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I hereby recommend that the thesis prepared under my supervision by Elizabeth Gwyn Caskey

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DEMOCRITUS AND PLATO

A Comparison of the Function of the Forms in their Philosophies

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by

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INTRODUCTION

The purpose of this dissertation is to examine with some care certain conceptions which occur in the philosophical systems of both Democritus and Plato. These two philosophers are commonly regarded as representatives of diametrically opposed systems of thought. Democritus is believed to be the great proponent of an entirely mechanical explanation of the universe, while Plato is looked upon as the originator of a totally idealistic and impractical system. The only point of contact between the two is thought to be in the Timaeus. The idea is now fairly generally accepted that, in the latter part of this work, in the description of the triangular foundations of the four elements and in that of the various sensations, Plato was influenced by the writings of Democritus sufficiently to attempt to adapt some parts of his own theory to the other's mechanical system, without acknowledging his debt to Democritus. Actually, certain diatribes[1] uttered by Plato seem to have been at least partly directed against the so-called "Atomists". Such attacks ought not to be taken too seriously by the reader, until he has found out just what the views of each philosopher were, and why Plato said anything of the sort. We have only to read Aristotle's discussions of Plato's philosophy to find that one philosopher may make

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1. For example, Timaeus, 46c7-d3; Sophist, 246a7-b3.

violent attacks on another in regard to some particular point, while actually their views are the same though expressed in different terms.

Investigation of the relationship between Democritus and Plato seems, up to the present, to have been concerned mainly with the ways, if any, in which Democritus influenced Plato. Another method of enquiry, at least equally legitimate, is to try to discover how like or unlike were the aims of the two philosophers, to find out what each of them thought he was doing, and what means he employed to achieve his purpose. At the outset of such an investigation one is immediately struck by the fact that Democritus and Plato used the same name for their prime realities, that is, ἰδέαι[1]. Throughout this study I have employed this term in speaking of Democritus' ἄτομα for two reasons. The first reason is the one which I have just given, namely, that the term is common to both philosophers, a fact which is often lost sight of, and in itself indicates some common ground of thought. The second reason is that the word atom has become inescapably connected with modern physical theories, and we cannot in using the term, however hard we try, free our minds of its present connotation. For Democritus it

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1. For the use of this word by Democritus see Diels, Fragmente der Vorsokratiker[5], 68A57, B141, and B167. In the last passage, from Simplicius, the third edition has εἰδέων rather than ἰδεῶν. If that is the right reading, we have another word also used by Plato for his realities.

simply emphasized the indestructibility of his realities. The translation which I have used for ἰδέα is form, a word which is an adequate equivalent of the Greek, and has not acquired an additional meaning remote from that of the Greek word, as has the term "idea." It is quite a common practice to capitalize the word used to translate Plato's ἰδέαι, and this I have done, to conform to practice, and to distinguish between Plato's realities and those of Democritus.

The method here chosen to compare the two philosophers' theories is to examine the function which they thought their realities performed in solving some of the vital problems they had to face in the investigation of the universe. The use to which a philosopher puts his concepts is enlightening because, on the one hand, it reveals his aims, which we are here anxious to discover, and, on the other, it helps us to distinguish between genuine attempts to solve the problems which face philosophy, and systems which are built up around a central idea with attention concentrated rather on consistency than on the truth, as far as it can be discovered. A philosopher may use his concepts to try to discover the truth, or to support his preconceived ideas. This thesis, then, is a preliminary study of some of the functions of concepts in two almost contemporary Greek philosophers, and does not attempt a general treatment

of their theories. Nor does it support any theory about these philosophers.

This dissertation has been mainly based on the sources, the dialogues of Plato, and the collected testimonia and fragmenta of Democritus in Diels, Fragmente der Vorsokratiker, edition 5. In the references to Plato's works, in the sections dealing with him, I have mentioned only the name of the dialogue, while in all other references I have given the author's name and then the work. In referring to the fragments of Democritus, who is number 68 in Diels' collection, I have omitted this preliminary number and have given the reference as, for example, A67 or B9, while I have used the author number 67 in citing Leucippus. I have referred only to those testimonia of Leucippus which mention Democritus also. The bibliography is not an exhaustive one for either philosopher, but contains the works which I have cited in the text of the study and a few others which I have used fairly extensively. In addition, the commentators on Aristotle are listed with their editors and general information about the editions, in order to avoid too elaborate references in the notes.

Chapter 1

FORMS AND ΨΥΧΗ

I DEMOCRITUS

Before one can discuss the relation of Democritus' forms to ψυχή, it is necessary to know just what the word ψυχή signifies. The common translation "soul" is certainly misleading, for it inevitably brings to our minds ideas which owe their origin to Christianity and have no connection with the earlier Greek philosophers. In Liddell and Scott the meanings given for ψυχή are,"breath (the sign of life), the life, spirit; the life or spirit of man which survives after death and dwells in Hades; the departed soul, spirit, ghost; the abstract notion of the soul or spirit of man (used sometimes for the man himself); the seat of θυμός, soul, heart; sensual desire, propension, appetite; the organ of νοῦς, the soul, mind, reason, understanding; the vital principle; the animating spirit of the universe". The first meaning given here is breath and life, and the same essential idea occurs in the meaning "vital principle". All the above meanings are bound together by the one fact of life which is basic even in the meaning "soul, mind, reason". In fact, "life" seems to be the primary meaning of the word.

That this was one essential meaning to Democritus can readily be seen by an examination of his fragments and the discussions of his views by other writers. There are

two passages which show this particularly clearly. The first is a quotation from Proclus' in Rempublicam which elaborates Democritus' theory about the apparent death involved in loss of consciousness[1]; this death is not a quenching of all life (ζωή) of the body, but because of some blow life is let out, while the chains of the life or spirit (ψυχή) remain firmly fixed in the marrow, and the heart has the fire of life (ζωή) lying in its depth. Here Proclus uses both the words ζωή and ψυχή in describing Democritus' explanation of the phenomenon of loss of consciousness, and he uses them as practically equivalent. The other passage is from Aristotle's de Respiratione, an explanation of the importance of breathing for the maintenance of life[2]. Aristotle reports that Democritus says breathing prevents the ψυχή from being forced out, for in the air is a great quantity of that which he calls ψυχή, and, by breathing in, the ψυχή in the body is reinforced. That is, in inspiration is life (τὸ ζῆν) and in expiration death. A very similar statement is to be found in the de Anima[3]. The same idea, that ψυχή is life, is expressed in a negative way in Sextus Empiricus' quotation of Democritus' presentation of the

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1. B1, Proclus, in Rempublicam, II,113,6 (Kroll, Teubner, Leipzig, 1901). See p.18, n.4.

2. A106, Aristotle, de Respiratione, 4,471b30.

3. 67A28, Aristotle, de Anima, I,2,404a9-16.

theory of like to like[1]; there seeds and stones are called ἄψυχα. These statements seem to make it clear that Democritus believed the ψυχή to be the source of life, in fact, to be life itself, though that is not, of course, to say that he did not believe the ψυχή to have other capacities in addition.

For the general thesis that the ψυχή is the source of life we find support in Aristotle's de Anima. At the beginning of the treatise we read, ἔστι (i.e. ἡ ψυχή) γὰρ οἷον ἀρχὴ τῶν ζώων[2], and again farther on, ἔστι δὲ ἡ ψυχὴ τοῦ ζῶντος σώματος αἰτία καὶ ἀρχή... τὸ γὰρ αἴτιον τοῦ εἶναι πᾶσιν ἡ οὐσία, τὸ δὲ ζῆν τοῖς ζῶσι τὸ εἶναί ἐστιν, αἰτία δὲ καὶ ἀρχὴ τούτων ἡ ψυχή[3].

Before going back to the main point, the relation of the forms to ψυχή in its capacity of vital force, it is best to consider what Democritus believed to be the defining characteristic of life, as far as we can discover. Aristotle, in the de Anima, says that it is motion and sensation which distinguish the animate from the inanimate, and that this is just about how his predecessors characterized ψυχή.[4] This statement he then supports by a discussion of the opinions

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1. B164, Sextus Empiricus, adversus Mathematicos, VII,117.
2. Aristotle, de Anima, I,1,402a6.
3. Aristotle, de Anima, II,4,415b8-15.
4. Aristotle, de Anima, I,2,403b25-29.

held by individual philosophers on the main characteristic of ψυχή. He begins with Democritus, who, he says, was one of those who regarded the ψυχή primarily as the principle of movement, on the ground that only that which is itself in motion can move anything else[1]. In a number of other passages Aristotle emphasizes the fact that the important thing about ψυχή to Democritus is its power of movement[2]. Philoponus, in his commentary on the de Anima, quotes and discusses the words of Aristotle on this point with agreement and approval[3]. He apparently knew of no conflicting tradition. The same is true of Simplicius' commentary on these passages of the de Anima[4]. In this case we find Aristotle himself in several places and two of his commentators consistently giving a single account of Democritus' views on the importance of motion in life. The absence of any sign of a conflicting tradition justifies us, I believe, in the unfortunate absence of any other positive evidence, in relying on the truth of these statements, especially since on other points, such as the cause of the motion of the

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1. 67A28, Aristotle, de Anima, I,2,404a5-16; A104, de Anima, I,3,406b15-17.

2. For example, A101, Aristotle, de Anima, I,2,405a9-11; A104a, de Anima, I,5,409a32-409b1.

3. Philoponus, de Anima, p.67,83-85; A101, de Anima, p.83,24-p.85,16.

4. Simplicius, de Anima, p.25,26-p.26,13; p.39,8-12; p.39, 25-37.

forms, we find such divergent views in Aristotle himself, and in his commentators. The gist of Aristotle's statements is that Democritus regarded motion as the most important principle of life (ψυχή). When we go on to examine the theories of Plato on these points, we shall find that he too regards motion as the distinguishing feature of that which is alive.

It is evident from the preceding statements that we must first consider the function of the forms in regard to motion, and then to life. In the first place, all the forms are themselves in motion. Our different authorities vary considerably in their description of the nature of, and reason for, this motion. Simplicius, indeed, seems to preserve two opposing traditions about this theory. In his commentary on the de Caelo he says the forms στασιάζειν δὲ καὶ φέρεσθαι ἐν τῷ κενῷ διά τε τὴν ἀνομοιότητα καὶ τὰς ἄλλας εἰρημένας διαφοράς, φερομένας δὲ ἐμπίπτειν καὶ περιπλέκεσθαι περιπλοκὴν τοιαύτην...[1], while in that on the Physics he writes, Δημόκριτος φύσει ἀκίνητα λέγων τὰ ἄτομα πληγῇ κινεῖσθαί φησιν[2]. The last remark seems, however, to be based rather on Aristotle's views about τόπος and κίνησις, which he thinks cannot be κατὰ φύσιν in τὸ κενόν, where

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1. A37, Simplicius, de Caelo, p.295,9-12. See also p.242, 21-24.

2. A47, Simplicius, Physica, p.42,10-11. Cf. too 67a16, Simplicius, de Caelo, p.583,20.

there is no τόπος[1]. It is clear that however much Aristotle may have objected to Democritus' phraseology, and though Simplicius reported these objections carefully, and endeavoured to state Democritus' theory to accord with Aristotelian terms, what Democritus actually thought and said, according to Simplicius' authorities, was that the forms had a natural movement in space.

We actually find Aristotle making a simple statement which bears out the above conclusion as to the traditional form of Democritus' theory. In the Physics he says, διὰ δὲ τὸ κενὸν κινεῖσθαί φασιν· καὶ γὰρ οὗτοι τὴν κατὰ τόπον κίνησιν κινεῖσθαι τὴν φύσιν λέγουσιν[2]. Simplicius, in commenting on this passage, says that Democritus thinks that the forms move because the void yields[3]. Consequently he here specifically attributes weight to the forms, concluding that they must have weight if the void yields. Actually, if the void is really τὸ κενόν, it could not offer resistance to any existent substance, which could not help moving through the void. Aristotle, in the de Generatione et Interitione, states that Democritus says that the forms are really heavy in proportion to their size[4], but this is

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1. Simplicius, de Caelo, p.243,18-29.

2. A58, Aristotle, Physica, VIII,9,265b24.

3. A58, Simplicius, Physica, p.1318,33.

4. A60, Aristotle, de Generatione et Interitione, I,8,326a9.

best taken to refer to the forms and their motion in the vortex, since we have from Aëtius another statement, apparently about Democritus and Leucippus, connecting size and weight, but only in the groups of forms which gather together[1]. In the passage from the de Respiratione already mentioned Aristotle speaks of the ψυχή forms being pushed aside by the other forms which are larger[2]. This resembles the quotation from Aëtius and also refers to the forms in composition. Theophrastus, in the de Sensu, bears witness that Democritus accounted for weight in compound bodies by the size of the forms in them and the amount of void contained in the combination[3]. Now, Aristotle's own theory of absolute weight concerns the motion of like to like, and of each thing to its own proper place[4]. Two of our authorities, namely, Aëtius and Sextus Empiricus, discuss statements of Democritus about the motion of like to like, though not to any particular place, but this again is in regard to composite bodies[5]. This supports the conclusions of Robin and

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1. 67A24, Aëtius, I,4,1-2.

2. See p.6, n.2.

3. A135, Theophrastus, de Sensu, 61-62.

4. This theory of Aristotle is at the base of his discussion of Leucippus and Democritus in the de Caelo, I,8,275b30(67A19), where he says that all the forms must have the same motion, due either to heaviness or lightness.

5. A128, Aëtius, IV,19,13ff.; B164, Sextus Empiricus, adversus Mathematicos, VII,117.

Burnet on the subject, that Democritus believed that the question of weight, and that relative weight only, arises when the forms come together in the vortex to form compound bodies[1]. Aristotle, in the passage in question in the de Generatione et Interitione, is engaged in proving that the theory of Democritus is paradoxical in insisting on the lack of qualitative difference of the forms, and he is not particular about the way in which he distorts statements and alters their context to fit his own arguments. In the same way, Aristotle's discussion in the de Caelo is concerned with the weight of composite objects, and with an application of his own ideas of weight to Democritus[2]. He is again discussing the latter's theories of weight in compound bodies, and drawing conclusions about weight in primary bodies from them and from his own theories. We find, indeed, that Simplicius, in commenting on the de Caelo, twice makes the statement that Democritus attributed heaviness to the forms, speaking of the smaller forms being pushed out by the larger and heavier[3]. Here, again, Simplicius is probably deducing what is to him a self-evident fact from Democritus' words to the effect that the larger forms are more difficult to move out of combination. In a

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1. Robin, Greek Thought, p.117; Burnet, Early Greek Philosophy, p.344.

2. A60, Aristotle, de Caelo, IV,2,309a1ff.

3. A61, Simplicius, de Caelo, p.569,5ff.; p.712,27ff.

word, Aristotle and Simplicius are engaged in discussing the question of weight, and in criticising Democritus' theories on the basis of their own ideas of weight, though there are no grounds for supposing that Democritus thought the forms had weight.

Other authorities, however, besides Aristotle and Simplicius, mention this matter of the motion of the forms. One of our oldest surviving authorities, Aëtius, says, Δημόκριτος τὰ πρῶτά φησι σώματα βάρος μὲν οὐκ ἔχειν, κινεῖσθαι δὲ κατ' ἀλληλοτυπίαν ἐν τῷι ἀπείρωι[1], while elsewhere he definitely states that Epicurus added weight to the forms[2]. Cicero twice speaks of the motion of the forms. In the de Fato he says that, according to Democritus, the cause of this motion was some kind of blow, though Epicurus thought it was due to weight[3], in the de Finibus that this motion had no beginning but has gone on for ever[4]. Hippolytus simply says that the realities are always in motion in the void[5], whereas Dionysius makes a somewhat fuller statement[6], adding that this motion is by chance, and that the forms fall

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1. A47, Aëtius, I,12,6.

2. A47, Aëtius, I,3,18.

3. A47, Cicero, de Fato, 20,46.

4. A56, Cicero, de Finibus, I,6,17.

5. A40, Hippolytus, Refutatio Omnium Haeresium, I,13,2.

6. A43, Dionysius in Eusebius, Praeparatio Evangelica, XIV, 23,2,3.

in with one another of their own motion (αὐτομάτως). The Epicurean Diogenes of Oenoanda quotes Democritus as saying that forms have no free motion because of their colliding with one another, so everything appears to be in motion by force[1]. We find another indefinite statement in Plutarch, namely, that the forms are carried about in the void, scattered here and there[2].

It is quite clear that all our surviving authorities believed that Democritus said that the forms were in motion. Since, in spite of their disagreement on other points in Democritus' theory, this is stated unanimously without question, we are justified in accepting this verdict, and taking it as a fact that, according to Democritus, the forms were in motion. Now, as to the cause of this motion, if there was any cause - it has been sufficiently shown, I believe, that the connection made by Aristotle and Simplicius between weight and the motion of the forms is due to the influence of their own ideas of weight on their interpretation of their predecessor. Moreover, we do find Simplicius twice attributing the motion of the forms to their differences of shape and size[3], with no mention of the Aristotelian ideas of weight. Of the other authorities, Aëtius says the motion

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1. A50, Diogenes of Oenoanda, fr. 33c,2(William, Teubner, Leipzig, 1907).

2. A57, Plutarch, adversus Colotem, 8,p.1110F.

3. A37, Simplicius, de Caelo, p.295,9-12; p.242,21-24.

is due to the forms striking against one another (a theory which presupposes motion), and certainly not to weight, while Cicero, in one passage, and Diogenes of Oenoanda agree with him that it is due to blows and collision. Elsewhere Cicero says the motion is without beginning, a statement which seems corroborated by Hippolytus and Plutarch. Dionysius agrees with this, while adding the fact that it is by chance that the forms fall in with one another as they move along. In view of our arguments about Aristotle and Simplicius, and the definite statements of Aëtius, an authority of some consequence, and Cicero, we may properly dispense with the theory that the motion of the forms is due to weight.

The idea that the motion is caused by the forms striking against one another does not really account for their motion, for they must have been in motion already, and seems to fit Democritus' theories better as an explanation of the formation of vortices. In fact, Simplicius and Plutarch say that it is in just this way that the groups of forms are begun, groups in which objects come to be[1]. In view of these two facts, I think we may assume that some of our authorities used this explanation to account for something for which it was not intended, the original motion of the forms, a use for which it is not fitted. As a result of

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1. A37, Simplicius, de Caelo, p.295,11ff.; A57, Plutarch, adversus Colotem, 8,p.1110F.

all these considerations, it seems to me most likely that Democritus simply said the forms were in motion, a motion without beginning or end, and needing no motivation. The truth of this conclusion is attested by its appearance in some of our authorities, namely Cicero, Hippolytus, Plutarch, and perhaps Dionysius. The remark of Aëtius I,4,1[1], a passage apparently referring to the Atomists, that the motion of the forms is ἀπρονόητον καὶ τυχαίανI should take to mean that the motion is without purpose and guidance; that is, that it had no cause either mechanical or teleological. Moreover, Alexander, in his commentary on the Metaphysics, says that Leucippus and Democritus did not tell what the origin of the natural motion of the forms was, adding that the enforced motion caused by the forms striking against one another was posterior to the natural motion[2]. In one passage of Aristotle, indeed, we read that Leucippus and Democritus, who say the forms are in perpetual movement in the void, may be asked to explain the kind and nature of this movement[3]. This certainly seems to indicate that Democritus did not explain the primary movement of the forms, and also to justify the reason I an suggesting for the numerous explanations offered for this motion. Most of the later writers,

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1. 67A24.

2. Alexander Aphrodisias, Metaphysica, p.36,21ff.

3. 67A16, Aristotle, de Caelo, III,2,300b8ff. Cf. too 67A6, Metaphysica, I,4,985b18.

living after Aristotle, and knowing and accepting the latter's theories on motion and weight, tried to explain this natural motion of the forms by weight or collision or even chance, an explanation which does not add much to Democritus' natural motion. It is possible that Simplicius has some authority for saying that the forms moved about in the void because of their differences of shape and size, but this may be only another attempt to account for a thing which in Democritus' eyes needed no explanation. The whole subject of the motion of the forms is discussed at length by Zeller[1].

Having established that in one sense the forms are motion, we must next see whether they can be said to cause motion. Almost the only direct information on this point comes from Aristotle. In the de Anima he tells us that the ψυχή, νοῦς and πῦρ are all made up of forms, which cause motion because they are small and spherical[2], and again, that these spherical forms which make up the ψυχή drag along and move the whole body in which they are, since it is their nature never to stay still[3]. This he repeats yet again in briefer form[4]. Simplicius appears unaware of any other tra-

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1. Zeller, Philosophie der Griechen, I,2,p.1076-1095.

2. A101, Aristotle, de Anima, I,2,405a5ff. Cf. too 67A28, de Anima, I,2,404a5-9.

3. A104, Aristotle, de Anima, I,3,406b15ff.

4. A104a, Aristotle, de Anima, I,5,409a32.

dition on this point, and states it as a fact that Democritus and his followers believed that the movement of the ψυχή forms was the only cause of motion of the living thing[1]. The same is true of Philoponus, who says that the forms which make up ψυχή and mind move everything else, because of their smoothness and smallness[2]. From this we may conclude that certain forms cause corporal motion in the bodies made up of other forms, because they are very fine and spherical, able to penetrate everything[3], and though easily pushed aside by the larger forms, yet able just as easily to slip between these others again. Clearly Democritus thought of the larger forms as more sluggish, and, since they were slower and less able to penetrate composite bodies, he considered they could not cause motion.

It is clear that some of the forms cause motion and, consequently, life. And life (ψυχή) is thought by Democritus to be a group of motion-giving forms which may be pushed out of body, whose presence depends on inspiration, the supply of which can be replenished as long as any remain in body[4]. Moreover, this group of forms perishes along with the body, that is, the individual life or person-

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1. Simplicius, de Anima, p.39,28-30.

2. Philoponus, de Anima, p.84,14-25.

3. See, for example, A103, Macrobius, in Somnium Scipionis, I,14,19.

4. B1, Proclus, in Rempublicam, II,113,6(Kroll). Compare

ality is resolved into its component forms, which scatter and enter into other combinations, as is the case with the forms which make up the body.

Plato, Cratylus, 399d-e; Gorgias, 524b2; Timaeus, 73b2-d7, 81d4-e5, 85e4-9. The passages quoted here from the Timaeus are all concerned with the roots of the ψυχή, which are fixed in the marrow as an anchor of life. When these are uprooted death follows. It is interesting to note that Proclus, in the passage cited above, seems to think that there is some similarity between Democritus' notion of the ψυχή forms which penetrate every part of the body, and so impart life, and this theory of Plato, for in describing Democritus' theory he used language almost identical with that in the Timaeus, especially in 73b2-5. It must have been with this passage in mind that Proclus used the phraseology he did when discussing Democritus' theory.

II PLATO

Before discussing the forms in relation to ψυχή in the theory of Democritus, I referred to Aristotle's statement that Democritus regarded the ψυχή (life) as the principle of movement. Plato on various occasions makes it quite clear that to him, as to Democritus, motion is the essential fact in life. Two excellent illustrations of this belief come to mind, from very different periods of Plato's activity. The first is from the Phaedrus, in connection with the discussion of the immortality of the ψυχή[1]. The argument shows that the ever-moving is immortal, while the thing which is set in motion by something, and so has a beginning of movement, is subject also to an end of its motion and, therefore, to an end of life. That object which moves both itself and other things, and so had no beginning of its motion and will have no end, namely, ψυχή, is ever living. From this argument Plato's identification of motion and life emerges clearly. Again, a few sentences further on, says that the combination resulting from the union of ψυχ and body, which seems to move as the result of the power the former, is called a living creature[2]. In Book X of

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1. Phaedrus, 245c5 - 246a1.
2. Phaedrus, 246b7-c6.

Laws is a very plain statement of the fact that when a thing moves itself, it is alive[1]. For Plato, as for Democritus, the criterion of life is motion.

Plato, moreover, like Democritus, called the self-mover ψυχή; in fact, the definition which he gives of ψυχή is that which moves itself, that is, the source of motion, τὸ ἑαυτὸ κινεῖν. This self-motion is the essence of ψυχή, the thing which makes it the most important power in the universe. In Laws X, shortly after the passage just mentioned, Plato says, τὸ ἑαυτὸ κινεῖν φῆς λόγον ἔχειν τὴν αὐτὴν οὐσίαν, ἥνπερ τοὔνομα ὃ δὴ πάντες ψυχὴν προσαγορεύομεν; φημί γε[2]. Again, in the Phaedrus, the argument for the immortality of the ψυχή rests on the fact that ψυχή is that which moves itself and causes motion in other things. All body, Plato says, to which motion comes from without is lifeless, ἄψυχον, while that whose motion comes from within, from itself, is alive, ἔμψυχον[3]. In other words, that which moves itself and causes motion in its harbourer is ψυχή, and it is ψυχή that gives life.

Plato defines ψυχή, then, as the self-mover, and in the Timaeus he describes, in mythical form to be sure, the formation of ψυχή. There he tells how the Demiurge made

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1. Laws, X,895c7-9.

2. Laws, X,896a3-5.

3. Phaedrus, 245e4 - 246a1.

the World ψυχή from a carefully proportioned mixture of the Being that is indivisible and always the same and that which comes to be in bodies, of same, and of other[1]. The special proportions which were used in making this mixture are of no significance here, but the point which is of interest to us is that one of the main ingredients of ψυχή is Being indivisible and always the same. This is the kind of Being which the Forms possess, so we must conclude that ψυχή shares in the being of the Forms, and has a part in their world - in other words, it is partly a Form. It seems likely, too, that same and other are ingredients distinct from the two already mentioned, and , if this is so, the indivisible sameness and indivisible difference are the Forms, Sameness and Difference[2]. It is clear, then, that ψυχή has in its composition the Forms Existence, Sameness and Difference[3]. A little further on it is said that ψυχή is compounded of Same and Other and Being, all three of which are Forms, and because of this it has knowledge of the world which is always the same[4]. It has also knowledge of the world of becoming, through the circle of the other, that is, apparently, because of the particulars in its composition. In the ψυχή which is

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1. Timaeus, 35a1-b3.

