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# TIMAEAN PARTICULARS

At 47e–53c of the *Timaeus* Plato presents his most detailed metaphysical analysis of particulars. We are told about the construction of the physical universe, the ways we can and cannot talk about the phenomena produced, and about the two causes – Necessity and Intelligence – which govern the processes and results of production. It seems to me that we are told too much and too little: too much, because we have two accounts of the generation of phenomenal particulars – one, the 'formal account', which makes use of the receptacle, Forms and form-copies, and a second, the 'geometrical account', which appeals to geometrical shapes, the Demiurge and, apparently, matter; too little, because there is insufficient guidance as to how to relate the two accounts.

In this paper I want to reconstruct the account of particulars Plato offers in the *Timaeus*. My strategy will be to develop this reconstruction by investigating two of the problems facing the reader of this text. The first concerns the interpretation of what almost forty years ago Cherniss labelled 'the much-misread passage', 49c7–50a4. These controversial lines depict a world in flux and seem to tell us how we are and are not to talk about the changing phenomena. The second problem concerns the relation of the two accounts: does the geometrical account replace the formal account? Is the formal account reducible, in some sense, to the geometrical account? Or are they complementary and interdependent? I believe that they are complementary in that together they provide an analysis of the nature of matter and phenomenal particulars, an analysis that explains why particulars are always becoming and why they can be said to persist, and I think that one can best appreciate how they complement one another by understanding the logic of Plato's remarks about what can and cannot be said of the phenomena in flux. In short, I will argue that by solving the problem of the much-misread passage we shall find the solution to the problem of the two accounts.

In viewing the two accounts as complementary, I depart from the consensus of scholars who, in recent years, have assigned pre-eminence to the geometrical account. In no small measure, the argument on behalf of the geometrical account is founded on the notion that matter is a primitive, unanalysable factor in Plato's ontology. Those who find ur-matter in the *Timaeus* are wont to assign an *independent* domain to Necessity, the behaviour of matter in the precosmic chaos: Necessity and Necessity alone governs the motions and transformations of ur-matter. They are also wont to read the passage at 49c7–50a4 as licensing reliable descriptions of phenomenal particulars: if we are to refer to phenomena, the phenomena must have some stability; and the phenomena are stable because the matter of which they are, at least in part, comprised is stable.

I believe that matter is not a primitive, unanalysable factor in Plato's ontology. I will argue, rather, that matter or corporeal body of every sort is a construct. Because all body is constructed, it is not ultimate and it is analysable into the 'elements' which figure in its construction. On the other hand, I shall argue that matter or body is not reducible to any of its component elements. Because it is irreducible, it is for Plato basic and ineliminable from his ontology. In other words, given the elements or primitive factors in his ontology, matter turns out to be, for Plato, an inevitable product. Once again, the key to understanding the status of matter and, with it,

Plato's metaphysics of the particular in the *Timaeus*, is to see how he uses the formal and geometrical accounts to explain the nature of matter and the changes in qualities that characterize particulars. The formal account is designed to handle the problem of qualitative change. But to do so it requires that there be place(s) where form-copies or images of the Forms are manifested, and place is provided (only) by the geometrical account. The geometrical account, in turn, is designed to handle the problem of (the nature of) matter. But to do so it requires a specification of the properties which the geometrized material phenomena are to have, and that specification is provided (only) by the formal account. If the two accounts complement each other in this way, one consequence is that Plato nowhere offers an account of the particularity of the phenomenal particulars, since both the geometrical Forms responsible for place and the traditional Forms responsible for the properties of the particulars are themselves general or universal factors. Since one cannot *derive* the particularity of anything from universal components, Plato *posits* that there are particular features. These posited particulars are not, however, ordinary things such as you and I; they are, rather, the form-copies or particular property instances of the geometrical and traditional Forms. In virtue of this consequence, it turns out that there are no phenomenal particulars, as they are ordinarily conceived, to be named.

In the first section of the paper I consider the controversial passage at 49c7ff. I will develop my interpretation of its moral by examining the two competing lines of interpretation found in the literature of the last forty years. In the second section I will address the view of those who would find matter an unanalysable primitive in the *Timaeus*. In the third and final section, I will turn to the problem of the two accounts.

## I. TALK OF PHENOMENA IN FLUX

What is at stake in the dispute over 49c7ff. is whether or not Plato is here claiming that phenomenal particulars are in flux. This problem is not new to the *Timaeus*. The flux of phenomena is bruited in the *Phaedo* and *Republic*, and much of the *Cratylus* and *Theaetetus* is given over to the topic. Beginning with Aristotle, it has seemed to most readers a veritable given that Plato maintains that the physical world is a world of flux. In the last fifty years, however, this dogma has been subjected to powerful criticism.[1] It is claimed that Plato abandoned his Heracliteanism because he realized that it is impossible to say or think anything about an object that is in flux. Since phenomenal particulars are objects we can speak or think about, they must therefore have some stability. However, only in the *Timaeus* does Plato speak in his own voice about flux and offer any account of what a particular is. Those who think that he abandoned his Heracliteanism argue that here at 49c7ff. he says that we can refer to phenomenal particulars as such.[2] I shall refer to this party in the dispute as 'the tradition'. Those who oppose this reading of the passage I shall refer to as 'the reconstructionists'.[3] I am a reconstructionist. According to the reconstructionists, the

[1] See G. E. L. Owen, 'The Place of the *Timaeus* in Plato's Dialogues', *CQ* NS 3 (1953), 79–95; T. Irwin, 'Plato's Heracliteanism', *PQ* 27 (1977), 1–13; J. Cooper, *Plato's Theaetetus* (New York, 1990), pp. 88–116.

[2] The qualification is from D. Zeyl, 'Plato and Talk of a World in Flux', *HSCP* 79 (1975), 125–48, p. 126. M. L. Gill, 'Matter and Flux in Plato's *Timaeus*', *Phronesis* 32 (1971), 34–53, uses 'in itself' (p. 40) to qualify the physical particulars. Both use these phrases in describing what they take to be Cherniss' position (see next note). By 'as such', I mean particulars as independent entities, entities which are more than their properties.

[3] The leading reconstructionist is H. Cherniss, 'The Sources of Evil According to Plato', *Proceedings of the American Philosophical Society*, 98 (1954), 23–30; 'A Much Misread Passage of the *Timaeus* (*Timaeus* 49c7–50b5)', *AJP* 75 (1954), 113–30; 'The Relation of the *Timaeus* to

phenomenal particulars of the tradition are not, strictly speaking, objects. Hence, we cannot speak and think about them in themselves. On our reading of the passage, Plato is here claiming that we ultimately must identify and describe phenomenal particulars by way of the properties or factors which figure in their construction.

One difficulty in adjudicating this dispute is that the two parties have differing notions of what constitutes a phenomenal particular, i.e., what a particular is for Plato (and perhaps for themselves), and what it is for something to be in flux.[4] A second difficulty is that the text of 49c7ff. does not force us, by dint of either grammar or philosophy, in one direction or another. To meet these difficulties my tack will be to situate this passage in the context of its surroundings and then to develop my own reconstructionist reading by examining the positions of the two parties in tandem.

The linguistic prescriptions of the much-misread passage come at a critical juncture of the dialogue. (They come at almost the exact midpoint.) Although the specific concern of Timaeus' remarks is the four traditional elements, earth, air, fire and water, his closing words indicate that the lesson applies to the whole of the physical cosmos (50a1–4).[5] They concern, therefore, the very phenomena about which Timaeus has promised a new account moments earlier. Whereas his earlier account of the cosmos, he tells us at 48e, made do with two factors, the intelligible Form as model and the image of this model involved in becoming and visible, he now needs a third factor. This third factor is the receptacle. The ensuing lines promise an exploration of the nature and power of the receptacle, to be preceded by an investigation of an aporia concerning the four elements, namely that

> it is hard to say with respect to each of them, which we ought really to call 'water' rather than 'fire', and which any one name rather than all and each severally, so as to use some reliable and stable account (49a6–b5).

All scholars agree that the choice of the four elements is due to the role they played in earlier cosmologies. This preliminary aporia looks back to Timaeus' remark at 48b3–c2 that no one has ever revealed the genesis of the four elements, an account of

Plato's Later Dialogues', *AJP* 88 (1957), 225–66. All three papers are reprinted in H. Cherniss, *Selected Papers*, ed. L. Tarán (Leiden, 1977). Hereafter they will be referred to as *SE*, *MM*, and *RT*, respectively, and page numbers will be given in both their original and reprinted versions, e.g. *SE* 23/253. The articles develop claims advanced in H. Cherniss, *Aristotle's Criticism of Plato and the Early Academy*, i (Baltimore, 1944), hereafter *ACPA*. Other reconstructionists include E. N. Lee, 'On the Metaphysics of the Image in Plato's *Timaeus*', *Monist* 50 (1966), 341–68; 'On Plato's *Timaeus*, 49d4–e7', *AJP* 88 (1967), 1–28; K. W. Mills, 'Some Aspects of Plato's Theory of Forms: *Timaeus* 49cff.', *Phronesis* 13 (1968) 145–70. Some traditionalists are N. Gully, 'The Interpretation of Plato, *Timaeus* 49d–e', *AJP* 81 (1960), 53–64; R. D. Mohr, 'Image, Flux and Space in Plato's *Timaeus*', *Phoenix* 34 (1980), 138–52; S. Strange, 'The Double Explanation in the *Timaeus*', *Ancient Philosophy* 5 (1987), 23–39; and the authors mentioned in notes 1 and 2.

[4] I enroll in the tradition of treating the γιγνόμενα as particulars and refer to them indifferently as 'phenomena' or 'particulars'. I consider the cosmos to be a particular, the biggest one. Other particulars are the parts of the cosmos such as you and I. The parts of us are particulars, e.g. my hand, the flesh and bones of my hand, and the corpuscles, whether conceived of as triangles or earth, which constitute the flesh and bone. I will sometimes speak of the properties of particulars, e.g. the pallor of my skin. These particular properties can be thought of as property-tokens. They are not to be treated as phenomenal particulars of the sort at issue. I do not consider Forms, Souls or the Receptacle particulars, though I will sometimes speak of particular souls, e.g. the world-soul, particular forms, e.g. the Form of Fire, and particular regions of the receptacle. Particulars are involved in becoming, γένεσις, perhaps to the point of always 'becoming'. Cf. M. Frede, 'Being and Becoming in Plato', *Oxford Studies in Ancient Philosophy*, Supplementary Volume, 1988, 36–52.

[5] ...τὸ δὲ ὁποιοῦν τι, θερμὸν ἢ λευκὸν ἢ καὶ ὁτιοῦν τῶν ἐναντίων, καὶ πάνθ' ὅσα ἐκ τούτων...

which must precede that of the generation of the world. Whereas previous cosmologists had treated them as primitive elements (στοιχεῖα), he insists that they do not qualify even as syllables (συλλαβαί). The particular difficulty is that fire, earth, air and water seem to be constantly changing into one another in an endless cycle of becoming (49b6–c7). This cycle of change generates the difficulty in saying what each is. The passage at 49c7–50a5 is supposed to instruct us as to how we are to speak of these bodies, given that they seem to be involved in flux. What then is its lesson?

