combinations of atoms by the rearrangement of the same set of letters to form a tragedy or a comedy (Dries, Elementaria 13).
2 καὶ ἴκτενωθεῖ seems untranslatable. I suggest σφίγμα καὶ ἵκτενο. Cf. 48b, καθάπερ γὰρ τῶν τῶν... τῶν ἱδιούς αὕτη ἰδίοις. But, just below at 6, 2, it is added that the new starting-point must be a fuller classification than the one we started from, before ρέειν πρόλογον.

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or more of them, had been regarded by Ionian science and by popular thought as the original principle (ἀρχή) of all things. The earliest Ionians had chosen water or air as the one original condition (ἀρχή) from which a manifold world had emerged, and also as the fundamental form (ὁμοίωσις) of which all things at all times ultimately consist. Empedocles had taken all four and clearly endowed them with the status of elements, reducible and immutable factors which are merely mixed and rearranged in space to yield all the variety of compounds. The unexplained existence of the four elements had been taken as the starting-point for cosmogony, their properties and behaviour assumed, 'as if men knew what fire and each of the others is'. Plato at once denies them the status of elements, and promises ‘to explain their generation’ from prior and simpler beginnings. He intends to construct the geometrical shapes of the four primary bodies from triangles which he takes as elementary. Only he adds that even this analysis will not claim to have reached ‘the first principle or principles of all things’. This warning may mean that the elementary triangles themselves are reducible to numbers, and number perhaps to be derived from unity; but he will not here push the analysis so far.

Or it may mean that no one can ever really know the ultimate constitution of body, because there can be no such thing as physical science, but only a ‘probable account’.

There was, however, another and more objectionable sense in which the elements had been called ἀρχή: they had been taken as the original source of motion (ἐνέχθη, κυμαίωσις), ‘producing effects by cooling or heating, compacting or rarefying, and all such processes’ (46b). These effects were produced blindly by things incapable of any rational plan or forethought; and from their casual interplay the world-order was believed to have emerged. In this way the elements and the physical processes due to their properties or ‘powers’ (δυνάμεις) were made responsible as the true and only causes of all things (ἐκ τῶν πάντων, 46b). Plato intends to maintain that they are not original causes of motion and so of world-formation. The only source of motion is the self-moving soul, ‘the causation of the intelligent nature’ (46b). These bodies hold only the second rank, as things that are (passively) moved by others and of necessity set yet others in motion.’

Reason and Necessity. With all this in mind, Plato opens this second part of the discourse with the contrasted powers of Reason and Necessity. Both, he says, contribute their part to the formation of the world of Becoming. Reason, aiming at the best, must use persuasion to win over Necessity, inducing her ‘to guide the greatest part (but not all) of the things that become towards what is best’.

Immediately afterwards, he speaks of this second factor, Necessity, as an Errant Cause, whose manner of causing motion must be taken into account.

This central utterance has been much misunderstood, because the conceptions are foreign to the modern mind. How can Reason overrule Necessity by persuasion? Is not Necessity precisely the inexorable, which can listen to no persuasion? Necessity, in association with the material, suggests to us the unbroken and unbreakable chain of cause and effect, determining the whole course of events. What opening is left for persuasion? Moreover, we connect Necessity with the element of intelligible order and regular sequence in becoming; and we look to that quarter for the objects of knowledge, of natural science, whose aim is to formulate laws of necessary causation. How can Plato speak of Necessity as the errant or wandering cause, as something essentially irregular and unintelligible, needing to be brought, so far as possible, into order and persuaded to subserve, in some measure, the intelligent direction of Reason?

In interpreting this passage some modern commentators are, perhaps unconsciously, influenced by the desire to bring Plato into conformity with the Jewish-Christian doctrine of an omnipotent Creator. They are reluctant to admit any factor in the visible world that does not owe its existence to God, who, having called all things into being out of nothing, must himself be the author of Nature’s inexorable laws, and responsible for every defect in his handiwork. Archer-Hind’s interpretation goes to the extreme in this direction, though he substitutes for the Christian God an idealistic equivalent—an absolute Spirit evolving everything out of itself by a timeless process of thought (whatever that may mean).

By identifying the Demiurge with the Form of the Good, the World-Soul, and the sovereign Reason, he finds that Plato’s system is ‘a form of pantheism’ and ‘an absolute idealism’. Matter is reduced to extension, and extension ‘exists only subjectively in our minds’ (p. 45). In this view there is really nothing left but God, who must accordingly be the author of Necessity; and Necessity is identified with natural law. It ‘signifies the forces of matter originated by νοῦς, the sum total of the physical laws which govern the material universe; that is to say, the laws which govern the existence of νοῦς in the form of plurality’ (p. 166). The forces of nature ‘are themselves expressly designed by Intelligence for a good end’. Necessity persuaded by Intelligence means in fact that necessity is a mode of the operation of intelligence’. The phrase ‘Errant Cause’ implies no uncertainty or caprice in the operation of necessity, but only that necessity, though working strictly in
obedience to a certain law, is for the most part as inscrutable to us as if it acted from arbitrary caprice (p. 167).

In all this Archer-Hind has pushed too far (and in the wrong direction) his principle of 'stripping off the veil of allegory' from Plato's myth. By pursuing that principle the Neoplatonists discovered in the Timaeus a hierarchy of dignities that would have astonished Plato. It is no less easy for a modern critic to unveil the outlines of Christian theology or of the Hegelian absolute. We must pause to ask whether there is any sense in speaking of Reason as 'persuading' a Necessity which has emanated wholly from Reason itself, or of an 'Errant Cause' which is only an unerring cause that happens to be inscrutable to us and may become less and less inscrutable as knowledge advances.

In assuming that Necessity means the laws of nature and identifying these laws with the mode of the operation of Reason, Archer-Hind has eliminated one of Plato's two factors and left Reason in complete control. Professor Taylor reaches the same result by a different route. We are not, he remarks, to confuse Plato's Ananke with scientific necessity' or 'the reign of law' for she is expressly called the 'rambling' or 'aimless' or 'irresponsible' cause (αναμαχομένη αιτία). Thus it is not the 'necessary' but the 'contingent', the things for which we do not see any sufficient reason, that are the 'apparently arbitrary' 'locations' in the universe which are the contribution of that which Plato here calls διάτροφτος ... We must not take διάτροφτος to represent anything inherently lawless and irrational, and yet must not take the word to mean necessity in the sense of conformity to law. If we speak of 'mechanical causality', it must be with reservations. Mechanism is entirely subordinate to intelligent purpose; and, as the term 'errant cause' implies, this 'mechanism', if we are to call it so, is supposed to be most prominent in the apparently anomalous, exceptional, and singular. I take it this means that where we can see a rational connection in nature we are dealing with what Timaeus calls a creation of ρόη ... But there is in the world a good deal of what we may call 'brute' fact. We know it is there but we do not see 'what the good of it' is, though, if we think with Timaeus and Plato, we feel satisfied that it subserves some good end. If we could ever have complete knowledge, we should find that διάτροφτος had vanished from our account of the world. But since the sensible world itself is an αναμαχομένη and never complete, there can be no complete knowledge of it' (pp. 300–2).

As against Archer-Hind, Professor Taylor seems right in refusing to identify Necessity with natural law, which is neither an errant cause nor open to persuasion. But it is impossible to dispose of

Reason and Necessity

Necessity as a mere residuum of hitherto unexplained fact, which complete knowledge (if man could ever attain to it) would reduce to nothing. Consider the effect of substituting this notion for Plato's Necessity. Could he have written that the generation of the universe was a mixed result of a combination of Reason and a certain amount of brute fact which dwindles as we come to see the reason for it? Is there any sense in saying that Reason overruled this residuum of facts which we cannot yet account for and persuaded it to guide most things that become towards what is best? Professor Taylor seems to have explained away the name Necessity as completely as Archer-Hind explained away the name Errant Cause. Both are influenced by the desire to make Plato's Demiurge really omnipotent.

Now, in discussing the Demiurge (p. 36), we have already remarked that the omnipotent Creator is foreign to ancient Greek thought, which unanimously denied the possibility of creating anything out of nothing. Plato's Demiurge, whatever he stands for, is represented as like the human craftsman, who must have materials to work upon. His task is to bring some intelligible order into a disorder which he 'takes over', not to create the material before he fashions it. The material may have properties of its own, which he can, within limits, turn to his purpose, but which he did not institute. This possibility should be kept open, not foreclosed by the gratuitous assumption that the Demiurge must possess unrestricted omnipotence. In this respect the difficulty, as Professor Field remarks, is rather to conceive a purpose that is not restricted by given conditions. It is the familiar experience of every craftsman that his material limits the scope of his design and may hinder it from reaching a perfection he can imagine but never achieve. So far, there is really nothing but modern prejudice against accepting Plato's picture of the divine Reason as confronted by something which partly thwarts his benevolent purpose and needs to be persuaded, because it is not wholly under his control. The difficulty for us lies rather in a different quarter, in the seemingly contradictory notion of a Necessity which is also an Errant Cause, and associated, not with order and intelligibility, but with disorder and random chance.

We may start from a passage where Aristotle, discussing 'necessity' in contrast with final causation in Nature, associates necessity with accident, coincidence, chance, and spontaneity, because they are all contrasted with design. He puts the opponent's case in this way:

'Why should not nature work, not for the sake of something, nor because it is better so, but just as the sky rains, not in order

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to make the corn grow, but of necessity (ἐπὶ ἀνάγνωσιν)? What is
drawn up must cool, and what has been cooled must become
water and descend, the result of this being (συμφάνει) that the
corn grows. Similarly if a man’s crop is spoiled on the threshing-
floor, the rain did not fall for the sake of this—in order that the
crop might be spoiled—but that result just followed (συμφάνει) why
then should it not be the same with the parts in nature,
ė.g. that our teeth should come up of necessity (ἐπὶ ἀνάγνωσιν)—the
front teeth sharp, fitted for tearing, the molar broad and useful
for grinding down the food—since they did not arise for this end,
but it was merely a coincident result (συμφάνεια) ; and so with
all other parts in which we suppose that there is purpose (τὸ
κατὰ τὸν τόνον)? Wherever then all the parts came about (συμφάνει) just
what they would have been if they had come to be for an end,
such things survived, being organised spontaneously (κατὰ τὸν
ἀφορμότονον) in a fitting way ; whereas those which grew otherwise
perished and continue to perish, as Empedocles says his “ man-
faced ox-progeny” did. 1

In this passage the idea of necessity is opposed to purpose, and
linked with spontaneity, coincidence, chance. If we toss a coin
and it comes down heads up, it would not occur to us to call that
a ‘necessary’ result, because (we should feel) there is no hope that
coins must always come down so. Aristotle would call it indirectly
a ‘chance’ result or a ‘necessary’ result : it ‘comes about’
by causes that cannot act otherwise than they do and are not
directed by purpose. Empedocles’ oxen with men’s heads and
other such monstrous creatures were formed by the chance concurrence
of limbs which came into existence separately and were
never intended to fit together. The monsters perished because they
could not reproduce their kind. Others, more fortunately
composed, were able to survive. In the minds of Plato and
Aristotle this Empedoclean theory stood for the view of nature
which they condemned. The two alternatives, as they saw the
question, were that the order of the world should be due either to
intelligible purpose or to the undirected play of necessity and
chance.

At Philebus 28d Socrates asks : ‘Which are we to say,
Protarchus—that everything, this *whole*’ as we call it, is at the
disposal of a force that works without plan, at random, and just
as it may chance, or on the contrary, as our predecessors said,
that it is an ordered system, guided by some admirable reason or
intelligence? ’ Protarchus replies that it seems impious to doubt

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1 Ar., Phys. B, viii, 198b, 17 (Oxford trans.).
2 τὸν τὸν ἀφορμὸν καὶ εἰλὴ δώσασι καὶ τὸ διὸν ἐνυγφαρ.
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that all things are directed by a mind worthy of manifest in the
whole appearance of the cosmos and in the revolutions of the
heavenly bodies. Socrates concludes that we shall not agree when
some clever person tells us that all things are in a disorderly condition
(ἀδικτεντος ἀφορμος). There is a similar passage in the
Socratic, where the alternative to divine craftsmanship is the belief commonly
expressed that Nature (φύσις) gives birth to things as a result of some spontaneous cause that generates without intelligence (265c).
Here, as in the Physics, we find, in contrast with design, a spontaneous power of generation ascribed to a vaguely personified
‘Nature’.

The earliest cosmogonies were of the evolutionary type and led
to what Plato regarded as the atheistic materialism of which he
draws a generalised picture in the Laws. Some, says the Athenian,
assert that all things come into being partly by chance (τὸ τὸπο)
and partly by design (τέχνη), partly by chance (τὸπο), and partly by design (τέχνη).
Fire and water, earth and air, they say, all exist by nature and chance,
not by design; and these inanimate things then bring into existence
the Sun and Moon, the Stars, and the Earth. They all move *by
the chance of their several powers (active properties, ἀνάγνωσις), and
according as they clash and fit together with some sort of affinity—
hot with cold, dry with moist, soft with hard, and in other mixtures
that result, by chance, of necessity (κατὰ τὸπον ἐπὶ ἀνάγνωσιν) from
the combination of opposites—in that way they have generated the
whole Heaven, animals and plants, and the seasons, not owing to
intelligence or design or some divinity, but by nature and chance
(φύσις καὶ τέχνη). Art (design, τέχνη) is a later product, mortal and
of mortal origin. There are the fine and useful arts, and the art
of statesmanship. All law is artificial, not natural; so religion
and morality are matters of convention, which vary from place to
place and can be altered at human pleasure. This leads to the
belief that might is right, to impious and faction (882b-80b).
The Athenian himself denies that fire and air, water and earth
are the primary things and deserve, in that sense, the name of
‘nature’. Soul is really the first cause of the becoming and
perishing of all things*. Soul is prior to all bodies, and governs
their change and rearrangement. Judgment, forethought, intelli-
genence, design, law (νόμος), are prior to ‘hard and soft, heavy and
light’. If *nature* means the generation of primary things, then
soul has the best right to be described as existing *by nature*.
(89c-89d).

In this passage of the Laws, as in the Physics, we find necessity
linked with chance, while law (νόμος) and order are connected with
design. Chance and necessity, moreover, are associated with
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Nature, which is credited by the materialist with some spontaneous power of generation. This idea had survived from the earliest cosmologies, which had conceived the primary element or 'nature of things' as living. In consequence, the first physical philosophers had felt no difficulty about an original cause of motion. The divine and immortal substance of the world moved and gave birth to individual things, because it was alive. It was only later that this substance came to be reduced to the level of the bodily, which needs some external force to move it about. At that stage separate moving powers emerged: the Mind of Anaxagoras, the Love and Strife of Empedocles. These forces, however, remained part of Nature; they were not what we should call immaterial, but were extended in space. They retained that power of self-motion which had originally resided in the primary substance; but their motion was not directed by purpose towards any ideal of perfection in an ordered world. Even Anaxagoras' Mind, in spite of its name, had not been represented as working with conscious design for any good end, but only as giving the first impulse of mechanical motion to the revolution, or cosmic eddy, in which the world takes shape.

In the last of these physical systems, the atomism of Leucippus and Democritus, the cause of motion seems to have entirely disappeared. Matter or body has now been reduced to tiny impenetrable particles of solid 'being'. These and the void or 'not-being', in which they move are the sole realities in the universe. Rational design or purpose had no part in the formation of the world. The atoms move unceasingly in all directions. As they collide and fly off to a new quarter, they form vortices here and there in the field of unlimited space. In these vortices atoms of similar size and shape tend to drift together, like the sticks and straws in the eddies of a stream; and so finally worlds are always being formed, innumerable worlds scattered throughout the void, holding together for a time and then shattered and dispersed.