2. Grube, "The Composition of the World-Soul in Timaeus 35a-b", Classical Philology, 37, 1932, pp.80-82.

3. Cornford, Plato's Cosmology, pp.59-66.

4. Timaeus, 37a2ff.

made for man there is a part of this World ψυχή, and so a share in these Forms[1]. Further, the ψυχή is immortal[2], thus displaying an important attribute of Form, and in this respect also seems to be a kind of Form. As Cornford points out[3], ψυχή differs from Form in being itself in motion and having intelligence, and represents a third kind of existence midway between that of Forms and that of particulars, and sharing in each. It does, however, share in attributes of Form, and partakes of three Forms in a more nearly complete way than a sensible or particular partakes of a Form.

If we state in brief the results of our research in Plato's theory of the origin of life up to this point, we find that motion is the important factor in life, that the originator of motion, itself self-moving, is ψυχή, and that ψυχή is connected in a special way with the world of Forms, and shares in their existence to some extent. In other words, there is a clear connection between Form and life. This connection is definitely stated in the Phaedo, where we are told of a Form of life and also of a Form of death[4]. There Plato speaks of αὐτὸ τὸ τῆς ζωῆς εἶδος, which is immortal, while proving that ψυχή is immortal and indestructible.

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1. Timaeus, 41d4ff.; 69c5-6.
2. Phaedrus, 245c5 - 246a2.
3. Cornford, Plato's Cosmology, pp.63-64.
4. Phaedo, 106d5-e7.

Since just before this it is said that that is alive in which ψυχή is present[1], it seems that αὐτὸ τὸ τῆς ζωῆς εἶδος and ψυχή are different ways of expressing the same thing. Though this Form of life may be only a temporary conception, yet it again makes it quite clear that ψυχή is a member, in some way, of the world of Forms. Moreover, in the same dialogue, the similarity of ψυχή to the Forms, immortal, unchanging, and so forth, is insisted upon[2].

At this point it would be best to consider whether Plato thought there was any relation between the Forms and motion. To Plato's mind one of the most essential characteristics of the Forms is their stability[3]; they are unchanging in quality, always identical, as opposed to the world of appearances where things are always changing, and so cannot be objects of real knowledge. The Forms, on the other hand, <u>are</u> intelligible, and just because of that fact they lose again their perfect immobility and impassivity. For to be known is to be capable of affection, and the thing that is an object of knowledge is affected, and so shares in a way in motion. This idea is implicit is Plato's theory from its very beginning, for always he insists as much on the intelligibility as on the immutability of the Forms, but it is not brought out clearly until the <u>Sophist</u>.

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1. <u>Phaedo</u>, 105c9ff.
2. <u>Phaedo</u>, 79b16-17; 80a10ff.; 84a2-b4.
3. See, for example, <u>Phaedrus</u>, 247c6ff.; <u>Phaedo</u>, 78c6-e5.

Before going on to discuss this and other points which arise in the Sophist, it is necessary to examine a few passages in earlier dialogues which are apropos of the possible connection between Forms and motion.

In the Phaedo the Forms are called, as well as knowable and uniform and the like, divine and immortal,[1] while Socrates also says that the divine is by nature fitted to rule and lead[2]. The capacity of ruling attributed to the divine involves the Forms, as they are divine, in a kind of motion, and the use of this adjective, as it is defined here, is at variance with the description of the Forms as always staying in the same condition and place, or being unchanging and motionless.

The Form of the Beautiful is represented, in the Symposium, as an object of desire and effort[3]. The same is true of the Forms in the Phaedrus[4]. In both cases, certainly, the presentation is in mythical form, but the myth must be taken to mean that these Forms are the objects of the desire and efforts of knowledge, and that knowledge of them is reached by ascending from one step of understanding to another, with the Form itself as the ultimate goal. This

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1. Phaedo, 81a.
2. Phaedo, 80a-b.
3. Symposium, 210a4 - 212a7.
4. Phaedrus, 246alff.

ascent of knowledge with the Form as its final object appears also, in the Republic, in the simile of the line[1], and, indeed, in the whole system of education in Book VII. The Forms, then, as well as being intelligible, are objects of desire, and represent a goal which is the end of great striving. Since they are capable of arousing desire and are the ultimate end of all knowledge, they are in this respect, again, removed from their impassivity and both cause and are capable of affection; again they have a sort of mobility and are causes of motion.

This whole aspect of the Forms emerges more clearly in the simile of the sun in the Republic[2]. The Good is compared to the sun with regard to the latter's two aspects as medium of sight and cause of growth of things seen, and is said to be the cause of knowledge and of truth in the objects of knowledge. Adam expounds the latter point in the comparison very well in these words, "The sun, said Socrates, is the cause of γένεσις, though not himself γένεσις. Just so the Good is the cause of οὐσία, though not itself οὐσία, but (to use a Neoplatonic expression) ὑπερούσιος. Plato's meaning is as follows. The Sun is not γένεσις in the sense in which the objects which he produces are γιγνόμενα. Yet in a certain sense he too is γένεσις, for he is ὁρατός....

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1. Republic, VI,509d6 - 511e5.

2. Republic, VI,506e3 - 509b10. Cf. too VII,517b8-c4.

As the cause of γένεσις, we may, in fact, regard the Sun as the only true γένεσις, for all γιγνόμενα are derived from him. Similarly the Good is not οὐσία in the sense in which the Ideas are οὐσίαι; but in a higher sense it is the only true οὐσία, for all οὐσίαι are only specific determinations of the Good. The ὑπερουσιότης of the Good is merely Plato's way of saying that the first Principle of all existence must itself be underived!"[1] Again he says[2], "In the philosophy of Plato, Knowledge is the epistemological counterpart of Being, Being the ontological counterpart of Knowledge...The final unity in which both Knowledge and Being meet is the Idea of the Good, which is therefore the supreme and ultimate cause of the Universe."[3] It must be remembered, of course, that here too there is an element of myth, but it is obvious that the point of the simile is to demonstrate that the Form of the Good is possessed of power, the supreme power in the universe. This power is here the source of that of the Forms in general - the power of being known, of arousing desire, and of acting as a goal. In this passage the Form of the Good appears as the supreme Form, the source of all reality, the pinnacle of Plato's system, the final goal of all dialectic. Though Plato does not else-

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1. Adam, The Republic of Plato, vol.II,p.62, note on 509b13.
2. Adam, The Republic of Plato, vol.II,p.61, note on 509b8.
3. Cf. Phaedo, 99c5-6.

where discuss this aspect of the Good, as it is used here, it certainly shows that Plato felt that the Forms must in some way have power, and that the source of this power must be in the world of Forms - a significant departure from impassivity. It is important to keep in mind this function of the Good and the religious awe in which Plato held the Good, as evidenced in this passage. We must, however, avoid the identification of the Good with the God of the Timaeus, as if it were the only moving power in the universe[1].

In all the above presentations of the theory of Forms Plato seems to be involved in a contradiction of which he presents both sides, the immutability and impassivity of the Forms and, on the other hand, their power, but he has not yet stated the contradiction and difficulty explicitly. This is first done in the Parmenides when Parmenides poses the problem of bridging the gap between the world of Forms and that of appearances[2]. Socrates makes several attempts to solve the difficulty by suggesting that the particulars participate in the Forms, that the Forms are like day, and offering other similar suggestions. Then follows the passage which is pertinent to the present discussion[3].

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1. See Adam, The Republic of Plato, vol.II,p.171,app.III to Book VII.

2. Parmenides, 130elff.

3. Parmenides, 133b4 - 135c4.

Parmenides explains to Socrates in detail, and with a number of illustrations, that, if the Forms are, as Socrates has described them, quite separate from and unrelated to particular things, and exist quite apart from us, it is impossible for our knowledge to know them. They can only be related to other things in the same sphere and known by the Form of knowledge, which knowledge God possesses. On the other hand, this Form of knowledge belonging to God cannot know anything in our world. So the two worlds are completely separated, and the Forms might as well not exist for all the use they are in explaining the phaenomena of life and the universe. Parmenides concludes, indeed, by reassuring Socrates that a man of very great natural gifts will be able to understand the theory and teach it. This would seem to mean that Plato insists that the theory is valid and that a solution can be found to the problem which he here faces squarely for the first time.

If we turn now to the Sophist, we find the problem stated again and some attempt at a solution suggested. There it is said that the "friends of the Ideas" maintain that generation or becoming shares in the power of being acted upon and of acting, but that being has nothing to do with either of these powers[1]. At this the Stranger brings out clearly a point which has already been discussed in re-

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1. Sophist, 248c7-9ff.

gard to the Phaedo and the Republic, namely that, as the Forms are known by ψυχή, they are capable of being acted upon, and in so far subject to κίνησις and removed from impassivity. The Stranger follows this by exclaiming against the horror of being persuaded that motion, life, ψυχή, and mind are not present in Being, that it is devoid of mind, fixed and immovable. Then the difficulty is again presented, how can motion, life, ψυχή, and mind be present to Being? The philosopher's answer must be to refuse to accept either the theory of complete immobility of Being or that of universal motion, and to say that Being and the universe consist of both immobility and motion. One aspect of the solution has already been discussed, namely, the demonstration, in the Timaeus, that ψυχή shares in many characteristics of Form and is partly an inhabitant of the world of Forms, one definite link between that world and the world of becoming, in which it is the cause of motion. That Plato did regard it as such a link seems clear from his statement that ψυχή understands and knows all relations and identities both in the world of becoming and in that where things are always the same[1].

After the presentation of the problem there ensues in the Sophist an examination of the meaning of same and other, rest and motion, being and not-being[2]. This

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1. Timaeus, 37a2ff.
2. Sophist, 250a7 - 259b6.

results in the conclusion that rest and motion and being are three distinct classes, of which rest and motion cannot mingle with one another, while being can mingle with them both, for they both are[1]. This, then, is another attempt to bridge the gap between the world of Being and that of becomong by showing that logically both rest and motion have a share in being. Actually, all three, rest and motion and being,are treated as Forms. Next follows an elaborate demonstration of the participation of some Forms in others, and of all in being and other[2]. This is a step beyond the position taken up in the Parmenides, where Socrates says that he would be most amazed to hear of Forms, such as multitude, unity, rest, and motion, mingling and separating[3]. Once more a sort of motion and affection is allowed into the Forms; they are no longer absolutely immovable and immutable[4].

The ever present problem appears again in the Philebus when Socrates asks how, if we believe that unities, that is, Forms, exist, they can be always each one one unity, and at the same time be in one and in many[5]. Following

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1. Sophist, 254d.
2. Sophist, 254e2 - 259b6.
3. Parmenides, 129d6-e4.
4. Cf. Sophist, 253d5-e2.
5. Philebus, 15bl-c3.

upon this question is a discussion of unity and infinity which results in the postulating of four classes, τὸ ἄπειρον, τὸ πέρας, τὸ μικτόν and ἡ αἰτία[1]. Here I agree with those who maintain that the Forms make up τὸ πέρας[2]. Now, the mixed class, that is, the class of phaenomena, of the world of becoming, is made by the imposition of τὸ πέρας on τὸ ἄπειρον by the fourth class ἡ αἰτία, which is, as Plato says, mind or ψυχή[3]. We cannot, of course, insist on details in the application of this theory of four classes, because here Plato is mainly concerned with his discussion of the relative merits of pleasure and wisdom, but it is fair to infer that here, as in the Timaeus, Plato is considering ψυχή the link between the Forms and the particulars.

There are several other points of interest in the Timaeus in addition to that already discussed, the World ψυχή. In the first place, there, as in the Republic[4], we find emphasis laid upon the function of the Forms as models or patterns[5]. That is, they are again the objects of thought, consideration, and careful striving, and so are causes of motion and are subject to affection. The same

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1. Philebus, 23c9-d8ff.
2. Grube, Plato's Thought, app.IV,p.301ff.
3. Philebus, 30c2-7.
4. Republic, VII,540a4-b1; X,596b3ff.
5. Timaeus, 30c2 - 31b3.

type of power or motion is implied as we have noticed before. More than this, Timaeus goes on to speak of the Model, after which the Demiurge fashioned the world, as a ζῷον[1], which contains all intelligible living creatures, νοητὰ ζῷα; apparently here the Forms of living creatures are called ζῷα. He made the universe in which we live a living creature, ζῷον, because He wished to make it resemble very closely that one of the intelligible objects which is most beautiful and perfect in every way, that is, the world of Forms. Again, after the universe has been made, the Demiurge is said to have created Time as a movable image of Eternity, in order to make the cosmos as like as possible to its model which is an ἀίδιον ζῷον[2]. The same expression is used again in describing the generation of living creatures in the cosmos[3]. There Plato speaks of the Forms which are in the ὅ ἔστι ζῷον. The Timaeus is, of course, mythical throughout, but the regular use of this phrase in describing the generation of the cosmos seems to me to indicate that Plato felt that some, at least, of the Forms, namely, that of the universe and of its contained creatures, must have some kind of life.

There still remains the question of the identity

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1. Timaeus, 30c2 - 31b3.
2. Timaeus, 37c6ff.
3. Timaeus, 39e3-9.

of the Demiurge, the Creator, of the Timaeus. Here I am inclined to the opinion that the Demiurge, as the active, moving principle, wisdom and mind, is in some way ψυχή[1], even though in the myth he is represented as making ψυχή. If one agreed with those who believe that he is a mythological representation of the Forms, the problem of the relation of Forms and becoming, and of life in the Forms, would still be in the same stage as before. This mythical presentation of the Demiurge would, in that case, simply emphasize the motive power of the Forms as models.

In summing up the results of this investigation it is well to draw attention once more to the continual contradiction in Plato's mind. He must insist that the Forms are eternal, unchanging and impassive, for in that lies their value as objects of knowledge as opposed to the ever fluctuating objects of sense. But the very fact that they are objects of knowledge eliminates their impassivity, and, besides, there must be some sort of connection between the Forms and the particulars, or the former lose their value as factors in explaining the universe and knowledge. This connection Plato tried to make, first, by insisting on the intelligibility of the Forms, and their position as the supreme objects of all knowledge and endeavour, their ability to arouse desire and to cause effort. Then he saw that it

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1. Grube, Plato's Thought, pp.162-171.

was necessary for some of the Forms to participate in others, an introduction of a sort of motion and power into the Forms. Finally he came to regard the ψυχή, which contained some Forms in its composition, and shared in some of the general attributes of Form, as the link between the two worlds, that of Being and that of becoming. This was another attempt, partially successful, indeed, to bring life and mind into the world of Forms, but whether Plato regarded this as his final solution of the problem we cannot say.

To bring Democritus and Plato together again - they both regard motion as the criterion of life, and life as the presence of ψυχή, the self-mover. In the view of Democritus this ψυχή is made up of a certain type of forms, which by their own unceasing motion cause everything else in the world to move. To Plato this self-moving cause of motion is only partly a Form, and the whole world of Forms is in another sense a cause of motion, since they are objects of knowledge, the goal of endeavour and models for the visible world. In Democritus' theory the forms are directly the cause of motion and life, but in Plato's thought the causative power of the Forms in regard to motion and life is more indirect and vague, though it is certainly true that the Forms do to some extent account for motion and ψυχή. Plato is, moreover, continually trying to define more clearly the relation of the Forms to life and motion, and does apparently succeed in bringing some measure of life and motion

into the Forms themselves.

With regard to the ψυχή itself, Democritus believed that it perished with the body[1], the forms of which it was composed dispersing[2], so that the individual ψυχή lost its identity. The ψυχή forms, however, like all the forms, are everlasting and indestructible. Consequently, when a person dies and his ψυχή breaks up and its forms disperse, the particular combination of ψυχή forms which comprised his personality is destroyed, but the component forms moving about freely will unite in other combinations with different ψυχή forms, and so will be part of other ψυχαί.

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1. A109, Aëtius, IV,7,4; A106, Aristotle, de Respiratione, 4,472a1iff.

2. There are some indications that Democritus did not believe that absolutely all the ψυχή forms left the body at the time of death. Aëtius (A117, IV,4,7,) reports Democritus as saying that everything has a share in ψυχή of some kind, even dead bodies, for they always clearly have some warmth and perceptive power, though the greater part of it is being breathed out. Again, he says (IV,9,20) that, according to Democritus, corpses have perception or sensation. The latter statement is repeated by Alexander in the Topica (A117, Topica, 21,21), though Cicero says this is only a simulated charge made by Epicurus and denied by the followers of Democritus (A160, Tusculanae Disputationes, I,34,82). It appears, then, that Democritus believed that, when the ψυχή forms dispersed and personality was destroyed, a few of the forms, instead of scattering elsewhere, simply remained behind. The passages from Proclus and Aristotle mentioned at the beginning of this discussion show that a great number of these forms are necessary to maintain life and consciousness. It is reasonable, moreover, to suppose that, since there are ψυχή forms everywhere in the air, some few should be included in all the combinations of forms which make up phaenomena, even stones. That Democritus thought this was the case seems clear from the first passage of Aëtius cited above and from Albertus Magnus' de Lapidibus (A164, de Lapidibus, I,1,4).

In other words, the ψυχή forms are immortal, though individual ψυχαί, personalities, are not. There is, of course, always the possibility that the same combination might occur again at some time, but this is purely adventitious and could not be called immortality.

Plato, on the other hand, thought that ψυχή, which was in a way a member of the world of Forms, was immortal, like all Forms, and that the same ψυχαί existed always[1]. This immortality in which Plato believed was of a peculiar kind. The fate of ψυχαί after death is discussed in several passages, all of them mythical. In the Gorgias only the very wicked and the very good are in question, and the former are subjected to everlasting punishment in Tartarus, while the latter are sent to the Islands of the Blest[2]. There is a passage in the Phaedo which adds nothing to this but a suggestion of the return of ψυχαί to earth and body[3]. The Phaedrus develops the idea somewhat, and here the return to earth is discussed with care[4]. The ψυχαί, except those of philosophers, do not return to the place from which they came for 10,000 years. During that time they occupy many bodies, of different kinds of men and animals, according to

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1. Gorgias, 524bff.; Republic, X,609dff., especially 611a; Phaedrus, 248a1ff.; Timaeus, 41d4 - 42e4; 90eb - 92c3; Laws, XII,967d6.

2. Gorgias, 524d3ff.

3. Phaedo, 107c1ff.

4. Phaedrus, 248a1ff.

the virtue, and the vision of the Forms, which they achieve in each successive life. The same ψυχαί always exist, but each one spends its 10,000 years on earth in many different bodies, in many different situations, and as part of many different personalities. Yet it does return at last to its original home, within sight of the Forms. The ψυχή is the real existent, and though it goes through many vicissitudes before it reaches its goal, it cannot be destroyed. The myth of Er[1] in the Republic is substantially the same as the myth in the Phaedrus, The Timaeus, too, presents the same ideas in brief[2]. These passages are, as I have said, all mythical, but that only emphasizes their importance. In the Meno it is plainly stated that the ψυχή is immortal and comes to birth many times[3]. We are, therefore, justified in concluding that Plato believed the ψυχή, but not personality, to be immortal, and that in a very special way, quite different from modern ideas of immortality.

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1. Republic, X,614b1ff.
2. See p.37,n.1.
3. Meno, 81c5ff.

Chapter 2

FORMS AND PHAENOMENA

I DEMOCRITUS

In discussing what function Democritus believed the forms to perform in respect to phaenomena it is necessary, first of all, to be sure of what we mean by "phaenomena". Liddell and Scott say that in philosophy the word φαίνομαι is used in two different ways, objectively, of that which is apparent to the senses, and subjectively, of that which appears to the mind. We shall here use the word in its objective sense, of that which is apparent to the senses, and will reserve the discussion of the mind and opinion and knowledge until later. Among the things apparent to the senses we shall include visible and tangible objects, such as the universe and all it contains, the various qualities of such objects, and all changes relating to them, such as growth and decay.

We depend for our information, of course, mostly on indirect sources, and find only a few passages in the actual fragments of Democritus which tell us anything about the forms and phaenomena. These will be discussed where they seem to be most pertinent.

To begin with, in a few passages[1] Aristotle simply says that the forms or indivisible first principles[2] are the beginning of all things. This is a plain statement of the central feature of Democritus' physical theories, namely that the forms are the ἀρχή of everything, and, as Aristotle says[3], τὰς οὐσίας ποιεῖ . Further documentation of this point in unnecessary here, as all the passages referred to hereafter to show how the forms account for phaenomena presuppose the fact that they do account for them.

A certain number of our sources tell us only that the forms account for birth and death by combining and separating, and for change by their position and arrangement. Aristotle, in the de Generatione et Interitione[4], presents the theory of Democritus and Leucippus in this manner, without any further explanation, except that the forms have an infinite variety of shapes. Aëtius says simply that the κόσμος is made up of forms[5]. Cicero adds a little detail to this, saying that some of the forms which make up the universe, are smooth, some rough, some are angular and some have curving hooks[6]. This of course, gives a hint

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1. A41, Aristotle, Physica,III,4,203a33ff; A42, Aristotle, Metaphysica,VII,13,1039a9ff.; 67A9, Aristotle, de Generatione et Interitione,I,1,314a21ff.

2. Democritus found the perfection of his forms in the fact that they never changed and were indivisible.

3. A42, Aristotle, Metaphysica,VII,13,1039a10.

4. 67A9, Aristotle, de Generatione et Interitione,I,1,314 a21ff. and 315b6ff.

5. 67A22, Aëtius,3,2.

6. 67A11, Cicero, de Deorum Natura,I,24,66ff.

as to how the forms unite to make phaenomena. Besides this Cicero tells us that the forms come together by chance, under no compulsion from nature. Simplicius, too, reports that Democritus and Leucippus said that growth and decay, change, birth and destruction are due to the joining and separating of the forms[1]. Diogenes Laërtius gives us much the same information: the forms are whirled along in the whole, and in this way the compounds fire, water, air and earth are made[2].

With the above statement of Diogenes we come to the question of how and why the forms combined to make all the things in the universe. Diogenes speaks of the forms being carried along in a whirl, and a few sentences further on he enlarges upon this whirl[3], saying that all things come into being of necessity, since the whirl, which Democritus calls necessity, is the cause of the coming into being of everything. Here we have the whirl as the means of combining the forms and also as the cause of the combination, in the guise of the force of necessity. In other words, the force of the whirl is such that the forms cannot escape its action. It would be best to discuss these two aspects of the combining of the forms separately, and to do that we will deal first with the mechanical explanation of the process.

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1. A58, Simplicius, Physica, p.1319,4ff.
2. A1, Diogenes Laërtius, IX,44.
3. A1, Diogenes Laërtius, IX,45.

If we leave on one side for the moment the whirl which Diogenes mentions, we find that a number of our sources report Democritus' explanation of the combining in this way: the forms are in motion in the void and as they move along they come into contact with one another and, depending on their shapes, they either slip apart again, or stick together and so make compound objects. Simplicius, in his commentary on the de Caelo, describes the whole process as part of the theory of both Leucippus and Democritus[1]. He says that the forms, infinite in number, and separated from one another, and differing in shape, size, position and arrangement, move along in the void. Then, as they catch up with, and bump against each other, some rebound, while others intertwine with one another according to the way their shapes and sizes, positions and arrangement fit, and stay together, and so accomplish the birth of compounds. Again, later in the same work[2], Simplicius repeats his description as a quotation from Aristotle's περὶ Δημοκρίτου , this time referring the theory to Democritus alone. He here adds several details of interest. The forms, he says, are in confused motion in the void because of their dissimilarity. When speaking of the forms clinging to one another he mentions several of the types of

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1. 67A14, Simplicius, de Caelo, p.242, 15ff.

2. A37, Simplicius, de Caelo, p. 294, 33ff.

shape. And he goes one step further than in the last passage, when he says that Democritus believed any particular group of forms stayed together until some stronger force from the outside came up and shook them apart, and dispersed them. Simplicius also gives us as a quotation [1] from Democritus the word περιπαλάσσεσθαι of the motion of the forms, meaning that they are hurled about here and there. Aristotle, in the de Caelo, says that all things are made by twining together and collision of the forms, which are infinite in number and undefined in size[2]. He is here complaining that the real meaning of the theory of the atomists is that everything is number and made from numbers, and that specific shapes of forms are not assigned to all the elements, but only sizes. The conclusions which Aristotle draws from the theory are entirely his own, and probably quite unthought of by its originators, at least as far as we can see up to this point. The simple information, however, which he gives us about what Democritus said agrees with what we have found in other sources. The matter of the use Democritus made of the different shapes of the forms will be discussed later.

In Aëtius we find a reference to the twining together of the hook-shaped forms[3]. A fairly detailed account,

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1. A58, Simplicius, Physica, p.1319,1.
2. 67A15, Aristotle, de Caelo, III,4,303a4ff.
3. 67A23, Aëtius, II,7,2.

along the same lines as that of Simplicius, is to be found in Galen who is describing Democritus' distinction between the objects of sense perception and the things that really exist[1]. After mentioning the latter Galen goes on to describe the activities of the forms in the same terms as we have observed several times already. Again, we find the same information quoted from Dionysius by Eusebius[2]. This is a brief statement as are those of Cicero[3] and Plutarch[4], which both have this same import.