In a series of articles in the 1950s, Cherniss, a reconstructionist, argued that the point of 49c7–50b5 was to show that the particular instances of the four elements appealed to by previous cosmologists could not be referred to – he used 'denominated' instead of 'referred to' – because 'no part of the phenomenal flux is distinguishable from any other'.[6] He claimed that contrary to the traditional interpretation, the passage did not offer a new way of referring to the phenomena, but rather a new sort of item to which our names actually refer: 'fire', for instance, denominates 'the such and such, whatever the correct formula may be, that is always identical in each and all of its occurrences.' In 1975, Zeyl,[7] a traditionalist, argued spiritedly against Cherniss' view. In his widely-cited paper he claimed that Plato was trying to defend our referential practices of referring to the phenomena, with one very crucial proviso: Plato is suggesting, claimed Zeyl, a new way of *construing* our references. The improper old way was to construe our references as *identifying references*: instead of predicating 'water' of something I am referring to, I am identifying that thing as water. What Plato is instructing us to do at 49c7, according to Zeyl, is to stop trying to make identifying references to the phenomena and to start, instead, to make *attributive references*. This is why Plato tells us not to refer to the phenomena by using 'this', τοῦτο, but to use 'such', τὸ τοιοῦτον. The problem with 'this', says Zeyl, is that it suggests a permanent substrate which retains its identity through change. 'Such', on the other hand, suggests that its referent is an attribute of something else, namely the receptacle.

> Thus Plato's justification for the reference of 'fire,' etc., to phenomena is the new logical role that he assigns to those terms: they are to be viewed as picking out a recurrent attribute of something else. In other words, these terms are to be construed as logically (though not grammatically) adjectival. And this is precisely what the πιστὸς καὶ βέβαιος λόγος [49b5] is: the construction of our nominal references to phenomena as adjectival descriptions of some basic, permanent subject worthy of that status. This subject is the receptacle, for only it can be designated as τοῦτο (Zeyl, p. 147).

With respect to our linguistic practices concerning the word 'fire', the text directs us 'not this but such on each occasion to call fire': μὴ τοῦτο ἀλλὰ τὸ τοιοῦτον ἑκάστοτε προσαγορεύειν πῦρ (49e5–6). The tradition reads this as 'do not call on each occasion fire (z) "this" (x) but "[what is] such" (y).' The reconstructionist reads it as 'do not call this (x) "fire" (z) but call what is such (y) "fire" (z).' 'Do not call Z "x" but call it "y"' versus 'Do not call x "Z" but call y "Z".'[8] The reconstructionist, it seems, offers a new referent of the term. The tradition offers a new way to refer to the old referent, the transient phenomenal fire. When the dispute is couched in these terms, it might appear that Plato's principal concern here is the proper or best way to talk. This is not so. His concern is metaphysical.[9] How we are

[6] *MM* 128/361. [7] Art. cit. [8] Lee (1967), 4 and n. 9.

[9] The notion that we can reconstrue our referential practices without altering our ontology seems to me to be a dubious one, especially when the reconstrual is of the sort envisaged by Zeyl. However, perhaps all Zeyl means is that while the suggested reconstrual occasions a change in our ontology, the new ontology leaves phenomenal particulars, as such, to be the referents of our names.

to construe our referential practices is to be determined by the nature of the phenomena we are trying to talk about. What is at stake between the reconstructionist and the tradition is not so much these linguistic formulae but rather the account of the phenomena themselves.

To focus the metaphysical dispute, consider the new account of becoming promised at 48e2. Timaeus had declared that his new starting point for the generation of the cosmos was greater than his previous one. Before he needed only two ἀρχαί, Forms, and an image (μίμημα) of the paradigm, which has becoming and is visible. Now there is need of a third, the receptacle. At issue between the two readings of the passage at 49c7ff. is the role played by the receptacle in the new account. Because they view the introduction of the receptacle differently, the two readings offer radically different accounts of the nature of the transient phenomena. According to the traditional reading, the receptacle is merely *a third factor to be added* to the two previous ones Forms and the phenomena themselves.[10] The phenomena remain what they have always been, their nature unaltered by the receptacle. What changes is our understanding of what the phenomena are and have always been. Similarly, Plato is not instructing us to change our linguistic practices: we can continue to use demonstrative sentences such as 'This is fire' to talk about the phenomenal fire. He insists only that we change our construal of the semantics of such statements. The traditionalists' attachment to the phenomena motivates their dislike of the reconstructionists' commitment to new referents for names. When traditionalists read that the referent of 'fire' is not the phenomenal fire, but instead the distinct and self-identical characteristic, they charge the reconstructionist with introducing a *fourth* primitive item when only three, the Forms, the phenomena and the receptacle, are allowed in the new account.[11] Were the reconstructionist to introduce a fourth primitive, his account would merit condemnation. But the reconstructionist is not guilty of the sin of ontological inflation.

The receptacle is the key element in Timaeus' argument that the previous cosmologists had misconceived the status of the four elements. Since the proper understanding of their status is the prelude to our understanding of the nature of the cosmos and its parts, we can safely assume that the receptacle's role in explaining their status will be the same, *mutatis mutandis*, as it plays in the explanation of the physical cosmos. In claiming that they are not primitive or atomic elements or even syllables, i.e. molecules constructed from just two factors, Timaeus suggests that the four traditional elements are themselves compounded from other constituents. Timaeus of course does not *here* tell us the true status of the traditional elements. What *is* clear is that the traditional elements are not to be regarded as primitive and unanalysable. What seemed to previous cosmologists to be the foundations of the cosmos are actually constructions of some sort. Therefore we may infer that, if even the four traditional elements are analysable, then all the phenomena, of which they serve as building blocks, are also analysable.

The juxtaposition of the new beginning with its introduction of the receptacle and the denial of elemental or syllabic status to the traditional elements suggests, I believe, that the receptacle is not some third primitive (ἀρχή) merely added to Timaeus' previous account. When viewed as a mere addition to the account, the receptacle functions simply as space or, at best, as providing a place in which the four traditional elements are located. But the previous cosmologists are alleged to have

[10] Cf. Gill 41 n. 15.

[11] See 48e, 49a, 52a. For the charge see Gulley 63–4, Zeyl 134, Gill 41. Cf. Lee (1966), 367–8.

erred not in failing to provide for space, but rather in thinking that the four elements were the basic or virtually basic constituents of the cosmos. Like earlier cosmologists, Timaeus' previous account at 27c ff. had assumed that the four elements were primitive and unanalysable. So too the traditional interpretation of 49c7ff. assumes that the phenomena retain this status, even though how we are to conceive of the phenomena does change. The reconstructionist sees it differently. The introduction of the receptacle heralds a new account of the traditional elements, an account different from the one which Timaeus had proffered at 27c. The receptacle is, rather, a new primitive which, when combined with some second constituent, yields a new analysis of phenomena, an analysis which denies them the status of στοιχεῖον or συλλαβή.[12] Whereas the tradition thinks that 48e2 should be read as stipulating three *independent* elements

(1) Forms
(2) Phenomena
(3) Receptacle

the reconstructionist reads it as analysing phenomena into two constituents according to the following schema

(1′) Forms
(2′) Phenomenon = (2′a) Receptacle + (2′b) ____ .

Since the reconstructionist takes this tack to avoid the charge that he introduces entities beyond necessity, it might seem to follow from the tradition's vantage point that the blank (in 2′b) should be filled by the reconstructionist's self-identical and recurrent characteristics. But this is not the whole story. Consider how this view of the reconstructionist's 2′ might analyse an instance of phenomenal fire. It would be a 'compound' of receptacle and a recurrent characteristic. This would render it a syllable, a status not permitted it on the reconstructionist reading. The reconstructionist needs an account of 2′ which, first, respects the limit of three primitives and, second, assigns to phenomenal fire neither the status of atom nor that of molecule. This is problematic. For if Forms are disqualified as a constituent,[13] then it seems inevitable that the remaining two primitives comprise the phenomenon. And if the phenomenal fire is comprised of only two primitives, how can it not have the status of a syllable?

As a starting point to the answer to this question, let us return to the charge that the reconstructionist introduces these recurrent characteristics as a fourth primitive. I intimated that according to the tradition, the reconstructionist would fill the blank in 2′b with these characteristics. Curiously enough, this seems to be Zeyl's own view of the phenomena. The disputed terms 'are to be viewed as picking out a recurrent attribute of something else.... This subject is the receptacle, for only it can be designated as τοῦτο' (pp. 7–8). According to Zeyl, then, the statement 'This is fire' predicates a recurrent attribute of the receptacle. Since Zeyl insists that this is still a way of referring to the phenomenal fire, it would seem that what phenomenal fire is is a 'compound' of receptacle (2′a) and a recurrent attribute (2′b). And since he takes

[12] The remarks at 48c2–48e1 do not preclude this interpretation. The refusal to speak now about a 'first principle or principles or whatever' (48c2–4) looks forward both to the introduction of the triangles, cf. Timaeus' remarks at 54, and to the introduction of Forms and form-copies. With respect to the on-going account, it would be out of place for Timaeus to speculate on the nature and number of Forms and form-copies.

[13] Forms do not enter into any relations with the receptacle. They 'beget' form-copies or recurrent characteristics which enter and exit the receptacle. For the moment, I shall treat these form-copies as primitives.

Cherniss to outlaw 'references to phenomena as such',[14] he apparently would not accept that Cherniss reads 2′ as he does. But let us look at Cherniss:

> Phenomenal fire is the region of the receptacle that has at any moment been affected by fire, phenomenal water the region that has been affected by water, and so according as the μιμήματα [the recurrent and self-identical characteristics] enter into the receptacle (51b4–6, cf. 52d4–e1).[15]

*Prima facie*, it seems not only that these representatives of the traditional and reconstructionist readings agree as to the nature of a phenomenal particular, but also that both are compelled to treat an instance of phenomenal fire as a syllable, i.e. compounded of two primitives. Their disagreement seems to be about the linguistic consequences of assigning such a nature to the phenomena.

I will return to Zeyl's argument momentarily. First, let us see why Cherniss thinks that the phenomena cannot be distinctively denominated. He continues: 'The intensity and limits of the apparent affections of the receptacle are continually changing and so are indeterminable as fire, water, or anything else.'[16] Cherniss, unlike Zeyl, does not identify the phenomena with affections of the receptacle, but with the *apparent affections* of the receptacle. He takes at face value Plato's claim that the receptacle itself is never altered by the exits and entrances of the μιμήματα (50b6–c2). The reconstructionist might then respond to Zeyl that we cannot construe 'This is fire' as predicating some property of a subject, if we construe the notions of predicating, attribute and subject in the way Zeyl does. There is no subject of which the μιμήματα are attributes. At best, the receptacle *appears* to be affected or changed by the entrances and exits of the μιμήματα. This response goes home against Zeyl. But there is still more to be said. For a defender of the traditional view could reply that 'This is fire' is best read as a *feature-placing* claim, a claim which locates the recurrent attribute at or in a region of the receptacle without committing one to attributions of properties to subjects. Phenomenal fire would then turn out to be denominable by, say, 'fiery (or fieriness) here now'.