Why do the atoms move? Aristotle complains that the atomists merely declared motion to be everlasting; they did not explain what motion is, or how it occurs, or why it should be in one direction rather than another. He accuses them of indolence in ignoring these questions; but the truth was that, by reducing all the contents of the universe to solid bodies with no qualitative differences, they had left nothing that could possibly originate motion. The atoms collided and inflicted shocks on one another, so as to be constantly changing the direction of their movements. The process had no beginning; atoms have always been moving in all directions, aimlessly and at random. The only principle governing their motion is the tendency of like atoms to come together in the vortices. This is assumed as an unanalysed axiom, supported only by superficial analogies and proverbial maxims: 'birds of a feather flock together'. It is the last remnant of that spontaneous moving power in Nature which had originally animated the living substance. 'Like tends to move towards like,' is now taken as a bare unexplained fact; but the principle is evidently akin to the more concrete images of Love and Strife in Empedocles, though his Love is the attraction between unlikes. It is not for nothing that Love and Strife reappear in the poem of Lucretius as Venus and Mars, though these mythical figures seem to have no right to any place in the arid universe of atoms and void. The principle 'like moves towards like' is important for our purpose; for we find it, still as an ultimate unexplained assumption, at work in the chaos of the Timaeus.

A world in the atomists' system can thus be described as a product of chance or, as Aristotle calls it, spontaneity. 'There are some,' he writes, 'who ascribe this Heaven of ours and all the worlds to spontaneity (τὸ ἀνάμορφα). They say that the vortex, that is, the motion which separated and arranged in its present order all that exists, arose spontaneously.' From another point of view the result may be called necessary, in the sense that every motion takes place 'under constraint' (ἐν ἀποτελέσματι) of some previous motion; an atom receives a shock and blindly passes on. But the ancients had not discovered the laws of motion: to say that a movement happens 'by constraint' is not to say that it conforms to any law. Necessity, in fact, did not carry with it the associations of law and order, at any rate in the earlier phases of atomism. The system might develop later towards a complete determinism, threatening to exclude any freedom of the will; but Democritus shows no trace of having perceived this implication in the moral sphere. The reason, I suspect, is that he had not arrived at what

1 *Physics*, B. 4, 190a, 25. The reference to 'all the worlds' shows that the atomists are meant.

2 This has been pointed out by Dr. Bailey. See *The Greek Atomists*, p. 172.

3 In his paper on Fate, Men, and Gods (Proc. Class. Assoc., 1915, p. 10), Dr. Bailey writes: 'It is in Democritus that we find for the first time anything like a consistent theory of Ethics, yet it is strange that there is no trace of any link between it and his physical theory of the world. The problem was really fundamental, for if the rule of "necessity" is absolute, then men's actions must be determined like everything else, and it is no good telling them what they ought to do, if they are not free to do it. Yet of this difficulty there is no sign; the figure of "chance" now and then raises its head in Democritus' aphorisms, but never the thought of "fate" or of an inexorable "necessity". The scientific view of the world has been laid down, but its implications have not been worked out.'
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we should call a strictly mechanical or 'scientific' conception of the world. His necessity was compatible with spontaneity.¹

The thought of the fifth century in general was still farther removed than atomism from any closed system of determinism.² An attempt to arrive at the philosophy implied in (Thucydides') conception of the course of history³ led me to the conclusion that Thucydides, like his contemporaries, did not conceive nature as a domain of causal law. He believed in Fortune, defined as 'any non-natural agency which breaks in, as it were, from outside and divers the current of events, without itself being a part of the series or an effect determined by an antecedent member of it. Human actions are not to be fitted into such a series. Their only causes—if we are to speak of causes at all—are motives, each of which is itself, uncaused by anything preceding it in time; all human motives are absolute "beginnings of motion". A view of

¹ The statement which most clearly attributes a complete determinism to Democritus is in [Plutarch] Strom. 7 (Vors. 55A. 39): He declared the universe to be unlimited, because it had never been fashioned by any design. . . . The causes of what now happens had no beginning (αρχή), but all things absolutely "both past, present, and future" were determined by necessity (κατὰ τὸ διάθεμα) without any beginning in time. The words in inverted commas are the only ones recognised by Diels as Democritus' own, and we cannot be sure that the doxographer's statement was not based, for example, on the view attributed to Democritus by Aristotle (Phys. 252A. 34): 'Thus Democritus reduces the causes that explain nature to the fact that things happened in the past in the same way as they happen now; but he does not think it necessary to seek for a first principle (ους τῆς) to explain this "always ..." Aristotle makes this remark in connection with the doctrine that 'there is no motion which might be called a cause'.' If Democritus was only affirming that principle, he might easily be understood to mean what the doxographer states. In other testimonies we are told that he actually identified 'necessity' or 'constraint' with the whirl or vortex of atoms (55A. 7, cf. Ar. Clouds 379.1) or with the collision, motion, and shock of matter (55A. 66). 'Atoms hold together until some more powerful constraint present in the universe shakes them apart and disperses them' (53A. 37, Simplicius). This is not the 'necessity' of causal law.

² It has been remarked that in Greece oracular predictions were normally hypothetical. It is extremely common for an oracle to answer: if you act in such and such a way, the result will be such and such. . . . The oracle foretells the future subject to certain conditions; it can predict the consequences of a certain course of action. Such prophecies presuppose the existence of an order, a regularity in what happens, which yet leaves some scope for the individual. Life is not foreordained except so far as its events are the effects of definite causes,' E. Ehrmark, The Idea of God in Homer, Uppsala (1935), P. 75. Even this statement is, perhaps, expressed in too modern terms.

³ Thucydides Mythisistoricus, London (1907), ch. vi. My excuse for quoting my own words at length is that the book is out of print. I can only reproduce here the conclusions without the supporting evidence.

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the universe in which this irruption of free human agency is tacitly assumed is at any rate illogical if it denies the possibility of similar irruptions into the course of Nature by non-human agencies.' Thucydides, like the Socrates of Xenophon,¹ contrasts 'the field of ordinary human foresight (γνώμη) with the unknown field, which lies beyond it, of inscrutable non-human powers, whether we call these gods or spirits or simply Fortune. This antithesis is more frequently in Thucydides' thoughts than any other, except the famous contrast of word and deed. The two factors—γνώμη human foresight, purpose, motive, and Θεότητα unforeseen non-human agencies—divide the field between them. They are the two factors, and the only two, which determine the course of a series of events such as a war; neither Socrates nor Thucydides thinks of natural law. One speaker after another in the History dwells on the contrast between a man's own γνώμη, over which he has complete control, and Fortune, over which he has no control at all. . . . An examination of all the important passages where this contrast occurs has convinced me that Thucydides does not mean by Fortune "the operation of unknown (natural) causes", the working of ordinary causal law in the universe. He is thinking of extraordinary, sudden interventions of non-human agencies, occurring especially at critical moments in warfare, or manifest from time to time in convulsions of Nature. It is these irruptions, and not the normal sway of "necessary and permanent laws", that defeat the purposes of human γνώμη, and together with γνώμη are the sole determinant factors in a series of human events. The normal, ordinary course of Nature attracts no attention and is not felt to need explanation or to be relevant in any way to human action. When Thucydides speaks of the future as uncertain, he means not merely that it is unknown, but that it is undetermined, and that human design cannot be sure of completely controlling human events, because other unknown and incalculable agencies may at any moment intervene.¹ No one will deny that the outlook of Thucydides was as scientific as any to be found in the fifth century, and more scientific than that of any later historian before Polybius. The above account of his philosophy was written without any reference to Plato's; but it now appears that there is a certain analogy between the two. Thucydides sees the field of human action divided between human foresight and chance; Plato sees the world of physical events divided between divine purpose and chance associated with necessity.

That Necessity in Plato was the very antithesis of natural law was clearly seen by Grote. 'This word (necessity)', he wrote, 'is
now usually understood as denoting what is fixed, permanent, unalterable, knowable beforehand. In the Platonic *Timaeus* it means the very reverse: the indeterminate, the contingent, the anomalous, that which can be neither understood nor predicted. It is Force, Movement, or Change, with the negative attribute of not being regular, or intelligible, or determined by any knowable antecedent or condition—*vis consilii expers* (Plato, iii, ch. 36).

Grote, however, attempted no explanation of this factor in Plato's system. We may seek further light from the manner in which Plato approaches the subject, where he distinguishes between two types of causation, the divine and the necessary. At the end of the first part, he has just described the mechanical processes involved in the act of seeing—what happens to the rays of light and colour in their commerce with the visible fire that streams out from the eye. These physical transactions he then contrasts with the true reason or explanation (αρτια) of sight, the purpose it is rationally designed to serve, namely to reveal to man the order and harmony of the visible heavens. Thus the manner 'how' is contrasted with the reason 'why'. Most men, he adds, imagine that bodily processes, producing their effects without plan or purpose, are the sole causes of everything. But the lover of wisdom will seek first for the causation whose source lies in a self-moving and intelligent soul, and only in the second place for the causation characteristic of 'things that are moved by others and of necessity (δι' ἐξ ἐξωτερικὸς, συνεργείας) set yet other things in motion'. Causes that work with intelligence to produce what is good and desirable must be distinguished from those which, being destitute of reason, produce their sundry effects at random and without order (τοῦτον ἄξιον ἀμφοτέρων, 468).

Here the lower type of causation, transmitting motion or change from one body to another, is, in the same breath, declared to proceed 'of necessity' and 'at random and without order'. This is the point rightly apprehended by Grote and emphasised by Professor Taylor in opposition to the identification of Necessity with natural law. But we could not follow Professor Taylor in his reduction of Necessity to a residuum of hitherto unexplained brute fact, which tends to vanish as our knowledge becomes more complete. That interpretation was inspired by the wish to make Plato's divine Reason an omnipotent 'God'. If it be accepted, then in the actual world, apart from any question of the point to which our knowledge has advanced, there will be no antagonist to confront the Demiurge, no intractable material restricting the effort of the craftsman to realise his design. 'Plato', he writes, 'emphatically does not mean that some things are due to intelligence

and others to mere mechanism. 1 'Mechanism' comes in only as the 'subordinate' of intelligent purpose, which is the 'principal' in all our conceptions (p. 390). With complete knowledge (if we could ever have it), Necessity, he holds, would 'vanish from our account of the world'. If so, then in the world as completely known by God it can have no place at all.

The question whether this view is consistent with the whole tenor of the *Timaeus* can only be decided by careful consideration of many passages, upon which the reader must judge for himself as he comes to them. It seems certain that the divine Craftsman is in some degree a mythical figure; taken literally, he has attributes inappropriate to the Reason which Plato believed to be operative in the world. The question at issue is now narrowed down to this: Are we to regard the given material on which the divine Craftsman works as mythical, in so far as it is represented as restricting his purposes and preventing him from producing a world that is perfect and not merely 'as good as possible'? Are there any forces now and always at work in Nature, that are not completely subdued by the persuasion of Reason? It is hard to think that Plato would have devoted a third part of the discourse to 'what comes about of Necessity' in contrast with 'the works of Reason', if he had meant that nothing comes about of Necessity save under the complete control of Reason. But the problem cannot be so easily settled; it must be left for discussion in detail. Here I can only indicate, without meeting possible objections, what I believe to be the true answers to the two remaining questions: (1) How is the lower type of causation subordinated to the higher? (2) What is the permanent and irrediscible factor confronting Reason and never wholly subordinate?

If, for the moment, we remain on the surface and take Plato's analogy of the divine with the human craftsman at its face value, it is easy to illustrate the subordination of necessity to purpose. There is the necessity which Aristotle calls 'hypothetical' in

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1 It is hard for us to avoid the word 'mechanical', because, since Descartes claimed: *terram non amovit, Juna mundum indicat machinae descripti* and still more since the industrial revolution, scientific thought has been haunted by the analogy of the machine and we connect the 'laws of nature' with machine-like regularity. But the ancients did not use machines driven by their own power without human intervention; they used only tools guided by manual skill and intelligence. Such tools are means to the realisation of some designed order in the passive material. So the notion of order is not associated with the means, but with the designing intelligence and the end. It is characteristic that Plato regards the exact precision of the stars' movement as proof of their intelligence (*Laws* 907a), not of their being subject to a mechanical necessity.
contrast to absolute necessity.\footnote{Metaph. A 5, where the various meanings of 'necessity' are distinguished.} This is the necessity of the indispensable means to an end. Food is a necessary of life: we must have food, if we are to live; but it is not necessary that we should live. If I wish to recover a debt, I may have to sail to Aegina to find my debtor; but nothing compels me to sail. The necessity lies in the links connecting the purposing will at the beginning of the chain with the attainment of the purpose at the end; we need not think of it as extending further in either direction. Reason and will are conditioned by this concatenation of indispensable means. So is it with the craftsman. If I wish to cut wood, I must make my saw of iron, not of wax. Iron has certain properties of its own, indispensable for my purpose. On the other hand, I can take advantage of this very fact to attain my end. I can make use of those properties to cut wood, though the iron in itself would just as soon cut my throat.

There is also the necessity residing in the properties themselves and governing their action. Fire has the characteristic power (διότατος, as Plato and others call it) of burning heat. Fire can act only in one way; it can heat other things, but not cool them. By virtue of this necessity of the fire's own nature, its action is so far regular. But just because it acts thus by constraint of its nature, Plato describes such causation as aimless or 'wandering'.

The action is blind and directed by purpose. If I strike a match to light a fire in my grate and warm myself, I am availing myself of the fire's power. The fire is indifferent to my purpose and has none of its own. If there is a wooden beam in my chimney, the fire may go on to burn down the house—a result neither foreseen nor desired. Once started by my voluntary action, the process of combustion will go on of itself. I did not ordain that process and it may get beyond my control. Yet, within certain limits I can direct its action into a channel leading to a foreseen and purposed end.

This notion of the hypothetical necessity of means to an end and of the partial subordination of the given means goes back to the Phaedo. Socrates complains that Anaxagoras, though he spoke of Intelligence ordering all things, did not carry this idea into the detailed account of the cosmos, or explain how every arrangement was planned 'for the best'. He fell back on the blind and aimless action of the elements. It was as if the presence of Socrates in the prison should be attributed to the action of his muscles in bringing him there, and not to his own purpose of alibiing by the sentence of the court because he judged it better to do so. We ought to distinguish between the true reason or cause (αἰτία) and 'that without which the cause would not be a cause'. It is the same contrast of the end with the indispensable means, the condicio sine qua non of the achievement of purpose. Socrates in the Phaedo says that this distinction ought to be applied to the explanation of the world as a whole, but that he himself had been unable to attempt that task. It is the task which, many years afterwards, Plato set himself to accomplish in the Timaeus. And here in fact we find him speaking of the Demiurge as making use of the lower kind of causes as auxiliaries (ἡμετέρως) or subordinate instruments in his work of producing the best results possible (e.g. at 46c).

The question still remains, whether the analogy between the Demiurge and the human craftsman holds at this point or is to be explained away. The carpenter does not make the wood or ordain its natural properties and behaviour. Is the Demiurge in the same position of having to make the best he can of not wholly suitable materials, or did he himself endow the material he uses with all its properties and make them completely amenable to his own control?

There is, indeed, one feature of the properties, once they exist, which makes them not wholly amenable. Physical qualities occur in groups or concomitants. The Timaeus contains an illustration of the disadvantage that may result. The function of bone is to protect from injury the seat of life, the brain and marrow. To that end bone must be hard. But its very hardness makes it too brittle and inflexible, and also liable to decay under excessive heat. Accordingly the skeleton needs to be wrapped about with soft and yielding flesh. The brittleness is a concomitant of the hardness, and it can be described both as necessary or inevitable and as 'accidental' (συμπεριφέρεσθαι). The ideas of necessity and chance are once more associated in the notion of the necessary accident. In this instance brittleness happens to be an inevitable but undesirable concomitant of the useful quality, hardness. There is also the case in which two properties which would both be useful cannot be combined. We find, for example, that those parts of the body which are the seats of intelligence, above all the skull, have the thinnest covering of bone and flesh. The reason is that this frame, which is born and compacted of necessity (ἐκ δύναμις), in no wise allows dense bone and much flesh to go together with keenly responsive sense-perception. For if these two characters had consented to coincide (εἰς ἡμετέρως ἧδεικτος), the structure of the head would have possessed them above all, and the human race, bearing a head fortified with flesh and
claimed that this theory preserves a sufficient and intelligible meaning for the statement that this world is a mixed product of the combination of Reason and Necessity—a Necessity that can also be called an Errant Cause. But we must not forestall the coming account of the Receptacle of Becoming and its chaotic contents.