The vocabulary in all these passages is interesting and worth a few words of comment. Of the authors quoted in the preceding section, Simplicius, Galen, Dionysius, and Plutarch all use the verb φέρεσθαι and some compound of the verb πλέκω or the noun πλοκή . Cicero employs the Latin equivalents of these words. This vocabulary, however, is not found in Aristotle's account. It seems unlikely that Cicero, ever a translator, originated these terms, so we must conclude that all these writers used a common source in which they found these expressions used. There is, of course, a possibility that this vocabulary comes down from Democritus himself, though it is far from vivid enough to accord with the verb περιπαλάσσεσθαι , which Simplicius tells us is a Democritean word. Also we might expect to find some trace

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1. A49, Galen, de Elementis ex Hippocratis Sententia,I,2 (Helmreich, p.3,20 ff.).

2. A43, Dionysius in Eusebius, Praeparatio Evangelica,XIV, 23, p.773alff.

3. A56, Cicero, de Finibus, I,6,17ff.

4. A57, Plutarch, adversus Colotem, 8, p.1110F.

of these words in Aristotle if they were Democritean. It seems reasonable to suppose that this vocabulary belongs to some source later than Aristotle but prior to Cicero, a source used directly or indirectly by the above-mentioned commentators.

In another small group of source material the way in which the forms make the sensible objects is described with the emphasis laid on how the forms unite, rather than on their condition before they join together, and the fact of their joining. This appears first in Aristotle's Metaphysics, where he says that Democritus and Leucippus account for the other things, that is those other than the void and the forms, by the differences of the latter[1]. These are, he says, σχῆμα , τάξις and θέσις , or in Democritean terms, ῥυσμός , διαθιγή and τροπή. The identity of the things that is made depends, then, upon the shape of the forms which have joined together to make it, on their individual positions, and on their relative arrangement. Change in any sensible thing they explained, according to Aristotle, by a change in the number of forms, or of their position or arrangement[2]. Again, he says Democritus accounted for the change in condition of phaenomena by διαίρεσις , σύνθεσις , τροπή , διαθιγή [3]. Simplicius mentions in several places

1. 67A6, Aristotle, Metaphysica, I,4,985b4ff.
2. 67A9, Aristotle, de Generatione et Interitione, I,1,315b6ff.
3. A38, Aristotle, de Generatione et Interitione, I,9,327a16ff.

the importance of σχῆμα , τάξις and θέσις in the making of phaenomena[1]. And in one of these passages[2] he, too, speaks of the terms ῥυσμός , τροπή and διαθιγή as though they were the words used by Democritus. Hermeias refers only to τροπή and ῥυθμός [3] without any explanation, and Aëtius says the sensible objects are made by διαταγή , ῥυθμός and προτροπή , that is, τάξις , σχῆμα , and θέσις , of the forms[4].

Before we go on to particular points, such as the formation of the κόσμος , it would be well to recall that in the combination of forms which have just been discussed the forms still keep their own identity - they do not join completely to form one object or merge their own individualities. This is made clear by the insistence, which we find reported in Aristotle and Simplicius[5], on the fact that one thing cannot be made from two nor two from one. Simplicius, in the passage cited, points out that the interlacing or twining together of the forms is only of such a sort as to make them touch and be near one another, without their joining together completely to make

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1. 67A14, Simplicius, de Caelo, p.242, 18ff.; A38, Simplicius, Physica, p.28,18ff.

2. A38, Simplicius, Physica, p. 28, 18.

3. A44, Hermeias, Irrisio Gentilium Philosophorum, 13.
   A125, Aëtius, I,15,8.

4. A42, Aristotle, Metaphysica, V11,13,1039a9; A37, Simplicius, Caelo, p.295,21ff.

a single real unity. In other words, there is always void inside the object which the forms have made by their union, and it separates the forms, except where they touch. Aristotle, in his discussion of the meaning of relative weight according to Democritus, states that weight depends not only on the number of forms in the object but also on the amount of τὸ κενόν included in it[1]. Furthermore, Alexander specifically states that it was the belief of Democritus that the mixtures which result from the contiguity of the forms are only apparent mixtures, while the forms really preserve their own nature just as before the mixing[2].

Up to this point we have only spoken of the making of phaenomena from forms in a general way which might apply to any and every object. However, there is more specific information to be found about the process of formation of certain phaenomena, among them the κόσμος . In the first place it is well to remember that the process about to be described was not believed by Democritus to have occurred only once. He thought that there were numbers of κόσμοι which came into being and passed away. This we read in Cicero[3] , Dionysius[4] , and Diogenes Laërtius [5]. Aristo-

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1. A60, Aristotle, de Caelo, IV, 2,309a1ff. Cf. too A135, Theophrastus, de Sensu,61.
2. A64, Alexander, de Mixtu, 2 (II,214,18 Bruns).
3. A51, Cicero, de Deorum Natura, I,26,73.
4. A43, Dionysius in Eusebius, Praeparatio Evangelica, XIV, 23, p.773a7.
5. A1, Diogenes Laertius, IX,44.

tle's indefinite mention of some who ascribe all the worlds to spontaneity[1] is applied by Simplicius without question to Democritus and his followers[2], and Simplicius himself gives the same information[3]. In another passage[4] Simplicius tells us a little more about these κόσμοι , deriving his information from Alexander, who says that, according to Democritus, when κόσμοι are destroyed, their forms serve to make up others; that is, the κόσμοι that exist at any time may change into others. It can happen, moreover, that other κόσμοι may be formed, identical in appearance with those that have perished, but different in ἀριθμός . This Bailey[5] takes to mean that they differ in individuality, in their position in the series of κόσμοι . Cicero, too, tells us that, of the innumerable worlds, some are exactly alike[6]. From Hippolytus we get a little more information about these numerous worlds[7]. He says that some have no sun or moon, some have larger ones than our world has, and some more numerous ones, and in some there is no plant or animal life and no

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1. A69, Aristotle, Physica, II,4,196a24.
2. A69, Simplicius, Physica, p.331, 16ff.
3. 67A21, Simplicius, de Caelo, p.202,16ff.
4. A82, Simplicius, de Caelo, p. 310, 5ff.
5. Bailey, The Greek Atomists and Epicurus, p.148 and n.3.
6. A81, Cicero, Academicae Quaestiones, VI,17,55ff.
7. A40, Hippolytus, Refutatio Omnium Haeresium, I,13,2ff.

moisture. They are at varying distances from one another, some are bigger, and some smaller, and they grow, flourish, and decay, perishing when they fall in with one another. Though there may here be some small additions to the theories of Democritus in regard to the differences between the worlds, yet, even in spite of the fact that these points do not appear in any of our other sources, they are quite in keeping with the rest of our information and might very well be Democritean.

When we come to the actual making of a κόσμος it is necessary to rely as much on the tradition about Leucippus as on that about Democritus. This is reasonable, for Democritus, as the immediate follower of Leucippus, used, and enlarged slightly upon, the latter's theories, including the one in question. The commentators give Leucippus' conception of the formation of the κόσμος at some length, and then summarize it, and add Democritus' innovations in discussing the latter. This will be clear as we go through the sources. The only detailed descriptions of the process are to be found in Aëtius and Diogenes. As the passage in Aëtius does not actually name the author or authors of the views it presents, it is best to begin with Diogenes. He treats Leucippus at some length and in considerable detail, but summarizes the whole theory of Democritus in a very few words, mentioning a point or two in which he differs from Leucippus. Leucippus' ideas of the

formation of the κόσμος are presented first by Diogenes very briefly when he says, in much the same words as our other sources, that the κόσμος comes into being when bodies fall into the empty, and twine together with one another[1]. This is followed shortly by a more detailed account[2], in which he says that a large group of forms of every shape is cut off from the infinite number as they move along, and comes into a large void, and gathered together there they make a whirl, in which they knock against one another circling around in every direction, like moving to like. This, Bailey points out[3], must mean the like in shape and size. He refers to the quotation from Democritus[4] which speaks of birds grouping themselves according to kind, and seeds doing the same in a sieve, and stones on the shore. In the last case it is expressly stated that the groups are of shapes, long stones, round stones, etc. The effect of the mass in the whirl is gradually to overcome free movement of the forms, and arrive at a state of equilibrium, the small forms sifting through to the void outside the whirl, and the rest staying together and intertwining to form a first spherical combination. This sphere stands away from the mass as a sort of membrane con-

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1. 67A1, Diogenes Laërtius, IX,30.
2. 67A1, Diogenes Laërtius, IX,31-32.
3. Bailey, The Greek Atomists and Epicurus, pp. 93-94.
4. B164, Sextus Empiricus, adversus Mathematicos, VII,116,117.

taining inside it every kind of fomm, and, as these whirl around, the membrane becomes thin, for the forms that are neighbouring are always flowing together. So the earth is made when the forms that are carried to the centre stay there. The enclosing membrane increases again by attracting forms from outside as it moves along. Some of these forms join together to make a compound at first wet and muddy, later dried out and kindled by the whirling around, so as to make the stars. And so the sun and moon, too, are made. This is a somewhat confused account with a certain amount of repetition, but we can get a fairly clear picture from it.

The forms are not evenly distributed throughout the infinite void, but, as they move about in their haphazard way, there are some spaces much larger than others. Some of the forms, as they jostle one another and intertwine, make a sort of eddy in one of the large empty spaces. Within the eddy the forms keep on moving, but their own natural movement is affected by the whirling motion, which is, in origin, the result of their own diverse motions. They gradually tend to form groups of like sizes and shapes, the small, round forms tending to slip and be pushed to the outside where they are whirled around quickly, and the larger ones moving towards the centre where it is easier to resist the force of the whirl - they move in that direction because they are larger and less mobile, and, offering more resistance to the whirl, seek a place where resistance

is as easy as possible. These forms join together to make the earth at the centre of the whirl, and, of course, the things which are on the earth. The stars, sun, and moon are made at the periphery.

We have seen Diogenes' report of Leucippus' theory about the sun and moon, but if we turn to his discussion of Democritus, we find that, while he gives a brief summary which, up to this point, agrees with Leucippus' theory , here he reports a different idea. Democritus believed, he says[1], that the sun and moon were made up of collections of smooth and round forms, that is, fire forms, the very kind which we have seen were pushed out to the circumference of the whirl. This description of the making of the sun and moon accords very well with the general theory of the whirl and its results. Plutarch, on the other hand, attributes to Democritus a theory somewhat like the one which Diogenes says Leucippus held. He tells us[2] that, according to Democritus, the sun and moon have no hot or bright nature, but are most like the earth in nature, since each of them first came into being by itself, as a sort of counterfeit of a cosmos, and when the circle around the sun grew large it involved in itself the fire. This I take to

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1. A1, Diogenes Laërtius, IX,44.

2. A39, Plutarch, Stromateis, 7.

mean that Plutarch thought that the sun and moon were, so to speak, miniature or counterfeit κόσμοι , with a periphery of finer forms, which gradually drew into themselves enough fire forms to give a bright light, and had an earthy body, the real sun or moon, at the centre. Here we seem to have an elaboration of Leucippus' theory that the heavenly bodies were made up of forms drawn into the border of the whirl, and that these being at first damp and muddy, were kindled by the speed of revolution. This similarity justifies us, I believe, in concluding that the tradition which Plutarch followed had confused Leucippus and Democritus, perhaps almost disregarding the former, and attributing his theory to the latter, while making it a little more elaborate.

To return to the making of the κόσμος , Aëtius' account[1], which gives no names, is shown by its vocabulary to refer to the so-called Atomists. He does not speak of the whirl, but says that, of the indivisible bodies which were moving continually and very rapidly, a large number with a great variety of shapes and sizes was gathered into one place. Then the larger and heavier[2] sank, while those

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1. 67A24, Aëtius,I,4,1ff.

2. The question of weight in the forms is discussed elsewhere (p.10ff.),and the conclusion there reached is that to Democritus the forms in themselves did not have weight. A number of passages, including the present one, were cited which seemed to show that Democritus considered that in groups of forms, such as the whirl or vortex, comparative

that were smooth, small, and round were pushed out, and carried to the upper part[1] of the group, where they stayed

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weight did exist. Theophrastus (A135, de Sensu,61), obviously speaking of forms and things within the whirl, says the weight of forms is in proportion to their size. As we have already seen several times, the larger forms, which more easily resisted any motion from outside, because of their bulk, and so tended to move together into the centre, the place where resistance was easier, are contrasted with the small, mobile forms which were easily pushed out of a group of large forms. These two conditions are described in ordinary language as heaviness and lightness, and the characteristic motions associated with them are sinking and rising. So we find these terms used in the present passage quite probably without any special thought of what they might imply as to the shape of the whirl or κόσμος . In any case, as soon as a group of forms comes together it is possible to speak of direction and so of comparative weight. To Democritus, then, the forms, as soon as they got into a group, had a sort of comparative weight due to their size and shape, and in proportion to their size, while weight in compound bodies was accounted for not only by the component forms, but also by the amount of void between the forms.

1. The shape of the whirl is a question which needs a little clarification. Bailey says (The Greek Atomists and Epicurus, p. 95) that the whirl, since it is always compared to an eddy of wind or water, must be horizontal, and not vertical. But surely, an eddy of wind or water is vertical as well as horizontal. The effect of a wind eddy is a sort of pillar of whirling air and so, in a water eddy, the water that moves into the centre of the surface must go down, and there is a vertical spiral motion. If one were thinking only of a water eddy this fact might possibly escape him, as he looked at the surface of the water, but no one could possibly think an eddy of wind was only horizontal in motion. It is hard to believe that a Greek could have postulated a whirl consisting of a series of horizontal planes and have thought it was analagous to an eddy of wind or water. Most of them were more observant than that. It seems to me we must think of the whirl as being pillar-shaped or perhaps the shape of an elongated sphere, somewhat like a wasps' nest. And it has a vertical spiral motion which is the result of the independent motions of all the component forms, and which in turn has some effect on them. As for the direction in which the forms move - while the general direction of the large forms is towards the centre and that of the smaller ones towards the outside,

wherever there was room for them. The heaven was made when these forms joined together as the whole mass wheeled around. The variegated forms which were pushed up made the nature of the stars, and their motion was caused by the air pushed out by the forms which were always rising. The earth came into being from the forms which had settled down. He then explains the making of the water on the earth, along the same lines. Though this account is in some ways a little confused, it seems to be describing the same kind of thing as Diogenes was, with slightly different vocabulary and emphasis, caused probably by the different sources and backgrounds of our two informants.

Of value to the above reconstruction of the whirl and its results is the quotation from Democritus preserved by Simplicius[1]. It reads δῖνον ἀπὸ τοῦ παντὸς ἀποκριθῆναι παντοίων ἰδεῶν . These few words confirm several important points in the theory of Democritus as we have found it in our other sources. The use of the word δῖνον (or δίνη) is one; the separation of this from the whole mass of forms and void is another. The emphasis on the variety of forms

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it is certainly not a simple motion in and out. All the forms have their own motion as well as that imparted to them by the whirl. The smaller ones, for instance, going towards the outside, since they are being pushed about by the larger ones, will move in many directions while gradually making their way to the outside of the whirl. They will not move in simple horizontal planes. Moreover, since the forms in the whirl, as a result of their motion in relation to the centre, are considered to have comparative weights, the appropriate vocabulary must be used of the direction of their motion. Therefore we have "up" and "down" used naturally by those who write about this motion.

1. B167, A67, Simplicius, Physica, p.327,24ff.

contained in the whirl and the use of the word ἰδεῶν are other significant details in the quotation.

It is probably advisable here to refer briefly to Hammer-Jensen's theory[1] of the formation of the cosmos. Like Gomperz, she misunderstands the action of the whirl, thinking that it should have centrifugal force, sending the heavier objects to the outside. Burnet has shown the falseness of this assumption[2], but it might be well to emphasize again that centrifugal force could not operate here, for it presupposes weight. Actually the forms are not endowed with weight, only shape and size, and it is only the motion of the larger towards the centre that makes them seem heavier. That is to say, weight is a result of the direction of motion imparted by the whirl, not a condition of it. In saying that the phrase παντοδαπῶς κυκλούμενα cannot be used of a whirl or eddy, Hammer-Jensen is losing sight of the fact that the forms all still have their own motion which the motion of the whirl does not entirely suppress[3]. Moreover, in her substitution of the oscillating sieve motion for the whirl

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1. I. Hammer-Jensen, Demokrit und Platon, Archiv für Geschichte der Philosophie, vol. XXIII, pt.2, 1909, p. 217ff. Hammer-Jensen thinks that the action of the whirl, which brings about the formation of the cosmos, is that of a sieve.

2. Burnet, Early Greek Philosophy, p.346.

3. See pps. 61,62below.

she speaks of like moving to like, that is, apparently the like in weight, with the heaviest at the centre. Now, it is quite clear, from the whole quotation mentioning the sieve[1], that Democritus was using his comparisons to emphacize the movement of like to like in shape and size, outward appearance and nature. This is especially obvious in the simile of the pebbles on the sea shore. The sieve simile is only one of three, all used to show the same thing. There seems no good reason for using this conception, drawing it from between two equally emphasized similes, in preference to the whirl of the type of the water-eddy, to which, Aristotle specifically says[2], the ancient philosophers compared the manner of formation of the earth. The latter is, in other words, a familiar concept. The use of the sieve simile in the Timaeus seems to me to be best explained as the most apposite simile which occurred to Plato to express the sort of motion he wished to depict. Also, in regard to the sun and the moon, as has been shown already, it seems better to believe true Diogenes' demonstration that Leucippus and

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1. B164, Sextus Empiricus, adversus Mathematicos, VII, 116, 117.

2. Aristotle, de Caelo, II, 13, 295a 9-15.

Democritus held different theories than to think that his statement about the latter's beliefs was contaminated by Epicureanism, and Leucippus' and Democritus' views were the same, as Hammer-Jensen does. I have already pointed out that what Diogenes says about Democritus' idea of the sun and moon is in accord with the latter's theories in general. We should not be surprised that Democritus advanced beyond his master in some ways.

There still remains, in the discussion of the making of the cosmos, the question why all this came about. Some of our ancient sources say that Democritus attributed everything to fate[1], that is, necessity, while others state that the separating off of the whirl seems to be an automatic or chance event[2]. Bailey seems to me to be right in what he says on these points[3], and there is no need for more than a summary of his conclusions here. The original movement of the forms is a natural fact, the cause of everything else, a fact for which one does not ask a cause. It is simply the nature of the forms to move. Everything else that happens in

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1. A66, Cicero, de Fato, 17,39; Aristotle, de Generatione Animalium,V,8,789b2;A83, Sextus Empiricus, adversus Mathematicos, IX,113.

2. A67, Simplicius, Physica,p.327,24ff.; A69 Aristotle, Physica,II,4, 196a24ff.; 67All, Cicero, de Deorum Natura, I,24,66. Cf. too A68, Aristotle, Physica,II,4,195b36ff. and Simplicius, Physica, p.330,14ff.

3. Bailey, The Greek Atomists and Epicurus, pp.120,133-134, 138-143.

the world has a definite cause that can be traced back step by step to the original fact, the motion of the forms. That is, everything else happens by necessity through the workings of incontrovertible natural law. Necessity is to Democritus simply natural law. The conditions and cause which bring about the formation of the whirl are, however, beyond the limits of human understanding, so in this sense and for this reason the formation of the whirl and the cosmos can be said to be automatic or by chance - it is undesigned and unpredictable. The use of the terms in this connection does not in any way contradict the idea of the supremacy of natural law.

Earlier I spoke of the fact the Diogenes says Democritus called the whirl necessity. It is the result of the workings of natural law, necessity, and so might conceivably be called necessity[1]. It may also, however, and more reasonably, I think, be called necessity as the immediate cause of the formation of all things in the cosmos. All the motions and combinations and separations of the forms in the cosmos can be traced back to the causation of the whirl - it is the representative of the power of natural law in the universe that we know.

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1. Bailey, The Greek Atomists and Epicurus, p.139.

It has been shown that the forms, by their combination under particular circumstances and in particular places, make the sun and moon and the earth. It is unnecessary to examine in detail the descriptions of the ways in which the forms combine to make all the things we know in the world. Suffice it to say that we have evidence in the philosophers and commentators to show that Democritus discussed a great many phaenomena, astronomical, physical and biological, and connected them in some way with his general theory that all things are made up of forms. The relative position of the orbits of the heavenly bodies[1] he explained in accordance with his theory of the whirl, lightning and the thunderbolt[2] by the fire forms in the clouds, wind[3] by the rushing of forms into a small place and so with earthquakes, snow, etc. Democritus consistently held that the forms by their combinations and movements made all existing things.

There is one other point to be noticed before leaving this subject, and that is that Democritus accounted for qualities by the shapes, sizes, positions and arrangement of the forms composing things. This is described in in some detail by Theophrastus[4] and is mentioned by a num-

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1. A40, Hippolytus, Refutatio Omnium Haeresium, I,13,4.
2. A93, Aëtius, III,3,11.
3. A93a, Seneca, Naturales Quaestiones,V,2.
4. A135, Theophrastus, de Sensu, 65ff; A129, Theophrastus,

ber of other writers, among them, Aristotle[1] and Aëtius[2]. Taste and colour are the qualities under discussion in all these passages, and it is agreed that they are due to the shape and size and comparative positions (τροπή) of the forms. It may safely be inferred that other qualities are due to the same causes. Weight[3] in objects is in proportion to the amount of void as well as the number of forms in them, while roughness and smoothness[4] are due to the compactness of the forms, and, in both cases, the position and the amount of the void in the objects cause some difference.

Change in bodies is due, as we have already said, to relative position, arrangement and shape of the component forms and to the addition and subtraction of forms. In other words, if we could see through the apparent unity of, for example, a plant, to the forms which make it what it is, we should see a great number of forms of

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de Causis Plantarum,VI,1,6; A130, Theophrastus, de Causis Plantarum,VI,2,1; A132, Theophrastus, de Causis Plantarum, VI,7,2; A133, Theophrastus, de Odoribus,64.

1. A126, Aristotle, de Sensu,4,442b11 ff.;A123,Aristotle, de Generatione et Interitione, I,2,316a1.

2. A124, Aëtius, I,15,11; A125, Aëtius,I,15,8.

3. A135, Theophrastus, de Sensu, 61; A60, Aristotle, de Caelo, IV,2,309a1ff.

4. A135, Theophrastus, de Sensu, 64.

all shapes and sizes, certain ones predominating, touching each other in parts, but not losing their own identity. The plant grows because more forms add themselves to the group, and as it changes in shape not only do new forms come in, but some of the ones already there change their position and arrangement. As the season changes, and the plant's colour changes, there are again changes involving different forms. The forms in any object do seem to be thought of as moving around, to say nothing of the motion of those that enter the combination and leave it, if, that is, we are to believe such statements as that of Aristotle, who says that Democritus said change was due to τάξις and θέσις . This is inherently probable, for it seems the only way Democritus could consistently account for the phenomenon of change in objects. If it is so, it means that Democritus must have thought that the forms had some kind of motion of their own even in combination - their motion might be constrained by that of the whirl, but it is not stopped. If the forms were in themselves motionless in combination, Democritus would have to use unnatural motion from outside the forms to account for change, an idea quite contrary to all that we know of his theory, in which the natural motion of the forms is the prime fact.

This lengthy discussion can be summed up very briefly. Democritus' theory was that forms and void made

all objects. The forms were the active member of the partnership, the void simply being the medium which made possible the motion of the forms and supplied a place for the things which were made[1]. The forms, in continuous natural motion which had no beginning, moved about

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1. It is important to remember that it is only the void which makes possible all the movements and combinations of the forms which have been discussed. This has already been suggested in connection with the contreversy over the weight, and the cause of the motion of the forms, but needs a little elaboration here. Aristotle expressly states more than once that, according to the beliefs of Leucippus and Democritus, motion would be impossible without the void (67A7, Aristotle, de Generatione et Interitione, I,8,324b35ff; A58, Aristotle, Physica, VIII, 9, 265b24ff.) and this is elaborated upon by Simplicius (A58, Simplicius, Physica, p.1318,33ff.). All the sources mentioned in connection with the motion and combining of the forms also make this point evident. The insistence of Leucippus and Democritus on the necessity of the void for motion, and on the importance of motion is due, of course, to the theory of motionless Being of the Eleatics. Not only did the void make motion possible, and so the combinations of the forms which resulted in birth and change, but it also furnished the place in which motion, birth and decay took place. By its presence in objects - for it always separated individual forms from one another and thereby prevented the complete merging of forms - it affected the weight of these composite bodies. And, more important than that, it allowed the forms to alter their positions and arrangements within objects, so as to cause change. Actually, then, the part played by the void in the theory of Democritus and his master is as important as that of the forms. The forms, though indeed the active member of the partnership, are enabled to carry on the performance of their varied functions by the passive void. When we come to examine Plato's theory of the making of phaenomena, it would be well to keep in mind that Democritus' void made motion, and so creation, possible, and also furnished a place for creation.

in the void forming groups, some of which were whirls which made κόσμοι . Within these, the forms united in combinations also containing void, which made it possible for the forms to retain their own identities. These combinations were"the things we know." In other words Democritus thought of the forms as actually making objects, in partnership with void; as being, by their motion, the cause of these combinations; and as being responsible, because of their sizes and shapes and manner of combination, for the identities of objects.

II PLATO

In Plato's writings, we find that all phaenomena, objects, qualities, and changes, all the sensible things of the world about us, and all manifestations of abstractions, such as justice, are classed without exception as τὰ γιγνόμενα . They have no permanent being and reality, and are incapable of being known because of their mutability, for they are always changing from one condition to another and can never be said to be in any condition[1]. On the other hand, there are realities, τὰ ὄντα or the Forms, things which really exist, unchanging and everlasting, and are the objects of knowledge and of reason[2]. The objects in the first of these classes must have some cause, for all becoming needs a cause to start it[3], whereas the Forms have no beginning and no end, and, since they did not come into being they had no cause. To discover what Plato believed to be the cause of phaenomenal objects in the universe, it is best to examine briefly the pertinent passages in Plato's works.

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1. Timaeus, 28a2-3.