This reply makes explicit one fundamental difference between the accounts offered by Cherniss and Zeyl. Whereas Zeyl treats a phenomenon as the affection of the receptacle, the first Cherniss quotation reveals that he treats a phenomenon as the affection of a *region* of the receptacle. No doubt Zeyl thinks that it is only a region that is affected. However, like the feature-placing construal, he helps himself to this notion of a 'region' or 'part' of the receptacle. Both presume that the receptacle is demarcated or divided in such a way that one can locate a given recurrent property. But the receptacle does not come cut up and ready to serve. The reconstructionist does not presume this. While he, as everyone must, treats the receptacle as a primitive, he regards the regionalization of the receptacle as itself a product. The reconstructionist stills maintains that the phenomena are to be analysed into two components, but he offers a different component than the receptacle (2′a), namely 'a region of the receptacle' (2′α). The replacement of the receptacle with a region of the receptacle is a critical feature in the reconstructionist's explanation of why an instance of phenomenal fire is not even a syllable. For if *one* of the two components of a phenomenon is itself a syllable, i.e. a compound of two elements, then the status of the phenomenon itself cannot be that of a syllable. The trick here will be to ensure

[14] Zeyl 126.

[15] *MM* 129/362.

[16] Ibid. The passage continues: 'Plato, having said that what fire is cannot be said to be "this" or "that" phase of the phenomenal flux but only to be the perpetually self-identical characteristic that is the determining factor of the indeterminable affection, neither says nor suggests, as he is often said to do, either that the unidentifiable phases of phenomenal flux can be called τοιοῦτον, "such as" the perpetually self-identical characteristic, or that this characteristic can be called τοιοῦτον, "such as" the unidentifiable phase of phenomenal flux.'

that the reconstructionist does not introduce a fourth primitive in order to create the regions of the receptacle.

The replacement of 2′a with 2′α also helps in understanding why Cherniss thinks that the phenomena are indenominable or, to put it differently, why the feature-placing account is unacceptable as a reply to Cherniss. It simply ignores Cherniss' notion that the 'limits and intensity of the apparent affections are continually changing'. This talk of intensity and limits is admittedly vague. Since he later describes these affections as indeterminable, I propose to use his account of the indeterminateness of the affections to get a handle on his claim about intensity and limits.

Zeyl and the feature-placing alternative both assume that the affections are determinate. Why think that they are so? If they could appeal to the region in which they occur, they could assign the affections determinate locations. Since there is no explanation of how these regions come to be present, this avenue is closed to them. The source of the determinateness must then lie in the recurrent property. What then accounts for the determinateness of these recurrent properties? The answer is the Forms of which these recurrent properties are μιμήματα. The recurrent properties are identified by reference not to the affections they cause, but to the Forms of which they are copies.[17] If the affections (or apparent affections) inherit their determinateness from the recurrent properties, and the recurrent properties inherit their determinateness from the Forms, then the Forms, in their interaction with the receptacle, must account for the determinateness of the affection. But they cannot perform this task.

If the affections, apparent or otherwise, are to be determinate, then they must be limited in respect of space and probably in respect of time. The problem is that the receptacle itself is a homogeneous spatial mirror and the Forms are non-spatial. One can infer from these 'facts'[18] that the recurrent attributes are also non-spatial. What they derive from their models, the Forms, is logical determinateness: they are determinate property-instances of the very property constituted by the Form.[19] But even though the receptacle can be said to provide space, χώρα, for these logically distinct attributes, there is no provision for place, which is necessary if they are to be *locally* distinct or determinate. Being *homogeneous*, the receptacle *on its own* admits of no distinctions, and the non-spatial recurrent properties cannot provide a limit or metric for space. According to the reconstructionist, Demiurgic action is required. The Demiurge delimits the spatial reflections and organizes them to bring them nearer to conformity with the ideas, which are at once their originals and the models of this Demiurgic activity. He delimits these reflections by giving them geometrical configurations, 'thus representing spatially the logical distinctness of their non-spatial originals'.[20]

The reflections or recurrent attributes are consequences of the mere existence of the receptacle and Forms. The geometrical configurations provide for dimensional cross-sections of space and thereby provide places for the recurrent attributes to enter and exit the receptacle. An instance of phenomenal fire is the product of the entrance of a form-copy of Fire into a region of the receptacle delimited by the appropriate geometrical configuration. These entrances and exits of recurrent properties do not

[17] *RL* 247. [18] *SE* 254–5, esp. n. 18; *ACPA* 453–4, 114–15, 152–3.

[19] In this paper the relation between a Form and its essence is not at issue. I use the formula 'property constituted by the Form' as a matter of convenience. Each Form is logically distinct, at least in so far as it has a unique definition, λόγος. I assume that since the Form is logically distinct, the form-copy of a given Form is too. [20] *SE* 255.

actually alter the receptacle, so the affections are only apparent. The apparent affections of regions of the receptacle are the phenomena. In claiming that the limits are constantly changing, the reconstructionist has in mind the fact that the basic triangles and corpuscular bodies, i.e. the geometrical configurations, are constantly being reconstituted. The dissolution of a corpuscular body is, at the same moment, the disruption of the 'focus of events' that is the entrance of the recurrent properties in that region of the receptacle. Since these triangles provide the spatial dimensions for the recurrent attributes, the spatial dimensions or limits of the phenomena can also be said to be constantly changing.

There is much more to be said about these corpuscular bodies and the Demiurgic activity of delimiting space through geometrical configurations. I shall return to these matters in the final section. Nonetheless, even this limited account of how space is transformed into places suffices to justify the assertion that the phenomenal particulars cannot be referred to. Particulars are apparent affections of the receptacle. They are apparent because the receptacle is in no way affected or altered by the entrance and exit of the recurrent attributes. *Pace* Zeyl, there is no legitimacy to subject-predicate talk at all on this story, because there is no *subject* of a property here, neither the underlying and unchanging particular fire, nor the receptacle. Whenever we try to isolate the particular to describe it, we always confront the recurrent property. We never reach the particular itself. It was this consequence, I believe, which drove Cherniss to assert that the referent of the disputed names is always the recurrent attribute. It was also this consequence that motivated my reconstrual of Zeyl's demonstrative sentence as a feature-placing account. The problem with this account is that it requires a means by which we can locate the feature in space and time. Zeyl overlooks the problem. The reconstructionist, on the other hand, argues that the only means available to delimit space, coupled with the natures of space and the recurrent attributes, yields particulars in constant change.

The derivation of place via the geometrical delimitation of space also explains how we are to understand the reconstructionist's analysis of a phenomenon. The task facing the reconstructionist was to show how (2′) a phenomenon could be analysed into two primitive factors without thereby acquiring the status of a molecule or syllable. The answer is that the first element, 2′*a*, is itself a construct of the receptacle and a geometrical configuration. A particular instance of phenomenal fire will then be the occurrence of (2′b) a property-instance of Fire in (2′*a*) a region of the receptacle. The reconstructionist of course will extend this analysis to all the phenomena that the Demiurge will go on to construct. But while it is open to him to argue that the traditional four elements do not deserve the status of syllable because they are compounds of geometrical configurations, the metaphysical thrust of his position is embodied in 2′*a*. All body is a construct of the sort specified in 2′, according to the reconstructionist. What requires defence is the claim that the creation of place or regions in the receptacle is in fact the product of two primitives. In what sense are the geometrical elements used to delimit space primitives? Before addressing this question, let us examine an alternative account of Plato's metaphysics of particulars, an account which, if correct, would obviate the need to answer this question.

## II. NECESSITY AND MATTER

This alternative approach to the metaphysics of phenomenal particulars also considers ordinary particulars to have a status well above that of a syllable. Moreover, it offers an explanation of the delimitation of space that relies on a

primitive. Finally, it allows that phenomenal particulars have enough stability to enable our words to refer to them. The critical primitive element in this alternative is matter. Unfortunately, a quick perusal of *LSJ* reveals that the Greek word for matter, ὕλη, first occurs in Aristotle.[21] Therefore the impetus for the postulation of matter cannot have its source in the occurrence of ὕλη in text of the *Timaeus*. Rather, its proponents claim, matter is needed to save the doctrines expounded in the dialogue and to ground the philosophical implications of those doctrines. Since there is no mention of matter, and since if the reconstructionist program we sketched above is viable there is an alternative means of saving the doctrines, matter's proponents are staring at a heavy burden: either they must show that their view is so vastly superior that the hints at matter which they find in the text should be regarded as the real driving force behind Plato's doctrines; or they must find some doctrine which requires the postulation of primitive unanalysable matter. Success in the latter case is more compelling. And scholars have had a favourite candidate that seems to require primitive matter, Plato's doctrine that the cosmos is the product of two causes, Intelligence and Necessity.

The two causes first appear at 46c7–e6. Having sketched an extromission account of vision in terms of the mingling of kindred kinds of fire, Timaeus declares that all the preceding is actually an accessory cause (συναίτιον) which the god employs in accomplishing, to the extent possible, the form of the best. Most natural philosophers mistakenly think these materials and material processes are the causes (αἴτια) of everything, not recognizing that νοῦς and λόγος are absent from them. For νοῦς belongs only to soul.

> The lover of intelligence and knowledge must of necessity seek first the causes of an intelligent nature, and second as many as are the causes of things moved by others and which of necessity move other things. We must act on these principles. We must speak of both kinds of causes, but separately of as many as are, with Intelligence, the makers of fine and good things, and as many as, deprived of Intelligence, bring about on each occasion a chance event without order (46d7–e6).

The general problem with respect to Necessity and Intelligence is to determine their respective natures and the relation between them. Is each itself a cause of a certain kind of effect; that is, are Necessity and Intelligence independent of one another at any point? For the proponents of matter an affirmative answer to this question is most propitious. If Necessity has a domain which it alone governs, it is likely to consist of matter and its behaviour. The *Timaeus* seems to afford two possible domains: (1) the precosmic chaos; and (2) the purely material matters in the organized cosmos such as the transformations and reconfigurations of triangles. The broader claim would be that Necessity alone is the cause of some events in the organized cosmos and (all) events in the precosmos, everything disordered and random.[22] In the next section I shall consider what happens in the organized cosmos. Until we decide whether the geometrization of matter requires an appeal to the

[21] ὕλη does occur at *Tim.* 69a6, but there it has its non-philosophical meaning, namely wood or material.

