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The Place of I 7 in the Argument of *Physics* I

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Abstract
Aristotle introduces *Physics* I as an inquiry into principles; in this paper I ask where he argues for the position he reaches in I 7. Many hold that his definitive argument is found in the first half of I 7 itself; I argue that this view is mistaken: the considerations raised there do not form the basis of any self-standing argument for Aristotle's doctrine of principles, but rather play a subordinate role in a larger argument begun in earnest in I 5. This larger argument stalls in I 6, which ends in *aporia*; I argue that the problem lies in the fact that Aristotle's reasoning in I 6 thoroughly undermines his reasoning in I 5 (on which I 6 is ostensibly supposed to build). I further argue that the materials necessary for resolving this problem, and thereby allowing the argument begun in I 5 to reach its proper conclusion, are supplied by the thesis that organizes the first half of I 7. Along the way I offer some remarks about Aristotle's doctrine of principles, arguing that it is about the principles of natural substance (as opposed to coming to be or change). I also offer some remarks about the thesis which organizes the first half of I 7. I argue negatively that it is not anything like a preliminary statement of Aristotle's doctrine of principles. I argue positively that it reflects Aristotle's idea that there are two distinct kinds of effect change has upon things (one constructive, the other destructive). One of these effects lies behind Aristotle's reasoning in I 5, the other comes to the fore in I 6; the achievement of the first half of I 7 is to reconcile these seemingly competing conceptions by finding a place for them both in a unified account of coming to be and its subjects.

Keywords
Aristotle, *Physics*, principle, change, hylomorphism

Aristotle introduces the first book of the *Physics* as an inquiry into principles, arriving at his own position about midway through chapter 7:

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> It is evident, then, if there really are causes and principles of things due to nature, from which first they are and have come to be, not incidentally but each what it is called in respect of its substance, that everything comes to be from both the subject and the form. (*Phys.* I 7, 190b17-20)

There are many questions one might ask about this position: what position is it? To what question is it the answer? How is it argued? Why is it important? Although I will touch on some of these questions along the way, in this paper my primary focus will be on one comparatively minor question: where is the position argued?

Many commentators hold that it is argued in the first half of *Physics* I 7. This is not unreasonable. In earlier chapters Aristotle had been mostly concerned with the positions of his predecessors. By contrast, he begins I 7 by stating emphatically that he will now be speaking in his own voice, following this immediately with a word about method, echoing remarks he had made earlier at the very outset of *Physics* I (I 7, 189b30-32; I 1, 184a23-24). This reminder about method invites the thought that we are now making a fresh beginning on the entire inquiry, this time proceeding so as to avoid the mistakes of earlier thinkers. This thought is reinforced by the ensuing discussion, which begins with some observations about how we speak about coming to be; this characteristically Aristotelian attention to ordinary language sits comfortably with the idea that we are here laying the foundations for a new and definitive argument for Aristotle's doctrine of principles. It is true, as many commentators acknowledge, that important elements of this doctrine are introduced in earlier chapters; this is especially true in chapters 5 and 6, which turn away from criticism and focus instead on points Aristotle's predecessors held in common, supporting those points by appeal to fresh and again characteristically Aristotelian considerations. Nevertheless, the general feeling is that it is not until chapter 7 that Aristotle comes really to the heart of the matter; it is here that he presents the famous "analysis" of coming to be on which his doctrine of principles is thought essentially to depend. The prevailing view then is that Aristotle's main argument for his doctrine of principles does not properly begin until *Physics* I 7.[1]

In this paper I argue this view is mistaken. The considerations Aristotle raises in the first half of *Physics* I 7 do *not* form the basis of a more or less

[1] See e.g. Ross 1936, 22; Mansion 1946, 70-71; Wieland 1970, 111; Bostock 1982, 194; Graham 1987, 133; Lewis 1991, 193; Horstschäfer 1998, 181-2.

independent argument for his doctrine of principles. Instead they play a subordinate role in a larger line of argument begun in earnest in *Physics* I 5. This reading is made antecedently plausible by the summary argument we find in *Metaphysics* Λ 1-2, which reads almost like a précis of *Physics* I 5-6 (Λ 1-2, 1069b3-9). If correct, it suggests that the motivation for Aristotle's doctrine of principles is not to be found where it is so often sought, in the considerations about ordinary language that loom so large in the first half of *Physics* I 7.