48e–49a. The Receptacle of Becoming

For his fresh starting-point, Timaeus goes back here to the very beginning of his discourse: the distinction between the two orders of existence, the intelligible and unchanging model and the changing and visible copy. We now learn that the copy is not self-subsistent; it needs the support of a medium, just as a reflection requires a mirror to hold it. Accordingly, a third factor has now to be added—a factor which had no place in the first part among the creations of Reason.

48e. Our new starting-point in describing the universe must, however, be a fuller classification than we made before. We then distinguished two things; but now a third must be pointed out. For our earlier discourse the two were sufficient: one postulated as model, intelligible and always unchangingly real; second, a copy of this model, which becomes and is visible. A third we did not then distinguish, thinking that the two would suffice; but now, it seems, the argument compels us to attempt to bring to light and describe a form difficult and obscure. What nature must we, then, conceive it to possess and what part does it play? 1 This, more than anything else: that it is the Receptacle—as it were, the nurse—of all Becoming.

The third factor, not hitherto taken into account, is first presented as the Receptacle or nurse of Becoming. This Receptacle and its contents are to be analysed in a series of steps, which we shall do well not to anticipate. For some time yet Plato does not use the word ‘Space,’ it first occurs in the conclusion (524), led up to by a series of images that are designed to elucidate gradually a nature more ‘obscure and difficult’ than geometrical space.

We may note here, however, that the hitherto unrecognised third

1 δόματος, the active manifestation of the nature. Cf. δόματος used of the ‘force’ or significance of a word, and τὰ τῶν κόσμων δόματα δώματος (480), ‘the marks of a probable account,’ what it is good for; also ὧν, ἄλλα τὰ μορφὰς ἐποίησεν ὅτι τὰ αἰθήματα ἐφέστη οἷον ἀφόρον δόματος ὅτι διὰ α Invocation ἀφήσεως μετατρέπεται ‘because fire and air play the largest part in them’ (sight and hearing).
factor fills a gap in the scheme which Plato, in the Republic, had borrowed from Parmenides. He had there described the realm of objects of ‘opinion’ as intermediate between the perfectly real and knowable and the wholly unreal and unknowable. But the Sophist has shown that the wholly unreal (ὅσα παντελῶς μὴ δό) cannot even be named without self-contradiction. It is an absolute blank of nothingness. If the perfectly real Forms are to have the objects of opinion as images, there must be something, not totally unreal, to receive these images. The question that now confronts us is, what this Receptacle of  CancellationToken can be.

49A-50A. Fire, Air, etc., are names of qualities, not of substances

This question is first approached by a consideration of fire, air, etc., as the contents of the Receptacle. The point is that these are not permanent irreducible elements, not ‘things’ with a constant nature. Plato rejects the old Milesian doctrine of a single fundamental form of matter, which was to serve both as the original state of things (ἀρχή) and as the permanent ground (φύσις) underlying change. He also rejects the belief of the pluralists who, in reply to Parmenides, had reduced all change to the rearrangement in space of the four elements (Empedocles) or of ‘seeds’ (Anaxagoras) or of atoms (Leucippus and Democritus). Plato’s position was nearer to that of Heraclitus, who alone had rejected the notion of substance underlying change and had taught the complete transformation of every form of body into every other. We are now to think of qualities which are not also ‘things’ or substances, but transient appearances in the Receptacle. The Receptacle itself alone has some sort of permanent being.

49A. True, however, as this statement is, it needs to be put in clearer language; and that is hard, in particular because to that end it is necessary to raise a previous difficulty about fire and the things that rank with fire. It is hard to say, with respect to any one of these, which we ought to call really water rather than fire, or indeed which we should call by any given name rather than by all the names together or by each severally, so as to use language in a sound and trustworthy way. How, then, and in what terms are we to

1 With προσπόρευσις and παραπόρευσις (n. 7) compare Aristotle, Met. B. 1

For those who wish to get clear of difficulties έτοιμός is advantageous to state the difficulties (προσπόρευσις) well; for the subsequent free play of thought (παραπόρευσις) implies the solution of the previous difficulties. Only to the man who has first faced the difficulties (προσπόρευσις) is it clear, what goal he is making for.

49B. speak of this matter, and what is the previous difficulty that may be reasonably stated?

In the first place, take the thing we now call water. This, when it is compacted, we see (as we imagine) becoming earth and stones, and this same thing, when it is dissolved and dispersed, becoming wind and air; air becoming fire by being inflamed; and, by a reverse process, fire, when condensed and extinguished, returning once more to the form of air, and air coming together again and condensing as mist and cloud; and from these, as they are yet more closely compacted, flowing water; and from water once more earth and stones: and thus, as it appears, they transmit in a cycle the process of passing into one another. Since, then, in this way no one of these things ever makes its appearance as the same thing, which of them can we stedfastly affirm to be 

This—whatever it may be—and not something else, without blushing for ourselves? It cannot be done; but by far the safest course is to speak of them in the following terms. Whenever we observe a thing perpetually changing—fire, for example—in every case we should speak of fire, not as ‘this’, but as ‘what is of such and such a quality’, or of water as ‘this’, but always as ‘what is of such and such a quality’; nor must we speak of anything else as having some permanence, among all the things we indicate by the expressions ‘this’ or ‘that’, imagining we are pointing out some definite thing. For they slip away and do not wait to be described as ‘that’ or ‘this’ or by any phrase that exhibits them as having permanent being. We should not use these expressions of any of them, but ‘the thing which is of a certain quality and has the same sort of quality as it perpetually recurs in the cycle’—that is the description we should use in the case of each and all of them. In fact, we must give the name ‘fire’ to that which is at all times of

1 ὅτε after προσπόρευσις (n. 6) should perhaps be omitted.

2 παραπόρευσις, a general expression for προσπόρευσις, παραπόρευσις, etc. Cf. Chalcid. non est ignis sed igniem quidam, nec aer sed aerium.

3 I omit καὶ τὸν τόπον, as no convincing translation or correction of the words has yet been proposed. Tr. ‘is καὶ τὸν τόπον’ (of this = relative to this) is perhaps the best; but nothing in the context supports it.

4 Taking καὶ (before καὶ) as resuming the long phrase that precedes. καὶ τὸν τόπον ἡλεῖ παρερμοσύνη ἡμών is rightly explained by Tr.: ‘the like-kind which ever recurs as similar’; ‘果实 can mean either ‘from time to time’ or ‘perpetually’.

5 There is at all times (κὰς πάντος) a certain amount of stuff that is fiery. This quality is sufficiently ‘alike’ (ὁμοίως) to be recognised and named, though it is not an enduring substance, and is perpetually varying.

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such and such a quality; and so with anything else that is in process of becoming. Only in speaking of that in which all of them are always coming to be, making their appearance and again vanishing out of it, may we use the words 'this' or 'that'; we must not apply any of these words to that which is of some quality—hot or cold or any of the opposites—or to any combination of these opposites.  

The result so far is that fire and the rest are denied the status of elements or permanent things with an unchanging character. Their apparent transformation in a cycle is described in terms borrowed from Anaximenes and Anaxagoras. Anaximenes had conceived that all things at all times really are air. Air is the permanent nature; fire is air in a rarefied state; when more closely packed, air becomes successively wind, cloud, water, earth, stone. Anaximenes thus took a step towards the doctrine clearly formulated after Parmenides, that qualitative change is reducible to the bringing together or separation in space of a number of unalterable elements. Anaxagoras, who explicitly identified all so-called 'becoming and perishing' with the combination and separation of permanently real things, used similar language: 'From these things as they are separated off, earth is compacted. For out of clouds water is separated off, and from water earth, and from earth stones are compacted by the cold.' Empedocles also tried to abolish change of quality by reducing 'becoming and perishing' to the mixture and interchange of his four unalterable things, fire, air, water, earth.

Plato rejects this interpretation, asserting the contrary view that there is change of quality without any underlying substance or permanent ground. The word 'quality' (σωματικός) had been introduced for the first time at Theaetetus 182a, with an apology for its unorthodoxy. In pre-Socratic thought 'the hot', 'the cold', etc., had been treated as things (σώματα) having each a characteristic power (δύναμις) in which its nature was manifested by action on other things. The coinage of the word 'quality' (σωματικός, such-and-such-ness) as a general expression for hotness, coldness,

1. *ἐν τῷ εἰσιν*. This may mean that fire (for instance) is a combination of sensible qualities, such as 'hot', 'yellow' (or orange or blue), etc., making up that 'ferness' (ἕν τυχεῖν) which is sufficiently alike (δημοσίως) for us to distinguish it from waterness and other combinations of qualities. But the phrase might also cover compound bodies, mixtures of the four primary bodies.

2. At §4b it will be remarked (as ὀς ὅσοι) that the transformation is not so complete as it appears. Earth cannot be transformed into the other three.

50a-c. The Receptacle compared to a mass of plastic material

Turning now from the contents to the Receptacle, Plato begins to illustrate its nature by an image which, as he admits, is in some respects misleading. It is compared to a mass of plastic material, moulded and remoulded into various shapes. The nature of the material (gold) is permanent; the shapes are formed only to be obliterated and give place to others.

1. *ἐν* φ αἴρεται. This phrase *ἐν* is consistently used in the following context to mean the Receptacle as a whole, not particular 'volumes in which events of a certain type take place'. This is one of Tr.'s importations from Whitehead (pp. 320-1).
But I must do my best to explain this thing once more in still clearer terms.

Suppose a man had moulded figures of all sorts out of gold,1 and were unceasingly to remind each into all the rest: then, if you should point to one of them and ask what it was, much the safest answer in respect of truth would be to say 'gold', and never to speak of a triangle or any of the other figures that were coming to be in it as things that have being,2 since they are changing even while one is asserting their existence. Rather one should be content if they so much as consent to accept the description 'what is of such and such a quality' with any certainty. Now the same thing must be said of that nature which receives all bodies. It must be called always the same; for it never departs at all from its own character; since it is always receiving all things, and never in any way whatsoever takes on any character that is like any of the things that enter it: by nature it is there as a matrix for everything, changed and diversified by the things that enter it, and on their account it appears to have different qualities at different times; while the things that pass in and out are to be called copies of the eternal things, impressions taken from them in a strange manner that is hard to express: we will follow it up on another occasion.3

Some critics have seen in this passage references to the later configuration of space by the geometrical shapes of the primary corpuscles.4

1. The figures are made out of gold and consist of gold; but the contents of the Receptacle are not made out of it. This is a point where the illustration is inadequate.

2. The reference may be to a matrix (A.E.), or the promise may be unfulfilled (Tr.).

3. Thus Basumker (Prob. & Mat. 151) identifies the 'things that pass in and out' of the Receptacle with those shapes composed of elementary triangles. Tr. (rightly, I think) explains the transient 'characters' as 'the characteristics of different sensible bodies, in fact the various sounds, colours, scents, etc., revealed to us in different regions.' (p. 326). But he adds that 'since Timaeus means at a later stage to account for all these qualities as consequences of the shapes of corpuscles, to all intents and purposes what he wants to insist on is that space itself has no specific "shape" of its own. He means, then, that space in all its regions is uniform or homogenous. If it were not, its parts would not be indifferent to all configurations.' Tr. then strays into a discussion of modern non-uniform spaces—alternatives which Plato cannot have intended to exclude, because they could never have entered his mind.

But, since nothing has yet been said even about space, no one reading the Timaeus for the first time could associate the triangles and other figures moulded in the gold with the elementary triangles and solids later constructed by the Demiurge; nor did Plato intend this. The figures mentioned belong solely to the illustration of the point of which is that the only thing we can call 'this' and so treat as a thing with permanent properties of its own is the gold, not the shapes which are moulded, effaced, and remoulded. Similarly the Receptacle has a nature of its own, from which it never departs.

What corresponds to the figures of the illustration is 'the things that pass into and out of' the Receptacle. What these things are we have been plainly told in the preceding paragraph; they are those qualities—any opposite or combination of opposites—which are always coming to be in the Receptacle, making their appearance, and again vanishing out of it' (496). This was clear to some at least of the ancient commentators. A fragment of the lost part of Proclus' commentary5 reads: 'Perhaps it is better to say that the term "things that pass in and out" is applied not only to the qualities (αἱ ποιότητες), but also to the forms immersed in matter (τὰ ἐν θάλασσα); for these, not the qualities, are likenesses (ὁμοιόμορφα) of the intelligible things' (i.e. τῶν ἔνθεν ἄτομ μοι-μορφα, 506, 5). It is clear that Proclus had been discussing a current view that the qualities alone were meant. Proclus' further remarks show that by 'the forms immersed in matter' (an Aristotelian phrase) he means copies, present in matter, of the eternal Forms of Fire, Air, Water, and Earth (not of any other Forms). He discusses whither these copies go, when they 'pass out'. Not into other matter; 'for when fire is quenched and the matter becomes airy, we do not see other matter being kindled'. They must pass out simply into non-existence.6 Proclus no doubt had in mind the
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theory of Forms as it is stated towards the end of the Phaedo. There the immutable and eternal Form is clearly distinguished from the character (μορφή, ἰδέα) present in things that are said to partake of the Form and bear the same name. Some such characters are grouped in pairs of opposites, tall and short, hot and cold. One member of such a pair will never admit its opposite: 'the hot will never become cold; when we become cold, the hot character must either withdraw to make way for the cold, or it must perish.' Proclus decides for the latter alternative: what he calls the character immersed in matter must, he says, 'pass out into non-existence.' His distinction between the form (character) immersed in matter and the 'quality' is a piece of Neoplatonic subtlety. Plato speaks of the qualities as 'characters' (μορφαί, ἰδέαι), as he had in the Phaedo, where μορφή and ἰδέα are used interchangeably and neither can mean 'shape'¹. The things that pass into and out of the Receptacle are simply the opposite qualities or groups of qualities characteristic of the four primary bodies. They are called here 'copies of the eternal things'; and at 51B 'copies' of Fire, Air, Water, and Earth, just before the passage which plainly asserts the existence of their originals, the intelligible Forms of just those four bodies. The Forms, 'in some strange manner that is hard to express', impress their characteristic qualities on the Receptacle. But the Receptacle does not itself possess any of these characters or qualities, any more than gold in itself possesses triangular shape. The qualities do not belong to it; they only pass in and out, like images crossing a mirror. They of itself in the matter of the fire, and from this again (3) the powers (δύναμες) of fire, or qualities (μορφαί) such as hotness, etc. (This is part of a misguided attempt to interpret the ὀρθοδοξία, ὀρθομορφία, and καθαρότης of 30C, but it shows what Proclus meant by his distinction of the ἔλεος ἐν τοῖς from the ὑπάρχουσαν or δοξομενή.) The phrase 'unarticulated forms' means the qualities as described at 52C ff., before the Demiurge endows them with geometrical shape and number.'

Simplicius, Phys. 539, 10, says that Plato in the Timaeus calls matter χώρα καὶ νότος τῶν ἔθνων εἰκών. It appears from 540, 13 ff., that this phrase ἔθνων ἐκδοθή was partly based on 539, 4. διατηρημένον ἐν τῷ ὀρθόδοξῳ, which, in fact, refers to the geometrical shapes; partly on 51B, 7. μεταφύλακτον ἀπὸ τὸν νεώτερον, which Aristotle took as meaning that the Recipient partakes of the Forms (see p. 187).