[22] Cf. Strange 29 (and *passim*): 'But the Necessity of the *Timaeus* is given its own proper domain of explananda: on its own, unpersuaded, it is the cause of everything disordered and random (46e5).' This is reading too much into the remark at 46e5–6. As a matter of logic, the claim is that everything produced by this kind of cause is disordered and random, not that everything disordered and random is produced by this kind of cause. Nor do I think that this remark, given its context, implies that Necessity ever operates on its own in the ordered cosmos. Bracketed by statements that Necessity is an accessory cause, it would be odd for Plato to assert here that it is an independent cause of anything in the cosmos.

Demiurge or Forms, and whether Forms, as causes, should be enlisted in the ranks of Intelligence, we are in no position to evaluate Necessity's right to claim any facet of the organized cosmos as falling entirely within its domain. The narrower claim is that Necessity is the sole cause of events in the precosmos. This doctrine promises to be the one that most plausibly requires primitive matter. In this section my aim is to show, first, that a precosmic chaos inhabited by primitive matter is not a domain wherein Necessity is the sole cause. Thus the proponents of matter will be deprived of their best candidate. My second aim is to show that the most recent account of primitive matter suffers from severe *internal* problems. Therefore, regardless of how we view the precosmic chaos or other doctrines propounded in the dialogue, this account of primitive matter will not do in its own right.

The description of the precosmos at 52d2–53c3 introduces many topics which, if pursued to their logical end, would overextend an already long article. Chief among them, at least for the purpose of the debate over matter, is whether the creation is literal or mythical. If the creation is literal, then we can assume that there is a precosmic state and, in all likelihood, some kind of matter in that precosmic state which the Demiurge works up into the cosmos. Hence, if the matter in the precosmic state changes, or if the precosmos experiences state-changes in some other fashion, there is some reason to think that Necessity has a domain of which it alone is the cause; for *ex hypothesi*, the Demiurge cannot be the cause of such changes. If the creation is mythical, there is far less reason to believe that there is a domain governed by Necessity alone. The so-called precosmos is one aspect of the present world. Its nature will be determined by a metaphysical analysis of the complex bodies which comprise the physical world.[23] Chaos would be the behaviour of organized bodies that cannot be explained by Intelligence.[24] There will then be no domain which Necessity alone explains. For the explanation of even this behaviour will have to appeal to the *organized* bodies from which it results, and thus the total explanation will include Intelligence. Therefore in order to demonstrate that Necessity has its own domain, it will not suffice to show that *Intelligence alone* cannot explain a given phenomenon in the cosmos. All that follows from this failure is that something else *in addition to* Intelligence is needed, not that something else *alone* must be its cause.[25]

Although I think there is good reason to view the creation as a myth, let us grant the proponents of matter that there is a precosmic state. Granting this, is there good reason to think that Plato regards matter as a primitive element in his ontology? There are two approaches to the nature of this matter assumed to be present in the precosmos prior to Demiurgic intervention. Some have held that the matter exists as (slightly) deformed stereometric particles.[26] A second approach, articulated most recently by Gill,[27] is to view precosmic matter as 'ultimate simples'. These simples have their own character; each is endowed with *a* property, e.g. being fiery. On this

[23] *ACPA* 420, *SE* 24/254, Gill 37.

[24] The behaviour classified as chaotic is likely to include the mechanistic aspects of a complex organism whose actions or gross behaviour is fully governed by intelligence. The mechanistic aspects are those that derive from the 'material' or geometrical properties of the bodies which comprise, in part, the complex organism.

[25] Suppose that we have determined that a large stone was placed on top of a table and that we know that only Bill and John were in a position to put it there. We test John's strength to see if he could do it alone and find that he could not. If we thereupon infer that Bill put it there, we would obviously err. The stone might have required their joint efforts. Cf. Strange 27.

[26] R. Mohr, *The Platonic Cosmogony*, p. 109; I. M. Crombie, *An Examination of Plato's Doctrines* (London, 1962–3), ii.219–23. Cornford's attack on this 'Democritean' reading of the *Timaeus*, in *Plato's Cosmology* (London, 1937), esp. pp. 198–206 is, I think, definitive.

[27] Gill 47 and especially 48–53.

second approach, the bodies of the traditional elements are constructions or arrangements of these ultimate simples. On the first, the Demiurge creates the traditional elements by 'perfecting' the deviantly shaped stereometric particles.[28] With respect to the qualities or properties belonging to a traditional element, the two approaches agree that the properties are initially found in the constituent elements. The properties of a fire molecule therefore are not, or at least not directly, the result of a form-copy of Fire entering a region of the receptacle. Nor are the properties emergent: they do not result from the combination or arrangement of elements which lack those properties. This is clearest on the second approach. The many ultimate simples move about in the precosmic chaos and combine and separate by chance. Chaos is said to possess traces of the four traditional elements because *at random* these simples will achieve a geometrical arrangement that resembles the arrangement the Demiurge fashions for the bodies of the traditional elements. What is missing in the chaos is only the regularized shapes of the molecules, not the properties of fire, water, etc.[29]

On this second approach, the ultimate simples are material[30] and they are in motion. In addition, they have a property in virtue of the fact that each images a single Form. Finally, they are eternal.[31] These eternal, material images of Forms move about through the receptacle independent of and prior to Demiurgic and psychic intervention. The simples, though susceptible to Demiurgic persuasion, combine and dissolve on their own as they move about in the receptacle. Both their random movements and those movements which by chance result, on the very odd occasion, in a likeness of the arrangement of, say, a fire molecule, have as their cause Necessity alone. Here then is the domain of Necessity, the realm where necessity governs independently of Intelligence.

Matters, I suggest, are not so clear. In seeking a doctrine that requires matter, we turned to Necessity and the literalist conception of the precosmos because it seemed to be free of Intelligence at least in the guise of the Demiurge. But the Demiurge disappears from the discussion well before the introduction of the precosmos at 52d1. He departed with Timaeus' announcement at 48e2 of his new account of the cosmos. In his stead, Forms play the role of cause. I noted earlier the problem of deciding into which of the two kinds of causes we should enroll them, if into any. If either of these two approaches towards matter in the precosmos is to secure a special realm for Necessity, it cannot allow Forms to enter the ranks of Intelligence. Were they to be enrolled there, we would find that in so far as *ultimate simples have Forms as their causes*, we would lack a realm wholly free of Intelligence of which Necessity is the cause. In like manner, the sponsors of deviantly shaped particles must deny that Forms are an aspect of Intelligence. For the identification of these deviant shapes as deviant requires an antecedent grasp of the perfected Forms from which they deviate, or at least a grasp of the perfected geometrized bodies which result from the Demiurge's activity.

[28] Mohr 109. I am unable to determine whether Mohr places form-copies of the traditional Forms in the precosmos, along with the deviantly shaped particles. For that matter, if there are geometric Forms, then it seems that they too should have form-copies in the precosmic chaos side by side with the deviant particles.

[29] Gill 52.

[30] Gill 47: 'What gives permanence to physical objects such that language can get a grip on them is, after all, their matter. But the matter of physical objects is not, as so many have thought, the receptacle. On the contrary, the matter of physical objects is a set of principles which the deity finds already present in the receptacle and uses in constructing bodies of the four elements.'

[31] Ibid. 51, 'They are eternal: a simple is altogether and always such as the Form which is its cause.'

There is, I think, a more intractable difficulty facing those who would cite the precosmic chaos as a realm where Necessity is the sole cause. It is hard to see how in a chaotic environment there can be any causes and effects. Put somewhat differently, it is hard to reconcile the notions of cause and explanation with the notion of chaos and random disorder.[32] Even if we grant that there are different states or different events in the precosmic chaos, it does not seem possible to identify any distinct events so that they may serve as causes and effects in an explanation. Initially, we are told, the receptacle 'had every sort of diverse appearance to sight' (52e1) and was 'without proportion and measure', ἀλόγως καὶ ἀμέτρως (53a8). The stuff which is distributed by disorderly motions is first described as δυνάμεις, and then these δυνάμεις are said somehow to constitute the four kinds, 53a2. But in their chaotic state these stuffs are not fire, water, earth and air, but vestiges of them. We cannot then describe two events, A and B, as distributions of earth, air, fire and water. If we focus on the potentiality implicit in the notion of δυνάμεις, we are forced to think in terms of the actualities which either the Demiurge will create, i.e. the atomic triangles and molecular bodies, or in terms of the Forms, whose characters, μορφάς, 52d6, the receptacle receives. So to conceive them, however, requires that one already have, for specifying events in the chaos, notions that are available only after Demiurgic intervention.[33] If we try to do without the notions of order and regularity, and of Fire, Water, etc., made possible by Intelligence, then we cannot identify the random disordered events or states of affairs which Necessity is alleged to cause, or conceive of the two events which are to stand in any kind of temporal order.

Confronted with matter and motions of the precosmos too chaotic to permit individuation, defenders of primitive matter have two avenues open to them. One is to argue that while (i) Plato recognizes that he cannot demonstrate *what is basic* – as to the kind of basic stuff he can only give a likely account – he nonetheless concludes that (ii) there must be *some* kind of primitive matter from which the bodies are made. (It is this primitive matter that moves about in the chaos, on this view.) In support of (i), the defenders of primitive matter can point out that Plato denies that the four traditional elements have the status of a syllable. They can also cite Timaeus' disavowal of the necessity to use triangles, 53d4–54a6, in an account of the (constitution of the) bodies of the four elements. But even if we grant that all this is true, that Plato knows that he cannot say what is basic, nothing here implies or is evidence that he believed that *some kind of primitive matter* must be basic. The best that they could argue is that they can conceive of the possibility of primitive matter: the proponents of matter aver that even if they cannot conceive of the nature or description of the movements or the two different distributions of material stuff in the precosmic chaos, they can conceive (of the possibility) that there are two distinct distributions of matter which stand in the relation of cause to effect. But arguments

[32] I share the conviction that an αἰτία or an αἴτιον (for Plato and Aristotle) is to be treated as an explanatory factor or even explanation, rather than a cause. In some cases, of course, it is a causal explanation. Nonetheless, I, like others, will sometimes speak of 'causes'. Cf. G. Vlastos, 'Reasons and Causes in the *Phaedo*', *Philosophical Review* 78 (1969), 291–325; M. Frede, 'The Original Notion of Cause', in M. Schofield *et al.* (edd.), *Doubt and Dogmatism* (Oxford, 1980), 217–49; J. Annas, 'Aristotle on Inefficient Causes', *Philosophical Quarterly* 32 (1982), 311–26; and S. Strange, art. cit.