The paper is divided into two parts. First I discuss the concluding *aporia* of *Physics* I 6, which I believe forms the essential backdrop to *Physics* I 7; I argue that this *aporia* arises because Aristotle's reasoning in I 6 systematically undermines his reasoning in I 5 (on whose results it was ostensibly supposed to build). I then turn to *Physics* I 7, arguing that the function of the material Aristotle introduces here is precisely to resolve the concluding *aporia* of I 6, thereby removing the difficulties which to this point had prevented the line of argument begun in I 5 and continued in I 6 from reaching its proper conclusion.

I. Physics *I 6*

Having argued in *Physics* I 5 that the principles he is seeking must be contraries, Aristotle goes on in the body of I 6 to argue two additional points: first, that there is good reason to think there must be some additional principle(s) – in particular, some non-contrary "subject" (ὑποκείμενον) – and second, that there is no reason to think there are more than three principles total (two contraries and one subject). By these arguments Aristotle thinks he has established that the principles must be more than one and not more than three. However, whether the principles are two or three, this he thinks he has not established: "So, that the element is neither one nor more than two or three, is clear, but which of these [it is] is, as we said, full of difficulty" (189b27-29).

Aristotle's reasons for thinking this difficult are not obvious. Why not just put the reasoning of I 5 and I 6 together and conclude that the principles are three, two contraries and one subject? It is true that the discussion in I 6 is marked as tentative, so that Aristotle's hesitation to draw this conclusion does not come as a surprise (see 189a20-21, 34-b2). Still, the fact of his hesitating is not a reason for it, and so the question remains: why does Aristotle think it difficult to determine whether there are two principles or three?

This question has not been much discussed in the literature and such discussion as there has been is not entirely satisfactory. Nonetheless I believe the answer to it is crucial for a correct appreciation of the point of the material Aristotle introduces next in *Physics* I 7.

I.1. Status quaestionis

I begin with a brief review of the literature. Our problem again is this: why does Aristotle think the question whether there are two principles or three is "full of difficulty"?

Sometimes the difficulty is made to turn on a superficial counting problem. Granted that we know *what* the principles are – namely, the (primary) contraries and a subject – the difficulty is about whether we should count the contraries together as one principle, leaving us with a total of two, or rather count each contrary separately for a total of three.[2] This account is easily set aside. Besides trivializing the issue, it is refuted by Aristotle's reasoning very early on in I 6: "[the principle] cannot be one, because the contraries are not one" (189a12). This reasoning, which is nowhere called into question, simply forbids us to count the contraries as a single principle. The difficulty must lie elsewhere.

Other times the difficulty is made to turn on complexities in Aristotle's own doctrine as developed later in *Physics* I 7. For example, sometimes it is suggested that the reason Aristotle thinks it difficult to say whether there are two principles or three is that, on his own theory, it is difficult to say whether one of the "contraries" (namely, privation) really is a principle. For although Aristotle does not say as much explicitly, it is generally supposed – in my view correctly – that his considered view is that privation is a principle only "incidentally" (κατὰ συμβεβηκός), which is just to say that, speaking "unqualifiedly" (ἁπλῶς), it is no principle at all.[3] Again, to take another instance of this general line, sometimes it is suggested that the reason Aristotle thinks it difficult to say whether there are two principles or three is that, on his own theory, it is difficult to say whether we should count privation together with the subject as just one principle (on account

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2) Simplicius, *In Phys.* 208.8-10; Philoponus, *In Phys.* 150.16-17.

3) So e.g. Simplicius, *In Phys.* 208.14-16; Philoponus, *In Phys.* 150.17-19. (Note that the principles at issue are not principles of change, but of natural substances (τὰ φύσει ὄντα, *Phys.* I 7, 190b17-20). It is this consideration that gives color to the idea that privation is not really a principle.)

of their unity "in number"), or whether we should rather count them separately as two principles (on account of their duality "in form" or "being").[4] Both of these suggestions make the *aporia* raised at the end of I 6 turn on complexities in Aristotle's own position as developed later in I 7; for just this reason, neither can explain why the reader is supposed to be puzzled here at the end of I 6. After all, the idea that one of the contraries might be a principle only incidentally, or that two of the principles might be one in number but not in being – these are ideas of which the reader of I 6 is completely innocent. Indeed, when Aristotle finally does introduce these ideas, in *Physics* I 7, he does not use them to generate the *aporia* he left us at the end of I 6, but to resolve it.