2. Phaedrus, 247d5 - e2; Phaedo, 78d1 - 79a11; Republic, 507b2ff.

3. Timaeus, 28a4-6.

The first dialogue which we need to consider is the Phaedo. Here, first of all, we find it said that sensible objects strive to be like the Forms, and do resemble them, though they fall short of their goal[1]. The Forms are perfection towards which phaenomena strive. Later Socrates declares that sensible objects have qualities because they partake of the Form or Forms of these qualities, as, for example, the Form of the beautiful. That is, he says, the presence of, or communion with, the Form of the beautiful makes an object beautiful[2], though he does not know just how this happens. The discussion which follows assumes throughout that the presence of a Form in a particular causes the particular to have the quality of that Form, and states that no particular can receive two opposite Forms at one time.

In the Phaedrus, in the myth which compares the ψυχή to a charioteer and pair, the similarity of the things on earth to the Forms is stressed. The similarity is explained on the grounds that the things we see on earth, and earthly justice, and the like, are copies or likenesses of the Forms[3]. Much the same idea appears a

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1. Phaedo, 74d9ff.
2. Phaedo, 100c3ff.
3. Phaedrus, 250b1ff.

little further on when the reactions of ψυχαί to beauty on earth are described. Here the earthly beauty is said to have imitated the Form[1].

An additional point of explanation is added in the Symposium. Socrates calls attention to the fact that the Form of the beautiful is affected by nothing and grows neither greater nor smaller[2]. All the beautiful things partake of or share in it in such a way that, though they are continually coming into being and passing away, the Form itself becomes neither greater nor smaller. In other words, the Form accounts for the existence of phaenomenal quality because the latter has some connection with it which Plato can best describe at this time as participation, but this connection has no effect whatever on the Form. The causal relationship is felt only by the thing caused, not at all by the cause itself[3].

When we turn to the Republic we find several passages which give us information on the subject in question. To begin with, we find it suggested that the

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1. Phaedrus, 251a2ff.

2. Symposium, 211b1-5.

3. It is necessary to keep in mind the discussion of motion in the Forms and of the bridging of the gap between the world of Forms and that of particulars, in the chapter on ψυχή. Many of the same passages will be examined here but with a somewhat different object and from a different point of view.

Form is a pattern for the particular[1]. In the simile of the line visible geometrical figures of all kinds are acknowledged to be likenesses of the geometrical Forms, just as shadows and reflections are likenesses of the visible objects themselves[2] . Again, the simile of the cave seems to point to the same idea, namely, that the things we see and use are likenesses or images of the everlasting, changeless Forms[3]. It leads, moreover, to a statement[4] that the Form of Good is the cause of all right and beautiful things, in the visible world bringing forth light and the master of light, and in the intelligible world itself supplying truth and reason. There is no doubt that here, in a moment of exaltation, Plato is looking up to the Form of the Good as the ultimate, supreme source of everything good, not only the world of Forms, but everything that answers its purpose in the visible world. Last comes the famous discussion of art and imitation, in which we find some instruction on our question[5]. The man who makes couches and tables is said to make them with his eyes fixed on the Form, and the same with other manufactured articles. According

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1. Republic, 472c4ff.; 484c6-d3; 500c1 ff.
2. Republic, 510b4-511a8.
3. Republic, 514a ff.
4. Republic, 517b7 - c4. Cf. Republic, 508e.
5. Republic, 595c7 ff.

to this statement, there are Forms of manufactured articles, and these articles which are made by men are made as copies of the pattern Forms. Whether or not Plato really believed in the existence of such Forms, and it would not have been inconsistent with his general theory if he did[1] , the reference to them here serves to support the suggestion we have found several times before, that the particulars are copies or imitations of the Forms, which supply the models or patterns.

The Parmenides serves as a check on the theory up to this point, and contains several interesting suggestions, and criticisms of these. Socrates begins by speaking of Forms of qualities, such as likeness and unlikeness[2] . It is by participation in one or more of these that a particular thing acquires qualities. Again, he speaks of Forms of unity and multitude, and likewise of participation in these. It is interesting to notice that in this dialogue Plato introduces the question whether there are Forms of man and animals, fire, hair, mud, and so on. The hesitating preference shown by the youthful Socrates for an affirmative answer, and the reassuring support of Parmenides, would seem to indicate that Plato

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1. Cf. Epistle VII, 342d3 - e6.

2. Parmenides, 128e6 ff.

believed it consistent with his theory to suppose that there were Forms of all these things. In the Timaeus all living creatures unquestionably have a part in the world of Forms[1], while in Epistle VII it is said that there are Forms of all objects both natural and manufactured[2]. The most significant question discussed in the Parmenides, however, is that of the meaning and manner of the participation (μεταλαμβάνω is the verb used) mentioned by Socrates[3]. The first suggestion is that the whole Form is in each of the particulars. The Form is compared to day, which is in many places and yet not separated. This comparison Parmenides quietly alters to that of a sail, which covers each of many things with only a part of itself; he then rejects this. His reason is that the simile implies that a Form has parts, an idea in itself impossible, and having impossible results. The suggestion that a Form is like day is never properly dealt with. As a solution to the problem of participation it is just mentioned and then left, while the discussion goes on to other simpler and more obvious solutions, whose inherent weaknesses are also more obvious. Parmenides

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1. For example, Timaeus, 41b7 ff.
2. See note 1, page 69.
3. Parmenides, 130e5 ff.

points out that participation is difficult if it cannot be in part or in whole, and goes on to mention the argument of the so-called "Third Man" against the theory of the existence of Forms. He also refutes the suggestion that the Forms might be just thoughts, on the ground that a thought must be of something, which something would be the Form. Finally as a last resort, Socrates proposes that participatiom may be simply imitation, the solution to which Plato has so far been most inclined. But this, too, Parmenides rejects with a variation of the "Third Man" argument. The whole incident is closed by Parmenides' demonstration of the acuteness of the problem how any connection is possible between the world of Forms and the world in which we live and think. At the conclusion of this section of the dialogue, Plato is not only faced with the necessity of finding a solution to the last-mentioned problem[1], but he has made it quite clear that he believes that the Forms have some kind of causal relationship with the particulars. He is not yet, however, quite sure how this causal connection works, and, after clearing the air by pointing out the weaknesses of the ideas he has already considered, he proceeds, in the following dialogues, to face the problem, and, in so doing, modify features of his theory.

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1. This solution is discussed on pp. 24-33.

The posing of problems continues in the Theaetetus, where there is another presentation of the difficulty of an object being possessed of opposite qualities, apparently simultaneously, in relation to other different objects[1]. Cornford[2] infers that Plato has, since writing the Phaedo, given up the view that qualities such as whiteness or largeness are examples of Forms residing in individual things and withdrawing out of them when they change. He does not, however, think it certain that Plato has entirely abandoned Forms of relative terms and sensible qualities. The discussion of sensation which follows, Cornford, along with Burnet[3], takes to be a declaration of Plato's own theory of sensation. The argument seems reasonable and acceptable, but I think a few points might be added. These qualities, of which the word becoming alone can be used, which result from the union of perceived and percipient, are those visible, physical qualities which admit of the more and the less, or degree. What Plato is here saying of sensation does not apply to sameness and difference, for example, or goodness, beauty and the like. These

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1. Theaetetus, 155a2 ff.
2. Cornford, Plato's Theory of Knowledge, p.45.
3. Burnet, Greek Philosophy - Thales to Plato, p.242.

last qualities, while not all physical, do admit of degrees, and yet Plato certainly held that there were Forms of the Good and the Beautiful, of which particulars could partake to a greater or less degree. Although Plato's explanation of sensation here is of the purely physical process, there must, I think, be more behind it. There must be something, though here Plato does not speak of this aspect of the case, which determines whether the perceived quality is some degree of size, or whiteness, or some surface quality such as smoothness, and what degree it is. This something must be the Form, but now, presumably, instead of holding that there are two opposite Forms of each unity of quality, Plato would say that there is one Form in which the particulars may partake in any degree. For example, instead of a Form of tallness and one of shortness, there is one of height; instead of one of roughness and one of smoothness, there is only one Form of that kind of texture, whose varying degrees of immanence are expressed by those two terms.

The suggestion of the more and the less in quality, which precipitates this discussion of sensation, brings to mind the treatment, in the Philebus, of the question of the more and less, or infinity and unity[1].

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1. Philebus, 23c ff.

There, if we are correct in considering that the Forms make up the class of unity, Plato certainly postulates a Form of heat (instead of one of hot and one of cold, as he would have done in the days of the Phaedo), and the same is true of other physical qualities which admit of more or less. It seems to me, then, that in putting forward his theory of sensation, in the Theaetetus, Plato is working towards the development of his theory of Forms and particulars which we find in the Philebus.

The Sophist need only be dealt with briefly. In the first place, we might note ~~that~~ the conversation about not-being and likenesses[1], at the conclusion of which it is acknowledged that a likeness, though in a way not existing because it is not true, yet does exist in some way. Apparently Plato is here accepting it as a fact that the likenesses of the Forms, or the particulars, have some sort of existence and are in a way real. This has already been tacitly admitted in several passages in the Republic, in the definition of the provenance of true opinion[2], in the similes of the sun and the line and in the discussion of μίμησις . In all these cases the particulars or likenesses of the Forms

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1. Sophist, 235d - 241c.

2. Republic, 476b4 - 480a.

are not real not-being nor really non-existent, for, to mention only one thing, if they were, there could not be below them a still lower grade of object, which is yet real in the sense that an image is really an image. The Timaeus is, of course, the ultimate expression of this fact, for there Plato, while still maintaining that the highest degree of reality belongs to the Forms, does allow some kind of reality to phaenomena, enough to justify a careful physical and mechanical explanation of them. The second point is the demonstration that certain Forms mingle and overlap, and that they are not absolutely isolated, unchanging realities. The effect of this in helping to introduce a kind of motion into the world of Forms, and to bridge the gap between the two worlds has already been discussed[1], but it is well to draw attention to it here again, though it has no direct bearing on the causal relation of the Forms to the particulars. It merely makes it more reasonable that there should be some connection between the two classes of things. At the end of the dialogue it is stated that natural objects come into being by divine direction, not spontaneously[2]. The divine agent mentioned here appears again as the causal class of the Philebus and the Demiurge of the Timaeus.

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1. See p. 30ff.
2. Sophist, 265c ff.

When we turn to the Philebus, however, we find we can add a good deal to our understanding of the causal relation of the Forms to phaenomena. To begin with, there is another presentation of the difficulties of believing in the Forms[1], and in their connection, which is very difficult to define, with the many. That is not, of course, an indication that Plato had any idea of abandoning his theory because of its difficulties, but rather it merely serves as a reminder to himself and his readers that there were still, in connection with the theory, problems which had not yet been satisfactorily solved. After this Socrates goes on to discuss the division of genus into species and of these into particulars, demonstrating the steps between unity and infinity, and enlarging upon these ideas.

The most important passage in the dialogue, for our purpose, is that[2] in which Socrates divides all that exists in the universe into four classes and identifies and elaborates these. The classes are the finite, the infinite, the cause of the combination of these two, and the result of this combination, or phaenomena. The class of the finite, according to Plato's explanation of

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1. Philebus, 15b1c3.

2. Philebus, 23c4 ff.

it, consists of things such as the equal and the double, all the things which are definite and admit of no variation; in other words, the class of the finite is the Forms. The infinite, he tells us, is the class of the limitless, that is, the things which admit of the qualification of more and less. Here we have a new kind of existent which was foreshadowed, as already pointed out, by the discussion of sensation in the Theaetetus. Phaenomena are produced by the application of limit, or Form, to the limitless. Up to this point Plato has spoken only of the Forms, or models, and the phaenomena, or copies, without mentioning the medium in which the copy is made. The class of the infinite is this medium, which is as essential for the production of phaenomena as are the Forms.

As a necessary condition underlying the making of phaenomena as a function, of some kind, of the Forms, the infinite of Plato corresponds to the void of Democritus. Without the void Democritus' forms could not move and, by combining and separating, make objects, nor would there be any place for the objects to be, even supposing they could be made without void. Similarly without the infinite, or the more and the less, there could be no copies of the Forms, for there would be no medium in which the copy might exist. The parallelism cannot

be pressed further than the functions of the void and the infinite, for in other respects they differ considerably. The void is simply emptiness, while the infinite is an unlimited extension of all qualities[1], as Plato is thinking of it here. It is, however, the function of these two conceptions which concerns us here, and they are certainly alike in that.

Another point to be noted briefly here is that again Plato is recognizing a reality in addition to that of the Forms. The infinite, the medium of the copy of the Forms, is certainly real, in Plato's view at this time, and so is the third class, the product of the combination of the infinite and the finite. Indeed, this reality is taken for granted here, without question, though later, in the Timaeus, it is qualified somewhat.

It is clear that the Forms are partly responsible for the making of phaenomena, but we might examine their part in this making a little more closely. It is said simply that the infinite and the finite are combined, or mixed, due to the power of the cause or creative agent[2]. The functions of these two classes are differentiated a little more clearly, however, in the statements about particular objects. Music is the result of the addition of

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1. Philebus, 25c ff.

2. Philebus, 23c12-d8; 27a11-c1.

the finite to the infinite variations of tone and pitch and note, the seasons of the addition of the finite to indefinite heat and cold, wet and dry, and so with health, beauty, strength and so on. Apparently here the Forms are regarded as a limit set upon indefinite quality rather than as a pattern. Perhaps they might be called a limiting or defining pattern. Incidentally, this certainly presupposes some kind of activity in the Forms. The creative agent will appear again as the Demiurge in the Timaeus.

Possibly the first thing to be noticed, in connection with the Timaeus, is that almost the whole dialogue is devoted to a study of Becoming. Plato by this time so far recognized the importance and quasi-existence of the world in which he lived, that he was ready to discuss it as a reality, even though what he might say, being about a copy, could only attain likelihood[1]. From this we may infer that, although he still makes a very clear distinction between the object of knowledge which exists really and completely, and the object of opinion and sensation which never quite achieves that complete existence, Plato certainly believed that the latter had some kind of existence, and that the two were closer to-

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1. Timaeus, 29c1 - d3.

gether than he would have acknowledged earlier in his development. The movement and change of the world of Becoming was not merely illusory.

In the part of the Timaeus which deals with the making of the universe and the different classes of creatures in it, before Plato goes on to detailed physical explanations of phaenomena, we find that he always refers to the Forms as models, or as the Model. The Form of the universe, with the Forms of all contained in it, is the pattern at which the Demiurge looks as he orders the universe [1]. If this is taken out of the mythical setting, it simply means that the universe is in the likeness of the Forms, that it is a copy of them. There is but one exception to the conception of the Forms as models in the Timaeus. That exception is the picture of the part which some Forms play in the making of ψυχή . Indivisible Being, Sameness and Difference, three Forms, are represented as part of the actual material used in this operation. That is, instead of being models in this case, the Forms are actually in ψυχή , which we have already shown to be a kind of connecting link between the Forms and phaenomena[2], being partly the one and partly the other. Since ψυχή

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1. Timaeus, 29a; 30c ff; 48e4-49a1, and so on.
2. See pp. 21-23, 30.

is not entirely a phaenomenon, this use of the Forms is not quite parallel to that as models, but it should be kept in mind.

In this connection we must remember that we have accepted the identification of the Demiurge in the Timaeus with ψυχή . The Demiurge is the creative agent, partly directly and partly indirectly, through the lesser gods. Here we have some Forms actually having a share in creative activity, if ψυχή and the Demiurge are identified. There is, too, a divine creative agent mentioned in the Sophist [1], and a causal class in the Philebus [2], which must also be in some way identified with ψυχή , which is the self-moving cause of all motion. Plato here becomes involved in difficulties about his conception of the Forms, which must be perfect, unchanging, eternal, and yet inevitably, as Plato tries to develop his theories, become connected with action. The ψυχή must have these Forms of Being, Sameness and Difference in it to establish its reality, and its capability to act as mediator between the world of Forms and that of change, but since the ψυχή is the cause of motion these Forms are immediately moved out of their calm and share in the responsibility of causing motion. So we find

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1. Sophist, 265c ff.

2. Philebus, 23c4 ff.

them sharing in some way in the creation of phaenomena. The same idea is expressed in the passage[1] of the Timaeus which draws a distinction between the primary and auxiliary[2] causes of the world. There, the primary causes, which I take to be the Forms in a special aspect, are said to be, with the help of thought, the makers of the things that are fair and good.

A little farther along in the Timaeus, the medium in which the copy exists, which we have already discussed in regard to the Philebus, appears again[3]. This medium is here called a ὑποδοχή , or a kind of τιθήνη, or place, and is characterized by the lack of all inherent qualities and forms, and the capability of receiving any and all qualities and forms. We must realize thoroughly that it is only this peculiar cross between Being and Not-Being, the object of a bastard kind of reasoning, which makes it possible for the Forms to be real models of which there are copies, and for the

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1. Timaeus, 46c7 ff.

2. The Greek words, which I have translated as "primary causes" and "auxiliary causes", are αἴτια and ξυναίτια . To Plato the distinction between the αἴτια and the ξυναίτια is, as he says, the possession of reason, and the directing of activity towards the best in order that things may be arranged as it is best for them to be (cf. Phaedo, 97c ff.).

3. Timaeus, 48e2 ff.

copies to achieve their own special kind of existence, which would be impossible without place. Plato's τιθήνη has the same function as Democritus' κενόν [1]. It is worth remarking also that this class of existent is, as we have already seen, not peculiar to the Timaeus, but appears as a full-fledged conception in the Philebus, and is suggested in the Theaetetus. It is, in fact, a logical development of Plato's theory, not an alien idea forcibly grafted on to his own. Before he considered clearly the need for a medium, it was simply Not-Being which made possible the model function of the Forms. This point must be insisted upon against any who find the idea an imitation of Democritus' κενόν which is suddenly pitchforked into the middle of the Timaeus, without any warning[2].

The three different types of existent are described very clearly in the passage in the Timaeus beginning with 51e6. This is an excellent brief statement of

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1. It is to be observed that, according to Plato, the τιθήνη itself is in irregular motion (Timaeus, 52d4 ff.) which tends to separate into homogeneous groups the so-called elements, earth, air, fire and water, according to size and weight. In this respect it is different from the κενόν of Democritus which simply makes possible the motion of the forms, and could not move of itself, for it is not anything. Place, in Plato, is capable of motion and of receiving quality and form, and, in these two points, is different from τὸ κενόν which makes possible motion, quality and form.

2. I. Hammer-Jensen, Demokrit und Platon, Archiv für Geschichte der Philosophie, vol.XXIII, 1909, pp.92 ff,;211 ff.

Plato's position. It is, moreover, particularly apropos as the conclusion and summing up of the metaphysical section of the dialogue, and an introduction to the purely physical section.

The rest of the dialogue is devoted to a physical analysis of phaenomena, more especially the phaenomena of the human body. This physical discussion is not at variance with Plato's usual theories, but is simply a discussion of the changes and processes of Becoming by a man who has finally consented to recognize the semi-reality of the things that condition life in the world, which behave in various ways whether they are truly real or not. It is a description of the striving of Becoming to be like its models, and its activities when it has achieved that likeness. The geometrical character of the smallest units is quite in accord with Plato's interest in geometry and mathematics in general. The activities of the combinations of these units seem to follow natural laws, that is, they follow a certain path because it is in their nature to do so. This is like the natural law of Democritus, and can be merely another expression of the striving of everything for the best, that is, likeness to its model.

The last work of Plato to which we need refer here is Epistle VII. There, while explaining why he did

not treat his theory of Forms at length in a treatise or lecture for the public, he gives once more the essence of the theory[1]. Since this letter is to be dated late[2] in Plato's life, we may assume that it conveys Plato's considered views on the topics discussed, views which are not likely to have been much altered later. The true reality or Form is identified as the object of knowledge, which he puts into a class by itself, and then he mentions three other classes, the name, the description, and the image. These last three classes lead to knowledge. Here still, then, we find the conception that the phaenomenon, the particular, is the image of the Form, the essential. It is to be noticed, besides, that Plato makes this classification apply to all kinds of things, shapes and surfaces, the good, beautiful and just, manufactured and natural objects, fire, water and all such things, all living creatures, qualities of ψυχή , and all states both active and passive. In other words, there are, he believes, Forms of which all these things, as we know them, are images.

It is perfectly clear that in general, in Plato's theory the Forms had a non-creative function in relation

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1. Epistle, VII, 342a ff.
2. Post, Thirteen Epistles of Plato, chronological table.

to phaenomena. That does not mean to say that they were not essential for Becoming. There would be no phaenomena at all if there were no Forms, but the Forms do not actually make the phaenomena or serve as ingredients for them, except for the circumstance already noted that the Forms in ψυχή have a part in creation. As we have observed several times already, Plato is forcibly drawn into inconsistencies over the Forms. They are, however, continually regarded as models or patterns, or as limits, and so serve two purposes in relation to phaenomena. They give to particulars form, quality and character, that is to say, they establish the identity of these objects, and also they serve as a goal and model of perfection at which phaenomena aim. Just as the Forms are essential to the production of phaenomena, so is the medium, which is known as the more and the less, or nurse of Becoming. It must be remembered that the Forms and medium are to Plato just as necessary prerequisites for particulars as are forms and void to Democritus. In either case these prerequisites could exist without phaenomena, but the phaenomena could not come into being without the forms and medium, or void.

CHAPTER 3

FORMS, SENSATION, AND KNOWLEDGE

I - DEMOCRITUS

As soon as one begins to examine the reports about Democritus, and such of his own writings as are preserved, with a view to discovering whether the forms have any function in the processes of sensation and knowledge, one is struck by the fact that there are two diametrically opposed traditions about Democritus' attitude to sensation and the trustworthiness of the evidence of the senses for the compiling of knowledge. On the one hand, we find it stated that Democritus held that the things that appear to the senses are true, and, on the other, that Democritus discounted appearances, and said that there was no reality in the objects of sense perception, and that the only realities were form and void, the objects of knowledge. The first view is that expressed by Aristotle and some of his commentators, and, ostensibly, by a few of the fragments of Democritus quoted by Sextus Empiricus. The second is to be found in the rest of the fragments quoted by Sextus, in the remarks of Sextus himself, and in several other sources.

Our first task must be to try to understand this contradiction and, if possible, find where the truth lies.

To do this I think it best to look first at Sextus Empiricus, at both his own remarks and his quotations from Democritus. We find that Sextus twice couples Democritus with Plato. On one occasion, he says that they both opposed Protagoras, and maintained that appearances were not the truth[1]. Again, he says that they both believed that τὰ νοητά, the objects of knowledge, were true, and that Democritus held this belief because there was nothing perceptible in φύσις[2], that is, the forms had no perceptible qualities. Of Democritus alone, he says that he refuted all appearances[3], as opposed to those who found the truth in appearances. These statements are all quite definite, and leave no room for any other interpretation or any doubt. They are supported by another of our sources, Aëtius[4], who says that it is Democritus' view that perceptibles are conventional, due to opinion and our experiences, while nothing is true and understandable but forms and void, which are the real basis of appearances.

Next, let us look at the quotations from Democritus which Sextus preserves. These are found in the essay adversus Mathematicos, VII,135-140, in an order different from that in which Diels has given the fragments.

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1. A 114, Sextus Empiricus, adversus Mathematicos, VII,389.
2. A 59, Sextus Empiricus, adversus Mathematicos, VIII,6.
3. A 110, Sextus Empiricus, adversus Mathematicos, VII,369.
4. 67 A 32, Aëtius, IV,9,8. Cf. too A 125, Aëtius, I,15,8.

Diels has also omitted some of the comment of Sextus. I think that, as the fragments were quoted by Sextus in a certain order because that was the way he wanted them in order to make his point, they can be best understood in that order, and I shall discuss them as they appear in Sextus. He begins the section by saying that sometimes Democritus discounts the things that appear to the senses[1], and says that none of these appear in truth, but only by belief, quoting from Democritus to support his statements the well known passage[2], νόμῳ γλυκὺ καὶ νόμῳ πικρόν, νόμῳ θερμόν, νόμῳ ψυχρόν, νόμῳ χροιή· ἐτεῇ δὲ ἄτομα καὶ κενόν. This quotation is to be found in Galen in exactly the same words[3], save for the omission of some of the qualities. Sextus explains his quotation by saying that it means that the perceptibles are only thought and believed to exist, but really do not, while the forms and void alone really exist. He goes on to say

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1. Cf. A 134, Sextus Empiricus, Pyrrhoniae Hypotyposes, II, 63; ἐκ τοῦ τὸ μέλι τοῖσδε μὲν πικρὸν τοῖσδε δὲ γλυκὺ φαίνεσθαι ὁ μὲν Δημόκριτος ἔφη μήτε γλυκὺ αὐτὸ εἶναι μήτε πικρόν.

2. B 9, Sextus Empiricus, adversus Mathematicos, VII, 135.

3. B 125, Galen, de Medicis Empiricis, frag. ed. H. Schoene, Sitzungsberichte der Akademie der Wissenschaften, Berlin, 1901, p. 1259, 8. Cf. A 49, Galen, de Elementis ex Hippocratis Sententia, I, 2 (Helmreich, Deichert, Bayern, 1878, p. 3, 20) where Galen explains the meaning of the words of Democritus, making it clear that Democritus thought the direct evidence of the senses untrue.

that, in the Κρατυντηρία [1], although Democritus promises to give the senses the mastery over belief or proof (πίστις), yet he condemns them, and again he quotes; ἡμεῖς δὲ τῷ μὲν ἐόντι οὐδὲν ἀτρεκὲς συνίεμεν, μεταπίπτον δὲ κατά τε σώματος διαθήκην καὶ τῶν ἐπεισιόντων καὶ τῶν ἀντιστηριζόντων . In this first part of this quotation, and the last part of Sextus' introduction to it, leaving aside for later consideration the remark about giving the senses the mastery over belief, lies the explanation, I believe, of those quotations which have been taken to mean that Democritus was sceptical about all knowledge, and not only about the evidence of the senses. Of primary importance is Sextus' statement that the words he quotes are a condemnation of the senses. This supports the idea that, in the first clause of the quotation, Democritus is speaking of the impossibility of real knowledge of phaenomena, saying that we really understand no one of these certainly, but only as it changes in accordance with the condition of our bodies, and of the things that enter into and impinge upon them. That is, our knowledge of phaenomena is adventitious and depends on two factors, the phaenomena and our bodily condition, and is, therefore, not certain and definite.