[33] This is, I think, the intuition that has guided non-literalists to insist that chaos is an abstraction from the present, organized physical world. 'It follows that chaos is, in some sense, an abstraction – a picture of some part of the cosmos, as it exists at all times, with the works of reason left out, . . ' Cornford 203; cf. Cherniss, *ACPA* 420, 444.

from conceivability to possibility are notoriously difficult to assess. And arguments which rely on the premise that we can conceive of the possibility that something exists even when we cannot conceive of what any such thing is, are even more perilous.[34]

The second avenue open to the proponents of matter is to insist that the ultimate material principles do have some character. Even if we cannot specify its nature or essence, we can say enough about what it is to support the notion that Necessity alone governs its movements.[35] Philosophical and textual problems block this avenue. First, if the perceived philosophical need is for some natureless entity to function as a building block for the phenomena of the cosmos, we already have a candidate. Timaeus' account of the genesis of the four elements and cosmos utilizes an uncharacterized primitive, namely the receptacle. Were material principles of any sort ultimate or primitive, we would have expected that they be mentioned as the new ἀρχή needed for the account of genesis introduced at 48e2ff. At the very least, we would expect an adumbration of their relation to the receptacle, the ἀρχή actually cited. Needing some text besides the controversial description of chaos at 52d2ff., proponents of ultimate material principles find them in the passage at 49c7ff. They are allegedly what enable us to refer successfully to the phenomena of the physical world. As Gill writes,

> Whatever these [the ultimate material simples] turn out to be, they provide the physical world with sufficient permanence that language can get a grip on it.... For the simples – though they move about in the receptacle, combining and separating in accordance with necessity – will not, if ultimate, alter in respect of their *own* character. They are eternal: a simple is *altogether and always* such as the Form which is its cause.[36]

This attempt to save the phenomena as the referents of our words differs from the one previously canvassed. Whereas the traditional reading utilized recurrent properties and the receptacle in order to provide the needed stability, this reading regards the ultimate material simples as constituents of the phenomena and derives the needed stability of phenomena from the nature of the simples which, at least in part, comprise them. These ultimate simples, not the receptacle, are the subject of the recurrent properties.

In what way, then, are these postulated entities simple? *Ex hypothesi*, they have both a material component and a property. First, the fact that they unalterably and eternally possess their respective characters does not mitigate the conceptual

[34] Even so, it might be objected here that Plato does indulge in this kind of argument when arguing on behalf of Forms. He cannot say what a Form is, but he nonetheless concludes that there must be such a Form. The objection does not strike home. Plato does engage in something *like* this form of argument. But he insists that Forms have certain natures or essences (he also contends that all Forms, as such, have other properties or characteristics, e.g. atemporality, unchangingness etc.). If *initially* we can specify a Form only as 'whatever it is to be', e.g. Justice, after dialectical and philosophical (and scientific) inquiry we can arrive at the definition, e.g. 'doing one's own'. (See, for example, A. Nehamas, 'Self-Predication and Plato's Theory of Forms', *American Philosophical Quarterly* 16 (1979), 93–103, and my 'Synonymy and Self-Predication', *Ancient Philosophy* 10 (1990), 193–202.) In the case of the ultimate material principles, however, not only does there seem to be no such nature or essence, but it seems that Plato is committed to the premise that even if there is such a nature, he cannot know what it is. Timaeus' disclaimers about the necessity of the triangles indicate not that further scientific inquiry will turn up the certifiably primitive shapes, but rather that it is possible to construct the bodies of the four elements, and hence everything in the physical cosmos, from a number of different shapes. The commitment to a singular, necessary and specifiable essence prominent in Plato's consideration of Forms is absent from his consideration of matter.

[35] Those who would treat the stuff of the precosmos as deviant shapes awaiting geometric perfection assign to the particles the geometrical properties of the perfected geometrized bodies. It is primitive matter which has or acquires these deviant shapes.

[36] Gill 51.

difficulty. Merely to possess a property in this fashion does not confer 'simplicity' on the bearer. In the case of the Forms, they too unalterably and eternally possess their respective properties. But this does not constitute their simplicity. The simplicity of a Form, to the extent that the notion is applicable, seems to be derived from the fact that any given Form, e.g. Beauty itself, is the *only* thing that is *really* beautiful.[37] Moreover, since Forms possess whatever properties they possess eternally and unalterably, that something possesses a character eternally does not entail that it possesses that character essentially. The simplicity of an ultimate material simple cannot, therefore, be derived from the *way* it possesses its character. Second, when Plato discusses things other than Forms which have some property, G, unalterably and as long as they exist, it is in virtue of some other property, F, which these things have, i.e. in virtue of their essence, that they possess property G 'of necessity'.[38] Being simple and lacking an essence, the ultimate material principles cannot have any other property which would permit this. The proponents of ultimate material simples are, in effect, prepared to countenance denatured matter which at the same time as it lacks an essence has a character unalterably and eternally.[39] Finally, it might be argued that the simplicity of these ultimate material simples is due to their possession of *exactly one* property, or exactly one property eternally and unalterably. But this defeats the avowed aim of the postulation of matter. Matter's alleged role in this section of the *Timaeus* is to enable language to hook onto the phenomena. However, on this line of argument, it is not the material aspect of these simples which furnishes the stability, but rather the character it receives from the Form. The singular, unalterable and eternal properties once again allow us to refer to the world. Matter's role then is not to provide stability for the phenomena but to be the bearer of the properties which provide the stability. What then leads us to postulate such a bearer? We never confront these simples. What we name are the combinations of simples which configured in certain ways yield the air, earth, water or fire molecules. These molecules, i.e. the traditional four elements, are particular arrangements of simples which perdure for a time. The arrangement is viewed as the property of a 'set' of simples. We are justified in applying a name, e.g. 'fire', to one of these arrangements, because even though the arrangement may have altered, 'the name still refers to a set of simples of which that arrangement was once a property.'[40]

The arrangements of ultimate material simples are more than just the *bodies* of the traditional elements. Were the arrangement merely some geometrical configuration, we could not properly predicate 'fire' of it. We can call the arrangement 'fire' because in addition to having the appropriate shape, the arrangement has the property of fieriness. But this property is not a property of the 'set' of simples, nor does it emerge from the arrangement. It is actually possessed by the constituent material simples. The properties of at least the molecules of the traditional elements are therefore reducible to the constituent elements of the molecules. The justification

[37] I would argue that claims of this type should be understood to assert that the Form is identical with its essence. In the middle period, the simplicity of the Forms is captured by the Greek μονοειδής. See, for example, *Phaedo* 78d5. Some contend that Forms, at this point in Plato's development, consisted of exactly one property, namely the property it constitutes. In the later period, when Forms seem to possess properties, their simplicity would consist in the special relation they bear to their respective essences.

[38] Here the fire and snow of the *Phaedo* 103c–105b comes to mind. They are necessarily hot and cold, respectively, in virtue of what it is to be fire and what it is to be snow.

[39] If one were adamant, one could claim that each material simple has essentially the one property it is endowed with. There is, however, hardly a shred of textual or philosophical evidence that Plato allows material simples, or any phenomenal material particular, to have an essence.

[40] Gill 51.

for naming the phenomena as we do is grounded in the character of the simples, not in the arrangement. Moreover, by dint of the same reasoning that led to the displacement of triangles as ultimate in favour of material simples,[41] the actual geometrical structure suggested by Timaeus for a molecule of fire will not be necessary for that molecule to be, or to be called, fire.

The properties of the simples notwithstanding, it appears that Gill thinks that the geometrical arrangement justifies our naming of the molecules.

> Prior to the organization of the cosmos into relatively permanent bodies, there are many copies of the simples, and these move about in the receptacle and combine and separate by chance. In this precosmic situation the four elements do possess certain traces of themselves because random compounds of simples will sometimes produce a likeness of them, though doubtless a fair likeness of any of them will be exceedingly rare.[42]

Whatever we make of the exact role these ultimate material simples play in the justification of our linguistic practices, we discover once again a realm of entities which are alleged to be the domain of Necessity, the random arrangements and movements of simples. And unlike the view considered previously, there seems to be a way of describing these distinct events; for regardless of the subsequent acts of the Demiurge, appeal can be made to the unalterably characterized simples. (Of course, if this is to be certified a realm governed by Necessity alone, we cannot include Forms as part of the realm of Intelligence.) Unfortunately, the very fact that these ultimate material simples move at random provides the best evidence that there can be no simples of the sort alleged.

If Necessity is to have the motions and events of the primordial chaos as its own domain, there must be movements in that chaos not induced by soul. That body is responsible for any motion on its own is not the typical position of Plato. Soul, as *the* self-mover, is the source of all motion (*Phaedrus* 245c5–246a2, *Laws* 894b8–896c4).[43] How then does the motion of precosmic matter arise?

> Now concerning motion and rest, if we do not agree in what manner and in what conditions they arise, many difficulties will stand in the way of our subsequent reasoning. Something has already been said about them, but there is this to be added: motion will never exist in a state of homogeneity. For it is difficult, or rather impossible, that what is to be moved should exist without that which is to move it, or what is to cause motion without that which is to be moved by it. In the absence of either, motion cannot exist: and they cannot possibly be homogeneous. Accordingly, we must always presume rest in a state of homogeneity, and attribute motion to a condition that is heterogeneous. Further, inequality is a cause of heterogeneity; and the origin of inequality we have already described. (57d7–58a2, transl. Cornford)

If the material stuffs are to move, they must have heterogeneity, *ἀνωμαλότης*. And what causes heterogeneity is inequality, *ἀνισότης*. This inequality, in turn, appears to

[41] Ibid. 47–8.

[42] Ibid. 52.

[43] When the division of causes is introduced at 46d5–e6, the language seems to indicate that the typical Platonic view is at work. First we are to seek the causes due to Intelligence and Knowledge, notions which belong only to soul. Second, we are to pursue those causes which belong 'to things which are moved by others and of necessity set yet others in motion.' (Cornford transl. p. 157) The 'others' which are in motion, *ὅσαι δὲ ὑπ' ἄλλων μὲν κινουμένων* (45e1), are either bodies or souls. According to the typical doctrine, if they are bodies, then eventually what sets these bodies, or the bodies which move these bodies, initially in motion must be soul. So the typical doctrine does not consider the causes of Necessity to be wholly free of Intelligence. If this passage is to support an independent realm for Necessity, these 'others' must be bodies whose motion is not due to soul. And since any motions of *organized* bodies caused by other *organized* bodies would still import Intelligence as a cause, the only option for those who would allot an independent domain to Necessity are the motions of the matter in the primordial chaos.

have as its cause the fact that Demiurgically created triangles can combine to form triangles of different sizes. By Plato's own lights, then, we apparently must appeal to the Intelligent causes to explain the source of the irregularity which could cause the motions of the matter. It may be objected, however, that in the above passage we are dealing with the motions of geometrized bodies, not the stuff of the primordial chaos. If we wish to examine the motions in the precosmos, we need to look at the doctrine expressed in 52d2–53c3. There the traces of the four elements are said to be unevenly balanced and to lack proportion and measure. As a result, these things move the receptacle, and it in its turn moves them. Might these be motions of matter arising from purely mechanical reasons?[44] Might the inequality of 58a1 be attributable to the features of the trace elements described at 52–3? I do not believe so. But my purpose in raising this issue is not to determine whether the motions could arise from mechanical means. It is rather to show that if they are to do so, then these traces must be more than *ultimate material simples*. A simple of Fire must have more than the character, e.g. fieriness, which it comes by as an image of the Form Fire, because these characters as such cannot be the source of the imbalance or lack of measure. Not even if there were more simples of a given kind located in one region of the universe than in another, nor even if the simples were unevenly distributed, would we get any motion. A property instance of Fire is not something to which the property or character of balance or inequality applies. What must be present in the primordial chaos is matter with *density and weight*, stuff which has an absolute metric independent of Forms and the Demiurge. The so-called ultimate simples cannot therefore be simple; at a minimum they are material, hence weighted and sized and shaped, *and* fiery or watery or what have you.