More promising, I think, is a suggestion made by William Charlton.[5] Charlton says that the *aporia* arises from "a mild antinomy" Aristotle has been constructing; specifically, while the arguments of I 6 suggest that the principles are three, the arguments of I 5 suggest that they are only two. It is true that the drift of Aristotle's reasoning in I 5 appears to be weaker than this – just that contraries are among the principles, not that they are the only ones. Even so, one natural way to read the conclusion of I 5 ("the principles must be contraries," 189a9-10) is as implying that contraries are the only principles; indeed this reading is strengthened by a passage in I 7, in which Aristotle reports the conclusion of I 5 as having been that the contraries *alone* are principles (191a15-16). These considerations suggest that Aristotle regards the conclusion that there are *only* two principles, even if not expressly asserted in I 5, as nonetheless there fairly easy for the taking.[6]

The most damning objection to Charlton's suggestion is that it wrecks the transition from I 5 to I 6: "Well then, that the principles must be contraries, is clear; next would be to say whether they are two or three or more" (189a9-12). How could Aristotle think that the "next" question is whether the principles are "two or three or more," if he took himself to have just established that they are only two? Nor is it easy to see how the

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4) Simplicius, *In Phys.* 208.10-11.

5) Charlton 1970, 67. (Two further suggestions may be found in Horstschäfer 1998, 246-47.)

6) As for confining the principles to a *single* pair of contraries, Aristotle has already suggested in I 5 that not every contrariety is fit to supply us with principles (some are prior to others and so on, 188b30ff.), and his reason in I 6 for limiting the principles to a single pair of contraries is given very early on, before the main discussion gets properly underway (189a13-14, cf. 189b22-26).

conclusion that the principles are only two is established by Aristotle's reasoning in I 5.[7] Roughly put, his reasoning there is that the principles are contraries because the primary contraries are what everything else ultimately comes from (and perishes into). However, this appears to leave it open that other things might be principles too, perhaps because they play other roles in coming to be (for example, that of the efficient cause), or perhaps for some other reason having nothing to do with coming to be (for example, because they are substance). It is very difficult to see how Aristotle's reasoning in I 5 rules out these possibilities. In any case, without some better idea of *why* we are to limit ourselves to two principles, Charlton's "mild antinomy" seems too mild to explain why Aristotle thinks the question of whether there are two principles or three is so difficult. As things stand, it seems easy enough simply to dispense with the "only" and conclude that the principles are three, two contraries and a subject.

These difficulties notwithstanding, it seems to me that Charlton's structural idea – that Aristotle is setting up a kind of antinomy between I 5 and I 6 – is on the right track. In *Physics* I 6, after presenting his reasons for not limiting ourselves to just two principles, Aristotle concludes with the following remark:

> For this reason, if one were to reckon true both the prior account and this one, then necessarily, if one is going to preserve both of them, he must posit as subject some third, as do those who say the universe is some one nature, e.g. water or fire or something between these (189a34-b3).

Here the "prior account" refers to the conclusion reached in *Physics* I 5, that the principles are contraries; "this one" apparently refers to the upshot of the points Aristotle has just been making in *Physics* I 6, that contraries are not the only principles. The passage says that, taken together, these "accounts" combine to form an argument that the principles are three, two contraries and one subject. However, the way Aristotle puts this – "*if* one were to reckon true both accounts," "*if* one is going to preserve both" – indicates that he has reservations about combining the results of I 5 and I 6 in this way. If that is right then the trick is to explain why.

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7) These objections were put to me by David Ebrey.

I.2. *The Antinomy between* Physics *I 5 and 6*

Physics I 6 is organized around the question of "how many" the principles are, "whether two or three or more" (189a11-12). The discussion comes in three parts: first come reasons for thinking the principles are finitely many (189a12-20), then reasons for thinking they are more than two (189a21-b16), and then finally reasons for thinking they are *not* more than three (189b16-27). It is the second part of this discussion that interests us here. Although the considerations it raises are introduced as reasons for thinking that contraries are not the *only* principles (189a21-22), the fact is that they systematically undermine the reasons given earlier in I 5 for thinking that contraries are principles in the first place.