¹ There is, for example, 'the character of three' (ἡ τῶν ἀριθμῶν ἰδέα (104D)), the characters of evenness and oddness, and so on. The words are interchanged, e.g. at 104D, ἡ διαίρεσις ἰδέα ἐκδοθή τῇ μορφῇ. The term ἔλεος is therefore reserved for the Form to which the character belongs, because the distinction is important to the argument. But the Timaeus Plato follows his usual practice of eschewing precise terminology, and uses ἔλεος for character as well as μορφή and ἰδέα. L. H. imports the word 'shape' for μορφή (c. 1), and so does Tr. 184

50C–51B. The Receptacle has no qualities of its own

The illustration of the man moulding all sorts of figures out of gold was sufficient for its purpose, to illustrate the contrast between the permanent nature of the Receptacle and the shifting qualities. Its defect is that gold is a stuff that has sensible qualities of its own, persisting through all the variations of shape. Aristotle's objections to the illustration turn partly on this point.² But Plato himself proceeds to correct the defect. He has already said that the Receptacle does not in itself possess any of the characters that pass in and out, any more than gold as such possesses any of the shapes. It is now added that the Receptacle has no characters of its own, but the qualities enter it, unlike the gold which has its own sensible properties.³ Before making this point, Plato introduces the image of the father, the mother, and the child, to illustrate the relations of the eternal Form, the Receptacle, and Becoming.

50C. Be that as it may, for the present we must conceive three things: that which becomes; that in which it becomes; and the model in whose likeness that which becomes is born.⁴ Indeed we may fittingly compare the Recipient to a mother, the model to a father, and the nature that arises between them to their offspring. Further we must observe ² that, if there is to be an impress presenting all diversities of aspect, the thing itself in which the impress comes to be situated, ¹ 50C, κανόνως ὁ εἶναι καὶ διαχωρισμένου ὡς τῶν εἰκόνων. κύριος is used as the general word for 'change' (with its two species, locomotion and qualitative change) at Parm. 138B, Theaet. 181D. διαχωρισμένοι is used below (539) of the pattern introduced by the creation of geometrical shapes; but σχήμα means appearance, manner, fashion, mode, etc., as well as shape, though no doubt the analogous figures (σχῆμα) moulded in the gold suggested the word. Different qualities affecting different parts of a space must diversify it and form some kind of pattern, however vague in outline and irregular. Cf. the phrases δὲν τοῖς πᾶσιν τοῖς ποιεῖται (50D) and παντὸς ὁ διὸν ψευδομονοσ διευθύνεω (52B, 1).

² They are summarised by Tr., p. 322.

³ Cf. Bauemker (Prob. d. Mat. 132), whose analysis of the whole argument here is helpful, though I cannot accept all his conclusions.

⁴ ἄρα, 'born'. This short sentence takes up this metaphor as furnishing an appropriate image, which replaces that of the craftsman.

⁵ νομοὺς depends in thought rather on the χρή at C, 7, than on πρᾶξις, and perhaps also in grammar, the remark about the 'fittingness' of the metaphor in ἄρανιστον being treated as parenthetical.
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50c-51a

cannot have been duly prepared unless it is free from all
E. those characters which it is to receive from elsewhere. For
if it were like any one of the things that come in upon it,
then, when things of contrary or entirely different nature
came, in receiving them it would reproduce them badly,
intruding its own features alongside. Hence that which is
to receive in itself all kinds must be free from all charac-
ters; just like the base which the makers of scented
ointment skillfully contrive to start with: they make
the liquids that are to receive the scents as odourless as possible.
Or again, anyone who sets about taking impressions of shapes
in some soft substance, allows no shape to show itself there
beforehand, but begins by making the surface as smooth and
level as he can. In the same way, that which is duly to receive
over its whole extent and many times over all the
 likenesses of the intelligible and eternal things ought in its
own nature to be free of all the characters. For this reason,
then, the mother and Receptacle of what has come to be
visible and otherwise sensible must not be called on for
air or fire or water, nor any of their compounds or com-
ponents; but we shall not be deceived if we call it a nature
invisible and characterless, all-receiving, partaking in some
very puzzling way of the intelligible and very hard to appre-
hend. So far as its nature can be arrived at from what has

1 ωπόν is (as often) simply a synonym of ἐδο, μακροθ, ἡλσ (character). Plato varies the word, just as above (p. 7) he writes Ἰφήλαρχον ἀνακριν ἐν ἔθει
(= μακροθ). None of the four words here means the eternal Form: for this is never 'received' by the Receptacle. Note also that σαμα (shape) is not used as a synonym for any of them, but confined to the shapes moulded in gold or in some soft substance in the two illustrations (30a and 30b, 8).

3 The conjecture νομίτως (for νομίτων) del ἐν ἑαυτῷ can be supported by the occurrence of the phrase at 37a. 1. But νομίτως or νομίτως is required by the sense. I suggest ἐν ἑαυτῷ νομίτως ἐν ἑαυτῷ νομίτως ἐν ἑαυτῷ. The Receptacle is to receive all the likenesses of the Forms concerned (the four bodies), rather than likenesses of all the Forms there are. Cf. f., 5, τὸ τὰ νόμιτα ἐν τῷ ἑαυτῷ ωπόν.

2 Compounds, i.e. complex bodies formed of more than one of the four primary bodies. 'Components', i.e. any qualities into which we call 'fire' or 'flueness' (etc.) might be analysed, e.g. the heat, yellowness, etc., of flame. (30b, 13, 3, ἐν ἑαυτῷ, where νομίτως means the opposite (hot, white, etc.), of which fire, etc., are composed. This statement formally excludes the notion that the Receptacle is some subtler or more ultimate kind of matter (such as the hot', 'the cold', etc.) beyond the four primary bodies (cf. Fracaroll, p. 80). At Sophist 243 the view that 'the fire' and 'the cold' are the ultimately real things in nature is taken as typical of all the early physicists. There is no reference to the triangles of which the elementary figures are later to be composed, since these have not yet been mentioned.

51b. already been said, the most correct account of it would be this: that part of it which has been made fiery appears at any time as fire; the part that is liquefied as water; and as earth or air such parts as receive likenesses of these.

The argument that the Receptacle must not possess in itself any quality like those which enter it, is preceded by the comparison of the eternal Form to the father and of the Receptacle to the mother. The connection of thought implies a current view of the part played by the mother in generation. In the Eumenides (660) Apollo argues that 'the mother of what is called her child is no parent (τοιχίκοι), but only the nurse (τοιχίκοι) of the new life sown in her. The parent is the begetter; she is but a host (ἐνεργοὶ) harbouring the stronger plant'. Similarly, according to Diodorus (I. 80), the Egyptians regarded no child as a bastard, holding that the father is the sole cause of generation, while the mother furnishes only nourishment (τοιχίκοι) and room (τοιχίκοι) for the infant. The belief is mentioned several times by Aristotle, who debates whether the female contributes anything to generation or only provides the place (τόνος). He gives it as the opinion of Anaxagoras and other physicists that the seed comes from the male, the female only furnishing the place. 1 So here the Receptacle or 'nurse' (τοιχίκοι, 491a) of Becoming is simply the place 'in which' the qualities appear. If it had any qualities of its own, it would intrude its own features or visible appearance (ὁμοία), as the mother's features might be expected to reappear in the child, if she contributes any part of its substance.

The Receptacle, then, has no visible appearance; but is a nature invisible and characterless, all-receiving; partaking in some very puzzling way of the intelligible and very hard to apprehend. 'Partaking of the intelligible' is, unfortunately, an ambiguous phrase. Some have understood it as referring to 'the real informing matter by the Ideas'; 2 but Archer-Hind remarks that Plato's

1 'as gen anim. A 10, init. B 1. 769 b. 30. The doctrine is still held by the natives of S. E. Australia: 'children emanate from the father alone and are merely nurtured by the mother' (Frazer, Totemism and Exogamy 1, 338. Contrast the Central Tribes who are ignorant that the father plays any part in begettings). In the Life of Johnson Boswell defends his 'partiality for heirs male' by the opinion of some distinguished naturalists that our species is transmitted through males only, the female being all along no more than a nidus or nurse, as Mother Earth is to plants of every sort. It follows that 'a man's grandson by a daughter has in reality no connection whatever with his blood."

meaning is more fully expressed at 528, where Space is said to be
'apprehended without the senses by a sort of bastard reasoning'.
To 'partake of the intelligible' will then mean 'to be an object of
rational thought', as opposed to being an object of the senses.
Further discussion may be postponed to that later passage where
Space has at last been mentioned.

In the present passage (where Space has not been mentioned)
the words 
İesôs, İdeâs, 
 µouph, still bear the sense implied by the whole context: they mean sensible qualities, not 'shapes'.
The last sentence speaks of part of the Receptacle being made fiery,
part liquefied (made watery), and so on. The same language is
used of the chaos described at 520 as existing before the Heaven
was made or the Demiurge had designed the geometrical figures of
the primary bodies. Plato's point is that the Receptacle has no
inherent sensible qualities of its own, not that 'Space has no
specific "shape" of its own', or that 'we are not allowed to account
for exceptional "appearances" in any region, as those who think
of space as having a variable curvature would like to do, by suggest-
ing that this region has a "different" geometry from others'.
It is a much more tenable position that, according to Plato, Space
has a shape of its own, being coextensive with the spherical universe,
outside which there is neither body nor void.

51B-E. Ideal models of Fire, Air, Water, Earth

Plato has just spoken of 'copies' (µουρά) of Fire, Air, Water,
and Earth being 'received' by the Receptacle. This leads to the
next question: Are there models to serve as originals for these copies?

51B. But in pressing our inquiry about them, there is a question
that must rather be determined by argument. Is there
such a thing as 'Fire just in itself' or any of the other
things which we are always describing in such terms, as
'things that are just in themselves'? Or are the things
we see or otherwise perceive by the bodily senses the only
things that have such reality, and has nothing else, over

1 Tr., pp. 326, 328.
2 See F. M. Cornford, The Invention of Space, Essays in honour of Gilbert
Murray, Oxford, 1936.
3 The emphasis falls, by position, on µουρά, 'by argument', as opposed to
'what can be gathered from our earlier statements' in the previous sen-
tence. Cf. the contrast of ἄλλων µουρά (µουρά in the true sense) and ἄλλων
(566 A. 4).
4 µουρά, ἁδρύ, the independent and absolute reality, just mentioned,
such as we ascribe to Forms. So Stallbaum, A-H.
primary bodies of which all other bodies are composed are the two
classes of things in the physical world with the best claim to
separate Forms. When it comes to hair, dirt, and other such un-
dignified things, Socrates at first thinks it would be absurd to
postulate Forms; these must be no more than 'just the things
we see'.

The present passage is concerned mainly with Forms of the
primary bodies; and the reality of these Forms is affirmed on the
same general grounds that make it necessary to believe in any
Forms whatsoever. As in Republic vi, the existence of two orders of
objects—intelligible and sensible—is declared to follow from the
indubitableness distinction between rational understanding or knowl-
edge and mere belief, which can be produced or shaken by persua-
sion. This characteristic of belief, even when true, was taken in the
Theaetetus (20a) as fatal to the claim of true belief to rank as
knowledge. Belief, moreover, can 'give no account of itself'.
This characteristic is best illustrated by the Meno. The slave
questioned by Socrates has produced true beliefs about the solution
of a problem in geometry; but they will not become knowledge
until he has been taken many times through the whole demonstra-
tion, grasped all the premises, and seen how the conclusion must
inevitably follow. His beliefs will then be unshakably secured 'by
reflection on the reason' (Meno, 85c ff., 97e).

It is certain, then, that there are independently real Forms of
Fire, Air, Water, and Earth. Fire 'just in itself' is an eternal
model, an object of intelligence, not of perception. We have been
told that the name 'Fire' is to be given to that which has a certain
quality, appearing in the Receptacle at any time in the cycle of
change. This quality is the copy, bearing the same name as its
model; the model itself is the name of the 'Fire', more or less
clearly present to our thought whenever we use the word.
Plato tells us nothing further as to its nature. It cannot be
identified with the pyramid, the geometrical shape of the fire
corpuscle. When we look at a fire, we do not see or think of
pyramids; and when we say 'Here is fire' we do not mean 'Here
are pyramids'. What we perceive is a certain combination of
shifting qualities in a certain place at a certain time—the yellow-
ness we see, the hotness we feel. Such a combination, whenever and
wherever it occurs, is sufficiently 'alike' for us to name it 'fire',
and it is a fleeting copy or impress of an unchanging model. More
than this Plato cannot tell us. We must not hope to get nearer

1 Parm. 130d, ταύτα μὲν γὰρ ἔχει ὧν ἄραμεν ὁ πάτητα καὶ ἐναὶ. ἀλλοὶ δὲ τὴν συνά
σκηφται ἐναὶ μὴ λέοντος ἢ ἄποντος. Cf. 51c, δὲ ταύτα ἕως καὶ ἡμέραν ἐν
σάν δέ τολμήσει ἄραμε τοῦ ἄλλως σκέψεως.

FORM, COPY, AND SPACE

to his thought by translating his words into language that sounds
to us scientific.1

There is no warrant for A.-H.'s remark that 'the list of ideas in
the Timaeus includes, in addition to the ideas of living creatures,
only the ideas of fire, air, water and earth' (p. 180). In his intro-
duction he goes further and suggests that Plato ought to have
eliminated ideal types of the elements and would have eliminated
them, 'had his attention been drawn to the subject' (p. 35).2

The unprejudiced reader may think that his attention was very
clearly drawn to the subject in the passage before us. Nor will
the Platonist easily believe that living creatures and the primary
bodies alone have ideal Forms. How are mathematics and dialectic
to be carried on, if the only unchanging objects of thought are the
natural kinds of living creatures and the four primary bodies?

These are specially relevant to an account of the physical universe,
and are therefore prominent in the Timaeus. We cannot infer that
Plato no longer believed that there was such a thing as 'Justice
just in itself' or the Triangle 'just in itself'. The Philebus and
the Laws would not bear out such a conclusion.

51E-520. Summary description of the three factors: Form, Copy,
and Space as the Receptacle

In the foregoing sections we started with the notion of a Receptacle
of Becoming; then passed to its contents, the sensible qualities

1 Tr. (p. 334), for instance, says: 'The question is whether there is or is
not a standard of scientific truth by which individuals and ought
to correct the deliverances of their senses.' 'Fire means the occurrence of
events with some definite law or pattern in a region of the continuum, water
the appearance of events of a different determinate pattern. It follows at
once that only when this pattern is exactly realised do you have "real" or
"pure" fire or water. If it is only imperfectly realised, you have not "pure"
fire or water, just as we should say that "water" which proved on analysis
not to be composed of hydrogen and oxygen in the proportions determined
by the chemists is not "pure" water, but has absorbed impurities.' Plato's phrase
"Fire just in itself" means, according to Tr., "fire which is just fire," "fire
with no admixture of anything else", exactly as we speak of "pure water",
"pure atmospheric air", "pure gold". This account is in danger of sug-
gesting a confusion between an exact realisation of the pattern and the
pattern itself. When we speak of "pure water" we mean something which,
supposing it to exist, would be a perceptible thing which we could touch and
drink.

Robin's account of the Form of Fire (Phys. de Platon 49) keeps nearer
to Plato's own account, but involves theories about mathematical intermediates
between Forms and sensibles and about Ideal Numbers which are too specula-
tive for the scope of this book.

2 In the Journal of Philol. xxiv, pp. 49 ff., Archer-Hind went the whole way
and denied that the ontology of the Timaeus allows room for these ideas.

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and their combinations, and finally to the ideal models. Next follows a summary description of these three factors, in the reverse order.

51E. This being so, we must agree that there is, first, the unchanging Form, ungenerated and indestructible, which neither receives anything else into itself from elsewhere nor itself enters into anything else anywhere, invisible and otherwise imperceptible; that, in fact, thinking has for its object.

Second is that which bears the same name and is like that Form, is sensible; is brought into existence; is perpetually in motion, coming to be in a certain place and again vanishing out of it; and is to be apprehended by belief involving perception.

Third is Space, which is everlasting, not admitting destruction; providing a situation for all things that come into being, but itself apprehended without the senses by a sort of bastard reasoning, and hardly an object of belief.