Ultimate material simples will not suffice if the matter of the precosmic chaos is to be the domain of Necessity. Nor will uncharacterizable stuff prove adequate. The only avenue left is to take the matter of chaos to be Democritean atoms. I find no credible evidence in the *Timaeus* for such a reading.[45] Hence, I find no independent domain for Necessity, no way to explain how motions could arise in the primordial chaos, and no doctrine in the *Timaeus* that requires the postulation of primitive matter. Necessity and Reason are distinct kinds of cause. But they are not independent of one another. Necessity can explain only with the help of reason. It is always and truly a συναίτιον. How we are to understand the relation between them is dependent upon Plato's account of matter. And that account is to be found in his notion that the Theory of Geometrized space is a complement to the Theory of Forms.

## III. THE TWO THEORIES

The relation of the Formal account to the Geometrical account is seldom addressed directly in the literature on the *Timaeus*. However, many have indirectly characterized the relation between the two kinds of Forms in their examination of the relation between Necessity and Intelligence. In these discussions matter is once again aligned with Necessity against Intelligence. While it does not, perhaps, here enjoy the status of a primitive, the fact that it is a construct is seldom noted. This failure has, I believe,

[44] See G. Vlastos, 'The Disorderly Motion in the *Timaeus*', *CQ* 33 (1939), 71–83, reprinted in R. E. Allen ed., *Studies in Plato's Metaphysics* (London, 1965), 379–99; p. 396 (pagination from Allen). Cf. L. Tarán, 'The Creation Myth in Plato's *Timaeus*', in J. Anton and G. Kustas (eds), *Essays in Ancient Greek Philosophy* (Albany, 1971), 372–407, especially p. 385.

[45] I thus am not persuaded by Mohr's attempt (art. cit.) to revive the interpretation of chaos as consisting of Democritean particles with objective weight.

deleterious consequences for those accounts that would assign Necessity an independent domain. But my concern in this final section is not the nature of Necessity in the *Timaeus*. Rather, I want to explore the topic of Necessity versus Intelligence in order to show how Timaeus uses the two kinds of Forms to account for the nature of phenomenal particulars.

If we reconsider many of the foregoing arguments against primitive matter, we find that they rely on the assumption that Forms are part of the realm of Intelligence. This suggests that it might be possible to justify the postulation of matter and to explain the relation between Intelligence and Necessity by allowing Forms to influence matter – that is, by allowing matter to be informed.[46] In this case, the domain of Necessity will be some subset of phenomena *in the cosmos*, as opposed to the precosmos (see below). There is, I believe, one proviso that any such account must observe: the organization or informing of matter must be free of the influence of the Demiurge. Should the Demiurge be required, we lose the right to claim independence from Necessity. The line demarcating Formal influence from Demiurgic intervention is drawn between the two kinds of Forms Timaeus uses in his account of the cosmos: the traditional Forms, e.g. Fire, Justice, Man, and the Geometric Forms, e.g. Triangle, Plane Figure, Pyramid. How and where it is drawn distinguishes the various approaches to the problem of the two accounts.

One influential account views the world of 'earth, air, fire and water in perpetual motion and interchange' as the realm of Necessity. In this world determinate effects follow regularly from specific causes.[47] It is a world in which there are regular causal sequences, because it is a world in which *matter* has a definite, dependable structure. But this world is too regular and orderly to be governed by Plato's 'Necessity' or 'wandering cause' (48a6–7). The element of disorder is introduced by the collisions or conjunctions of these regular causal sequences. These collisions and, *a fortiori*, their results, are 'unplanned'. Necessity is represented by the regular causal sequences involving these well-defined material bodies, chance by their conjunction.[48] When Intelligence steps in, certain apparently random collisions of sequences come to exhibit a regularity. The cause of these regular convergences is Intelligence and the production of these convergences and all subsequent constructions based on them constitutes the 'ordering' of the cosmos effected by *Noῦς*.

According to this view, Necessity and chance are *distinct* factors comprising the realm of Necessity prior to the intervention of Intelligence. The regular causal sequences, representing Necessity, seem due to the participation of matter – I assume of differing sorts – in the Forms of Fire, Water, Air and Earth.[49] The random collisions of these informed elements represent chance. Since Intelligence accounts for the construction of all the regular and beneficial collisions of sequences, and the construction of all the complex phenomena, Intelligence is responsible for a complex phenomenon's participation in all the other Forms.

The distinction between Chance and Necessity, however, is not found in the *Timaeus*. Moreover, the depictions of the precosmic chaos, the Wandering Cause and Necessity belie the possibility that these 'regular causal sequences' of the elements comprise the domain of Necessity. The passage at 46e1–6 is particularly uncongenial:

[46] Without committing Plato to any specifics, this is to suggest that his matter is similar to Aristotle's, at least with respect to all Aristotelian matter besides prime matter.

[47] See G. Morrow, 'Necessity and Persuasion in Plato's *Timaeus*', *Philosophical Review* 59 (1950), 147–63; reprinted in Allen, op. cit., 421–37, pp. 426–8 (pagination from Allen).

[48] Ibid. 433.

[49] Perhaps these Forms are to be identified with certain geometric Forms. This issue is not clear in Morrow's account.

necessary causes produce a random and disordered effect on every occasion, τὸ τυχὸν ἄτακτον ἑκάστοτε ἐξεργάζονται. But even supposing that we can reconcile the distinction with the texts, the realm of Necessity envisaged by this account is not free from the influence of Intelligence. Consider these causal sequences. A causal sequence is described as 'A followed always or usually by B'.[50] The four traditional elements exhibit this behaviour. What is it that they do and how are they able to do whatever they do? The As and Bs are nothing other than the transformations of the traditional elements into one another, the recombinations and dissolutions that produce the liquids, metals, gases, etc., and the processes of heating, cooling and others of this sort. These are the very processes, however, which Timaeus insists are accessory causes, not causes (46c7–d3). Even these, therefore, are to be explained through a collaboration of Intelligence and Necessity. The reason Intelligence is needed is that the explanations of these processes will depend upon the geometrical configurations of the matter involved. The geometrical configurations, in turn, are those produced by the Demiurge. A world of Aristotelian matter observing regular causal sequences is found in the *Timaeus*. It is, however, not the realm of Necessity acting on its own, but the first stage in the Demiurgic construction of the cosmos. It is a stage that this account omits.

A modification of this view produces a different picture of Necessity's fiefdom within the cosmos. Like the previous account, this one begins from matter. However, it does not root Necessity in the *regular causal sequences* of precosmic matter. Only when the Demiurge intervenes do we find matter exhibiting regular causal sequences.[51] The Demiurge, like before, combines materials to bring about purposeful products. What he produces are the phenomenal objects of the cosmos. By and large, these objects are well-behaved and have some of their properties in virtue of the properties of their constituent matter. On the other hand, since these objects are constructed from basic materials, they are complex. In their complexity Necessity is housed.

> Every phenomenal object instantiates a very large number of properties, all of which have causal implications. Hence, any ordering of phenomenal properties, in particular the best one imposed by the Demiurge, will bring with it many side-effects some of which will not be good and others of which will be positively undesirable. ... It is precisely these unavoidable collocations of good and bad properties that Plato would call chance.[52]

The origin for this view is the *Phaedo*'s account of Forms such as Fire (99b–105b). The world of Forms has a certain structure; Fire brings with it Heat, Snow Cold, Three Odd.[53] So too in the *Timaeus* the Forms have causal implications. These implications are first manifested in the nature of the matter or 'raw material' that the Demiurge will employ. The different kinds of matter have reliable natures in virtue of the Forms that they image.[54] But Necessity enters only after the raw materials are

[50] Morrow 433.

[51] This is the view of S. Strange, art. cit. Although Strange recognizes that the Demiurge is responsible for the creation of the triangles, it is unclear whether the precosmic chaos is Necessity's own Domain.

[52] Strange 35; cf. Morrow 433.

[53] I leave aside the vexed question whether Fire and Snow are Forms here. Cf. Strange 33, Vlastos (1969), 316–24.

[54] Strange 33: 'These constraints on Reason are intimately connected with the corporeality of the physical world. This is strikingly illustrated by the passage on the pre-cosmic chaos (52d–53c). Here we are to consider the receptacle as containing only traces or ἴχνη of the most basic Forms (Fire, Air, Earth and Water) "before" the Demiurge's shaping and organizing activity begins. This indicates that Plato does not think of Reason as the cause of the participation in these Forms: the Demiurge merely takes over these pre-existing formal elements and brings them to participate in better, higher Forms.' Strange 38 n. 32 cites Morrow with approval here. Clearly the Demiurge or Reason is not responsible for anything's participation

combined to form complex phenomenal objects. The various properties of the phenomena exclude some properties and import others. Or rather, the properties of the constituents of the complex phenomenon do. Because his material constituents have properties related in such ways, the Creator's power to produce what he will is limited. Sometimes he will have no choice but to employ constituents some of whose properties will work at cross-purposes with others of his goals for the object he is building. For instance, in fashioning the human body, 74e–75c, he must use bone, flesh, and sinew. In order to protect the body the flesh ought to be thick. But thickness of flesh will result in inflexibility, dullness of sensation and other undesirable features. Given his options, the Creator must choose between these incompatible alternatives. 'The constraint is Necessity, which can be referred to the mutual entailments and exclusions of Forms: as Plato says, the Necessity is displayed in the logos or account of the situation (74e4–5).'[55]

Once again, we are asked to accept that matter unproblematically images or participates in the Forms of Fire, Water, etc., or their geometric equivalents. The difficulties begin when some material is made to image a Form such as Man, or Horse. It is unclear, though, where on this reading we are to locate the source of the constraints on Demiurgic activity. Forms, i.e. properties, do stand in relations of incompatibility and entailment; but its relations to other Forms does not threaten a given Form with imperfection. One might look to the joint embodiment of two Forms in a given phenomenon as the source of the difficulty. Yet this too seems impossible: if the two Forms are incompatible, then nothing could instantiate them. So, we must make each phenomenon complex; each 'part' could then instantiate one of the incompatible Forms to yield a whole some of whose properties are incompatible with one another. Adopting this interpretation, we would locate the incompatibility not so much in the Forms themselves, but in their *material* embodiment. If you want or need to use such and such a kind of matter, then you must figure on confronting its properties. Some of these will be suited to your purposes as a craftsman, others will not. You deal with the latter as best you can, never entirely able to overcome their inherent inability to yield to your suasion. Necessity, on this reading, is the result of two factors. On the one hand, there is the contribution of the properties of different kinds of matter which the Demiurge uses in his constructions. These properties are due to the Forms imaged by the different kinds of matter. On the other hand, there is the fact that the Demiurge combines the matter in certain ways, and then combines previously produced compounds into higher order complexes. The consequences of combining matter are 'unavoidable collocations of good and bad properties that Plato would call chance'.[56]

In order to evaluate this interpretation of Necessity, we need to distinguish the combinations of matter which result in *unavoidable collocations of good and bad properties* from the *unavoidable combinations of matter with necessary characteristics*. Let us start with the construction of the four traditional elements. The Demiurge apparently has a choice of geometric shapes from which to build these elements. He chooses the two sorts of triangles because they will best suit his purposes (53b–e). His

in a Form in the precosmos. However, it is not clear that anything in the precosmos participates in a Form at all. Were it to do so, it would not be a trace, but a full-fledged instance. Moreover, even if the Demiurge is responsible for something's participation in a Form, it would be participation in a geometrical Form. Throughout the preceding pages, the Demiurge is not responsible for the exits and entrances of form-copies. It seems that Strange is identifying Fire with a certain geometrical configuration, or generally identifying traditional Forms with geometrical Forms, when he claims that the Demiurge is responsible for something's participation in a Form.