Our interpretation of this quotation gives the key to the four quotations which Sextus groups together

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1. B 9, Sextus Empiricus, adversus Mathematicos, VII, 136.

next[1]. The first of these declares that it has often been demonstrated that we do not really know, or perceive, how each thing is or is not[2], and fits very well with what has just been said, when we assume that ἕκαστον refers to phaenomena. The next quotation, to the effect that man must know that he is far removed from reality[3], serves merely to emphasize the unreality of the evidence which is close at hand and easily obtained, that of the phaenomena and senses, and the difficulty of achieving real knowledge. The third repeats, in briefer form, the substance of the key quotation, δηλοῖ μὲν δὴ καὶ οὗτος ὁ λόγος, ὅτι ἐτεῇ οὐδὲν ἴσμεν περὶ οὐδενός, ἀλλ' ἐπιρυσμίη ἑκάστοισιν ἡ δόξις [4]. That is to say, again, that we do not have certain knowledge about anything (and as there is no indication of a change of subject "anything" is still any phaenomenon), but each man's opinion is adventitious. The use of the word δόξις, while not by itself strong evidence, supports the rest of the evidence that Democritus is here still talking of the undependable knowledge of phaenomena,

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1. This view is supported by the passage of Sextus quoted in note 1, p. 89, which must be kept in mind during the ensuing discussion.

2. B 10, Sextus Empiricus, adversus Mathematicos, VII, 136.

3. B 6, Sextus Empiricus, adversus Mathematicos, VII, 137.

4. B 7, Sextus Empiricus, adversus Mathematicos, VII, 137.

and not about real knowledge. The last of this group of quotations says that it is difficult to know how each thing really is[1], still referring, I believe, to the difficulty of discovering the real truth behind phaenomena. The same idea is to be found in a quotation preserved by Diogenes Laërtius. He says that Democritus rejects qualities, when he declares in the words already quoted, νόμωι θερμόν κτλ. ., and again, ἐτεῆι δὲ οὐδὲν ἴδμεν· ἐν βυθῶι γὰρ ἡ ἀλήθεια [2]. It seems clear that Diogenes takes these two quotations together as both showing that Democritus held qualities to be unreal. This gives further support to my contention regarding the above passages in Sextus, and indicates that the second of Diogenes' quotations means that we know no phaenomenon truly, and knowledge is difficult to achieve. Cicero also refers to this last quotation[3].

To return to Sextus; in summing up his first group of quotations, he shows the way for all who have since thought that they revealed Democritus as a thorough going sceptic, though he does agree that Democritus is most severe about the senses, and he qualifies his statement of

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1. B 8, Sextus Empiricus, adversus Mathematicos, VII, 137.

2. B 117, Diogenes Laërtius, IX, 72.

3. B 117, Cicero, Academicae Quaestiones, II, 10,32. Cf. B 165, Cicero, Academicae Quaestiones, II, 23, 73.

scepticism by the adverb σχεδόν . For the reasons which I have just explained, however, I think that here Sextus himself has fallen into error in his interpretation of the passages, in thinking that there is opposition between the first one and the rest, in spite of the fact that he has already given the key to them. It is to be remembered that, in the three passages mentioned first of all, Sextus himself says Democritus rejects the validity of phaenomena.

Sextus next introduces a quotation which he rightly believes indicates a contradiction of the supposed scepticism. In this passage[1], Democritus says there are two kinds of knowledge, one real, the other shadowy, and that to the shadowy knowledge belong sight, hearing, smell, taste and touch, while the real is removed from this. Moreover, Democritus prefers the real, because, and again Sextus quotes, the shadowy is not able to get any information through the senses about really fine objects, but only reason can deal with these, as Sextus explains. There is here no sign of scepticism, but possibly a first suggestion of the sort of ideas and statements which led to the definite assertions of Aristotle that Democritus believed that the truth was in phaenomena. For, in the second of

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1. B 11, Sextus Empiricus, adversus Mathematicos, VII, 138, 139.

the quotations I just mentioned we read ὅταν ἡ σκοτίη μηκέτι δύνηται μήτε ὁρῆν ἐπ' ἔλαττον μήτε ἀκούειν μήτε ὀδμᾶσθαι μήτε γεύεσθαι μήτε ἐν τῇ ψαύσει αἰσθάνεσθαι, ἀλλ' ἐπὶ λεπτότερον δέῃ ζητεῖν, τότε ἐπιγίνεται ἡ γνησίη ἅτε ὄργανον ἔχουσα τοῦ νῶσαι λεπτότερον . The phraseology here, μηκέτι δύνηται... αἰσθάνεσθαι, ἀλλ' ἐπὶ λεπτότερον ... seems to indicate that, in the search for real knowledge, one starts with the admittedly untrustworthy evidence of the senses and gains what definite information one can from them (what this is will be discussed later in connection with the individual senses and their objects), and soon gets beyond them to objects too small to be perceived by the senses, where only reason can be of use. But one must have a starting place and that is to be found in the evidence of the senses.

This seems to be the meaning of the last contribution Sextus makes to our knowledge of Democritus' ideas on the subject in question, when he says[1] that Diotimus said that there were, according to Democritus, three criteria; phaenomena for the seizing of the invisible, for phaenomena give a glimpse of the invisible, and thought for investigation, and so on. This certainly

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1. A 111, Sextus Empiricus, adversus Mathematicos, VII,140.

does not mean that phaenomena are the truth, but that they give us something on which to work in our attempt to investigate the invisibles. From Galen comes further evidence that Democritus believed that the phaenomena were to that extent useful in the search for knowledge. In a passage already mentioned, Galen says that when Democritus had attacked the senses in the words νόμωι χροιή, νόμωι...καὶ κενόν , he made the senses speak thus to the mind, τάλαινα φρήν, παρ' ἡμέων λαβοῦσα τὰς πίστεις ἡμέας καταβάλλεις; πτῶμά τοι τὸ κατάβλημα [1]. The senses here declare that the mind has received it evidence, or proof, from them, and implies that this evidence is necessary for the activity of the mind, which would be helpless without it.

I think it is to statements of Democritus such as those just discussed that Aristotle's idea of Democritus' position can be attributed. In them the importance of the evidence of the senses for the understanding of truth is acknowledged. This might very easily be exaggerated by a not over-scrupulous reader, especially when these statements are considered along with those of the quotations[2] in Sextus which have commonly been taken

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1. See note 3, page 89.

2. B 6,7,8,9,10, Sextus Empiricus, adversus Mathematicos, VII, 136,137.

by modern commentators to mean that certain knowledge is impossible, and that our opinions are conditioned by the perceptibles which obtrude themselves on our bodies. There are three passages of Aristotle and one of Philoponus which assert, in different ways, that Democritus believed the truth to be phaenomena just as they appear. If we examine these we can find out whether the above contention might be true. In the first place, Aristotle, in the de Generatione et Interitione[1], after saying that Leucippus and Democritus accounted for change and birth by the joining, separation, arrangement, and position of the forms, goes on to assert that, since they thought truth was in appearances, and these were many and varied, they supposed the forms to be infinite, so that small changes in arrangement of forms, and the addition of a few, would make the same thing seem different. As a matter of fact, Aristotle seems guilty of some contradiction here. He is speaking of the forms, which are beyond the perceptive powers of the senses, which, by combinations and alterations imperceptible to the senses, produce results which are perceptible to the senses, though not in their true nature[2]. And yet he says Leucippus and Democritus thought the truth was in appearances. This is, I think, an exaggeration of Demo-

1. 67 A 9, Aristotle, de Generatione et Interitione, 315b6ff.
2. Cf. A 124, Aëtius, I,15,11.

critus' idea that the evidence of the senses must be consulted. The last part of the sentence appears to support this. It is proper to suppose that one reason why Democritus and Leucippus believed in an infinite variety of forms was that they wished to account for the infinite variety of appearances, but, in doing this as they did, they made it clear they did not think that phaenomena were true just as they appeared. We may, as a matter of fact, assume that in this passage Aristotle, by using the expression "the truth was in appearances", was reporting sympathetically the view of Leucippus and Democritus that there was a real variety of forms underlying and revealed in the varying appearances. Such an interpretation of the following passages is precluded by the language.

In the de Anima, Aristotle declares that Democritus held that what appears is the truth, τὸ γὰρ ἀληθὲς εἶναι τὸ φαινόμενον[1]. The third passage in Aristotle is rather different. In the Metaphysics[2], he says that, because the same thing appears different to different people, or even to the same person under different circumstances, Democritus thought that nothing was more true than anything else[3], and either there was no truth,

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1. A 101, Aristotle, de Anima, I,2,404a29.

2. A 112, Aristotle, Metaphysica, IV,5,1009b7ff.

3. Cf. the passage referred to in note 1, p.89, which shows this attitude in relation to sensibles.

or we could not find it. And finally, he says that, because Democritus held thought to be the same as perception, and this to be change, he had to say that what appeared by sensation was true. This alleged identification of thought and perception will be discussed later, for we are here chiefly concerned with the rest of the passage. To begin with, it is patently untrue that Democritus said we could not find the truth. There are several passages in Aristotle, including the first of the three here discussed, which speak of Democritus' conception of reality or truth[1]. The whole idea is reminiscent of those passages in Sextus Empiricus which have been misunderstood, and it might be partly due to a misinterpretation of those very passages, as well as to an exaggeration of the importance Democritus attached to the evidence of the senses. There is a section of Plutarch which gives us what may be another factor contributing to Aristotle's mistake. Plutarch informs us that Colotes attacked Democritus for saying anything was no more possessed of one quality than another, and explains that this idea was quite mistaken, for Democritus objected strongly to Protagoras' statement of this sort, and advanced many arguments against him[2]. And then Plutarch suggests that Colotes misunder-

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1. Cf. 67 A 32, Aëtius, IV, 9, 8; A 125, Aëtius, I, 15, 8.
2. B 156, Plutarch, adversus Colotem, 4, p.1108F.

stood Democritus' assertion μὴ μᾶλλον τὸ δὲν ἢ τὸ μηδὲν εἶναι , and did not realize that τὸ μηδέν was τὸ κενόν and was one of Democritus' realities[1]. This passage shows us clearly that such misinterpretations of Democritus existed and were recognized in antiquity.

In Philoponus, we find the now familiar statement that Democritus said that the truth and appearances were the same, and the thing that appeared to each was true for him, just as Protagoras said[2]. Philoponus is here commenting on Aristotle's de Anima, and is following his master's interpretation of Democritus, probably in part because of Aristotle's authority, and perhaps partly for the same reasons which influenced Aristotle. It is interesting to find in an original work of another commentator on Aristotle a statement which presents a different view, though the same man, in commenting on the Metaphysica, retains Aristotle's opinion and, like Philoponus, compares Democritus and Protagoras[3]. Alexander of Aphrodisias, in the de Mixtu[4], in speaking of the

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1. Aristotle does not seem to have made just this mistake, or at least not always, for we read in the Metaphysica, I, 4, 985b4 ff., that Democritus' realities or roots were τὸ ὄν and τὸ μὴ ὄν , and that he said τὸ ὄν did not exist any more than τὸ μὴ ὄν.

2. A 113, Philoponus, de Anima, p.71, 19 ff., on Aristotle, I, 2,405a25 ff.

3. Alexander Aphrodisias, Metaphysica, p.307,29-34, on Metaphysica, IV, 5, 1009b7.

4. A 64, Alexander Aphrodisias, de Mixtu, 2.

combinations of the forms which we see, says that, according to Democritus, the apparent mixture is due to the juxtaposition of bodies too small for perception which always retain their own natures. That is to say, the truth is quite different from what it seems to be.

It now appears that there is an essential contradiction in Aristotle's report of Democritus' beliefs. For while, on the one hand, insisting that to him phaenomena are true, on the other hand, he always attributes to Democritus the conviction that there are realities which are beyond the perception of the senses. In view of this, and the fact that the existence of his misunderstanding can be explained, while the rest of the evidence, including the positive statements of the sceptic Sextus Empiricus, all agrees, I think we must believe the conclusion to which this evidence points. That conclusion is that Democritus thought that the things that appear to the senses are not true exactly as they appear, but that the evidence of the senses must be used by the mind to reach a knowledge of true reality, the forms and void. The forms are the objects of knowledge and thought and, by their combinations, as will be shown immediately, they supply the evidence which the senses convey to the mind, although the mind has to sift this evidence to get at the truth behind the appearance.

It now remains to discover as well as we can what Democritus believed to be the cause and process of sensation and, afterwards, of thought. The first point to be noticed is that, according to Aristotle, Democritus said all the objects of sense perception are objects of touch[1]. Aristotle himself objected to this on the ground that such a theory made all the other senses variations of touch. To judge from Theophrastus' description of sensations in Democritus' theory, Aristotle's statement is quite right - the senses could all be reduced to touch.

In order to see that the above statement is true, and to study the processes of sensation, let us look at the details of some of the senses. Theophrastus in his discussion of the different senses begins with sight[2]. This, he says, is by reflection, not immediately on the eye-ball[3], but on the air between the eye and the object.

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1. A 119, Aristotle, de Sensu, 4,442a29ff.

2. A 135, Theophrastus, de Sensu, 50ff.

3. Cf. here 67 A 29, Alexander Aphrodisias, de Sensu, p.24, 14, and p.56,12. In the first case, he says that Democritus accounted for sight by a reflection in the pupil, and that Leucippus and Epicurus held that it was by effluences. In the second, he ascribes the theory of effluences to both Leucippus and Democritus. It seems likely that Democritus may have spoken of the reflection on the pupil, which could only have been caused by an effluence from the object. According to what we know of Democritus' general theory of forms, the reflection could not have been in itself responsible for vision, but it is the registration of the moment when the effluence passes through the outer surface of the pupil, as it is on its way to the veins of

It is made clear a little further on that this reflection is really an impression made in the air, as if in wax, by the effluence from the object, from which effluences are continually being given off[1]. This impression is then conveyed in some way by the air to the eye. Apparently the direction of the effluence and impression is always away from the object, or we should be seeing ourselves all the time. The moister the eye is, the better it sees[2],

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the eye, where vision takes place. Alexander has only told part of the theory in each of the passages under discussion.

1. Theophrastus raises the question how there can be an effluence from the void (A 135, Theophrastus, de Sensu, 80), that is, how the effluence can express accurately the relation to one another of the forms and void in any visible object or quality. This is an hypercritical attack on Democritus' theory of vision, for in order that the effluence give an accurate representation of the arrangement of forms and void in an object, it is only necessary that the solid parts of the object give off an effluence, which effluences will be separated as in the original object by void, because the void did not give off any effluence. The difficulty is, of course, that actually there is void between every two forms. There may be spots, in any object, where the forms are closely grouped together, with little void, and these may be separated from one another by a larger space of void. Possibly, the effluence is only, as it were, a general impression of this arrangement, with a comparatively few forms representing the group. The nature of the effluences presents a very definite problem about whose solution we can only conjecture. Presumably they had no depth, but were somewhat like a shell, possibly just one form thick. The place of the forms that were given off must have been taken by others, or the object would soon have wasted away.

2. Cf. A 121, Aristotle, de Sensu, 2, 438a5.

for the impression, which is solid, penetrates it better. The veins inside, however, must be straight and dry for good vision, for, in that case, they are of the same sort as the impressions, and like things know or recognize each other, says Theophrastus. This would seem to mean that the actual sensation of seeing takes place in the veins of the eyes. Now, we find various indications that Democritus thought it was the ψυχή which brought sensations to consciousness. To mention two specific cases, Aëtius says[1] that Democritus thought even corpses had some ψυχή left in them because they had some warmth and perception, and Aristotle, in the de Anima[2], speaks of the ψυχή being in all the perceptive body. Since, then, ψυχή is the centre of consciousness, there must be a concentration of ψυχή forms in the head, in the neighborhood of the eyes, if it is in the veins that the recognition of impressions takes place, for there is no sign of extra mechanism for transferring the recognition to a distant seat of consciousness. Presumably, the reason that everything in which there is a reflection, and even all the body, does not see[3], is partly that the eye mechanism, which is necessary for the penetration and recog-

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1. A 117, Aëtius, IV, 4, 7.
2. A 104a, Aristotle, de Anima, I, 5, 409a32 ff.
3. A 121, Aristotle, de Sensu, 2, 438a9.

nition of the impressions, is lacking in these places, and partly that there are not sufficient ψυχή forms anywhere else for conscious sensation.

There is one difficulty which should be noticed at this point. In speaking of the impression made in the air, Theophrastus says that it is hard and ἀλλόχρων and so appears in the moist eyes[1]. It is difficult to tell from what the impression differs in colour and what the significance of the difference is, especially in view of the emphasis laid on the fact that like things recognize one another. It would seem that we lack the information to make this point clear. Although Theophrastus is not very sure what the sun and light have to do with sight[2], he shows that Democritus took them into consideration. He is apparently quoting Democritus' words when he says τὸν ἥλιον ἀπωθοῦντα ἀφ' ἑαυτοῦ καὶ ἀποπληττόμενον πυκνοῦν τὸν ἀέρα , which words suggest that it was only as a result of the action of the sun on the air that the air was of a consistency to receive the impressions of the effluences from objects.

Theophrastus deals next with hearing[3], which we find discussed in a fragment of Aëtius also[4]. Apparently

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1. A 135, Theophrastus, de Sensu, 50.
2. A 135, Theophrastus, de Sensu, 54.
3. A 135, Theophrastus, de Sensu, 55.
4. A 128, Aëtius, IV, 19, 13.

Aëtius is concerned with an earlier stage in the process than Theophrastus, He speaks of the voice, saying that the air is broken up into bodies of like shape (that is, like the fragments of voice) and rolled about with the fragments of voice, which we expect to be made up of forms, as indeed the scholiast on Dionysius Thrax tells us it is[1]. This is, it appears, a description of what happens when a sound is uttered, the sound being thought of as made up of forms, which attract to themselves forms of like shape in the air, by which means sound is conveyed through the air. To turn now to what Theophrastus says, this air which has been, as it were, impressed by the character of the sound, and has been made denser for this reason, enters the body anywhere where there is an empty space, and causes motion in that space. Since the ears have the largest amount of empty space, and least opposition is offered there to the entrance of the air, that is where the sensation of hearing takes place. Then the air very quickly scatters throughout the body. This again argues for a concentration of ψυχή forms in the head. Keenness of hearing depends, Theophrastus says, on the veins being dry in the ears, head and rest of the body, for this enables the air to penetrate and scatter rapidly. This puzzles Theophrastus, for he thinks it sounds as if

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1. A 127, Scholia in Dionysii Thracis Artem Grammaticam, p.482,13(Grammatici Graeci, vol.I,pt.3, Hilgard, Teubner, Leipzig, 1901).

we hear not only with the ears, but with the whole body. It seems to me that one reason for the emphasis laid on the prompt dispersing of the packed air from the ears throughout the body is the importance of having the passages, the veins, of the ear always free to allow the entrance of more sounds. Prompt and keen hearing would surely depend on this.

We find no specific information about the other senses in Theophrastus, but a few general remarks might be made about them. They must have been of the same general type as sight and hearing, that is, they were the result of the forms of the sensible coming in contact with the forms of the sense, whether it be forms in the nose, or mouth, or skin anywhere on the body. This contact was brought to consciousness by the ψυχή forms in the body. It is to be noted that in the case of taste and touch the contact is direct, while in that of smell, it is indirect, by effluences[1].

It is generally stated by Democritus that action can only be of like on like[2], while Theophrastus and Aëtius both tell us that, according to Democritus, perception is change of the body[3]. Unless there is some basic difference between these two ideas which we have not enough information to detect, I think we must believe, contrary to Theophrastus,

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1. A 135, Theophrastus, de Sensu, 82.

2. A 63, Aristotle, de Generatione etInteritione, I,7, 323b10ff.; A 135, Theophrastus, de Sensu, 49; B 164, Sextus Empiricus, adversus Mathematicos, VII, 116-117.

3. A 135, Theophrastus, de Sensu, 49; 67A30, Aëtius, IV,8,5; cf. too, A 112, Aristotle, Metaphysica, IV,5,1009b13.

that they are not contradictory. That is, sensation occurs because of a change in the condition of the body caused by contact with the forms of the sensible, an obvious idea, but these forms can only cause that change if they come into contact with like forms in some organ of the body. To be sure, Theophrastus says like cannot be changed by like, but he admits, and Aristotle also tells us, that action of one thing on another can only take place in so far as the two things are alike, and the changing of one thing by another is action. This makes it clear, I think, that Theophrastus is making a difficulty out of something that is quite straightforward.

Most of the remaining passages of Theophrastus concerning Democritus deal with qualities and their real nature. It has already been stated that Democritus thought weight was due to two factors, the size of the object and the amount of void in it. This is confirmed by Theophrastus, who adds that sometimes Democritus simply says that the fine is light[1]. Apparently roughness and smoothness are due to the closeness of the forms, that is, to the amount of void, and also to the arrangement of forms and void[2]; the more even the distribution of the void within an object, the smoother will be its texture. The forms

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1. A 135, Theophrastus, de Sensu, 61, 62.

2. A 135, Theophrastus, de Sensu, 62.

which make fire are small spherical ones[1], but apparently the quality of warmth is of a different nature and occurs when the forms in an object are far separated, and that of coldness when they are closely packed[2]. The different qualities of taste Democritus accounted for, according to Theophrastus, by the size, shape and surface condition of the forms[3]. As Theophrastus points out, this does not mean that all the forms in an object are such as to give, for instance, a bitter taste, but rather that all kinds are present, while one type predominates, and it is this that determines the taste[4]. This principle applies, of course, in the case of all qualities which are due to characteristics of the forms themselves, rather than to the arrangement of the forms and void. The primary colours, white, black, red, and yellow, and their different qualities, are due to the surface texture, arrangement, and, in some cases, the shape of the forms[5]. And the secondary

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1. A 101, Aristotle, de Anima, I,2, 405a5; Philoponus, de Anima, p. 83, 27 ff.; A 102, Aëtius, IV, 3,5.

2. A 120, Simplicius, de Caelo, p. 564, 24, with Theophrastus, Physica as his authority; A 135, Theophrastus, de Sensu, 65. However, Simplicius, in the Physica (p. 36,1), says that the followers of Leucippus and Democritus accounted for heat in bodies by saying that such bodies are made of the sharper and finer forms, which are in like positions, while cold bodies out of the opposite kinds of forms.

3. A 126, Aristotle, de Sensu, 4, 442b12; A 129, Theophrastus, de Causis Plantarum, VI, 1,6; A 135, Theophrastus, de Sensu, 65-67.

4. A 135, Theophrastus, de Sensu, 67.

5. A 135, Theophrastus, de Sensu, 73-78; A 123, Aristotle, de Generatione et Interitione, I,2, 316a1; A 126, Aristotle, de Sensu, 4, 442b11.

colours are combinations of these.

It would be worth while, in view of the constant criticism offered by Theophrastus of the different ways in which different qualities are defined[1], to emphasize the fact that these differences were wholly reasonable to Democritus. He thought that the forms with their different shapes and sizes, and relative positions and arrangement, accounted for everything in the world, so it is in no way contrary to this theory to believe that not all qualities were due to the same characteristics of the forms. In fact, if Democritus had accounted for all quality by shape, he would have been hard pressed to find enough shapes to go around. Moreover, almost all sensibles have several qualities, and it is only reasonable that different points about the component forms should account for these. The important thing is that all the characteristics of forms which cause qualities can be perceived by touch, and all senses are by touch. Shape, size, texture in general, position, evenness of distribution, and so on are all things which are made clear by contact. We might realize this if we remembered that a blind person can discover all these points about the furniture in a room by touch.

Although Democritus takes such care to define the

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1. A 135, Theophrastus, de Sensu, 68 ff.; A 133, Theophrastus, de odoribus, 64.

real nature of the different qualities, it seems clear from his insistence that things may seem different to different people, that he believed that the bodily condition of the person receiving the sensation has some share in determining just what that sensation will be. This is certainly the point of Sextus Empiricus' quotation from Democritus, in which he speaks of our knowledge changing in accordance with the condition of our bodies, and of the things that enter into or come into contact with it[1]. That much we can be positive about, but as to the details of the part each of these factors played in specific sensations we have no information. Either Democritus himself did not feel that any further definition was necessary, or, if he did give it, the evidence has been lost which would enable us to understand the exact processes.

The preceding discussion of sensation, and the objects of sensation, throws light on the fact that Democritus said the objects of sensation were not true, but only conventional, while still he declared that the evi-

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1. B 9, Sextus Empiricus, adversus Mathematicos, VII, 136. Cf., too, A 112, Aristotle, Metaphysica, IV 5, 1009b7 ff.; A 134, Sextus Empiricus, Pyrrhoniae Hypotyposes, II, 63. Of interest also is the statement of Democritus (B 69, Democrates, 34); ἀνθρώποις πᾶσι τωὐτὸν ἀγαθὸν καὶ ἀληθές· ἡδὺ δὲ ἄλλωι ἄλλο . Here a strong contrast is drawn between the virtues which are fixed and independent of man's bodily condition and the changing combinations of forms, and the qualities which are dependent for their existence and identity on these same two factors.

dence of the senses was a prerequisite of knowledge. It is quite true that the objects of sense are not true as they appear to men, that sweetness, for instance, is not really sweetness, and that the nature of any sensation felt by a man depends on two entirely unrelated factors, the nature of the object and his own condition. It is also true, however, that there is a great deal of real difference underlying the changing sensations, and the mind is led to study and understand these because of the evidence of change which the senses give. The senses cannot perceive the forms and void which really cause the changing sensations, but, because of the latter, the mind is led to discover the real nature of the objects of sense.