This, indeed, is that which we look upon as in a dream and say that anything that is must needs be in some place and occupy some room, and that what is not somewhere in earth or heaven is nothing. Because of this dreaming state, we prove unable to rouse ourselves and to draw all these distinctions and others akin to them, even in the case of the waking and truly existing nature, and so to state the truth: namely that, whereas for an image, since not even the very principle on which it has come into being belongs to the image itself, but it is the ever moving semblance of Space.
it would become extended, and so Space would enter, as extension, into its existence. But in an extended thing, considered as self-contained, we can always distinguish the thing itself from the room or place it occupies. So Gorgias argues that ‘Being will become two things, place and body’. In Plato’s argument the two things will be the Form (which must retain its unity) and its extension, the space it has admitted; and this last is the fundamental element of body. But Forms are essentially bodiless. So the Form cannot enter Space, nor can Space enter the Form as its extension.

In this passage Plato comes nearer than anywhere else in the Timaeus to the problem of the eidolon. He contributes towards the solution an important factor which did not come into view in the Sophist. Space, as eternally self-existent, provides the copy with a ‘room’ or situation where it can ‘somehow cling to existence’ as διὰ ποιός, and escape being nothing at all (παρελογίζεται ὑπ’ ὧν). But the addition of this third factor does not, in itself, solve the difficulty of explaining how Becoming can ever occur. The two parents of Becoming—the Form and Space—are alike eternal and unchanging. How can an image cast by an unchanging object on an unchanging mirror be itself inconstant and fleeting? Aristotle saves this objection to the theory of Forms, offered in the Phaedo, as an explanation of becoming and perishing: ‘If the Forms are causes, why is their generating activity intermittent instead of perpetual and continuous—since there always are participants as well as Forms?’

‘There were others,’ Aristotle adds, ‘who thought that matter was adequate by itself to account for becoming; matter originates the movement.’ This account Aristotle considers more scientific than the theory of Forms: something which produces change of quality and transformation would be more capable of bringing things into being. But he rejects it on the ground that matter (in his own view) has only the passive power of being moved: water, for instance, has not the active power of producing a living creature without the co-operation of the ‘form’. The powers (δυνάμεις) attributed by the theory he is criticising to the simple bodies are treated as ‘instrumental’ or auxiliary causes of generation; the hot has the power to separate things, the cold to bring them together, and so on; and the becoming and perishing of all other things are to result from these actions. But in the absence of the form, these powers cannot even be instrumental; one might as well attribute the making of a table to the ‘necessary’ action of the saw or the plane.

1 ‘Ar., de gen. et corr. 335b, 18 (trans. Joachim). 196

DESCRIPTION OF CHAOS

This criticism recalls Plato’s condemnation of the popular view that ‘cooling and heating, compacting or rarefying, are not mere accessories, but the sole causes of all things’ (46b). Plato himself, who does recognise the superior position of the Form, is entitled to treat the active powers of the primary bodies as accessory causes, amenable in some degree to the controlling direction of intelligence, though, left to themselves, they would produce random results by the blind necessity of their nature. They are things that can set other things in motion; but they require to be set in motion themselves. Neither the Form nor Space can act as the ultimate moving cause. Hence, although the Form has been compared to the father, Space to the mother, the Form cannot really supersede the Demiurge, or whatever he stands for, as the generator of Becoming. If, as we have concluded, the Demiurge is mythical, the moving cause can only be the World-Soul. It becomes more than ever difficult to resist the inference that the Demiurge is to be identified with the Reason in the World-Soul.1

52d–53c. Description of Chaos

So far we have been almost wholly concerned with the Receptacle of Becoming and the shifting qualities that appear in it and disappear, considered, so far as is possible, in abstraction from the element of rational design contributed by Reason. The Forms of the four primary bodies were only introduced towards the end, because a copy must have an original; but it has been emphasised that the Forms remain apart and cannot themselves enter the region of Becoming. Plato now sums up the three factors required for the production of a visible world, to which, as we have just seen, we must add the ‘Demiurge’ to produce it. He then passes to a description of the Receptacle and its contents, imagined as existing ‘before’ the ordered world came into being. We are now to hear what the Demiurge does when he ‘takes over’ this chaos.

52b. Let this, then, be given as the tale summed according to my judgment 3: that there are Being, Space, Becoming—three distinct things—even before the Heaven came into being.

1 The inference is drawn by W. Theiler (among others), who concludes that the Demiurge must be conceived ‘als Verdopplung der Wirklichkeit, die der Welt, als Himmelsrichtung gleichsam ihrer künstlerisch wirksamen Seite’ (Teleog. Naturbetrachtung, 72). See above, pp. 34 ff.

2 θύρη ἄντικλασα to calculate with counters; but the singular θύρη seems to allude to the ἀντικλάω φύσιν, 51b. For ἀντικλάω. A.-H. compares 85b, ἀντικλάω πάντα ἡθος, ‘three distinct forms of soul’. Cf. also 85d (39a) for two ‘distinct’ motions in different planes.
DESCRIPTION OF CHAOS

According to Plato, in a world of Democritean atoms and void there could be no motion at all. The same would be true of his own particles, if they were not penetrated by soul. The activity of soul in every part of the physical universe is the only possible source of the active powers of bodies—of their motion in space and of their power of altering one another qualitatively and affecting our sense-organs.1

It may be added that all these motions are irrational. The movements in space characteristic of the primary bodies are rectilinear—those 'wandering motions' in all the six directions which have been repeatedly contrasted with the circular revolution of Reason. The qualitative alterations perpetually going on are inaccessible to any kind of scientific knowledge. They can cause sensations which, on the physical side, are themselves qualitative alterations of bodily organs and, on the mental side, yield perceptions confined to the individual percipient, which can never rank as knowledge because subject and object are in a perpetual flux of change.

The abstract picture of the physical world without the guidance of Reason is illustrated by the myth in the Statesman (268d ff.). There are times when God himself helps to guide the revolution of the universe. Then, after an appointed period, he lets it go and the world is carried round in the reverse direction spontaneously (αὐτομάτως) by the power of motion which it possesses as a conscious living creature. This reverse movement is implanted in it of necessity (ἐκ ἔφυσεν), because only the most divine things are always constant in the same state. The world, having a body, is subject to change; but it keeps so far as possible to its own motion of rotation in one place. The least deviation is reversal of direction. The world cannot always turn itself; that is possible only to the divine ruler of all things that are moved, and he cannot cause motion now in one direction, now in the opposite. Nor can there be two gods with opposite intentions to turn it. The only alternative is that at one time it is guided by divine causation, and acquires fresh life and renewed immortality from its maker; at another, when it is let go, it turns itself in the reverse direction for many myriads of revolutions.

We are now living in one of the periods when the god's hand has been withdrawn from the helm. The reversals are marked by the greatest of all cosmic catastrophes; all but a remnant of life on earth is destroyed. The very current of life is brought to a standstill and set flowing in the contrary direction. When the steersman of the universe let go of the tiller and retired to his own coming-tower, the world began to turn the other way by fate and its own inborn impulse (ἐναντίας τε καὶ μορφής ἐνόημος). The reversal caused earthquakes, which went near to destroying all life. As the disturbance began to settle down and calm followed the storm, the world began to be set in order and to move on its accustomed course, governing and caring for itself and all that it contained, and recalling, as well as might be, the teaching of its maker and father. But the memory grows dim and things begin to go worse, thanks to the admixture of the bodily element (τὸ σωματικὸν) inherent in the world's nature, which was full of confusion before it came into its present order. All that is good in the world comes from its maker; all the cruelty and injustice that it contains in itself and produces in living creatures come from its former chaotic condition. Hence in the former period when it was nurturing its living creatures under the god's guidance, it engendered great goods and few evils; but now that it is separated from him, as time goes on and forgetfulness grows, the old disorder threatens to prevail. Good things diminish, evils increase, and it comes in danger of utter destruction. Then at last the god, seeing its distress, and taking care that it shall not be shipwrecked in the storm of disorder and sink into 'the limitless ocean of Unlikeliness', will take the helm again. He will turn back the diseased and dissolving fabric to its former motion, order it and set it right, and save it from age and death.

As Proclus observes, the machinery of the reversal of the world's motion is a mythical device to represent as existing at separate times things which in fact are always coexistent in the cosmos. 4 The same is true of the description in the Timaeus of the condition of the world 'when divinity is absent from it' as if it were a state of things that had existed 'before the Heaven was made'. If we discount these mythical devices, both myths present a picture of the universe as it would be if the works of Reason were abstracted, and the one may be used to illustrate the other. In the Statesman we find that when the god is absent, the world is still a living and

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1 In the Laws Soul is not merely called the source of motion (as at Phaedrus 245d), but more specifically 'the cause of the becoming and perishing of all things' (891b); it 'controls all change and rearrangement' (892a); it is the 'first becoming and change' (896a); it originates all bádos, aíqy, γίνεσθαι and their opposites (894a). See Theiler, Teleologie: Naturbetrachtung (1924), p. 70, who remarks on these passages that the World-Soul, as cause of becoming, leaves no room for any Demiurge beside itself.

2 Fr. iii, 273. Simplicius, Phys. 1122, 3, too criticises Alexander for taking Plato's description of chaos (30a) as meaning that the cosmos had a beginning in time, preceded by a condition of disorder. He points out that the temporal separation of the two conditions is merely mythical in the Timaeus, as in the Statesman, where Plato imagines the Maker removed from the cosmos and contemplates its collapse into 'the ocean of Unlikeliness'.
PLEASURE AND PAIN

64A–65b

could be connected with their intrinsic properties and structure. But this point is left in some obscurity.

This is not the same thing as to say that fire is 'absolutely light' or earth 'absolutely heavy'. Moreover, if the transition from chaos to cosmos never actually occurred and the four main masses have always occupied their present concentric spheres, the behaviour of smaller masses can be accounted for simply by the overpowering attraction exercised by the main mass in the region it actually occupies. The smaller mass will move towards the larger, not vice versa, and any part of the main mass will resist an attempt to tear it away into an alien region. We are here concerned with sensible qualities. The reason why a stone feels heavy lies in this resistance. Fire would feel heavy to a man standing on the inner surface of the main mass of fire and trying to lift a portion of fire into the air. In this way we may think of 'heaviness' as analogous to colour. A body has strictly no colour save when some eye is seeing it; there is in the body itself only the 'power' to give rise to a perception of colour in co-operation with a sentient organ. Similarly, a body has intrinsically only the tendency to move towards its like; by calling it more or less 'heavy' we may mean only the consequent resistance that we experience when we contribute, on our side, the effort that is resisted. In this sense, 'heaviness' is the name of an 'affection' that we feel, rather than of any property independently existing in the bodies outside.

64A–65b. Pleasure and Pain

So far, the only sensible qualities considered are those which are perceived by the sense of touch, diffused all over the fleshy parts of the body. The next paragraph deals with the pleasurable or painful character of the affections produced in the subject. We are still concerned with 'common affections of the body as a whole'. There are, in the first place, the motions set up in the particles composing various organs of the body. When these motions penetrate to the consciousness, sensation follows in the soul; but they may die away and be lost before the consciousness is reached. Finally, sensation may or may not be attended by pleasure or pain.

64A. Concerning the affections common to the body as a whole the most important point that remains to be considered is the explanation of the element of pleasantness or painfulness in those which we have just discussed; and further all those affections which, having attained to sensation through the

64A. organs of the body, may be also accompanied by inherent pains or pleasures.¹

Now in seeking the explanation of any affection, whether perceptible or imperceptible, we must begin ² by recalling the distinction drawn earlier between what is mobile in structure and what is immobile; all the explanations we are bent upon discovering are to be sought along this line. When something that is naturally mobile is invaded by even a slight affection, it spreads it all round, one particle passing on to another to spread the motion round, merely suffers the affection without setting any of its neighbours in motion; accordingly, since the particles do not pass it on to another, the original affection remains in them incapable of transmission to the living creature as a whole and leaves the subject without sensation. This is the case with bone and hair and all the other parts in our bodies that are composed chiefly of earth; whereas the previously mentioned conditions apply to sight and hearing above all, because in them fire and air play the largest part.

The nature of pleasure and pain, then, must be conceived as follows. An affection which violently disturbs the normal state, if it happens all of a sudden, is painful, while the sudden restoration of the normal state is pleasant: these are perceptible, whereas a gentle and gradual change of either sort is imperceptible.

Any process, however, that takes place with great facility yields perceptions ³ in the highest degree, but is not attended by pain or pleasure. Such are the affections that occur in the visual ray itself, which was, in fact, described earlier as a body formed in the daylight in intimate connection with our own.⁴ No pain is set up by cuts or burns in this ray

¹ In this sentence the first part refers to the 'affections' above discussed, viz. qualities of objects as perceived, and what is meant by calling these pleasant or painful (capable of causing pleasure or pain to a sentient being). The second half refers to 'affections' occurring within the body and transmitted through the organs to the soul, where they 'acquire' sensation with (or without) pleasure or pain.

² ἂνε is explained by δυναμορικῶς: 'in the following way, namely by recalling . . . ' Cf. 60r, ἠμεν τοιάδε, . . . συναιρεῖτο.

³ Literally 'is perceptible', but the perception in the following instance of vision is perception of colour, not of the disturbance, which yields no sensation at all, either pleasant or painful.

⁴ Not only ἄκρα, ἀκράτης τὸ ἄριστον, but ἐκ τοῦ ἀριστούργων (A.-H.).

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64d. or by anything else that is done to it, nor yet pleasure when
65. it returns to its former condition, although there are intense
and very distinct perceptions, according as it is acted upon
and itself meets and touches any object; for no violence
whatsoever is involved when the ray is severed and comes
together again. On the other hand, organs consisting of
larger particles, which yield to the agent reluctantly and
pass on the motions to the whole, have pleasures and pains—
pains while they are being ousted from their normal state,
pleasures while this is being restored. Those in which the
departure from the normal state 2 or depletion is gradual,
while the replenishment is sudden and on a large scale, are
sensible of the replenishment, but not of the depletion, and
so afford to the mortal part of the soul 3 intense pleasures,
but no pain. This is plain in the case of sweet smells.
Where the disturbance of the normal state is sudden, and
the restoration gradual and difficult, the opposite results are
produced; as may be observed in the case of cuts or burns
in the body.

Plato here connects his own doctrine of bodily pleasures and
pains, most fully set forth in the Philebus, with his theory of the
particles, whose shapes make them comparatively easy or difficult
to dislodge. Sensation of any kind occurs only in the soul, as a
result of changes or movements transmitted through the bodily
organs from the objects outside. In perception, the active quality
(δύναμις) of the object is thus finally 'report' to the conscious-
ness: we see a colour, hear a sound, and so on. The first point is
that the organs and external media in the case of sight and
hearing consist of specially mobile particles (fire and air), and
consequently the qualities are reported with exceptional intensity
and clearness, little being lost by friction on the way. The most
earthly parts of the body, such as bones and hair, absorb the shock,
and the motion dies away in them before it reaches the soul.
Hence no sensation or perception results.

Pleasure or pain may or may not attend on sensation or perception,
when it does occur. Pain is due to a sudden and violent
disturbance of the normal state. The nature of the disturbance is
not specified, but it seems to be implied that it is a dislocation, and
possibly a transformation, of the particles composing the organ.
Pleasure is due to the sudden restoration. If either process is
sufficiently gentle and gradual, no sensation occurs and consequently
neither pleasure nor pain. In the Philebus the theory provides the
basis for the distinction between the 'pure' pleasures and the
mixed, namely those which are preceded or accompanied by pains
of want. The pleasures of smell, for example, are pure. As
Archer-Hind remarks, Plato 'seems to regard sweet odours as the
natural nutriment of the nostrils, which suffer waste when those
are absent; but the depletion is so imperceptible that it is only
by a sudden restoration of the natural state that we become conscious
that there has been any lack.'

An apparent exception to the rule that violent disturbances
cause pain is offered by the visual ray, regarded as an extension of
the organ of sight. When we look at a candle-flame or pass a knife
before our eyes, why do we not feel pain from the burn or the cut
inflicted on the ray? This has to be explained by the extreme
fineness and mobility of the fire particles composing the ray.
These, it seems, yield so readily that no 'violence' is called for on
the part of the disturbing agent. So the ray yields no pleasant or
painful sensation, although the perceptions of its proper objects
are exceptionally intense and distinct.