[55] Strange 33. [56] Ibid. 35.

immediate purpose, to be sure, is the construction and the transformations of three of the four elements. But he also has more distant plans for these elements. Since they will figure in everything else he will construct, he must assign them now a configuration that will permit them to play a particular (causal-explanatory) role in the subsequent productions. In each and every construction, however, the Demiurge knows which properties the finished product must exhibit: they are those properties present in or standing in an implication relation to the Form of which a given product is an image. Since the Demiurge is necessarily guided by the Forms, he cannot avoid combining the materials with their inherent properties in the manner he does. So, for instance, given the properties of Fire, Air, Water and Earth, the Demiurge cannot avoid the choice of triangles, once he determines that they best suit his purposes.

After his first task, of course, the Demiurge has no choice but to work with the four traditional elements. All subsequent productions, therefore, will unavoidably have collocations of properties bequeathed them by their constituents. The account of Necessity under examination does not, however, think that all collocations are what Plato would call chance; rather, the chance ones are those which combine good and bad properties. But what sense does 'good and bad' have here? In each and every case, the Demiurge builds according to his specifications. Since the imperfection or incompatibility does not reside in the Forms, it seems to follow that nothing bad or imperfect can reside in something that images a Form. A molecule of fire, for instance, has the collocation of properties dictated by the Form of Fire. There are, it seems to me, no 'bad' properties in the bunch. Similarly, the human body has the collocation of properties dictated by the Form of Man. And similarly, there are no bad properties in this bunch. The only criterion we can apply to distinguish 'good' from 'bad' in a discussion of the properties of a Demiurgic construction is conduciveness towards realizing his goal. If the Demiurge were to use a component in a construction when there was another component available which was more conducive towards the realization of the goal, then the collocation would be bad. But it does no good here to confuse properties which limit the realization of a goal with properties which, were they present, would make for the realization of a different goal.[57] There is nothing chancy or random about the constituent elements and subsystems of the human being or any other physical object. Nor are there any bad properties. There are only properties which it would be nice to have, if we but could. But we can't.

The notion guiding the preceding interpretation is that it is necessary that matter has certain essential properties. The Demiurge is therefore constrained in his actions; he cannot overcome the inherent limitations imposed on him by matter. He may do what he wishes with his materials, but he must work with the materials presented to him. Hence his products can be only as good or as perfect as his materials permit. One flaw in this notion is that it suggests that there is something the Demiurge wishes to craft but cannot.[58] A second flaw is that it ignores the fact that the Demiurge begins

[57] Were human beings able to be different from what we are, say our sight could be vastly keener if air and not fire were emitted, then the presence of fire in our eyes could be classified as bad.

[58] There is also a related flaw. These interpretations appear to confuse the Necessity with which Intelligence effects a compromise with the Necessity that the generated physical cosmos be deficient or imperfect *vis-à-vis* Forms. Being the kind of creator he is, it is necessary that he choose as his model the Form of the Animal Itself and that he instantiate in the generated cosmos images of the Forms (29d–31b). He effects no compromise with this Necessity. In a similar fashion, it is necessary that the physical world, as an image of the Forms, be deficient with respect to the Forms. Here I allude to the fact that the physical objects will necessarily

his constructions with the geometrical figures. If we are to understand the relation of Necessity and Intelligence, the nature of matter and the intelligibility of the phenomenal particulars, we must consider how the Demiurge does build the world.[59] I have argued that matter, for Plato, is not an unanalysable primitive. He does not say that the Demiurge geometrizes matter. But I do believe that Plato thinks that it is necessary that there be matter or corporeality. These claims are not incompatible, for something can be necessary or inevitable without being primitive. Adhering to the order of myth within the *Timaeus*, world-construction begins from three kinds of unanalysable primitives, the receptacle or space (χώρα), the Forms and Soul. Matter or corporeality is then viewed as an inevitable consequence of the interaction of these three primitives. That is to say, given the Forms, the Demiurge's desire to generate the cosmos as an image of the Forms, and the receptacle, he has to construct matter. (If one holds that the creation is mythical, as I do, our metaphysical assay reaches these same three primitives and their product, matter, by working our analysis back from the ordinary objects of everyday experience.)

One reason that matter has seemed to some to be primitive is that Timaeus declares that that which comes to be must be bodily, σωματοειδές, and hence visible and tangible.[60] In order to be visible, in turn, it must be composed of fire, and in order to be tangible it must be made of earth. Therefore, the Demiurge, when he began to construct the body of the cosmos, made it from earth and fire (31b4–8). Water and air are soon added, and the body of the cosmos is constructed from the four (32c5–6). Like the previous cosmologists, this account takes the four traditional elements as primitives. When Timaeus offers his revised account at 48e2, it is in part to correct the impression left by this earlier one. But even at 31–32 there are telltale signs that body is not a primitive notion. First, the chain of implications – if generated then bodily, if bodily then visible and tangible, if visible and tangible, then made of fire and earth – implies only that anything generated has body, not that body must be primitive. Second, and more significantly, a crucial premise in the reasoning that results in the postulation of water and air as means uniting earth and fire is that the world was to be solid (στερεοειδές). 'For if it had been required that the body of the universe should be a plane surface with no depth, a single mean would have sufficed to unite itself and its companions' (32a7–b2).

The *sine qua non* for the construction of the cosmos then is not that we assume as our primitive notions the four elements, but rather that we must assume that depth, βάθος, is present. When Timaeus finally returns to the topic he reiterates this assumption: the elements are obviously bodies, and all body has depth. And Depth, moreover, must be bounded by surface (τὴν ἐπίπεδον περιειληφέναι φύσιν, 53c5–7). Timaeus then constructs the ultimate bodies by bounding space with surfaces to form triangles with depth. Corporeality or materiality is not, therefore, an unanalysable notion. It is the result of the bounding of space. But this construction or analysis of corporeality does not *reduce it* to some other factor (or factors); it results from the bounding of χώρα, but is not a property of either χώρα or the bounding surfaces.[61]

exemplify certain properties because they are and must be material objects, i.e. images in matter. The Triangle itself does not consist of lines which have breadth, but all triangles in the physical world have lines and all lines have breadth. It is necessary that all the material objects constructed by the Demiurge have whatever properties necessarily belong to matter. Yet here too the Demiurge effects no compromise with Necessity.

[59] On the constraints confronting the Demiurge, see W. Sellars, 'The Soul as Craftsman', in *Philosophical Perspectives: History of Philosophy* (Ridgeview, 1967), 5–22.

[60] Strange 37 n. 15.

[61] Cf. Strange 37 n. 15 and Cherniss, *ACPA* 114 and 152–3.

It is an emergent property, and because it emerges from the interaction of primitives it is a basic factor in the physical cosmos. Corporeality is basic in that it is irreducible and *ineliminable*. Given the mechanics of the myth, it is necessary that the generated cosmos be bodily. The necessity is then translated to all subsequent, or rather prior, conditionals. If there are to be bodies then they must have depth, and if there is to be depth, it is necessary that χώρα be bounded by surface.

The central role enjoyed by depth is also displayed in the Demiurge's remarks on the need for the kinds of triangles he first constructs. The half-equilateral and the right-angled isosceles are the most perfectly suited to his purposes, but they are one among many possible starting-points. What is required of them all is that they have depth. What distinguishes the two triangles is that they allow for the mathematically neatest explanation of the transformation of the elements and the subsequent constructions based on the elements. By combining and arranging these two kinds of triangles, the Demiurge creates differently sized triangles and then the bodies of the four traditional elements. Since these triangles combine and dissolve in patterns dictated by their sizes and nature, the triangular building blocks of the four elements, combined in the way they are, enable the elements to exhibit the properties and undergo the processes that are appropriate. The properties are not properties of the constituent triangles and hence are not reducible in the strict sense. But neither are they properties of the arrangements of triangles. They too emerge, this time from the systematic organization of the bodies. The emergent properties are those which are appropriate to fire, water, earth and air, and the molecules and larger bodies composed of the four elements. What accounts for these emergent properties is, in one sense, nothing but the properties of the component triangles and their arrangement; for the triangles and arrangement allow the body to realize the properties appropriate to fire. But *that* the elemental triangles are able to combine in the appropriate way, and *that* they do combine in the appropriate way, results from the Demiurge's activity. Moreover, and more importantly, he constructs them and everything else in the way that he does because the properties of the four elements and of all subsequent constructions from the elements is predetermined. What he is building is Fire, and what Fire is, the properties that Fire must have, is determined by the nature of the Form, Fire itself.

The geometry of matter explains how the bodies of the four elements exhibit the requisite properties, but those properties and the laws, as we would say, which relate them to other properties, are not part of the geometrical account. Thus one cannot make do with just the geometrical Forms in an explanation of the phenomena. One also needs the Forms of the traditional sort. Timaeus himself, as if to head off those who would infer the sufficiency of the geometrical account from the successful construction of the elements, resolutely insists that there is a Form of Fire and all the others which we are always describing as beings in and of themselves (αὐτὰ καθ' αὑτὰ ὄντα, 51c1). How then do the two kinds of Form interact with one another? We begin with the Receptacle and the two kinds of Form. The receptacle plays a dual role, first as the place where form-copies of the traditional Forms enter and exit, and second as the space bounded by the surfaces of the plane figures. These surfaces are envisaged as the form-copies or images of the geometrical Forms, parallel to the form-copies or property instances of the traditional Forms. The bounded surfaces yield bodies with depth from which molecules and compounds of molecules will be constructed. The construction of bounded surfaces, triangles and bodies is simultaneously the delimitation of the previously uniform receptacle or space. Thus in one fell stroke the Demiurge creates body and place, τόπος. These bounded spaces permit the

specification of a place in which form-copies are manifested or reflected. The presence of the form-copies in this 'field' will confer upon the constructed body its qualitative properties. Thus a molecule of fire will consist of both a cluster of form-copies of Fire (and form-copies of other Forms, e.g. The Hot, or The Yellow) and an arrangement of isosceles triangles. *The space occupied by the body of the fire molecule will be the very place in which the form-copies of Fire occur.*

Admittedly there is the air of the *ad hoc* to this coincidence of form-copy and appropriate body. Some of this air cannot be dispelled; it does just happen that the form-copies are matched up with the appropriate bodies. On the other hand, it is not mere coincidence that this set of triangles is combined in such a way that they are the constituents of a Fire molecule. For the blueprint for the physical construction is the very same Form, Fire Itself, that generates the form-copies which occur in the place defined by the triangles. The two kinds of Forms, along with the receptacle, thus complement one another. The geometrical Forms allow Plato to create bodies with depth out of bounded space and thus transform space into place, which, in turn, provides a home for the form-copies. The traditional forms, on the other hand, guide the construction of molecular bodies in that they present to the Demiurge the set of properties that anything that is to be a fire molecule must have. But the complementation goes further. The theory of geometrized matter affords Plato a new means to account for change and persistence of particulars, and a way to do so without undercutting his metaphysical tenet that particulars have no properties essentially.