Turning now to the mind, we find that Aristotle insists that Democritus held that νοῦς and ψυχή were the same, as well as fire[1]. Philoponus echoes this assertion of Aristotle, though he says that Democritus nowhere specifically stated that ψυχή and νοῦς were the same[2]. The supposed identity of these two is probably the reason for Philoponus' statement that Democritus did

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1. A 101, Aristotle, de Anima, I, 2, 404a27, 405a5 ff.; A 106, Aristotle, de Respiratione, 4, 471b30 ff.

2. A 113, Philoponus, de Anima, p. 71, 19 ff.

not believe the ψυχή had parts[1]. That is to say, ψυχή and νοῦς are the same, not parts of one thing and different in function. Aëtius makes a much more cautious statement about the ψυχή, which points to what is probably the truth. He says that the ψυχή is a πυρῶδες σύγκριμα ἐκ τῶν λόγωι θεωρητῶν, ... πυρίνην δὲ τὴν δύναμιν ...[2], that is, the ψυχή is fiery or fire-like, it is made of the same forms as fire. I think Cherniss is right in saying that the same forms made up ψυχή and νοῦς, but that Democritus distinguished them by their function and position[3]. Apparently the senses convey sensations to the ψυχή through which they reach consciousness, and then the ψυχή transfers the information to νοῦς, made up of the same kind of forms, but in the brain cavity, rather than near the sense organs[4]. νοῦς then reflects upon the evidence conveyed to it by ψυχή.

It is difficult to understand how Democritus explained the process of thought. The evidence which we

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1. A 105, Philoponus, de Anima, p. 35, 12 ff.

2. A 102, Aëtius, IV, 3,5.

3. Cherniss, Aristotle's Criticism of Pre-Socratic Philosophy, p. 292, and notes 9, 10.

4. This distinction of νοῦς and ψυχή is supported by Aëtius IV, 4,6 and 5,1(A105). In the first passage he says the ψυχή has two parts, τὸ λογικόν in the thorax, and τὸ ἄλογον scattered through the body. In the second, he says that the ruling part, that is, νοῦς is in the brain. Since, in the first passage, Aëtius mentions Democritus and Epicurus, it

have would lead us to think that thought must be set in motion by the presentation to νοῦς of an image. Plutarch says that, according to Democritus, dreams were caused by images or effluences which come from everything (and carry also the design and motions of the ψυχή of a living creature), and penetrate into the immost part of the body and, on being carried upward, that is, to νοῦς , cause dreams.[1] Aëtius tells us that Leucippus and Democritus said that perception and thought occur when images enter from outside[2]. His statement is affirmed by a passage of Cicero. In a letter to Cassius[3], Cicero, while speaking of thinking of him, refers to the spectres of thought, which Democritus called εἴδωλα . He declares himself puzzled to see how these images can come in contact with the mind, especially when they are of objects far distant, and asks whether, if he thought of the island Britain, an image of it would fly into his mind. That makes clear some of the difficulties of the conception. We can see how images of the objects of our sensations might be presented to

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is possible that the location there given for νοῦς is that of Epicurus, and that Democritus really held the second idea.

1. A 77, Plutarch, Quaestiones Convivales, VIII, 10, 2, p. 734F.

2. 67A 30, Aëtius, IV, 8,10.

3. A 118, Cicero, Epistulae ad Familiares, XV, 16, 1 ff.

and arouse reflection[1], but it is hard to understand how thought of something abstract or remote can be stirred up, and how images of such things, abstractions, and things out of sight, can be made and penetrate to νοῦς . With our present evidence it seems impossible for us to solve these difficulties. We can only be sure that νοῦς and ψυχή were made up of the same fine forms, that the latter, scattered through the body, caused life and movement and interpreted sensation, while the former, located in the brain, or possibly the chest, reflected upon the evidence presented to it by the senses through ψυχή , and arrived at knowledge of things the senses could not perceive[2].

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1. See 67 A 30, Aëtius, IV, 8, 5, where it is said that perception and thoughts are alterations of the body. This makes it clear that thought or reflection is accomplished by the activity of forms, presumably some from without and some within the body, but we are ignorant of any details of this activity.

2. There is one quotation from Democritus which is apparently apropos here, but which, for lack of evidence, eludes interpretation. That is the quotation mentioned by Sextus Empiricus (B 165, adversus Mathematicos, VII, 265 ff.) in connection with a definition of man, ἄνθρωπός ἐστιν ὃ πάντες ἴδμεν . This statement is referred to also by Aristotle (B 165, de Partibus Animalium, I,1, 640b29 ff.), but his explanation of it is entirely his own conjecture. Such a statement, entirely out of its context, can only arouse speculation. I shall mention one or two possibilities. Democritus may here be saying that what man is we do know but we are ignorant of something else, possibly the gods, as Mr. Hack has suggested. Or, the quotation may have some connection with that about like being known by like (B 164, Sextus Empiricus, adversus Mathematicos, VII, 116), as a result of which fact we, being men, know what man is.

It is by this time clear that, in Democritus' theory, the forms and their permutations and combinations are the objects of sensation, for they cause objects and qualities. They are, besides, along with the void, the objects of knowledge, for Democritus often points out that they are the only truth. But, more than that, they are the instruments of sensation, and of thought and knowledge. The senses are made up of forms and report their findings to ψυχή , which is composed of a special kind of forms, and it, in turn, reports to νοῦς , also made of these particular forms, which reflects upon or thinks about these reports, and arrives at conclusions which are knowledge.

II - PLATO

It is necessary at the very beginning of this discussion of sensation and knowledge in Plato to emphasize the fact that we are primarily interested in the part that the Forms play in these two processes, and in any special connection which they may have with the Forms. Consequently, a detailed study of, for instance, the Socratic dictum that virtue is knowledge is superfluous. Some of the implications and results of the identification will be mentioned where they are pertinent. In this connection a point to be remarked is that the search for accurate definitions of the various virtues, with which Socrates sought to support his belief, is said by Aristotle to have contributed to Plato's conception of the Forms[1]. To this extent, therefore, Socrates' idea, which was taken over by Plato, is important to us here. When we have discussed knowledge and its objects other points about this theory will appear.

The first direct contribution to our subject is to be found in the Meno. There, in the midst of the attempts to define goodness, after Meno's query as to how one can enquire into what one does not know, Socrates

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1. Aristotle, Metaphysica, I, VI, 2, 987b1 ff.

introduces the idea that the ψυχή is immortal, and has learned everything once[1]. The result of this learning in the past is that the ψυχή can be reminded by something in the present of that knowledge it once had, and can think back to it. This doctrine Socrates demonstrates by the well known experiment with the slave, who, after being only questioned, and not told, arrives at the correct solution of a geometric problem. Since the slave had never known the answer to the problem during his life, and was not told the answer, the diagram and the questioning must have put him in mind of something which his ψυχή had known, and of which it had lost the knowledge at birth.

The result of the experiment in the Meno is summarized, and the part which sense perception plays in the process of recollection is emphasized and made clear in the Phaedo. Here Socrates[2] begins by illustrations in the sphere of common experience of what he means by recollection, and brings out the fact that recollection can be caused by having a sense experience of like or unlike things. From that he goes on to such ideas as equality, of which we are reminded on seeing apparently equal or unequal things. Though we have never seen equality, we are able to form judgements on the comparative equality of objects which we see[3]. That, together with the fact that

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1. Meno, 81a10 ff.
2. Phaedo, 73a7 ff.
3. Phaedo. 74e10 ff.

the senses, through which alone we can get information about the approximation to equality of objects, cannot show us real equality, indicates that we must have gained a knowledge of absolute equality before we acquired our senses. All absolutes were known by us before birth and, since people cannot discuss them unless they have been reminded of them by recollection produced through the senses, we must have forgotten them at birth. The senses, then, perform a valuable function in directing our mind to reflection leading to knowledge of the absolutes, or Forms.

A little further on[1], Socrates warns us against relying on the evidence of the senses as real knowledge, which it cannot be, since its objects are everchanging. He emphasizes the fact that the proper investigations of the ψυχή have to do with the unchanging Forms[2], about which alone knowledge is possible, and that it must not, after being set on the road to enquiry by the senses, continue to investigate the changing objects of sense. These ideas are repeated in the eulogy of the lover of knowledge[3]. Further, the existence of objects of knowledge, and the possibility of knowledge of them, are implied in Socrates' assertion of the soundness of some arguments[4] and his

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1. Phaedo, 78d1 ff.
2. Phaedo, 79c2 ff.
3. Phaedo, 82b10 ff.
4. Phaedo, 89c11 ff.

warning against thinking that no argument is stable. It is these objects of knowledge which are at the basis of valid arguments and give them their validity.

There is one other passage in the Phaedo which is of interest to us here, and that is a kind of preliminary statement of the type of investigation which Plato called dialectic[1]. In his search for the cause, Socrates says, he assumes a principle, and examines all its consequences to see if they agree, and then, if necessary, he would explain it by assuming another one, and then another until he reached the highest and adequate principle. This is suggestive of the description in the Republic of the two upper divisions in the simile of the line[2].

The points here referred to in the Phaedo are repeated in the Symposium and the Phaedrus. There is, in the Symposium, a mention of the fact that we are continually forgetting what we know and re-acquiring knowledge[3]. The most important contribution of this dialogue to the solution of the present problem is Diotima's account[4] of the ascent of the mind from the observation of beauty in all the objects of sense, and then to the beauty

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1. Phaedo, 99d4 ff., especially 101d3 ff.
2. Republic, 510b2 ff.
3. Symposium, 207e5 ff.
4. Symposium, 209e5 ff.

of the ψυχή , and so on, until at last it attains a vision of the Form of Beauty in all its glory. This is a slightly mythical presentation of the principle that knowledge is acquired after the senses have given the mind evidence upon which it reflects until it reaches knowledge of the unchanging realities.

The myth in the Phaedrus again emphasizes the principle just elucidated in the Symposium. The Forms are the objects of knowledge, and the acquisition of knowledge of them by the ψυχή , before it is involved in birth, is described mythically[1]. Then, in describing the return to birth of the ψυχή , Plato briefly states that a man must be able to understand a general conception, which is formed by gathering into a unity, by means of reason, the results of many sensations[2]. This, he says, is recollection of the things which the ψυχή saw when it was travelling with God and looking up at real Being. The difficulty of gaining, from a view of things on earth, the recollection of the realities is stressed[3]. It is only a few who are able to utilize properly the unsure evidence of the senses for recollection of the Forms. Finally, as one might easily believe after all

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1. Phaedrus, 247c3 ff.
2. Phaedrus, 249b6 ff.
3. Phaedrus, 249e4 ff.

the special emphasis laid on the evidence of sight up to this point, sight is declared to be the sharpest of the senses[1].

Somewhat later in the Phaedrus we find the principles of dialectic set forth[2]. The first is that of perceiving and bringing together in one idea, or form, the scattered particulars, in order to make clear by definition the particular thing to be explained. The second principle is that of dividing things again by classes, at the natural joints. The people who can employ these two principles are called dialecticians. Again, in discussing the good speaker, Socrates says that, unless a man can divide things by classes, and comprehend particulars under a single idea, he will never be an excellent speaker[3]. This is repeated again, a little further on, with regard to suiting the discourse to the ψυχή of the hearer[4]. The necessity of definition and division is emphasized here also. The process of division here referred to is, of course, that demonstrated in the Sophist and the Politicus, while the other principle is a description in terms of logic of the ascent to knowledge of the Forms.

The Republic, too, offers us many affirmations of the importance of the senses as a prerequisite for

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1. Phaedrus, 250d3-e1.
2. Phaedrus, 265c8ff.
3. Phaedrus, 273d8ff.
4. Phaedrus, 277b5ff.

knowledge in stirring thought. In the description of the higher education of the guardians, in discussing the art of reckoning, Socrates distinguishes between reports of sensation which seem adequate, and those which lead on to reflection, since, in themselves, they give no trustworthy result[1]. The latter are the reports having to do with all qualities which can exist in varying degrees and as opposites, or, as Socrates says, the things provocative of thought are those which fall upon the senses together with their opposites. In regard to astronomy, besides, it is clearly stated that the decoration of the heavens is to be used as patterns in the study of the realities of astronomy, speed and slowness, all kinds of movement, and time. It is the report of the moving wonders of the heavens given to the mind by sight that turns the mind to reflection and the discovery of realities. The ultimate celebration of the service of the sensation of sight to the study and knowledge of the realities is to be found in the Timaeus. Vision is there said to be the cause of the greatest good to us[2], for it is the sight of the stars and the heaven, the vision of day and night, which created the art of number, and taught us the idea of Time, and led to research

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1. Republic, 523a10 ff.

2. Timaeus, 46e6 ff. Cf.,too, Laws, 961d1 ff.

into the Universe. And all this led to Philosophy, the greatest good bestowed by the gods on men. The other senses share somewhat in this eulogy. To return to the Republic, Plato next refers to the study of harmony, which is, of course, mathematical and based on mathematical calculations just as astronomy is. It originates with the reports of the hearing, and, if carried on properly by working upwards from audible harmonies, is helpful for the study of the Forms of the Beautiful and the Good[1].

After such demonstrations of the service of the senses in arousing reflection, and setting people on the path to knowledge, Plato makes it quite plain that it is only the preliminary steps in the ascent to knowledge which can be based on this evidence of the senses[2]. These preliminary steps are those studies which are based upon hypotheses, and assume that these are true, that is, those represented by the lower part of the upper portion of the line in the famous simile[3]. Such studies lead the ψυχή [4] upwards. But,if a man wants to attain real knowledge, he must go on from these preliminaries to examine their hypotheses[5] and, doing away with these, ad-

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1. Republic, 530d6 ff.
2. Republic, 531e4 ff. Cf.,too, Republic, 511a3-c2.
3. Republic, 510b2 ff.
4. It is to be remembered that to Plato knowledge is always the province of the ψυχή . When I use the term mind in discussing knowledge, I am merely using the English equivalent for this aspect of ψυχή.
5. Republic, 511b3 ff.; 532a5ff., especially 533c3,534a1.

vance, apart from all perceptions of sense, to first principles, which depend on no hypotheses, and to the very essence of the things he is studying. When a man does this, he is able to give a clear account of each step in the process of his thought, and understands his starting point and all his conclusions. The state of the ψυχή in the preliminary stages Plato calls διάνοια, while that when it has achieved full knowledge is νόησις.

Now, as to the object or objects of this knowledge which is gained after such a long and careful course of study, Plato applies the name dialectician, he says, to the man who can grasp the account of the essence or real being of each thing[1]. In other words, the object of the ascent of knowledge is reality, as we have seen it called, that is, the Forms. There are several assertions of this fact to be found in the Republic, apart from those incidental to the description of the process of acquiring knowledge. In Book V, Socrates defines philosophers or lovers of knowledge as those who recognize and distinguish properly the Form of beauty and its participants[2]. When a man can do this he has knowledge. Again, in distinguishing between knowledge and opinion, he says

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1. Republic, 534b3 ff.

2. Republic, 476b1 ff.

that knowledge is concerned with that which is[1], that is, the beautiful itself and other such realities, in other words, the Forms[2]. This is repeated again in describing the nature of the lover of knowledge[3], which is to strive for true being and not linger over particulars, but to keep on until he comes in touch with the nature of the thing itself. When the ψυχή reaches and consorts with this, it produces intelligence and truth. The character, moreover, of such a man is determined by his attention to these eternal realities[4], and, in imitation of them, he fashions himself. Finally, in the simile of the Sun, after a preliminary definition of the objects of knowledge[5], the Forms, and the objects of sense, it is clearly demonstrated by the emphasis of the language, that the Form of the Good is the supreme object of knowledge[6], that is, knowledge of it is the highest knowledge that can be achieved by the creatures below it in the scale. For it is that which gives truth to the Forms, the objects

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1. Republic, 476b3 ff.
2. Republic, 479e1ff.
3. Republic, 490a8 ff.
4. Republic, 500b8 ff.
5. Republic, 507b1 ff.
6. Republic, 508b12 ff.

of knowledge, and the power of knowing to the man who knows - it is the cause of knowledge, because it is supremely knowable, and as such is the source of the power of knowledge, and the cause of truth, and is greater than either knowledge or truth.

Once more, however, the Parmenides serves as a check on all this theorizing and points to a difficulty involved in it. The question is, how is it possible for people, who are related to the particulars in the universe, to have the absolute knowledge which is concerned with the Forms[1]. Surely such knowledge would reside only in the world of Forms, and our knowledge would be only related to particulars.

The posing of this question is probably partly responsible for the different tone and method of the enquiries pursued in the Theaetetus, and the Sophist, which succeed in clarifying the situation considerably. The Theaetetus is a study of, as Cornford says[2], "the claim of this lower world to yield knowledge", and, in the course of this study, the limitations of the evidence of the senses are clearly set forth. Our attention is first drawn to a description of quality and sensation[3] which Cornford thinks is Plato's own theory of sensation[4]. This theory need only be stated very briefly here, in accordance with Cornford's interpretation of it.

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1. Parmenides, 133b4 ff.
2. Cornford, Plato's Theory of Knowledge, p. 13.
3. Theaetetus, 155d5 ff.
4. Cornford, Plato's Theory of Knowledge, p. 45 ff.

The physical objects which yield sensations are actually slow motions with no permanent quality, but with the power of acting upon our sense organs. The sense organ, too, is a physical object, and so a slow motion in the same place. So, before perception occurs, there are changes on both sides continually going on, but imperceptible, though capable of causing real perception. When the organ and the object come within range of one another, quick motions pass between them. The union of the stream of light from the eye, for instance, with that from the object generates seeing and colour. The eye becomes filled with vision, and the light belonging to the object acquires a definite quality. When perception is not taking place, moreover, one cannot have any definite idea of either the agent or the patient being any definite thing. In sum, the perception of any moment is a true report of a condition which holds only at that moment, and changes immediately. The effect of this theory is to emphasize the inability of the sensations to provide permanent knowledge, and the mutability of their evidence.

Later, Socrates discusses the fact that there is a faculty behind the sense organs which makes comparative judgements about the objects of different senses[1]. This faculty is the mind, which has no special bodily organ, but

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1. Theaetetus, 184b4 ff.

receives evidence from the different senses and reflects upon this, making judgements. These judgements are expressed in common terms such as existence, likeness, sameness, and so forth, which cannot be perceived by the senses. The common terms are obviously the names of the Forms[1], with which the mind must be familiar in order to make true judgements and reach truth. This clearly demonstrates that perception can only furnish the first step on the road to knowledge, by leading the mind to reflection, which issues in results that could never be reached by the use of the senses only. Socrates goes on to expand the list of things which the mind must apprehend by itself[2], and gives an example of the different fields of activity of the senses and the mind. The hardness of the hard thing, and softness of the soft are perceived (by the mind) through touch, he says, but their existence and oppositeness to one another, and the existence of the oppositeness, are things which the ψυχή approaches, and compares together, in an attempt to make a judgement for us. This reflection about existence, and the like, following upon our impressions, which we are constituted from birth to perceive, is something which comes only after much trouble and education. Since a man cannot reach knowledge

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1. Cornford, Plato's Theory of Knowledge, pp. 105-6.
2. Theaetetus, 186a2 ff.

without truth, nor that without reaching existence, it is upon our reflections on our impressions, not upon our impressions themselves, that knowledge depends. Though our perceptions are reliable for us, at any time, they do not show us existence and such general truths. The rest of the Theaetetus is devoted to a demonstration of the fact that true judgement is not knowledge, any more than is the analysis of a complex concrete thing into its simple parts, each of which is the object of a simple perception, which is not knowledge. The effect of this dialogue has been to show what knowledge is not, and to imply that it has to do with the Forms.

In the Sophist, following the discussion of interrelations in the world of Forms, the Stranger points out that discourse depends on the weaving together of Forms[1]. Even the simplest statement must contain at least one of the common terms just referred to in the Theaetetus, that is to say, at least one Form. In other words, if there were no Forms, there could be no discourse, no communication, beyond the disconnected use of names of objects of perception, and verbs expressing activity. That means that, under those conditions, there would be no reflection, knowledge or philosophy. It is a fact, moreover, that the in-

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1. Sophist, 259d9 ff.

clusion of at least one Form in every statement is the only possible way to explain false statements and thoughts, as the Stranger proceeds to show[1]. For, if we leave the Forms out of consideration, any statement which is not a true one, that is, which does not stand for a fact, is no statement at all, for it is about nothing. Here we have at least a partial answer to the dilemma presented in the Parmenides. If the Forms could have no connection with our world, there could be no knowledge at all, not even the partial knowledge of the things about us, but only perception, and more than that, there could not even be any more discourse, or conversation about our perceptions. In fact, Parmenides could not have presented his problem, if the picture he presented in it had been a true one.

When we turn to the Philebus, we find a classification of different kinds of knowledge with regard to their accuracy and value[2]. Socrates declares that the knowledge which has to do with being, reality and everlasting immutability is the truest kind of knowledge. He supports his contention by pointing out that the arts in general are devoted to the study of the things of this world in all their ramifications, things which never have been, nor will be, in the same state. No fixed knowledge can be gained about

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1. Sophist, 262e5 ff.

2. Philebus, 55c4 ff., especially 58a1-5, 58e4-59c6.

things which have no steadfastness, and so the most perfect truth cannot have to do with them. It is interesting to notice that in this dialogue Plato concedes that, while the knowledge of the everlasting Forms is the purest and truest kind of knowledge, it is not alone sufficient to enable a man to live in the best way in this world[1]. He must have some knowledge of the things with which humanity has to deal. This point is emphasized in the description, in the Timaeus, of the ingredients of ψυχή , as will be shown more fully in connection with that dialogue.

At the very beginning of the discourse of Timaeus there is another repetition of the statement that that which is always Existent is the object of thought and reason, while that which is always changing is the object of opinion and sensation[2]. The next point of interest in the Timaeus is that mentioned just now, the ingredients and making of the ψυχή [3]. As has already been said[4], the ψυχή is a compound of the Forms Existence, Sameness, and Difference, and their counterparts in our world. The result is that the

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1. Philebus, 62a2 ff.
2. Timaeus, 28a1 ff. Cf. too 4825-6, 51d3 ff.
3. Timaeus, 35a1 ff.
4. See pp.21-23.

ψυχή is partly a part of the world of Forms and partly of the world of particulars. It is clear that the reason for this mixing of the worlds in the ψυχή must be that the ψυχή may be able to understand both worlds, with the part of it that is made of Forms, the world of Forms, and with that part which is "particular", the world of change and becoming. That this was the reason for such a construction of the ψυχή is corroborated as we read further.

As a final stage in constructing the ψυχή , the Demiurge makes it into the circles of the Same and Other[1]. To the circle of the Same and Uniform He gave the superiority. This circle must be made up of the ingredients that belong to the world of Forms, for, as I have just said, it is called the circle of the Same and Uniform, and is made superior to the other. It is this part of the ψυχή , moreover, which makes contact with, and recognizes, the rational or ever-uniform, and tells to the whole ψυχή all the facts about it, what it is similar to, and different from, and how it is this[2]. The circle of the Other, on the contrary, recognizes and proclaims to the whole ψυχή the sensible things in the world of becoming, giving rise to true opinions and beliefs. It is, then, composed of the

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1. Timaeus, 36b6 ff.

2. Timaeus, 37a2 ff.

"particular" ingredients of the ψυχή . In the Demiurge's directions to the lesser gods, He says[1] that it is only by yielding to the force of the revolution of the Same and Similar within him, that a man can overcome by reason the strength of the mass of fire, water, air and earth which has adhered to him, and can return to his first, best state - a ψυχή contemplating the Forms. This, too, seems to point to the circle of the Same as especially connected with the Forms.

When the younger gods took over their task from the Demiurge, they bound the revolutions of the immortal ψυχή in bodies[2], and then there followed a period of random motions, when the circles of the ψυχή and the body and its sensations sought for the mastery. The sensations occurred whenever any of the motions, caused by collision of the body with anything from outside, rushed through the body and came into contact with the ψυχή . As in the first stages of life the sensations are many and strange, their motions throw into confusion the revolutions of the ψυχή ; they hinder the power of the circle of the Same by blocking it, and cause all kinds of confusion in the Other and its component circles. The result is that the circles, when they come in contact with anything, report it to be the

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1. Timaeus, 42c4 ff.

2. Timaeus, 42e7 ff.

same as or other than something contrary to the truth. Thus while they still seem to be performing their functions properly and ruling the body, they are actually mastered by all the intruding motions. However, as the stream of increase and nourishment lessens, and the body and ψυχή become more accustomed to their environment, the revolutions calm down, and the circles move again in their natural path, and announce the Same and Other properly. The man thus becomes intelligent, and, if his condition of ψυχή is improved by right education, he becomes really sound.

There follows a description of the sensations[1], especially vision, from the point of view of their importance in awakening reflection. This passage has already been mentioned and need here only be mentioned for the emphasis it lays on the prime importance of study of first causes for the acquisition of knowledge[2]. The physical mechanism of such a sensation as vision is declared to be only an auxiliary cause in that sensation. These causes have no reason, which is possessed by the invisible ψυχή , so the lover of knowledge must first pursue the causes of

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1. Timaeus, 45b2 ff.

2. Timaeus, 46c7 ff. Cf., too, 68e1 ff., where the auxiliary cause (συναίτια) of 46c7 ff. is spoken of as τὸ ἀναγκαῖον , or the necessary cause, that is, one which acts in accordance with the rules of its nature, and not with reason, as does the divine or primary cause, τὸ θεῖον or, simply, αἴτια .