65b–66c. Tastes

From the general account of actual sensibility and of pleasure
and pain we pass to sensations transmitted through special sense-
organs: tastes, smells, sounds, colours. In each of these classes
we distinguish a number of main groups by names such as (in the
case of tastes) bitter, pungent, sour, sweet. These
names roughly indicate the quality of the sensations we actually
experience. The theory now attempts to connect the felt quality of
a given class of sensations with the physical process supposed to
occur in the sense-organ, which is itself to be explained by the
inherent qualities of the external objects, connected with their
structure as described earlier.

Knowing nothing of the nerves, Plato supposes that the tongue

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last sentence ‘bright’ is treated as if it were a simple colour entering with others, like white and red, into compounds. The first of the compounds, orange, is still treated as a natural colour; the proportions of the ingredients (which we should still naturally take to be various grades of fire) cannot even be plausibly guessed. Here the method changes. We hear no more of different varieties of fire-particles. Prescriptions are given for making compound pigments out of the simple colours already named and orange. To the process of mixing pigments the statement that no one could make even a probable estimate of the quantities required seems hardly to apply.

68c. Red blended with black and white is purple, or dark violet, when these ingredients are burnt to a further point and more black is added to the mixture.

Tawny is formed by blending orange and grey, grey being a mixture of white and black; while yellow is a combination of white with orange.

White combined with bright and plunged in intense black results in a dark blue colour; dark blue mixed with white, in pale blue-green; tawny and black, in green (?). 1

From these instances of the blending of pigments Plato now reverts to the colours (considered as mixtures of varieties of fire particles) which they ‘represent’ or, as it were, embody. His concluding words seem to warn us that no practical experiments in mixing measured quantities of pigments can yield any certain inferences as to the exact quantities of fire-particles of various grades composing a colour. The proportions involved are, as he said just above, inaccessible even to conjecture.

68d. From these examples it will be sufficiently clear by what combinations the remaining colours should be represented so as to preserve the probability of the account. But any attempt to put these matters to a practical test would argue ignorance of the difference between human nature and divine, namely that divinity has knowledge and power sufficient to blend the many into one and to resolve the one into many, but no man is now, or ever will be, equal to either task.

1 ὑπάλος is commonly taken to mean green like the leek (ὕπαλος), though Aristotle uses the form ὑπάλος and the substantive ὑπάλος means ‘horn-hound’, of which two varieties are described by Theophrastus, H.P., 5. 5. 2. If green is meant, the statement is not much more surprising than that the addition of black to red should produce a ‘bilious’ colour (63a). Democritus compounded ὑπάλος of ὑπόρός (crimson) and ἵσαρος (wood-blue), Theophr., de sens. 77.

CO-OPERATION OF REASON AND NECESSITY

68a-69a. Conclusion

The second part here ends with a reminder that it has been concerned throughout mainly with ‘what comes about of Necessity’. We must study necessary causes, though such study be only a sober amusement, because this is the only way of approaching the manifestations of rational purpose in Nature. Happiness will consist in apprehending these and conforming our own nature to the harmony which we find in the universe. Cf. 47b, c and 90b.

68e. All these things, then, being so constituted of necessity, were taken over by the maker of the fairest and best of all things that become, when he gave birth to the self-sufficing and most perfect god; he made use of causes of this order as subservient, while he himself contrived the good in all things that come to be. We must accordingly distinguish two kinds of cause, the necessary and the divine. The divine we should search out in all things for the sake of a life of such happiness as our nature admits; the necessary for the sake of the divine, reflecting that apart from the necessary those other objects of our serious study cannot by themselves be perceived or communicated, nor can we in any other way have part or lot in them.

III. THE CO-OPERATION OF REASON AND NECESSITY

69a-d. Recapitulation. Addition of the mortal parts of soul

The third part now opens with a brief recapitulation of the steps by which the account of the works of Reason in the first part led us to the same point that we have now reached once more, from the opposite quarter, in the analysis of what happens of Necessity: namely of point of contact between the individual soul and the external world in sensation and sense perception. In the first part the rational soul was framed by the Demiurge himself. The second part has analysed the bodily down to its foundation in Space, the Receptacle of all becoming, and then built it up again by introducing the element of regular geometrical shape, imposed upon the chaotic motions and powers. The interaction of the simple bodies so formed has been described mainly in terms of necessary causation with little reference to rational design. The third part is now to exhibit the co-operation of Reason and Necessity in the work of the created gods. Their task is to frame the mortal
CO-OPERATION OF REASON AND NECESSITY

parts of the soul and the bodily organs to house them. Henceforward the interest of intelligent purpose again predominates. The distinction between the created gods and the Demiurge is not maintained. Throughout this last part of the dialogue, the work is done sometimes by 'the gods', sometimes by 'the god'; at one place (71a) plural and singular are used in the same sentence. Plato does not seriously mean that the divine souls of the stars take an active part in the making of other living creatures. Their creative function is as mythical as that of the Demiurge, from which it is no longer kept distinct.

69a. Now that the materials for our building lie ready sorted to our hand, namely the kinds of cause we have distinguished, which are to be combined in the fabric of our remaining discourse, let us in brief return to our starting-point and rapidly trace the steps that led us to the point from which we have now reached the same position once more; and then attempt to crown our story with a completion fitting all that has gone before.

As was said at the outset, these things were in disorder and the god introduced them into all every kind of measure in every respect in which it was possible for each one to be in harmonious proportion both with itself and with all the rest. For at first they were without any such proportion, save by mere chance, nor was there anything deserving to be called by the names we now use—fire, water, and the rest; but all these he first set in order, and then framed out of them this universe, a single living creature containing within itself all living creatures, mortal and immortal. Of the divine he himself undertook to be the maker; the task of making the generation of mortals, he laid upon his own offspring. They, imitating him, when they had taken over an immortal principle of soul, went on to fashion for

SEATS OF THE MORTAL SOUL

69c. it a mortal body englobing it round about. For a vehicle they gave it the body as a whole, and therein they built on another form of soul, the mortal, having in itself dread and necessary affections: first pleasure, the strongest lure of evil; next, pains that take flight from good; temerity moreover and fear, a pair of unwise counsellors; passion hard to entreat, and hope too easily led astray. These they combined with irrational sense and desire that shrinks from no venture, and so of necessity compounded the mortal element.

69d-72d. The bodily seats of the two mortal parts of the soul

The summary at the end of this section (72d) explains that it is concerned with the bodily habitations of the mortal parts of the soul and the reasons why they are situated in certain organs, separately from the divine part in the head. In the earlier passage above referred to (447a-45b), the skull was described as the 'spherical body' in which the revolutions of the immortal soul were confined. The head, containing the brain and the divine part of the soul, is the human counterpart of the spherical body of the universe containing the revolutions of the World-Soul. The rest of the human body, as we have just been reminded, was treated as a 'vehicle' (διανοημα, 448e), added because the head, unlike the body of the universe, requires to be carried about from place to place. So the trunk and limbs were there regarded as a machine for locomotion; and the sense-organs situated in the fore part of the head, as instruments enabling the soul to find its way about. Only the eyes were dealt with in detail. The whole account was concerned with soul and body from the point of view of movement.

But we learnt earlier, from the address of the Demiurge (42a), that the implanting of the immortal soul in a body subject to perpetual waste and repair would entail certain necessary conse-

1 L. and S. (1927) cite, for the metaphorical use of καινον, Archyt., οφρ. Stob. 3.1.108, διΧο γενεμα ἢ μετα ἢ ποιητική ἡ διανοημα νοηματική.

2 The 'same position' is sensation and sense-perception, which we reached at the end of the first part (458c-479b), and have now reached again in the concluding paragraphs of the second part. The expression is condensed; but σεισμός can hardly bear any other meaning.

3 The reference is to those transient semblances of order which might occur without design in the chaos described at 53a by the mere attraction of like to like, or in the Atomists' casual vortices, or in Empedocles' system by the elements rushing through one another (cf. Arch., Phys. 64, 196a, 20 ff.).

4 οἱ οἴνον τοῦ ἀναμνήσιον τῆς ἀνθρώπου τοῦ νόημα, and then τοῦ τῶν ἀνεγκεφάλων αὐτῶν σημαίνειν σαμαρησμένον νόημα [8].

5 Κατά τον συναφήνιον τῆς ἀνθρώπου. The recollection of Eros, the son of Poros, ἀναμνήσιον τοῦ τῆς εἰς τρεῖς εἰς σώματος (Symph. 203d) makes Tr.'s 'dare-devil lust' seem further from Plato's meaning than A.H.'s 'love that ventures all things'.

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7 The words echo the repeated references to necessity in the parallel passage (42d) here specially referred to. The body and the concomitant desires and passions of the mortal soul are the necessary (indispensable) adjunct to the immortal part, if man is to exist on earth. Limited by this necessity, the gods have now to establish the mortal soul, as best they can, in suitable organs.

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with a 'kindly irony', is intentionally making Timaeus 'give himself away'. This seems an odd attitude to take towards an imaginary character whose creator has attributed to him a view 'glaringly inconsistent with itself' and irreconcilable with all that he says elsewhere. Archer-Hind, on the other hand, holds that Plato's view of vice as an involuntary affection of the soul 'well illustrates how admirably the various parts of his system fit together', and that the interpreter's declaration in the Republic that 'responsibility lies with the chooser; heaven is not responsible', not only is not inconsistent with the maxim that no one is willingly bad, but is inevitably implied in it. In view of this divergence of opinion, it is important to consider carefully what Plato actually says here. The 'determinism' which Taylor discovers in our passage was the last outcome of that materialistic view of the world which Plato regarded as the root of atheism and immorality. Even Epicurus shrank from such a conclusion and invented a physical basis for free will. That Plato should either accept such determinism himself or attribute it to a fifth-century Pythagorean is, in the last degree, improbable.

86b. Such is the manner in which disorders of the body arise; disorders of the soul are caused by the bodily condition in the following way. It will be granted that folly is disorder of the soul; and of folly there are two kinds, madness and stupidity. Accordingly, any affection that brings on either of these must be called a disorder; and among the gravest disorders for the soul we must rank excessive pleasures and pains. When a man is carried away by enjoyment or dissipation, he is acted on by pain, in his immoderate haste to grasp the one or escape the other he can neither see nor hear aright; he is in a frenzy and his capacity for reasoning is then at its lowest. Moreover, when the seed in a man's marrow becomes copious with overflowing moisture like the overabundance of fruitfulness in a tree, he is filled with strong pains of travail and with pleasures no less strong on each occasion (?) in his desires and in his satisfaction; for the most part of his life he is maddened by these intense pleasures and pains; and when his soul is rendered sick and senseless by the bodily change he is commonly held to be not sick but deliberately bad.

86d. But the truth is that sexual intemperance is a disorder of the soul arising, to a great extent, from the condition of a single substance which, owing to the porosity of the bones, floods the body with its moisture. We might almost say, indeed, of all that is called incontinence in pleasure that it is not justly made a reproach, as if men were willingly bad.

E. [No one is willingly bad] the bad man becomes so because of some faulty habit of body and unenlightened upbringing, and these are unwholesome affections that come to any man against his will.

Again, where pains are concerned, the soul likewise derives much badness from the body. When acid and salt phlegms or bitter bilious humours roam about the body and, finding no outlet, are pent up within and fall into confusion by blending the vapour that arises from them with the motion of the soul, they induce all manner of disorders of the soul of greater or less intensity and extent. Making their way to the three seats of the soul, according to the region they severally invade, they beget many divers types of ill-temper and despondency, of rashness and cowardice, of dulness and oblivion.

Besides all this, when men of so bad a composition dwell in cities with evil forms of government, where no less evil discourses are held both in public and private, and where, moreover, no course of study that might counteract this poison is pursued from youth upward, that is how all of us

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1 The marrow, or that part of it which forms the seed, which the bones are not dense enough to retain and keep in its proper consistency. So A.-H. Since these words repeat τὸ σύμμαχον ὅτι καὶ μᾶλλον μὲν τὸν μοῖχον γίγνεται (c. 4). I am not sure why Tr. says that the substance meant is 'clearly' not the μοῖχος but the bones (p. 616). At 82d we learnt that the marrow is fed by the fluid which filters through the 'dense' substance of bone in drops. If the bones are too porous, the marrow will receive too much liquid, and also escape too freely by the channel which will be described later (91a).

2 It is conjectured that this doctrine of vapours arising from the humours was held by Philostratus and Dioecles. See Wellmann, Fr. d. Gr. Aesthet. p. 78. Cf. the confusion caused in the soul's revolutions by the mixture of phlegm and black bile, causing epilepsy, 85a.

3 It was a universal doctrine that lachrymacy was due to phlegm. Wellmann, op. cit. 801.

4 Understanding ὅτι ὅσον κακός κακῶς παγεῖται (ὅσον) πολύτετος κακώς. κακὰ κόλλεσις is usually either ignored by translators or rendered 'in the cities'. In this sense it seems to add nothing to ἐκάλεσθαι τε καὶ δημοσία. I suggest that λόγος κακὰ κόλλεσις means 'discourses in conformity with (such) cities'. This provides λόγος with the equivalent of ὅσον κακῶς, which seems needed. The omission of τινς before κόλλεσις is unobjectionable in the style of this dialogue, which treats the definite article with poetic freedom.
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87b. who are bad become so, through two causes that are altogether against the will. For these the blame must fall upon the parents rather than the offspring; and upon those who give, rather than those who receive, nurture; nevertheless, a man must use his utmost endeavour by means of education, pursuits, and study to escape from badness and lay hold upon its contrary.

The contents of the above section should be considered in the light of the two following, which recommend remedies to correct any disproportion of body and soul and the training of the divine part for its office as ruler. But it will be well to summarise here just what has been stated so far.

This section sets out to describe how disorders of the soul are caused by the bodily condition. It is recognised, here and below, that when soul and body are united in the composite living creature, either can set up disorder in the other: intense intellectual activity may wrack the health, or a gross and too powerful frame may assert its interests to the point of causing dulness and stupidity in the mind (88a–b). After the earlier consideration of bodily diseases it is natural to pass on here to those disorders of the soul which have their origin in the condition of the body. It is not stated that all mental disorders are solely due to bodily states. Next it is added that folly (δοξα) must be recognised as disorder of the soul, and that there are two kinds of folly: ‘madness’ and stupidity. ‘Folly’ means any state in which the divine reason (νοῦς) is not exercising due control over the rest of the soul. The two main types are ‘madness’ (μαύλων), which means frantic passionate excitement, not pathological insanity, and stupidity (ἀποθανάσια), that dull and lethargic ignorance which is incapable even of the desire for understanding. It is not said that these states of mind cover the whole field of what could be called ‘disorder of the soul’. They are the conditions which can arise from ‘a bad habit of body’ and be encouraged by ‘unenlightened upbringing’ by youth.

1 The two causes are a defective constitution inherited from parents and bad upbringing, as is implied by the next sentence and by δε σωφρον κες, ἐν σκότοις τινί, ναήδον τρόφῳ (86a).
2 Laws 755d: A man must be careful all through his life, and especially during the time when he is begetting, to commit no act involving either bodily ailment or violence and injustice; for these he will inevitably stamp on the souls and bodies of his offspring.

1 It should be remembered that ψυχή is commonly used in a much wider sense than ‘soul’. It is frequently applied, for instance, to passionate love and to political disorder. To have an unbridled tongue is a ψυχή (Euripides). At Laws 782a the natural desires of food and sex are σωφρον. In the same way ‘badness’ (εὐαλία) is a wider term than ‘vice’.

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In the moral, as in the physical, life of man there is, beside the operation of reason, much that ‘comes about of necessity’ and is repugnant to the inmost wish or will of the rational part. The Timaeus is primarily a physical rather than a moral treatise, and it is fitting that it should lay more stress than we find in the moral and political dialogues on the inevitable consequences of the immortal soul being housed in a body subject to the assaults of an environment composed of the same stuff. We have been told earlier that, when the infant soul is plunged into the stream of Becoming, its motions are thrown into such disorder that the rational revolution of the Same is completely arrested and robbed of all control, and even the inferior movement of the Different is so dislocated and distorted as to give rise to every sort of delusion and false judgment. ‘Because of these affections, to-day as at the beginning, a soul comes to be without intelligence (foolish, δοξα) at first, when it is bound in a mortal body’ (43d–44a). Escape from this ‘most grave disorder’ depends on a right upbringing at a later stage, when the revolutions have begun to settle down into their normal course. If this be neglected, a man lives maimed and imperfect, and returns to Hades in a state of folly (ἀνθρώπως 44c).