A particular, for Timaeus, will be any appropriate material object occupying a region of the receptacle and having properties. The properties of the particular will be a dual function of the form-copies occurring in that region and the properties of the matter whose constituent triangles define the region of the receptacle. The properties of the matter will be those properties we assign to the matter in our division of material versus non-material properties of the object. We are guided in our division by the knowledge of the essential natures of the geometrical (mathematical) Forms and Traditional Forms. The material properties of the particular, those explicable by means of the geometric shapes, for instance its power to combine and resolve, its tensile strength and its solidity, afford Plato a means to handle the problem of the persistence of particulars, the problem which, I believe, has motivated many to introduce matter as a primitive into the Platonic ontology.

A particular in the pre-Timaean dialogues seems to be nothing but a bundle of form-copies or properties. One problem for this view is the lack of any rationale or mechanism for grouping form-copies or properties so that they can constitute discrete particulars. A second problem concerns the conditions for persistence: if the particular is identified with the group of properties at a given time, then the persistence of that particular amounts to the continuation of just that bundle of properties. Were there to be a change in any one property of the bundle, say it were to lose the property of being pale, the particular would go out of existence and a new particular would come into existence. Thus there could be no change in a particular over time, for nothing would persist to serve as the subject of the change in properties. To avoid both problems some have used matter and/or essential properties in their account of Platonic particulars. The matter serving as the subject or bearer of the properties permits the grouping of the properties. And either the matter or the essential properties remain throughout the change of accidental properties, thus affording a persisting feature by which we can identify the particular before and after a change of properties. But to many readers, of course, that particulars possess

essential properties appears to be incompatible with Plato's thesis that particulars acquire all their properties through *participation* in Forms, which alone among entities bear or are essences. As for the appeal to matter, there is simply no indication that Plato, prior to the *Timaeus*, had developed the notion.[62]

The introduction of the receptacle affords Plato a means to handle both problems. To be sure, the receptacle is not the subject or bearer of properties. Nor does it alone provide us with particulars. It is, at best, only one very large particular. Those who appeal to matter as primitive do generate multiple particulars. However, the accounts of matter canvassed in the preceding pages all seem textually and philosophically suspect. If the reconstructionist account of material bodies is right, we avoid both problems. Since the bounded regions of the receptacle are places where form-copies are manifested, we can group form-copies or properties into discrete bundles. Simultaneously, the bodies constructed from these bounded regions define these places and can thereby serve as the bearers, or at least the apparent bearers, of the properties.[63] Moreover, we obtain an account of particulars bearing properties without committing Plato to any essentially endowed particulars. A particular will be built from material bodies. These different bodies will be subject to change and ultimately dissolution. But so long as they are composed of relatively enduring geometrical configurations, certain properties will remain 'fixed'. The enduring material bodies, occupying a constant region of the receptacle, or reasonably contiguous regions of the receptacle, will be the home of the properties associated with everyday particulars. Particulars will persist through changes of property both because some of the matter will occupy the same region(s) or continuous regions and because some properties will remain present through a great many changes. Nonetheless, no particular will be anything essentially: first, because it will possess *all* its properties in the same manner, namely as form-copies entering the receptacle;[64] second, because the geometrical configurations of triangles and complex figures are all subject to change and dissolution.

This solution to the problem of persistence and the nature of particulars will strike many as too good to be true. Why should just the right properties be instantiated for just the time that matches the persistence of the conjoined triangles and their dissolution? The answer will not please those who insist upon an Aristotelian picture of particulars – that is, particulars consisting of matter and endowed with essences. Plato, however, does not find this picture philosophically compelling. The realm of essence, of what truly is, at least in the *Timaeus*, is the world of Forms. Plato does not think that there is anything about the matter of, say, Aristotle, that justifies predicating the nature or essence of man of either the matter itself or the particular of which it is the matter. For in asking after the nature of man, i.e. in asking what accounts for this matter's being a man by nature, we are eventually driven back to geometrical elements which only temporarily take on certain shapes, and eventually

[62] For a defence of the notion that Phaedan particulars have some properties essentially, see A. Nehamas, 'Plato on the Imperfection of the Sensible World', *American Philosophical Quarterly* 12 (1975), 105–77; F. C. White, *Plato's Theory of Particulars* (New York, 1981). For the notion that particulars lack any essential properties, see Frede, art. cit. (n. 4), and A. Code, 'Essence and Accident', in R. Grandy and R. Warner (eds), *Philosophical Grounds of Rationality*, (Oxford, 1986, 411–39). I leave aside the question of how the soul figures in Plato's conception of a particular (at any stage of his development).

[63] That is, what appears to us, appears to us to be at some place. The actual bearer will be the material particular which occupies that place.

[64] Thus no particular will have any property essentially. Forms alone will bear (or be) essences.

to a denatured medium.[65] There is nothing attractive about assigning essences to matter. In its place, Plato accepts space and definable properties, his paradigms of intelligibility. All matter, on this account, has properties, and thus can be admitted into a law-like account of change. The price he pays for coherence and intelligibility is that he is saddled with the inexplicable coincidence of geometrical bodies occupying space and properties entering and exiting the place defined by those bodies. But one metaphysician's inexplicable coincidence is another's primitive relation.

## IV. CONCLUSION

We began this investigation by examining whether the phenomena depicted in 49c7ff., as such, were nameable. If Plato has ready to hand the account of particulars we have reconstructed, does it supply an answer? Yes. The particulars of the tradition cannot be named.[66] There are no particulars, as such. There is only space and Forms. Even when we construct, or perhaps I should say deconstruct, a particular, we find that we are able to pick out or denominate a particular only through its properties. The sources or bases of the particularity of a phenomenon are the form-copies or μιμήματα, the particular property-instances of the Forms, especially those instances of the Geometrical Forms that provide for the bounding of space. It is the properties themselves, especially the instances of the Traditional Forms, which we name, even in cases of demonstrative identification. When we take as our paradigmatic particulars individuals such as you and me, we easily slip into the demonstrative statement of the form 'This is Silverman'. But even this is problematic for Plato, since we have no good account of what a person comes to. A Platonic soul, with which I, Silverman, am most plausibly identified, is not necessarily human or always human. 'This is a man' is even more problematic, since the matter which is my body is subject to change in all respects. We identify it as my body through the properties it exhibits, for a while. In the case of the four elements, the constancy of the matter is even more ephemeral. The property of fire is what is present to appearance, i.e. is the 'phenomenon', not the triangles. The underlying matter which allegedly possesses that property is a posit at which we arrive at the end of much philosophizing. In the case of the four elements, with whose denominability the passage at 49c7ff. is concerned, the rapidity and frequency of change is great. At their level, it seems likely that the constituent triangles are undergoing a constant process of combination and dissolution. Here, if anywhere, there is the possibility of Heraclitean flux of the most intense variety. But as we transpose to each higher level of complexity, the rate of change diminishes and the possibility of robust flux seems far less likely. To ground the indenominability of all particulars in robust flux becomes an act of faith.

If our reconstruction of Plato's theory of matter is correct, the grounds lie elsewhere. What renders particulars indenominable are the facts that (1) the geometrical configurations which constitute their matter are always subject to change, although perhaps not all of them change at every moment, and (2) a material body of whatever complexity is itself identified through a property. What makes it true to say of a given particular that it is fire, is not that its matter has (or had) a particular geometrical arrangement. Nor is it because the arrangement is changing even as we

[65] Cf. Frede (1986), 50.

[66] Recall that the particulars in question are bits or instances of fire, water, air and complex things comprised of the elements. The names in question are general terms, not proper names such as 'Socrates'. On names and naming in Plato, see my 'Plato's *Cratylus*: the Nature of Naming and the Naming of Nature', forthcoming, *Oxford Studies in Ancient Philosophy*.

speak – at a given moment the arrangement is what it is. Nor is it because a given arrangement is unverifiable. What makes a given arrangement the arrangement of fire is *the presence of a form-copy of Fire*. Put somewhat differently, the arrangement was selected because it best met the specification of the Formal blueprint. For Plato, the answer to the question 'What is it to be fire?' is never 'To be Fire is to be such-and such an arrangement'. It is that *to be fire is to be some unified set of properties*. The physical world is in flux because it is a world of becoming, a world which clings to existence by being related to the Forms from which its properties derive and to the receptacle in which these form-copies which are its properties occur. It is in flux in part because it is generated and to be generated is to be dependent on a cause outside of itself, the Forms. The constancy of flux for Plato is, at bottom, the lack of independence that marks particulars off from Forms.[67]

The charge facing the reconstructionist was that he adds primitives beyond necessity. Instead of the allotted three, he employs four. In defence, I offered an analysis of one alleged primitive, the phenomenon, in terms of two others, a region of the receptacle and form-copies or recurrent properties. The difficulty here was to find a way in which the analysis could avoid making a phenomenon into a syllable, i.e. a compound of just two factors. The reconstruction I have offered meets this difficulty. For the regionalization of the receptacle (2′a) is effected by the interaction of (form-copies) of geometrical Forms, one primitive, with the receptacle, a second primitive. Thus one of the factors is itself a syllable. The traditional Forms of which the recurrent properties, the other factor (2′b), are μιμήματα, are of course equally primitive. Yet since these are different (kinds) of properties, Plato can regard them as distinct contributors to the complexity of the phenomenal fire. The phenomenon is therefore a construction of an order greater than two, hence not even a syllable.[68]

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[67] Cf. Frede (1986), *passim* and Cherniss, *SE* 23/253–25/255.

[68] Versions of this paper have been read at Columbus, Ann Arbor and Toronto. Comments from those in attendance caused me to rethink much that I had then believed. Special thanks are owed to Dan Farrell, Calvin Normore, Alan Code, Sally Haslanger and the editors of this journal. Of course, none of them should be assumed to share my view on all, or any, of the topics discussed in this paper.