Intelligent Nature, that is, the Forms, and count as second those which are without reason and produce accidental results.

Since the mechanism of the sensations is, in Plato's theory, entirely unconnected with the Forms, it is beyond the sphere of this discussion. Consequently we shall leave on one side any description of such mechanism, and of the effect upon the body of the different elements with their varying triangular bases, and the reasons for this effect. It should only be observed that Timaeus points out that these auxiliary causes of the world must be sought after for the sake of the divine, from which they must be clearly distinguished[1]. The divine objects after which we strive, in other words, the Forms, cannot be discerned by themselves alone without a preliminary study of the auxiliary causes to set one on the way to the knowledge we seek.

Finally, Timaeus points out that the way to tend and cherish the divine part in man, and so lay hold on immortality, is to study the thoughts and revolutions of the Universe, which are akin to the divine part in us[2]. By learning the harmonies and revolutions of the Universe, one rectifies the revolutions of the ψυχή , which, as well as the Universe, contains the revolutions of the same and other, and makes the part that thinks like the object of its thought

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1. Timaeus, 68e6-69a5.

2. Timaeus, 90b2 ff.

as it originally was. That is to say, the Microcosm cherishes and enhances its own divinity by its striving to perfect its knowledge of and likeness to the Macrocosm[1]. All through the Timaeus, of course, the world ψυχή and the human ψυχή are represented as Macrocosm and Microcosm.

Epistle VII again adds something of importance for our discussion. It is stated there that knowledge of an intelligible, existing object is acquired by three things, the name, the definition, and the image[2]. The image is, of course, the sensible object of which we have physical perception. Of these four, knowledge, the name, the definition, and the image, knowledge or intelligence is closest to the object, but all four are necessary in order to understand the latter. But these all attempt to express the quality of an object as well as its essence, because of the weakness of language. They are not fixed, moreover, for a different name or definition could be given to an object without the object being in any way different. Since these four are always offering the ψυχή information about the quality of an object, though the ψυχή

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1. Cf. note 2, p. 159

2. Epistle VII, 342a7 ff.

seeks the essence, they give information about something that is changeable and easily refuted. Consequently, it takes a great deal of concentration and eagerness in studying carefully all four stages, going over them again and again, comparing them and testing them, for even a good man, and one with a natural affinity for the subject, finally to achieve knowledge of the object.

Early in the Laws, Plato dwells on the fact that real knowledge of their originals is necessary for intelligent criticism of imitations[1]. To be able to criticise rightly a poem, or harmony, or painting, or any sensible object, one must possess a real knowledge of the essence of the original represented. If he does not know the original he cannot tell how correct the imitation is, or how far it falls short of its goal.

In this dialogue, too, we find, in the long discussion about the gods, an elaborate proof that the ψυχή is prior to so-called "nature"[2]. This proof takes the form of an enumeration of the types of motion and the assignment of their own proper motions to ψυχή and the

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1. Laws, 667e10 ff.

2. Laws, 891b8 ff. Cf., too, 959a4ff., 966d9 ff.

objects of nature. That belonging to ψυχή is prior to that of nature, so ψυχή rules nature[1]. The things akin to ψυχή , that is, opinion, reflection, and so on, are, besides, prior to the things of body. And, finally, the ψυχή is the cause of all things and moves all.

The importance of the name and definition for knowledge of an object is insisted upon in the course of the above-mentioned proof[2]. This is the point made in Epistle VII and discussed in that connection[3]. It is repeated again in discussing virtue[4] - both the name and definition are prerequisites of knowledge, though they are not knowledge, as the Theaetetus showed.

At the end of the Laws, there is a last examination of the unity of virtue, and the separate kinds within that unity[5]. Prior to the actual examination, the way is prepared by an indication of the instruments to be used[6]. These are reason together with the finest senses. It is by this combination that the rulers of a

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1. Laws, 896c5 ff.
2. Laws, 895d1 ff.
3. Epistle VII, 342a,b.
4. Laws, 964a5 ff.
5. Laws, 963a1 ff.
6. Laws, 961d1 ff.

state will attain salvation for the state[1], that is, by a real knowledge of virtue. Thereupon, the process of the ascent to knowledge is referred to again[2], with emphasis on the necessity of being able to see the many and look from them to the One, and then with an eye to this organize the rest[3]. This is what the law-giver must do in the case of virtue. He must, moreover, grasp the reason which controls the stars as well as the preliminary subjects[4].

By this time we have come to have some idea of the meaning of the equation "virtue is knowledge". If a man is able to acquire knowledge of the Forms, the Good, Justice, Courage, and all the rest, he will appreciate them and make them the goal of his own life, modelling his character on the Forms. If he could not appreciate them, he could not learn them. This is made perfectly clear in Epistle VII[5], as in the other passages describing the difficulties of dialectic.

The Epinomis also deals with the subject of wisdom and knowledge. Whether this dialogue is genuine

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1. Laws, 964 ff.
2. Laws, 965b2 ff.
3. Cf. Politicus, 285a ff.
4. Laws, 967d7 ff.
5. Epistle VII, 343e1.

or not, it goes over once again the principles of knowledge and wisdom which we have already discovered. The claim of the ordinary sciences and arts to yield knowledge is examined, and discredited[1]. The one single science, the absence of which would render man thoughtless and senseless, is the science of number[2]. Without number we could not tell things, nor tell of what we perceived by sensation, and could not acquire wisdom. The knowledge of number comes from observation of the heavens and the movements of the heavenly bodies[3]. This leads into a discussion of the heavenly bodies, and recognition of them as gods. It now appears that wisdom is goodness, (the reverse of the Socratic dictum), and the greater part of goodness is piety[4]. which is achieved by the study of astronomy, geometry, and stereometry, which lead to the knowledge of divine generation. The method of study is again described as referring the particular thing to its generic forms, with much testing and comparing, a method already familiar as dialectic. One must be able to discern the unity in all particulars and fix one's gaze on unity.

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1. Epinomis, 974b ff.
2. Epinomis, 976d ff.
3. Epinomis, 978c ff.
4. Epinomis, 989a ff.

In the Laws and Epinomis any light thrown on the question under discussion, the function of the Forms in regard to sensation and knowledge, is only incidental to other subjects. These two works do, however, strengthen and corroborate the information which we have gathered from the earlier dialogues, which can be summed up fairly briefly. The Forms, as unchanging entities, are the only objects of real knowledge, and knowledge of them makes a man wise and good. It is, moreover, only because of the existence of the Forms that discourse is possible; they are the indispensable basis of every statement, whether the speaker realizes it or not. Actually, it is only by referring to the Forms that false statement and false judgement can be explained. These last two remarks lead to a repetition of the first statement in a reversed form. It is only because the Forms exist that knowledge is possible. We have said that the sensations are preliminaries to knowledge, because they cause the mind to reflect. If the Forms did not exist, there would be no sensible world, and so no sensations to tell us about particular things, and set us on the path to knowledge. In this sense the Forms have a function to perform in regard to sensations. They are not, however, the actual objects, as well as the mediums of sensation, as are the forms of Democritus. Nevertheless, to both philosophers

the sensations are necessary instruments in leading the ψυχή to thought and reflection, which, if properly directed, ends in knowledge of the Forms, the objects of knowledge to Plato, and, together with the void, to Democritus. Without the evidence of the senses to institute thought, men would never arrive at knowledge. In his later works, moreover, Plato makes it clear that the real knowledge of the Forms is not alone sufficient to enable a man to live the best life here in this world. This is shown by the proof, in the Philebus, that pure knowledge by itself is not the greatest good, by the description of the composition of the ψυχή in the Timaeus, and the insistence on the necessity of tending to the revolutions both of the Same and the Other in a man's ψυχή , as well as other minor points already mentioned.

CHAPTER 4

FORMS AND GOD

I - DEMOCRITUS

In order to discover whether the forms play any part in Democritus' conception of god and divinity, it is best to examine briefly all the passages in which we find Democritus' beliefs about divinity mentioned, and then compare them with one another. If we begin with the passages classed by Diels as direct quotations from Democritus, the first to concern us is one preserved by Clement in two different places. In the Protrepticus[1], he reports Democritus as saying that a few men of reason stretch forth their hands to that place which we Greeks now call air, and speak of it as Zeus; for Zeus knows all, he gives and takes away all, and he is king of all things. In the Stromateis[2] the wording is slightly different. Democritus writes, he says, that a few men are in the light, who stretch out their hands to that place which we Greeks now call air; for Zeus tells all, and knows all, and gives and takes it away, and is king of all things. Whichever of these represents the original form of Democritus' statement, it yet appears that he approves of the reason

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1. B 30, Clement, Protrepticus, VI, 59.
2. B 30, Clement, Stromateis, V, 103.

given for ascribing divinity to the upper air, while he may not agree with the ascription to that particular object. He seems to agree with the principle applied for recognizing divinity, that is, the power of the god.

Among the γνῶμαι of Democritus, or Democrates, is one statement which has some bearing on the problem. The statement is that the characteristic of always thinking something lovely belongs to divine mind[1]. From Stobaeus comes a quotation[2], to the effect that good fortune (εὐδαιμονία) is not to be found in cattle nor in gold, for the ψυχή is the abode of deity (δαίμων)[3]. Stobaeus is our source, too, for an assertion that the gods have given, as they do now, all goods to men[4]. But the things that are evil, harmful, and useless, they neither have given nor give to men, but men come to these because of their blindness and ignorance of mind. Of the same gnomic type as the last quotation is another from Stobaeus. This one asserts that only those, to whom it is hateful to do wrong, are dear to the gods[5].

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1. B 112, Democrates, 79.

2. B 171, Stobaeus, II, 7,3i.

3. There is a definite possibility,of course, that here δαίμων means simply one's own fortune, or fate, rather than divine power. This meaning would fit the sentence, and make perfectly good sense. If that is what Stobaeus means here, the statement has no significance for us.

4. B 175, Stobaeus, II, 9,4.

5. B 217, Stobaeus, III, 5,30.

There is a rather cryptic allusion to Democritus in Cicero's description[1] of Strato of Lampsacus. Cicero is arguing against someone who contends that nothing can have any power without God. Strato, he says, holds the opposite opinion, for he gives his God a holiday from all work, and says that everything that exists was made by Nature, not agreeing with Democritus who teaches that the universe is a concrete mass of rough and smooth, and hooked and crooked bodies, and a vacuum besides. This Strato calls a dream of Democritus, and he himself teaches that everything that exists, and is done, is caused by natural weights and motions. These words indicate that, in the eyes of Strato and Cicero, Democritus did not account for the making of things from his "bodies" and vacuum by natural motion. The statement also seems to contrast Strato, who took all work away from his God, and Democritus, who, presumably, did not. From this, I can only conclude that both Strato and Cicero thought that Democritus believed that there was some kind of divine activity in the universe, which was responsible for the contours of the world appearing out of the "bodies" and vacuum. We shall have to refer to this conclusion again later.

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1. A 80, Cicero, Academicae Quaestiones, II, 38, 121.

From Clement we gain some additional information about Democritus' ideas of divinity. He tells us that Democritus, as a consequence of his theories, will agree that there is some notion of divinity even in irrational creatures, for it is his theory that the same likenesses (εἴδωλα) from the divine essence fall upon men and upon unreasoning creatures[1]. It is perfectly obvious from this statement that Clement had no doubts about Democritus' recognition of, and belief in, divinity. The identity and meaning of the εἴδωλα will be elucidated as we discuss the remaining evidence for our problem.

The dialogue on astrology of the anonymous Hermippus tells us that, according to Democritus, the δαίμονες are εἴδωλα and the air is full of them[2]. Plutarch tells about the εἴδωλα of people and animals, states of mind, plans and characters, which are the cause of dreams, according to Democritus, because they enter the body and go up to the ψυχή[3]. He also speaks of Democritus' idea that the εἴδωλα, which are sent out from people, possess to some degree the qualities of character of the people from whom they come[4]. In these last two cases there is

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1. A 79, Clement, Stromateis, V,88.

2. A 78, Hermippus, de Astrologia, I,16,122 (Kroll-Viereck, Teubner, Leipzig, 1895).

3. A 77, Plutarch, Quaestiones Convivales, VIII,10,2,p.734F.

4. A 77, Plutarch, Quaestiones Convivales, V,7,6,p.682F.

no question of divinity in the εἴδωλα spoken of, but from them we get a little more information about the accuracy of εἴδωλα.

Pliny reports that Democritus held that there were two gods, Poena and Beneficia[1]. Again, there is no question of Democritus' not believing in any gods. Sextus tells us that Democritus said that εἴδωλα come to men, some of which, adds Sextus, do good, and others evil, and, of these, Democritus prayed that he might fall in with good ones[2]. These εἴδωλα are described, apparently in Democritus' words, to judge by the accusative and infinitive construction, as large and hard to destroy, though not imperishable, and as indicating the future to men by sight and sound. Then Sextus adds that, because of the appearance of these εἴδωλα , the ancients, including apparently Democritus, supposed that God existed, since God was nothing else but these images, and had an indestructible nature. The inference from all this, although it is not stated in so many words, is that Democritus believed the εἴδωλα to be divine.

From Sextus we learn, too, that Democritus was apparently one of those who held that men came to believe in the gods because of the extraordinary things that hap-

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1. A 76, Pliny, Naturalis Historia, II,7,14. (Mayhoff, Teubner, Leipzig, 1906).

2. B 166, Sextus Empiricus, adversus Mathematicos, IX, 19.

pened in the world[1]. He is reported to have said that, when they saw the happenings in the heavens, such as thunder, lightning, eclipses, and so on, the ancients were frightened, since they believed that gods were the cause of these events. In the same vein is a fragment of Philodemus' treatise de Pietate, which tells that the seasons and all such things were from Zeus, from above, and, for this reason, those who understood what took place felt reverence[2]. Crönert restores the unfinished last sentence of the fragment to read that, nevertheless, Democritus does not appear to be one of those who believe that the κόσμος is a god.

There are two passages in the de Deorum Natura of Cicero which furnish us with important evidence of Democritus' ideas of divinity. The first occurs in the course of a brief enumeration by Cicero of the amazingly inadequate conceptions of the Greek philosophers about the divine[3]. After speaking of Protagoras, he mentions Democritus, and asks if he is not involved in the greatest error, when, at one time, he counts in the number of the gods images (imagines), and their revolutions, at another, the very nature which disperses the images and sends them forth,

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1. A 75, Sextus Empiricus, adversus Mathematicos, IX, 24.

2. A 75, Philodemus, de Pietate, 5d. (Crönert, Kolotes und Menedemos, Avenarius, Leipzig, 1906, p. 130, n.542).

3. A 74, Cicero, de Deorum Natura, I, 12, 29.

and, at still another, our apprehension and intelligence. Moreover, says Cicero, when Democritus says that nothing is eternal, since nothing remains always in the same state, does he not do away with deity so completely that he leaves no trace of it? The statement that Democritus says nothing is eternal, for nothing remains in the same state is, as we have seen, quite untrue. The forms were everlasting and indestructible, and remained always the same; it was only sensible objects that Democritus thought were always changing and perishable. Thus, the forms of Democritus do satisfy the condition which Cicero here mentions as one of the prerequisites of deity. The second passage in Cicero is not very different. Here he begins by saying that even the great Democritus seems to waver in regard to the nature of the gods[1]. At one time, he gives it as his opinion that images endowed with divinity exist in the universe, at another, he says that the elements (principia) of mind which exist in the universe are gods, at another, images possessed of life which are wont to help or harm us, and, at still another, certain huge images so large that they embrace the whole world from without.

Finally, we come to a passage in Tertullian, and one in Aëtius. According to the former, Democritus

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1. A 74, Cicero, de Deorum Natura, I, 43, 120.

believed that the gods came into being with the rest of the heavenly fire[1]. In Aëtius we read that Democritus thought νοῦς was God, and was in spherical fire[2].

The first thought that occurs to one, after reading all these passages, is that Democritus could not have been an unbeliever in divinity. In the quotations from his works, and the words of other writers about him, his belief in some kind of divinity is quite obvious; in fact none of the commentators question his belief in God, though they may feel doubt about the validity of his ideas of what the nature of that God is. Among the quotations from Democritus are several in a traditional gnomic vein, which, though they do not tell much about the exact nature of the God in which Democritus believed, do show that he had no quarrel with the conventional belief in divinity, and thought there was value in the ethics supported by conventional religion. He did not feel it necessary to express his ethics in non-religious terms. In his remarks about the religious beliefs of the people who had lived before him, he shows a sympathetic understanding of their ideas of divinity, and an appreciation of the principle of the divinity of power. This is the contribution made by the passages in Sextus, Philodemus, and Clement.

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1. A 74, Tertullian, ad Nationes, II,2.
2. A 74, Aëtius, I, 7,16.

When we turn to more particular points, I think we can find what was the real belief of Democritus, a belief which was understood rather differently by different philosophers and commentators. The statement of Aëtius can be shown to represent Democritus' theory of divinity; it is, in itself, a simple straightforward statement which carries conviction, and it is the one theory which fits with all the varying assertions of our other authorities, and which explains the rise and existence of such variation. According to Aëtius, as we saw, Democritus said that God was νοῦς , and was in the spherical fire. In other words, the spherical forms which make up fire, ψυχή , and νοῦς , are the God. It is to be remembered that these are the most mobile and powerful of the forms, able to penetrate everywhere and cause motion in physical bodies, which the other constituent forms, though themselves in motion, could not move. The most powerful force in the world, in Democritus' view, was the force which he believed to be God. This is exactly what Tertullian says in a slightly different form; Gods arose with the rest of the fire that is on high. That is to say, the gods are of fire, which is, in view of the length of time which elapsed between Democritus and Tertullian, and the Christianity of the latter, a very sympathetic way of expressing Democritus' conviction that the spherical fiery forms were the great God. In one of the quotations

from Stobaeus, which is largely gnomic, instead of saying in simple gnomic style that εὐδαιμονία belongs to ψυχή Democritus declares that the ψυχή is the abode of divinity (δαίμων)[1]. This is exactly in accord with what we have found in the reports of Aëtius and Tertullian, only here the fiery spherical forms are thought of in their capacity as ψυχή; they are still the same forms, and so are God.

Now the only way in which these ψυχή forms differ from the other forms is in their smaller size, their shape, and their greater mobility and power to transmit motions. They possess the general characteristics of the forms in the highest degree; they are the most powerful forms. Consequently, they are the highest God, but the other forms, which are only slightly less powerful, and possessed of the same characteristics to a lesser degree, must be divine also. It is, of course, not foreign to Greek ideas to believe in a number of divinities, some greater than others. The ψυχή or fire forms, are obviously Democritus' highest divine power; they are the God, while the other forms are gods also, but subordinate to the great God.

The divinity of the forms will be found to be the basis for the manifold ideas of divinity which are

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1. See note 2, p. 144.

attributed to Democritus by our authorities. If we turn again to Cicero, we remember that, in the first of the pertinent passages, he says that at different times Democritus names as gods images which go about in the air, the nature which sends forth the images, and our intelligence[1]. Actually, although Cicero thinks these ideas are contradictory, they are not so at all. Cicero's puzzlement simply shows that he has no understanding of Democritus' religious beliefs. Our intelligence, or mind, is made up of the spherical forms, which we know were Democritus' great God. The nature which sends forth images is the forms and their power, while the images themselves are also composed of forms (they are certainly the effluences which everything is continually giving off), and so divine. The error in Cicero's supposition that Democritus' general theory does away with a real belief in divinity has already been pointed out. Thus,it appears that, in spite of the fact that Cicero finds his account of the gods of Democritus very puzzling, and can see no connection between the different gods he mentions, actually he gives a very good and accurate picture of Democritus' theories about the gods. In the second passage[2], Cicero mentions

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1. See note 3, p. 148.

2. See note 1, p. 149.

the images and the principia mentis which appeared in the first, and were shown to be true representations of Democritus' ideas. He also refers to certain very large images which embrace the world from outside. This is the only mention of such images that we find in connection with Democritus, but they immediately recall to the mind the fact that the ἀρχή of Anaximander embraces (περιέχει) all the worlds[1]. The ἀήρ of Anaximenes embraces (περιέχει) the whole cosmos[2]. Heracleitus, also, apparently, speaks of his "fire" as τὸ περιέχον[3]. We find, too, that Diogenes mentions the ὑμήν, which Leucippus said embraced all kinds of bodies within itself[4]. This ὑμήν, or χιτών, is referred to by Aëtius, who says that Democritus and Leucippus stretched it around the cosmos[5]. Accordingly, it seems reasonable to suppose that these huge images of Cicero represent such envelopes which Democritus, in some passage not otherwise referred to, said embraced the worlds. They are plural because of the plurality of worlds, each world having an envelope, which, as it were, keeps it together. They must obviously be caused by forms just as the other images are, for there is nothing but forms and void. Consequently these περιέχοντα must certainly be divine.

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1. 2, 11,,Hippolytus, Refutatio Omnium Haeresium, I,6,1.
2. 3B2, Aëtius, I,3,4.
3. 12A1, Diogenes Laërtius, IX,9.
4. 67A1, Diogenes Laërtius, IX,32.
5. 67A23, Aëtius, II,7,2.

The imagines of Cicero have appeared before as εἴδωλα in our Greek authorities. Plutarch mentioned them, without making any reference to their divinity, while Hermippus reported that Democritus, who called them δαίμονες , said the air was full of them. This is in agreement with our knowledge that the air is always full of the effluences given off by things, and that these effluences, as forms, are divine. Clement speaks of the εἴδωλα which Democritus says come to men and animals from the divine nature. One can understand how this idea might arise from Democritus' theory of the divinity of the forms, which are the cause of all the objects which give off effluences. Sextus, also, referred to Democritus' belief in the divinity of εἴδωλα , some good and some bad, which foretold the future to men by sight and sound and were hard to destroy. It seems as if we have here some confusion between Democritus' ideas and current conventional beliefs of his period. Such confusion might easily arise in the course of transmission over so many years, especially since Democritus seems on several occasions to have expressed his general understanding of the basis of the conventional religion. As for Sextus' final implied criticism of the ancients for supposing the perishable images to be God, though God is imperishable, we know that, while Democritus be-

lieved the perishable images divine, since made up of forms, the divinity really belonged to the forms, which were imperishable.

It is now possible to understand clearly the opposition expressed by Strato towards Democritus. While Cicero does not definitely state that Democritus believed it was divine power which caused the settlement of the universe, he does, as we observed, report that Strato gave God a holiday, and said everything was made by nature and natural motion, and did not agree with Democritus, who said that things were made of forms and void. Now, if the activity of the forms was not due to nature without divinity, it must have been due to divinity. Consequently, I think that it was because Strato knew that the forms of Democritus were divine in power that he referred so scornfully to Democritus' theory as dreams or hopes.

At the conclusion of this study of Democritus, it is obvious that to him the power of the forms to cause all physical objects, sensations, thought,and life, indeed, the whole universe, was inseparable from divinity. The forms were Democritus' gods and the fiery, spherical forms his supreme God.

II - PLATO

As we begin to investigate the function of Plato's Forms with regard to his conception of divinity, we must recognize clearly that there are two distinct types of reference to the gods in Plato's writings. The one, of course, includes all the passages in which he mentions or attempts to explain all his own particular ideas about God and the gods. It is from such passages that we shall discover Plato's ideas about the highest divinity, and what contribution, if any, the Forms made to this divinity. The second type is made up of conventional references to the gods who were a part of the common religious and cultural heritage of all Greeks. They show merely a consciousness of divinity, and a habit of pious speech, in their user, and add nothing to our knowledge of his individual beliefs. There are many such references[1] to the gods in Plato's dialogues, and, since they tell us nothing about his religious ideas, except that he had no quarrel with the conventional religion, and was not a disbeliever in the gods, we shall omit them from the following discussion.

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1. For example, Phaedrus, 238d6, 240b1; Timaeus, 27c; Laws, 688e2, 718b4.

For a study of Plato's own conception of deity, it will be most satisfactory to proceed as before, by examining and comparing the pertinent passages in the dialogues, in order to find, if possible, the ideas which lay behind the writing. In the Euthyphro, which is, of course, only tentative, Plato shows the inconsistencies involved in some of the current notions about the gods[1]. These include the stories about quarrels and battles, which picture the gods as having no one idea about what is right and wrong. Such an opinion of the myths was not, to be sure, peculiar to Socrates and Plato, but was shared by all Greeks who brought ethics into contact with religion at all.

The Phaedo contains several passages of interest. In the first place, we find it stated there that the divine is by nature fitted to rule and lead[2]. Since this is so, the ψυχή , which rules over body, must be like the divine, immortal, intellectual, uniform, indissoluble, and ever unchanging. Here, obviously, the divine is identified with that which is immortal, uniform, and so on, that is, the Forms. At this point, then, we have

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1. Euthyphro, 7b ff.

2. Phaedo, 80a2 ff.

the Forms clearly called divine, while the ψυχή is said to be like the divine, but is not identified with it. A little later, the ψυχή is said, on leaving the body, to go to the realm of the good and wise god[1], to that which is like itself, the invisible, divine, immortal and wise, and live through all time with the gods[2]. Again, Socrates declares that no one but the philosopher and lover of knowledge, who is completely pure, is allowed to enter the company of the gods when he dies[3]. There are several other references to the communion[4] of the ψυχή with the divine and pure and absolute, and its knowledge[5] of what is true and divine and knowable. All these passages point to the Forms as divine in Plato's eyes at this time. Finally, we find an indication of what was to Plato one of the essential facts in divinity. In speaking of the efforts of people to explain the universe, he says that

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1. Phaedo, 80d5 ff.
2. Phaedo, 81a4 ff.
3. Phaedo, 82b10 ff.
4. Phaedo, 83e1 ff.
5. For example, Phaedo, 84a7 ff.

they do not look for the power which causes things to be placed as it is best for them to be placed, nor think that this has any divine power[1].