No one holds the new-born infant morally responsible for starting life in folly and ignorance. The present passage adds that some individuals are further handicapped by inherited defects of body which make them peculiarly liable to excess of passion or to despondent lethargy. An abnormal condition of the bones and marrow may make sexual continence much more difficult for some, and their violent excitement will hinder reason from gaining control. Others may suffer from noxious humours inducing a melancholy and dispirited attitude and intellectual dulness. Such persons have not chosen their bodily habit and they are not to be blamed for it. The remedy lies in judicious training, both physical and mental, from the earliest years. If this is withheld and they are further surrounded by corrupting influences in an ill-governed state, again the blame should fall not on them, but on their elders. But they are not absolved from the duty, mentioned in the last sentence, of doing all they can by education and intellectual pursuits to escape from badness and lay hold upon its contrary. Here moral
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purpose will be exercised. But on this matter Plato has written
at large elsewhere; all that is relevant here is to give some account,
in the following paragraphs, of the training, chiefly by diet and
gymnastic exercise, needed to correct the prejudicial influence
of physical defect.

In speaking, not of any and every form of vice, but of the
inability to control excessive desire for bodily pleasure, Plato quotes
the Socratic maxim, 'No one is willingly (or wittingly) bad'.
The intemperance which has its origin in physical defect and grows for
lack of remedial training is not to be attributed to the true will,
whose inmost desire is always for the good. This desire, which
Plato and Aristotle after him call 'wish (proeisron)' and distinguish
from the appetites deluded by an 'apparent good', resides in the
true self, the immortal part of the soul. When we find men
unable to control their desire for sensual pleasures, we should
recognise that such desire has a physical source, and that in many
individuals defects of inheritance and upbringing make it peculiarly
difficult for reason to gain control. We are not to treat them as
if their reason had from the outset deliberately chosen vice in
preference to virtue. Such a choice is contrary to the nature of
reason, and can only occur in the last stage of degradation when
reason itself has become perverted and wholly enslaved to appetite.
The condition is then past remedy.

The doctrine here is the same that is stated, for instance, at
Laws 731b. The Athenian observes that every man has need to
be both passionate and gentle. He needs passion if forced to
defend himself against the wrong-doing of others when this is harsh
and cruel, and to punish it when it is irremediable. But when
men commit wrongs that are remediable, one should recognise that
no wrong-doer does wrong willingly. For no one would ever
willingly take to himself any of the worst evils, least of all in the
most precious thing that belongs to him; and to all men the most
precious thing is the soul. So no one will voluntarily admit the
worst evil into this most precious thing and live in the possession
of it all his life long. In general the wrong-doer and he who has
these evils is to be pitied, and it is permissible to show pity to
the man whose evils are remediable, to restrain one's anger, and treat

1 The distinction between 'wish (proeisron)' and 'doing what seems good
toyou' is drawn in the Gorgias, 467. Aristotle retains the term at E.N. iii, 4.
'In the absolute sense the true object of wish (proeisron) is that which is good;
but each man finds it in what seems good to him.' The wise judge is the
virtuous man whose superiority lies precisely in his seeing the truth.' That
the immortal part of the soul is the true self is stated at Laws 959b and
repeated by Aristotle, E.N. x, 1178a, 2, and ix, 8, 1166b, 35.

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him gently, and not to keep on raging like a scolding wife; although
in dealing with one who is totally and obstinately perverse and
wicked one must give free rein to anger.' This doctrine, which
no one doubts to be Plato's own, is repeated at Laws ix, 860d,
and there brought into relation with the more ordinary use of the
terms 'voluntary' and 'involuntary'. By calling all wrongdoing
'involuntary', it is not meant that the law can disregard the
 distinction between doing an act on purpose and doing it by accident.
The legal character of an act depends on its spirit and principle.
The law must aim at curing evil intentions and inflict death only
on the incurable. The doctrine of the Laws is in harmony with
our passage. The evils here described are to be pitied because
their origin lies in causes at work when a man cannot have begun to
exercise rational control, and they are remediable if taken in
hand before he becomes 'totally and obstinately wicked'. This
is the answer to the criticism that Timaeus leaves out of account
'real wickedness' and 'conceive of no wickedness that is more
than weakness'.

1 The passage is not concerned with the ingrained and irremediable vice which calls for punishment or extermination.
A physical treatise may confine itself to hygiene. All that is
needed is the mild preventive remedies described in the next
paragraphs.

87n-89p. Disproportion between soul and body, to be remedied by
regimen and exercise

This is not the place to pursue further the topic touched upon
in the last sentence—the corrupting influences of an ill-governed
society and the reform in education needed to correct them. That
belongs to a moral and political work like the Republic; the
Timaeus is a physical discourse, and Plato returns here to the living creature
as a compound of soul and body, and in particular to the disorders
due to a lack of proportion between the two components. These
are to be corrected, not by the violent action of drugs, but by
giving both soul and body the regimen and exercise they severally
need.

87p. This subject, however, belongs to another kind of discourse:
here it is natural and fitting to set forth, on the opposite
side, the countervailing treatment, the means whereby body
and mind are kept in health; for it is right to dwell upon
good rather than upon evil.

Now the good is always beautiful, and the beautiful never
proportionate; accordingly a living creature that is to
DISPROPORTION OF SOUL AND BODY 87c–89b

D. possess these qualities must be well-proportioned. Proportions of a trivial kind we readily perceive and compute; but the most important and decisive escape our reckoning. For health or sickness, goodness or badness, the proportion or disproportion between soul and body themselves is more important than any other; yet we pay no heed to this and do not observe that when a great and powerful soul has for its vehicle a frame too small and feeble, or again when the two are ill-matched in the contrary way, the creature as a whole is not beautiful, since it is deficient in the most important proportions; while the opposite condition is to him who can discern it the fairest and loveliest object of contemplation. Just as a body that is out of proportion because the legs or some other members are too big, is not only ugly, but in the working of one part with another brings countless troubles upon itself with much fatigue and frequent falls due to awkward convulsive movement, so is it, we must suppose, with the composite creature we call an animal. When the soul in it is too strong for the body and of ardent temperament, she dislocates the whole frame and fills it with ailments from within; she wastes it away, when she throws herself into study and research; in teaching and controversy, public or private, she inflames and racks its fabric through the rivalries and contentions that arise, and bringing on rheums deludes most so-called physicians into laying the blame on the unoffending part. On the other hand, when a large body, too big for the soul, is conjoined with a small and feeble mind, whereas the appetites natural to man are of two kinds—desire of food for the body and desire of wisdom for the divinest part in us—the motions of the stronger part prevail and, by augmenting their own power while they make the powers of the soul dull and slow to learn and forgetful, they produce in her the worst of maladies, stupidity.

Now against both these dangers there is one safeguard: not to exercise the soul without the body, nor yet the body without the soul, in order that both may hold their own and

E. REGIMEN AND EXERCISE

88c. prove equally balanced and sound. So the mathematician or one who is intensely occupied with any other intellectual discipline must give his body its due need of exercise by taking part in athletic training; while he who is industrious in moulding his body must compensate his soul with her proper exercise in the cultivation of the mind and all higher education; so one may deserve to be called in the true sense a man of noble breeding. The several parts also should be cared for on the same principle, in imitation of the universal frame. For as our body is heated and cooled within by the things that enter it, and again is dried and moistened by what is outside, and suffers affections consequent upon disturbances of both these kinds, if a man surrender his body to these motions in a state of rest, it is overpowered and ruined. But if he will imitate what we have called the foster-mother and nurse of the universe and never, if possible, allow the body to rest in torpor; if he will keep it in motion and, by perpetually giving it a shake, constantly hold in check the internal and external motions in a natural balance; if by thus shaking it in moderation, he will bring into orderly arrangement, one with another, such as we described in speaking of the universe, those affections and particles that wander according to their affinities about the body; then he will not be leaving foe ranged by foe to engender warfare and disease in his body, but will have friend ranged by the side of friend for the production of health.

89. Of motions, again, the best is that motion which is produced in oneself by oneself, since it is most akin to the movement of thought and of the universe; motion produced by another is inferior; and worst of all is that whereby, while the body lies inert, its several parts are moved by foreign agents. Accordingly, of all modes of purifying or braking the body, the best is gymnastic exercise; next best the swaying motion of a boat or carriage which causes no fatigue; while a third kind, though sometimes useful in extreme necessity, should in no other case be employed by a man of sense; I mean medical purgation by drugs. Disorders should not be irritated by drugs, save where

1 Language and thought echo the passage describing the love of a beautiful person as the climax of musical education at Rep. 402d: 'when noble dispositions in the soul are combined in harmony with congruent features of outward form, this is the fairest object of contemplation for one who has eyes to see it ... and the fairest is also the loveliest'.

2 Note that the soul has its characteristic form of intemperance, which deranges the body, no less than the intemperance of the body, considered in the last section, disorders the soul.

3 ὑφήγ., 'in the true sense', not according to the vulgar use of καθαρὸς ἐσθίας for an upper-class person. (cf. Rep. 402a.) But the words also bear their literal sense: the beauty and goodness characteristic of the well-proportioned body and mind (87c. d.).

4 Cl. 53a.

5 Convivius in this sense occurs in the medical writers.
CARE OF THE SOUL

there is grave danger. For in general any disease has a settled constitution somewhat like that of living creatures. The composition of the living creature is so ordered as to have a regular period of life for the species in general; and also each individual by itself is born with its allotted span, apart from inevitable accidents, since the triangles in every creature are from the outset put together with the power to hold out for a certain time, beyond which life cannot be prolonged. It is the same with the constitution of diseases: if this be deranged by drugs to the disregard of their destined period, it often results that slight maladies become grave or their number is increased. Hence, so far as leisure permits, one should manage and control all complaints by regimen, instead of irritating a stubborn mischief by drugs.

The emphasis laid on exercise and regimen, as against drugs, is characteristic of the Sicilian school. In this, as in other matters, they were followed by Diocles, who wrote a treatise on regimen. Some long extracts preserved by Oribasius give much wise advice about diet and exercise, the preparation of food, and the care of the body generally, which is in full accordance with Plato's recommendations. The Republic had already dwelt upon the superiority of preventive training to drastic remedies applied when the harm was done, and also upon the need to bring the gentle and more spirited elements of the soul into harmony by cultivating both so as to correct the excesses of either.

CARE OF THE SOUL

898. Care of the soul

We now turn from the care of the whole living creature, and especially of its bodily part, to the care of the soul and its training for the rule it should bear. The main principle is one that was already announced in the Republic. Each of the three parts of the soul has its own legitimate sphere of interests and desires, and none of them should be thwarted or suppressed. If the energy of

the soul is directed too much into one of the three channels, it can only be at the expense of the others. This doctrine had been so fully developed in the Republic that only a brief reference to it is needed here. The rest of the section is devoted to that innermost desire of the divine part, which (as Diotima explains in the Symposium) is the desire for the immortality or divinity that can be regained by the pursuit of wisdom.

899. Let this suffice for the treatment of the living creature as a whole and of its bodily part, and the way in which a man may best lead a rational life, both governing and being governed by himself. Still more should precedence be given to the training of the part that is destined to govern, so that it may be as perfectly equipped as possible for its work of governance. To treat of this matter in detail would in itself be a sufficient task; but, as a side issue, it may not be out of place to determine the matter in conformity with what has gone before, with these observations. As we have said more than once, there dwell in us three distinct forms of soul, each having its own motions. Accordingly, we may say now as briefly as possible that whichever of these lives in idleness and inactivity with respect to its proper motions must needs become the weakest, while any that is in constant exercise will be strongest; hence we must take care that their motions be kept in due proportion one to another.

As concerning the most sovereign form of soul in us we must conceive that heaven has given it to each man as a guiding genius—that part which we say dwells in the summit of our body and lifts us from earth towards our celestial affinity, like a plant whose roots are not in earth, but in the heavens. And this is most true, for it is to the heavens, whence the soul first came to birth, that the divine part attaches the head or root of us and keeps the whole body upright. Now if a man is engrossed in appetites and ambitions and spends all his pains upon these, all his thoughts must needs be mortal and, so far as that is possible, he cannot fall short of becoming mortal altogether, since he has nourished the growth of his mortality. But if his heart has been set on the love of learning and true wisdom and he has exercised that part of himself above all, he is surely bound to have thoughts immortal and divine, if he shall lay

1 Cf. Ar., de gen. et corr. 316b, 10: "The natural processes of passing-away and coming-to-be occupy equal periods of time. Hence, too, the times—i.e. the lives—of the several kinds of living things have a number by which they are distinguished. For there is an Order controlling all things, and every time (i.e. every life) is measured by a period" (trans. Joachim). Fraccaroli and Tr. correctly explain that there is a fixed normal length of life for the individuals of each species, and also a peculiar expectation of life for each individual, according to his constitution.

2 Cf. the account of natural death, 81d.

3 See the passage from Aristoxenus in Iambi., V.F. 165-4, quoted by Tr., p. 629.

4 Diocles, frag. 138 II., Wellmann.
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hold upon truth, nor can he fail to possess immortality in the fullest measure that human nature admits; and because he is always devoutly cherishing the divine part and maintaining the guardian genius that dwells with him in good estate, he must needs be happy above all. Now there is but one way of caring for anything, namely to give it the nourishment and motions proper to it. The motions akin to the divine part in us are the thoughts and revolutions of the universe; these, therefore, every man should follow, and correcting those circuits in the head that were deranged at birth, by learning to know the harmonies and revolutions of the world, he should bring the intelligent part, according to its pristine nature, into the likeness of that which intelligence discerns, and thereby win the fulfilment of the best life set by the gods before mankind both for this present time and for the time to come.

The passion for wisdom, the characteristic desire of the immortal soul, is symbolised in the Phaedrus by the wings which Psyche must receive from Eros. It is the function of wings to raise aloft that which is heavy to the region where the gods dwell. There is no bodily part that has more kindship with the divine; and the divine is beauty, wisdom, goodness. In our passage Plato commends this thought with his earlier account of the revolution and harmony of the heavens, after whose likeness we must re-establish the disordered movements of the incarnate soul. What lifts us towards our celestial affinity is the genius or daemon residing in the head; and Eros is a daemon, between mortal and immortal, we learn in the Symposium. So in this tree of man, whose navel root springs in his top, spiritual sustenance is drawn from contemplation of the heavens, as a plant draws its food from the earth. The life of reason can be fully enjoyed only after death when the spirit is released from the distractions of bodily needs; but our business here is to partake of immortality in the fullest measure that our mortal nature will admit. Our passage is echoed in Aristotle’s final definition of human happiness (eudaimonia):

‘If, then, among the forms of virtuous action, war and politics, although they stand out as pre-eminent in nobility and greatness, are yet unpleasurable and directed towards a further end instead of

1 Reading ἐξετάζωμεν φῶς with APY. Cf. 69a, ἐὰν ἐκ τοῦ γείτος ἐφίγας ἔλθωμεν. The reading of F ἐξετάζωμεν φῶς creates a hiatus with διπλογία following and can be explained as intended to yield a commoner construction.

2 The connection between ἐλ-διατιότα (literally having a good διάτατον = luck) with διάτατον = guardian genius cannot be reproduced.


DIFFERENTIATION OF THE SEXES

being desired for their own sakes, while the activity of reason, on the other hand, when it is speculative, appears to be superior in serious worth, to aim at no end beyond itself, and to contain a pleasure which is peculiar to it and so enhances the activity; and if self-sufficiency, leisureedness, and such freedom from weariness as is possible to humanity, together with all the other attributes of felicity, are found to go with this activity;—then, perfect happiness for man will lie in this, provided it be granted a complete span of life; for nothing that belongs to happiness is incomplete.