Turning now to the Symposium, we see that it does not add very much to the Phaedo in regard to divinity. In discussing love Diotima makes it plain that a god is beautiful, and happy, and good[2]. In the same connection, she defines ὁ δαίμων and τὸ δαιμόνιον as the means and medium of all society and conversation of gods with men, though the daemons are not gods, for the latter do not mingle with men[3]. A little later, τὸ θεῖον is again spoken of as being exactly the same forever[4]. Elsewhere, moreover, the acts of engendering and bringing to birth, both physically and mentally, are called θεῖον , an immortal part of a mortal creature[5], because they are the means of perpetuation of blood and thought. And Diotima adds that, consequently, the presence of beauty is necessary for begetting, because the ugly is at variance with the divine. The sum total of this information is that the divine is beautiful, happy, and good, that what is ugly is

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1. Phaedo, 99c1 ff.
2. Symposium, 202c6 ff.
3. Symposium, 202d13 ff.
4. Symposium, 208a8.
5. Symposium, 206c6 ff.

discordant with it, that it is always exactly the same, and that it is concerned with reproduction and perpetuation of the beautiful, and has power. To establish all this as a unity, we find that the Form of the Beautiful, the immortal, unchanging goal of all who love beauty, is spoken of as divine beauty[1]. Divinity is again a Form, and all its attributes are those of the Forms.

The Phaedrus contains a number of interesting and pertinent passages, beginning with a reference to two kinds of ψυχή , divine and human[2]. After a demonstration of the immortality of the ψυχή , we find again the definition of the divine as beauty, wisdom, goodness, and so on[3]. In the myth[4], in which is described the ascent of the tripartite ψυχή to a view of the eternal Forms, along with the gods, that is, Zeus and the rest of the Olympians, these traditional gods are regarded as the great gods, possessed of divine intelligence[5]. This divine intelligence, nurtured on mind and pure knowledge, is able to behold reality, absolute justice, temperance, and knowledge, as can some ψυχαί . Even more, it is the remembrance and recollection of, and communion with, these

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1. Symposium, 211e3.
2. Phaedrus, 245c2-3.
3. Phaedrus, 246d8-e1.
4. Phaedrus, 246e4 ff.
5. Phaedrus, 247d1 ff.

Forms which cause God to be divine[1]. Here we seem to have the beginning of a notion of divinity beyond the Forms, possessed of many of the same attributes as the Forms, but able to know the Forms, and owing its divinity to this knowledge of, and communion with, them. But exactly what this divinity is, is still uncertain, nor, I should think, are the Forms here deprived of divinity. There is one more passage to interest us in the Phaedrus, a passage which describes the efforts of every man to discover the nature of his god, in this particular place any one of the Olympian deities, and to receive from him character and habits, so far as a man can share in the divine[2]. While Plato is here specifically speaking still in terms of the myth, and so of the Olympian deities, this generalization about men studying the god and achieving communion with him is one which he would certainly apply to his own special deity. This communion with the god is reached in much the same way as understanding of the Forms. In fact,it is interesting to observe that much the same language as that in the passage of the Phaedrus just referred to is used of the lovers of knowledge in the Republic[3]. They are said to fix their gaze on the Forms, and imitate them, and grow

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1. Phaedrus, 249c5-6.
2. Phaedrus, 252e5 ff.
3. Republic, 500b8ff.

like them, as much as possible, and, by associating with that which is divine and orderly, to become as divine and orderly as a man can. This brings the Forms back into close connection with divinity.

Some change, possibly temporary, in Plato's ideas of deity is to be seen in the Republic, though the first pertinent passage only reiterates, at some length, the fact of the goodness of God, in character and action, His function as the cause of all good, but not of evil, His abiding for ever in His own form, which is the best, and His freedom from falsehood[1]. In the simile of the Sun, the Good is presented as the source of knowledge, and of truth, and of reality, and fairer than these[2]. It is described in passionately glowing terms, and is most certainly thought of by Plato at this juncture as the highest power in the universe, transcending "essence" in dignity and superlative power. For this reason, it seems to me that the Form of the Good is here, in the Republic, to Plato the great divinity and God, superior to the other Forms[3]. The passage in which μίμησις is discussed does not really concern us here, although there God is spoken of as the producer of the Form of couch, and

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1. Republic, 379a ff.

2. Republic, 508a ff., especially 509a; also 517b8 ff., 518c6 ff., 532b1.

3. See pp. 26-28.

such things[1]. This does not mean, I think, that Plato seriously believed that God created the Forms, which everywhere else he calls ever-existent, and existing but never becoming. Rather, the expression is merely a device to distinguish clearly between the Form of the object, which exists without relation to man, and the object created by man. It serves also to establish a complete parallelism in description between the Form, the copy, and the copy of the copy. Finally, we have one more reference to the kinship of the ψυχή with the divine and immortal and ever-existent[2]. We still have the close connection of the Forms with divinity, with the addition that here the Form of the Good seems to be the divine, rather than all the Forms, while, at the same time, the relationship of the ψυχή to divinity is still maintained.

The Parmenides does not concern us here, except for the association of God with the Forms and knowledge of them in a class quite apart from the things of the world[3], when Parmenides is demonstrating the difficulties involved in the theory of the Forms. This does not add anything to our knowledge, especially since Par-

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1. Republic, 597a ff.
2. Republic, 611e.
3. Parmenides, 133c ff.

menides is not putting forward a serious theory, but is making what are in reality merely debating points against one that has been suggested. The examination of the causal function of the Forms carried on by Parmenides and Socrates, has already been discussed in some detail[1]. It is of importance because their power as causes, of some kind, of the world of Becoming definitely connects the Forms with divinity, which is, of course, power. From this point of view, all our study of the causal power of the Forms in relation to phaenomena is significant for a study of their divinity.

In the Politicus, we get a glimpse of the dilemmaabout the meaning and essential qualities of divinity which must have already suggested itself to us. It has been stated several times already that the divine is unchanging, and this is repeated here. The Stranger says that always remaining in the same place and unchanging stability is a property of only the most divine things[2]. Beside such statements as this, we have seen a number of references to the close relationship to divinity of ψυχή , the self-mover and cause of all motion, and the declaration that the divine is fitted

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1. See pp. 28-29.
2. Politicus, 269d5-6.

to rule and lead. In the speech already mentioned, the Stranger also declares, a little later, that turning itself for ever is scarcely possible except for the power that guides all that moves, and, according to the divine law (θέμις), this moves only in one direction[1]. This power that guides all that moves, and turns itself for ever, can not be immoveable and unchangeable, but it is certainly very close to the highest divinity, which rules and leads all. There are continually to be found in Plato these two apparently contradictory ideas of the immutability and immobility of divinity and its power, and both seem to him essential aspects of deity. The Stranger comes to the conclusion that the universe is guided at one time by an outside divine cause, and then again left to turn itself[2]. Though this whole section is slightly mythical in presentation, the causality of the divine power is clearly indicated. The same is true of the main part of the myth of the Politicus[3], where God is represented as ruling and supervising the whole revolution, assisted by various minor deities,

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1. Politicus, 269e5-7.
2. Politicus , 270a3 ff.
3. Politicus, 271d ff.

until certain conditions had been accomplished, when He gave up His guiding and withdrew to look on, as did all the other gods. God was the giver of only good things to the universe, but, when it was left to its own devices, its older disorderly condition finally prevailed, and at last God and His subordinates took control again to restore order.

Since the only mentions of divinity in the Philebus are quite conventional, we come next to the Timaeus, in which, of course, the activities of the Demiurge are conspicuous. This dialogue, is, to be sure, a myth and so cannot be taken quite literally. Indeed, Plato warns us of this, when he says that we must not be surprised if it is impossible to give perfectly consistent and exact accounts, in dealing with many matters to do with the Gods and the generation of the universe[1]. It is certainly unnecessary to cite passages to prove the divinity of the Demiurge, for that is obvious from the very beginning[2] of the account of the creation of the universe, where He is called ποιητής , and πατήρ , and, many times ὁ θεός [3]. In the myth He is represented as an active Creator God,

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1. Timaeus, 29c4-d2.

2. Timaeus, 27d5.

3. Timaeus, 28c3, 30a2.

bringing order into chaos[1]. He is the moving cause of the universe, ordering the universe in its present form, and originating all motion in it. He is perfectly good and desires only good[2], and is ever-existent[2]. It has already been pointed out that[3], as far as He can be identified, the Demiurge seems to be the mythical representation of the world ψυχή . As such, He is the self-moving cause of all orderly motion and activity in the universe. In the position as highest divinity given in the Timaeus to the Demiurge, or world ψυχή , we see the climax of the relation of ψυχή to divinity. It is interesting to notice, with regard to the Demiurge, that, when He has completed His task of making ψυχή and ordering the universe, and has turned over the rest that has to be done to the minor gods, in order that the things yet to be made might not be gods, He is said to have abode in His own proper and customary state[4]. This means, apparently, that He returned to some state of immutability,and connects the Demiurge with that other aspect of divinity, everlasting immutability and immobility.

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1. Timaeus, 30a2 ff., 32b-c, 52d2 ff. especially 53b1.
2. Timaeus, 29a, 29e, 34a8, 41a ff., 42d, 68e.
3. See pp. 33-34.
4. Timaeus, 42e5-6.

We find a number of references in the Timaeus to another kind of god. In speaking of the forms in the absolute living creature, which must be copied in this world, Plato mentions first the heavenly kind of gods[1]. Continuing, he says that the form of the divine class was made by the Demiurge mostly out of fire, to make it as bright and fair as possible, and that it was made spherical. He placed these gods in the"intelligence of the Supreme", that is, the circle of the Same, giving to each two motions, the one uniform motion in the same place, by which it always conceives the same thoughts about the same things, and the other a forward motion due to the motion of the circle of the Same. Plato then speaks of the members of this class as the unwandering stars, divine living creatures, which turn for ever uniformly in the same place. In contrast to these, Plato mentions those stars which keep swerving and wandering, and which a little later he speaks of as gods also. The emphasis laid on the wandering of the planets, which are in the circle of the Other, as opposed to the uniform motion of the stars in the circle of the Same, seems to point to the former as lower in the scale of divinity because of this lack of uniformity. This criterion of

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1. Timaeus, 39e10 ff.

divinity brings us back to one of the two long familiar to us, that of immutability. The stars are not motionless, but their motion is for ever uniform and regular, completely unchanging. Incidentally, Plato mentions earth as the first and eldest of these gods, whose place in the ruling circle of the Same connects them with rule. After a reference to the various traditional deities, Plato proceeds to the trust given by the Demiurge to these younger gods to complete His work, by generating the mortal kinds in the universe. In the course of His admonition, the Demiurge speaks of the immortal and divine part of living creatures which He Himself will generate[1]. This part is, of course, the ψυχή . The Demiurge, after compounding more ψυχή in the same manner as before, but of less pure ingredients, divides it into ψυχαί equal in number to the stars, and assigns one ψυχή to each star, from which it observes the nature of the universe. When the ψυχαί had been fully informed of the laws of the universe, they were sown in the organs of time, the earth, the moon and the rest[2]. Then the

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1. Timaeus, 41c6-d1.

2. Cornford points out (Plato's Cosmology, p.146) that those ψυχαί on the planets are waiting their turn to be bound into bodies on the earth. He suggests that this sowing of the ψυχαί in the instruments of time may symbolize that the ψυχή has that intermediate sort of existence which partakes of Real being and of becoming.

young gods took up the task of generating mortal bodies and the remainigg parts of the human ψυχαί . Here we still find the two aspects of divinity, frequently noted before, the ψυχή , the moving power, in close connection with the unchanging divinity, the stars, which are here, for the purposes of the myth only, represented as sharing in the act of generation.

We find in the Timaeus, too, that the immortality, uniformity, and perfection of the Models or Forms is frequently emphasized[1]. They are,besides, clearly regarded as independent of the Demiurge and His activity and the world He creates. They would still have continued in everlasting uniform existence even if none of these had existed, and they are certainly the highest reality in the Timaeus. Accordingly I think, in view of all their characteristics, that we cannot help but feel that Plato believed that they too were in some way possessed of a divinity, thought not gods as the others were.

There is another immortal reality in the Timaeus, Place, or the Nurse of Becoming, which, in some queer way, partakes of the intelligible[2]. This, too, shares in divinity in so far as it is without birth or death. Besides

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1. Timaeus, 28a ff., 30d.

2. Timaeus, 48a ff., 53d.

this, there are some interesting phrases used of the created universe. It is spoken of as the ἰδέα τοῦ ἀρίστου [1] which is being brought to perfection by God; its close approximation to perfection is dwelt on[2]; and finally, it is called ὁ αὐτάρκης τε καὶ ὁ τελεώτατου θεός [3]. This phrase should not be taken to mean that Plato has suddenly decided that Becoming is as real and true as Being, but merely to emphasize the high degree of perfection achieved by the Demiurge in His imposition of order on chaos, and the importance of Becoming as one necessary part of the whole order.

Thus, the Timaeus presents us with a variety of aspects of divinity. In some way divine are the highest realities, the Forms. The great God, the perfectly good cause of all order, goodness, and motion in the universe is the Demiurge, or world ψυχή . It is to be remembered that, in the Phaedrus, it is said to be the recollection of the Forms and communion with them which causes God to be divine[4]. The Demiurge has knowledge of the Forms, and, as ψυχή has a share in them. It would seem that the statement of the Phaedrus still

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1. Timaeus, 46c8.
2. Timaeus, 32d ff.
3. Timaeus, 68e3-4.
4. Phaedrus, 249c5-6.

holds. The Stars, with their passenger human ψυχαί are minor gods. Below them, but still everlasting, is the Nurse of Becoming, and, last of all, Becoming itself, striving for perfection and immortality, the last essential rung in the ladder. And, somewhere about, if one wants to believe in them, are the Hesiodic deities.

When we turn to the Laws, there are only a few passages apart from Book X which we should note. First of all, God is said to control everything, and, with chance and occasion, to guide all human affairs[1]. This is a little elaborated by the statement that God holds the beginning, the end, and centre of all things that exist, and completes His circuit by nature's ordinance in a straight course[2]. With Him follows justice, the avenger of the divine law. The wicked man, moreover, is abandoned by God, and, to establish a norm of conduct, it is declared that God should be the measure of all things, and to Him the moderate and temperate are dear. Of prime importance is the demonstration of the fact that the sun and moon and other planets do not wander in their courses, but travel along paths without changing[3]. Consequently they are to be reckoned

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1. Laws, 709b7 ff.
2. Laws, 715e7 ff.
3. Laws, 821b5 ff.

among the number of the heavenly gods, and blasphemous statements about their wanderings must not be tolerated.

Book X of the Laws contains the proof that the gods exist, that they care for men, and are not venal. This proof rests upon the demonstration that the ψυχή and the things that are akin to it are older than, and prior to, the body and things akin to it[1]. The priority of ψυχή is seen to be a fact because it is ψυχή which moves itself and other things (the type of motion which originates all other motion), and so it is identical with the prime origin and motion of the things that are, and have been, and will be, and their opposites. It is the oldest of all things, since it is the first principle of motion. Thus, we find that ψυχή is the cause of things good and bad, just and unjust, and the like. Since the motion of the heavens and all they contain is orderly and like that of reason, a motion regular and uniform in the same place, it must be the best ψυχή which causes and controls the motion of the heavenly bodies. Finally, the Athenian declares that, as it has been shown that the stars and moon and time and seasons are all caused by one or more ψυχαί , perfectly good, we must say these ψυχαί are gods, whether they order the heavens by residing in

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1. Laws, 892a ff.

bodies, like living creatures, or however they do it[1]. Moreover, since the gods are perfectly good, and have all knowledge and power, they do not neglect even the smallest part of their possessions and tasks[2]. The belief one must have is that everything is ordered systematically by Him, who cares for the world-all, with a view to the preservation and excellence of the whole[3]. Each part strives toward the All and perfect bliss for this. In his proof that the gods are not venal, Plato refers to the existence of good ψυχαί and bad[4], and the fact that, in the struggle between the two, the gods and daemons are our allies and we are their possession[5]. The gods, being perfectly good, could not, as our guardians, act in a way worse than do dogs and men who are guardians. Accordingly, as their guardianship is the greatest, so is their integrity.

At the end of the Laws, there is a repetition of the main points of Book X. One of the best things is the doctrine about the gods, their existence and power[6]. We are led to believe in the gods because we know that the

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1. Laws, 899b.
2. Laws, 900c8 ff.
3. Laws, 903b4 ff.
4. Laws, 904b.
5. Laws, 906a ff.
6. Laws, 966c1 ff.

ψυχή is the oldest and most divine of all moving things[1], and that the motion of the stars and all the other bodies is controlled by reason[2]. It is impossible for any man to be permanently god-fearing if he does not grasp these two truths.

The Epinomis returns again to these same arguments. The writer, in speaking of God, affirms that the Being who is the cause of all good must be the cause of understanding, and this Being is the Heaven, the World Order[3]. In the course of the ensuing discussion of virtue and number, we find the divinity of the stars again insisted on[4]. They are endowed with the most beautiful body and the happiest and best ψυχή. They are possessed of mind, as is proved by their always doing the same things[5]. Considering this and their great size, it is clear that God is the cause of their living spirit and revolution. Later it is said that[6], of the visible gods which are greatest and most honorable, we must count first the stars, while below these come the divine spirits, of ether and air, which are interpreters. The kind made of

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1. Laws, 966d9 ff.
2. Laws, 967d4 ff.
3. Epinomis, 976e3 ff.
4. Epinomis, 981e3 ff.
5. Epinomis, 982b1 ff.
6. Epinomis, 984d5 ff.

water, or nymphs, is semi-divine. The same ideas are to be found in the rest of the work, which deals mostly with details of the motions of the heavenly deities.

It is apparent from this that Plato believed that the first prerequisite of divinity was immortality. Beyond that, there were two main aspects of divinity, immutability and motive causal power. Because of their share in the first, and their causal relation to phaenomena and the character of the philosopher, the Forms are to some extent divine, and we have seen that adjective used of them, though they were never called θεός . As Plato advances in thought, we see this divinity of the Forms left more and more to one side, while he develops the view that God is the ruling, moving and causal power in the universe, perfectly good, desiring and causing only good, and bringing the world into order in accordance with reason. This great God is the world ψυχή while all ψυχαί are divine. Beside this great God, the world ψυχή , are the heavenly gods, which reveal their reason and divinity in their regular, unchanging motions, and which are inhabited and guided by ψυχαί . The great divine power in the universe is ψυχή , in whatever guise it may appear. It is in the emphasis laid here upon order, and a definite unchanging type of motion, that the immutability of divinity is shown still to be import-

ant. The part played by the Forms in this divinity is in part distinguishable. It is in its perfect knowledge and understanding of them that the world ψυχή, which is God, has reason and intelligence, and so can bring order and goodness. This ψυχή is in part a member of the world of Forms, and without the Forms it would neither have possessed its divine character, nor would it have been able to exercise that in accordance with the pattern laid out by the Forms. There is an unescapable connection between the Forms, and God and His activities, though probably Plato had never clearly and systematically thought out the relationship, and it is almost impossible for us to disentangle it.

CONCLUSION

It is essential to draw attention first of all to the extreme difficulty or even impossibility of summarizing such a study as the one just completed. If one merely states the result of a certain line of argument, the statement cannot help being inaccurate in that it is incomplete and omits important side lights and factors which soften the essential positiveness of general statements. An accurate summary would involve the repetition of most of the argument. With this proviso in mind, in spite of these difficulties, we yet must observe what general results have appeared from our investigation.

The most obvious fact that emerges from the partial comparison of Plato and Democritus just completed is that they used their concepts of ἰδέαι to fulfill very similar purposes, though in rather different ways. We must notice first the very striking similarities in the concepts themselves, of which we have become aware in the lengthy discussion about them. The ἰδέαι of both Democritus and Plato are apprehended by knowledge only, and cannot be perceived by the senses, which can only supply the mind with preliminary evidence in its search for knowledge. The ἰδέαι are intelligible, immortal, indestructible, lacking in all sensible qualities, and divine. The forms of Democritus are

gods, and the ψυχή or fire forms the greatest God,[1] while Plato's Forms are to him only one aspect of divinity, though he feels the need of connecting them with his other divine powers and tries to do so. Democritus uses his forms, which have no sensible qualities and about which the senses can give no information, to make the objects which are visible and sensible; more than that, he uses them to make the mechanism of the senses. Plato's Forms, on the other hand, are certainly the causes of sensible objects, but in no such intimate way. They are remote from objects, though we can always see the attempt to bring them closer. The same thing is true of motion. Democritus' forms are all in motion, and the finest of them cause motion and life in composite bodies. Plato knows his Forms are motionless, and yet he is forced to allow motion in them, for they cause motion by arousing yearning and striving, and must, moreover, mingle with one another to some extent. The direct cause of motion, however, for Plato is the ψυχή, whose existence is due partly to the Forms, and which represents an intermediate existence between the Forms and phaenomena. It is the direct cause of motion and life. For Democritus, on the other hand, some forms are ψυχή. As a matter of fact, it seems to us, after observing the functions and relations of the Forms and ψυχή as they have been discussed, that these two concepts

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1. See pp. 143-156.

together do for Plato almost exactly what the forms alone do for Democritus. They still do not, of course, actually make phaenomena.

We find, then, that Democritus makes a more direct use of his ἰδέαι than does Plato. But that alone is not sufficient to justify us in calling him a materialist. As we have seen his concepts are not bodies, for they have no sensible qualities but only shape and size, and are not subject to change. The subordinate forms, however, do cause body and quality and change, while the fine forms cause motion and life and are divine power and mind. They do not act mechanically by an impulse from outside themselves, but because of their own nature, and that nature in the ψυχή forms is reason and mind. These forms of Democritus, then, are divine substance and magnitude, the cause of body, but not body. The concept is one exceedingly difficult for our minds to grasp. And the effect of Aristotle's criticism of it in view of his own concepts of matter, form, and cause, and of his great influence on all thought after him, was to make it almost incomprehensible to later Greek philosophers. This fact, of course, has made it even more difficult for modern minds to understand what Democritus was trying to do.

These forms were the central fact of Democritus' philosophy, and had a share in everything that existed or happened in the universe, as was proper for the divine sub-

stance. Democritus did not, however, as far as we can judge from the evidence available, succeed in making his system entirely consistent and reasonable. We have noticed the difficulties involved in the theory of effluences, and in abstract thought, if our only explanation must be based on the forms.

Plato's Forms, which have many characteristics in common with those of Democritus, are, however, less spatial, and do their part in the universe more indirectly. It is the apparently spatial aspect of Democritus' forms which tends in the direction of the material. This made it possible for Aristotle, ignoring their most essential characteristics,to criticize them as matter, and led to the purely spatial concepts of Epicurus and Lucretius. The Forms are, of course, as has been pointed out, connected with objects because of the participation in or imitation of them by objects. In many cases there is a new concept, ψυχή, to act as intermediary between the Forms and body. But this withdrawal of the Forms from active participation in the universe involved Plato in many difficulties, as we have seen. His attempts to solve these problems all tended to bring the Forms back into closer relation with body, and to a condition more like that of the forms of Democritus.

It is clear that there are differences between the ἰδέαι of the two philosophers. Yet, after this examination of the concepts and their functions, we cannot feel

that the systems and aims and methods of the two are entirely in opposition to one another, with no common meeting place whatever.

BIBLIOGRAPHY

J. Adam, The Republic of Plato, Cambridge University Press, Cambridge, 1902.

J. Burnet, Early Greek Philosophy, 4th edition, Black, London, 1930.

J. Burnet, Greek Philosophy, Thales to Plato, MacMillan, London, 1932.

H. Cherniss, Aristotle's Criticism of Presocratic Philosophy, Johns Hopkins University Press, Baltimore, 1935.

F. M. Cornford, Plato's Cosmology, Kegan Paul, London, 1937.

F. M. Cornford, Plato's Theory of Knowledge, Kegan Paul, London, 1935.

H. Diels, Fragmente der Vorsokratiker; 5th edition, revised by W. Kranz; Weidmann, Berlin, 1935.

A. Dyroff, Demokritstudien, Dieterich, Leipzig, 1899.

G. M. A. Grube, Plato's Thought, Methuen, London, 1935.

G. M. A. Grube, The Composition of the World-Soul in Timaeus 35a-b, Classical Philology, 37(1932), p.80.

R. K. Hack, God in Greek Philosophy to the Time of Socrates, Princeton University Press, Princeton, 1931.

R. D. Hicks, Aristotle's De Anima, Cambridge University Press, Cambridge, 1907.

I. Hammer-Jensen, Demokrit und Platon, Archiv für Geschichte der Philosophie, XXIII(1909-1910), pp.92, 211.

I. Hammer-Jensen, Den Aeldste Atomlaere, Tillge, Copenhagen, 1908.

L. Robin, Greek Thought and the Origins of the Scientific Spirit, Kegan Paul, London, 1928.

E. Zeller, Die Philosophie der Griechen, 4th edition, Reisland, Leipzig, 1903.

Commentaria in Aristotelem Graeca, edita consilio et auctoritate Academiae Litterarum Regiae Borussicae, G. Reimer, Berlin.

Vol. I, Alexander Aphrodisias, on the Metaphysica, M. Hayduck, 1891.

Vol. VII, Simplicius, on the de Caelo, I. L. Heiberg, 1894.

Vol. IX-X, Simplicius, on the Physica, H. Diels, 1882.

Vol. XI, Simplicius, on the de Anima, M. Hayduck, 1882.

Vol. XV, Philoponus, on the de Anima, M. Hayduck, 1897.