Such a life as this, however, is higher than the measure of humanity; not in virtue of his humanity will man lead this life, but in virtue of something within him that is divine; and by as much as this something is superior to his composite nature, by so much is its activity superior to the rest of virtue. If, then, reason is divine in comparison with man, so is the life of reason divine in comparison with human life. We ought not to listen to those who exhort man to keep to man’s thoughts, or a mortal to the thoughts of mortality, but, so far as may be, to achieve immortality and do what man may to live according to the highest thing that is in him; for little though it be in bulk, in power and worth it is far above all the rest’ (Nic. Eth. x, 7, 7).

At this point, where the discourse of Timaeus has reached its climax, the thought recurs to his affirmation at the opening (29e) that the divine is not moved by any jealousy to withhold from the world or from man any perfection of which their nature is capable. Reason has endowed the world with harmony and beauty, and man with the capacity to reproduce them in himself. As the Epinomis (988a) urges, the study of the heavens, which the Athenians, under the influence of the ‘Greeks’ fear that it is wrong for mortal man to busy himself with things divine’, had proscribed as tending to atheism, ought rather to lead to the worship of the heavenly bodies themselves, a noble religion than the established cult which had come from the barbarians. The divine power is not displeased by man’s ability to learn, but feels ‘a joy free from jealousy’ at his becoming good with heaven’s aid.

90e–92c. The differentiation of the sexes. The lower animals

I have already (p. 392) suggested a possible reason why Plato relegates the differentiation of the sexes and the formation of the lower animals to this appendix. The highest form of Eros, the passion for divine wisdom and immortality, was dwelt upon in the last section. Its seat is the brain, at the head of the column of

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CONCLUSION

for the sake of the mythical doctrine of punishment by transmigration, announced to the souls before their first birth at 42c. The three classes correspond to the three parts of the soul, which the men condemned to such degradation have respectively misused.

91d. Birds were made by transformation: growing feathers instead of hair, they came from harmless but light-witted men, who studied the heavens but imagined in their simplicity that the surest evidence in these matters comes through the eye.

Land animals came from men who had no use for philosophy and paid no heed to the heavens because they had lost the use of the circuits in the head and followed the guidance of those parts of the soul that are in the breast. By reason of these practices they let their fore limbs and heads be drawn down to earth by natural affinity and there supported, and their heads were lengthened out and took any sort of shape into which their circles were crushed together through inactivity. On this account their kind was born with four feet or with many, heaven giving to the more witless the greater number of points of support, that they might be all the more drawn earthwards. The most senseless, whose whole bodies were stretched at length upon the earth, since they had no further need of feet, the gods made footless, crawling over the ground.

b. The fourth sort, that live in water, came from the most foolish and stupid of all. The gods who remodelled their form thought these unworthy any more to breathe the pure air, because their souls were polluted with every sort of transgression; and in place of breathing the fine and clean air, they thrust them down to inhale the muddy water of the depths. Hence came fishes and shell-fish and all that lives in the water; in penalty for the last extreme of folly they are assigned the last and lowest habitation. These are the principles on which, now as then, all living creatures change one into another, shifting their place with the loss or gain of understanding or of folly.

92c. Conclusion

The closing sentence observes that, with the formation of the three lower kinds of animal, the World has now become what the

1 μεταβολήμενον. Cf. Laws 903d, 904c, for μεταβολή, meaning promotion or degradation to a higher or lower region, determined by the trend of our desires and consequent character.
EPILOGUE

Throughout the myth of creation here concluded we have watched the divine Reason bringing intelligible order into the world in so far as he could persuade Necessity to co-operate. I urged that, if Plato's words are not to be robbed of all meaning, Necessity must be recognised as standing for a factor in the existing world never completely subdued by Reason. Further, if this Reason can be identified with the reason in the World-Soul itself, that other factor can hardly be anything but an irrational element in the World-Soul, the source of wandering motions. There is at all times some chaos within the cosmos. Becoming was imaged as the child of a father and a mother, who correspond to Heaven and Earth, the first parents of more primitive myth. The father is from above, Olympian; the mother from beneath; and one of her names is Necessity. Already in Homer Zeus and the other Olympians are confronted by a power they cannot subordinate, called Destiny or Fate. Like Plato's Demiurge, the Homeric gods are not omnipotent; and it seems impossible to deduce from Homer any coherent account of the relation between their will and the thwarting opposition of Destiny. Here Homer left an unsolved problem to be grappled with by the only religious genius of classical Greece who can take rank with Plato. It is no accident that the greatest work of Aeschylus, the Oresteia, culminates in the reconciliation of Zeus and Destiny; and that the reconciliation is effected by divine Reason, in the person of Athena, persuading the daughters of Necessity to co-operate in her beneficent purposes.

In the introductory conversation Plato has provided a clue which may lead our thoughts back to the closing scene of the Eumenides. The legend of Atlantis, as Socrates remarks, is a theme well suited to the festival of Athena which is the occasion of the present meeting. The formal speeches delivered at the Panathenaea regularly recalled the leadership of Athens in the victory of Hellas over the barbarian invaders in the Persian wars. So, in Critias'
EPILOGUE

Neither party can yield an inch of its claim. Nor can human justice reach a decision: the votes are equal. Both sides are in the right, though both may also be in the wrong. Athena now gives her casting vote for acquittal. Apollo vanishes; he has no more to say. The human protagonist, Orestes, is dismissed. The stage is left to the unappeased and furious spirits of vengeance, daughters of Night or of the Earth Mother, and, on the other side, Athena, the motherless child of the Father. Divine Reason is face to face with blind Necessity.

In wild confusion and desperate anger, the Furies threaten to blast the soil of Athens and poison the very springs of life. Athena turns to them, and her first words are: 'Be persuaded by me.' She offers them a sanctuary and worship in a cave under the Hill of justice, where they may be transformed into powers of fertility and blessing. At first they cannot listen, but go on crying out for justice and revenge. Athena patiently repeats her offer. She reminds them that she alone knows the keys of that chamber where the thunderbolt is stored; but 'there is no need of that.' Violence will not remedy a situation that violence has created. Suddenly the Furies are converted, when Athena addresses their leader as follows:

'I will not weary of speaking good words. Never shall you say that you, the elder goddess, were cast out of this land by me, the younger, and by my mortal citizens, with dishonour.

'No; if you have any reverence for unspotted Persuasion, the appeasement and soothing charm of my tongue—why then, stay here.'

To this persuasion the daughters of Necessity yield at last. The play ends with the song in which they promise fertility to the soil and citizens of Athena's land, and with the cry of triumph:

'So Zeus and Destiny are reconciled.'

[Plato's trilogy] had it been finished, would have stood out as his masterpiece, throwing even the Republic into the shade. Aeschylus' masterpiece was finished; and the Oresteia still holds the supreme place in tragedy. The philosophic poet and the poet philosopher are both consciously concerned with the enthronement of wisdom and justice in human society. For each there lies, beyond and beneath this problem, the antithesis of cosmos and chaos, alike in the constitution of the world and within the confines of the individual soul. On all these planes they see a conflict of powers, whose unreconciled opposition entails disaster. Apollo and the Furies between them can only tear the soul of Orestes in pieces.

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1 The Critias (199) mentions the division of regions among the gods, but piously denies that it was 'by strife'. Shortly afterwards (c) comes the phrase αὐτοδίκαίων, omitted from the MS, and in contrast with physical violence.

2 Aesch. Agam. 192. The reading αυξών δὲ τοῦ χύρου θαυμάστε οὐρανός οἰκίων ἑλώνω; and the interpretation are suggested in Headlam's note.
EPILOGUE

The city of uncompromised ideals, the prehistoric Athens of Critias' legend, in the death-grapple with the lawless violence of Atlantis, goes down in a general destruction of mankind. The unwritten Hermocrates, we conjectured, would have described the rebirth of civilised society and the institution of a State in which the ideal would condescend to compromise with the given facts of man's nature. So humanity might find peace at the last. And the way to peace, for Plato as for Aeschylus, lies through reconcilement of the rational and the irrational, of Zeus and Fate, of Reason and Necessity, not by force but by persuasion.

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(1) 22D, ἣμιν δὲ οἱ Νείλος αἱ τε τῆλες δαμά τι καὶ τάπει τίς ἐπιρροάς αἱ λοιμοί. When the inhabitants of mountainous and dry regions are destroyed by scorching drought, the Egyptians are preserved by the Nile being 'set free' or 'unloosed'. Both ancient and modern commentators have been at a loss to understand from what the Nile is set free at such times. We may also ask by what it is set free. (a) If, as is commonly assumed, the conflagration is the agent, there seems to be no sense in Porphyry's suggestion (Proclus i, 11046), followed by Archer-Hind, that the Nile is set free from the fountains at its source. As Taylor says (p. 53), there is no apparent reason why the Nile should be set free more copiously from such fountains in a time of drought and heat than at other seasons.

On the supposition that heat is the cause, the only reasonable view is that which Porphyry rejected: 'the melting of the snows (ἡ λυὸς λυμείρια) causes the abundance of water'. Porphyry, like Proclus, could not believe in snow so near the equator. Here they followed Herodotus (ii, 22), who knew no more than the Egyptians whom he questioned about the snows and the rainy season in Ethiopia. But the snow theory had been propounded by Anaxagoras (Vors. 46a, 91), and Seneca remarks that it was adopted by Aeschylus (Suppl. 565, Egypt is λευκῶν χαιρομοιας, πάντως λυμείρις χάλως περια ἱδοίς πληροδίας αὐτόν, Schol. ad loc. Frag. 300), Sophocles (Frag. 797N 831f). Why does Pearson say the theory cannot have originated with Anaxagoras? and Euripides (Hela 3; Frag. 248). Headlam observes that the belief was widely known and canvassed in antiquity and remained until our own day for the truth of it to be proved by Sir Henry Stanley. It might be argued that λυμείρια, which can mean 'being melted' as well as 'being set free', is a singularly appropriate word. One reason which led Proclus to reject the snow theory was the statement just below at v, 2, 'In this country the water does not fall from above upon the fields either then or at other times; its way is always to rise up over them from below.' This does not seem to me to mean that the waters of the Nile well up from subterranean sources, instead of being fed by melting snows; but only that there is no rain in Egypt, and the fields are watered by the inundation of the rising Nile. Hence when rains from heaven flood other parts of the earth, Egypt escapes destruction.

(b) Professor Stephen Glanville, when I consulted him, at once
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(a) Some held that 'gods of gods' means that the cosmic gods (the heavenly bodies) are likenesses of the intelligible gods, just as the whole cosmos is 'an agalma of the everlasting gods'. This is obviously impossible, and the intelligible gods are a neo-Platonic invention.

(b) Others held that 'the most universal Henads' are called gods of the cosmic gods, as it were, 'lords of lords', or 'kings of kings'. Linguistically this is (as Tr. remarks) the only defensible interpretation of the words theoi theon. Cf. Critias 121, deus o theos Zois. But Proclus raises the obvious objection that all the gods, visible and invisible, are included among those addressed. Archer-Hind's suggestion of rhetorical pomp—'Gods of gods' signifying the transcendent dignity of the celestial gods as first-fruits of creation—is not supported by any satisfactory linguistic parallel.

(c) It is noteworthy that Proclus does not even mention the interpretation 'Gods, sons of gods', which satisfied the Latin Cicero (ne quis deorum satre orsi est) and is favoured by some moderns. Archer-Hind rightly objects that the only father of the gods is the Demiurge himself; 'the plural theoi is without propriety or meaning'. Tr. adds that there is nothing in the word theoi to indicate that the genitive is one of origin: theoi theon is as impossible as τινος τινων meaning 'horses sprung from horses'.

The upshot is that neither ancient nor modern critics have produced any satisfactory sense for theoi theon. Badham's emendation theoi heon... ἔγον, δέ δ' ἐρωμεν, creates an objectionable hiatus between the first two words and will not commend itself to anyone who observes the rhythm of the sentence. The whole address is composed with exceptional care in markedly poetical language. The dominant rhythm is Cretico-Paononic. This is established in the opening phrase, which is in pure Cretic metre:

θεοὶ θεοῦ ὁ ἄνευ διαμορφοῦσας πατὴρ τῆς ἔργων.

Compare the opening of the De Corona: πατὸν μὲν, δ' ἄνθρωπος Ἀθηναῖος, τοῖς θεοῖς, ἐρωμεν παῖς καὶ πάθως, which Dionysius illustrates by the grammarian's stock Cretic verse:

Κρήτης έν βεθύσιοι, παῖς μητέρων.

Alcamen has a longer phrase of the same pattern:

*Αστροδήθη μὲν οἷς ἔστιν, μακρότροφος δ' ἔρως οἷα παῖς παῖται.

The rhythm is continued in the rest of the sentence (keeping δ'):

ἄ δ' ἐρωμεν ἔγονευον ἄλλων ἐρων γε μὴν οὐκ ὁλοκληρων.

The closing phrase has a parallel in the ἐκάπης of Pinard, Οἰ, ii:

ἐκάπης γοὺς ὑπὸ τιμωτών τιμώτερον δημοτωροῦν δημοτωρίαν.

1 Cf. also Simonides, frag. 31, Ἱδκ. 88 Edmonds, a poem in a mixture of metres: Κρήτης μὲν καθάρος τρόψοις, τοῖς δ' ἐρωμεν Μιλεσίων.

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The whole sentence, in fact, is practically in Cretico-Paononic verse; and the rest of the speech could be reduced to a lyrical passage in a mixture of metres, not very unlike a strophe in the Second Olympian. In such a passage Plato might well adopt an order of words or a compressed construction which would not be quite natural in unrhymed prose.

Since theoi theon has no acceptable meaning, it remains to try the expedient of detaching theon from theoi and placing the comma after it. This was done by some ancient critics, who, according to Proclus (iii, 201\²), connected theon with the following words, taking the whole as θεοὶ ὁ θεός ἐγὼ δημοτωρός. Proclus does not tell us what reading these critics adopted in the rest of the sentence; but his own criticism shows that he understood them as making theon simply a repetition of theoi. 'Gods', of which gods I am maker', i.e. 'Gods, of whom I am maker'. It is hard to believe that anyone could credit Plato with writing theoi, theoi ὁ θεός when he meant no more than 'Gods, of whom'. But they may have been right to detach theon from theoi. theoi by itself is no more abrupt than theoi theon or the γενόμενα at the beginning of a tragic rhea.

Suppose, then, that we punctuate: theoi, theoi ὁ ἄνευ διαμορφοῦσας πατὴρ τῆς ἔργων and understand this as a compressed form of theoi, θεοὶ ὁ ἄνευ διαμορφοῦσας ἔργων τε (ἵνα ἐγὼ) πατήρ. This would be quite intelligible if the words were in that order; we have only to suppose that πατήρ τῆς ἔργων is substituted for ἔργων τε πατήρ for the sake of the metre. Translate: 'Gods, of gods of whom I am maker and of works the father'. This leaves the genitive requiring some subject to govern them. After ἔργων appear the first signs of confusion in the MSS. and citations: ἐς APY, om. F., τέθει margin of A. The simplest remedy is to read τα for τὰ and to take τὰ δ' ἐρωμεν to mean τὰ γενόμενα as the subject governing theοὶ ἔργων τε: 'Gods, of gods of whom I am maker and of works the father, those which are my own handiwork are indissoluble, save with my consent.' 'Gods and works of which I am father and maker' means the whole universe—the created gods and all the other works of the Demiurge who is 'maker and father of this universe' (28c) and has just been called τὸ τέκνον τοῦ γονήματος (41A). Similarly at 69c the Demiurge is said to have framed the whole universe as a living creature containing all other living creatures mortal and immortal; 'and of the divine he was himself the maker, while the task of making mortals he laid upon his own offspring'. So here, among all the creatures making up the world, some are made directly by the Demiurge himself—all those works, in fact, which have been created up to this point: the soul and body of the divine universe and the heavenly gods. These are τὰ δ' ἐρωμεν γενόμενα—the works of my own hands'. And this sentence tells us that they are indissoluble save by his consent. This gives the words δ' ἐρωμεν γενόμενα a valid and appropriate sense. They cease to be a mere repetition of ὅ
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