A little more precisely, the considerations raised in I 6 take the form of certain problems that arise on the supposition that contraries are the only principles. There are basically two such problems and each of them undermines one of two arguments given in I 5 for making the principles contraries in the first place. I argue these points below, following the order of *Physics* I 5.

I.2.1. *Problem One: Priority*

The first reason Aristotle gives in *Physics* I 5 for making the principles contraries is as follows:

> For the principles must consist neither of one another nor of anything else, and everything else must consist of them.[8] Primary contraries fulfill these conditions: because they are primary they do not consist of anything else, and because they are contraries they do not consist of one another. (*Phys.* I 5, 188a27-30, tr. Charlton, modified)

There are two points here worth noticing briefly. First, although Aristotle says that the things he mentions as characteristic of principles are also characteristic of the primary contraries, his explanation of this is incomplete; although he does explain why the primary contraries do not consist of anything – not of one another, because they are contrary, and not of

[8] Here and more or less throughout I use "consists of" to translate ἐστι + ἐκ, in large part just to mark the difference between it and γίγνεται + ἐκ, which I think is not the same. (Indeed I suspect that proper attention to these locutions would dissolve the alleged inconsistencies between I 5-6 and I 7, on which see e.g. Bostock 1982, 189ff. and Horstschäfer 1998, 180ff.)

anything else, because they are primary – he does *not* explain why they are what everything else consists of. (This omission is significant; later in I 6 he will point out that some things do not consist of contraries, namely substances.) Second, although Aristotle does not explain why he thinks principles do not consist of anything, his reason is presumably that if they did, the things they consist of would then be prior to them and as such would defeat their claim to be "principles" (ἀρχαί).

In a word, then, Aristotle's first reason for making the principles contraries is that the primary contraries have a kind of *priority* to other things of the sort we expect in a principle. As we will see, this consideration is directly undermined by his reasoning in *Physics* I 6. As noted above, this reasoning takes the form of certain problems that arise on the supposition that contraries are the only principles; it is the second of these problems that concerns us here and it runs as follows:

> One might also puzzle about the following, if he does not posit as subject some other nature for the contraries. For there is not anything of which we see that the contraries are the substance, and yet a principle must not be said of some subject; otherwise there will be a principle of the principle – for the subject is a principle, and seems to be prior to what's predicated.
>
> Again, we say that substance is not contrary to substance; how then could substance consist of non-substances? Or how could non-substance be prior to substance? (189a22-34).

In effect there are two points here; both stem from the contraries' failure to be substance, which in turn undermines their claim to the kind of priority characteristic of principles.[9] The first point is that the fact that contraries are not substance requires that there be something that even the primary contraries are "said of" (καθ' οὗ λέγεται); though this is compatible with there being nothing the primary contraries "consist of" (ἐξ ὧν ἐστι), it does show that there are things they are *posterior to*, in a way that would defeat their claim to be principles. The second point is that the fact that no substance is a contrary, and thus that no contrary is a substance, implies that there is an important class of things that even the primary contraries do not comprise or constitute, and of which they are therefore not principles.

Taken together, these points suggest that the primary contraries do not in fact have the kind of priority we expect in a principle; despite what was

9) So too Horstschäfer 1998, 224.

suggested by the points made in *Physics* I 5, it is simply not true that there is nothing prior to the primary contraries, nor is it true that they themselves are prior to everything else, as what everything else consists of. Because no contrary – not even a primary contrary – is substance, the primary contraries will always be posterior to something, namely the substances they are said of. Moreover, and again because contraries are not substance, there will always be things that do *not* consist of contraries, again namely substances. In this way the problems Aristotle raises in the passage quoted above thoroughly undermine the reasons he gave in I 5 for making the principles contraries in the first place.

I.2.2. *Problem Two: Production*

The second reason Aristotle gives in *Physics* I 5 for making the principles contraries is that contraries are what everything else ultimately comes to be from. This point is developed carefully and at some length and it will be useful to consider it in some detail.

Aristotle begins the discussion with a very general point (introduced with some fanfare):

> The first point to seize is that, of all the things that are, not one is such as to do or suffer any chance thing by any chance thing, nor does anything whatsoever come to be from anything whatsoever, unless you take it incidentally. (188a31-34)

He then moves to make this general point more precise, arguing that, in particular, everything comes to be from either its contrary or from something "in-between" (188a35-b23). With this second point in hand, Aristotle then argues that these "in-between" things themselves consist of contraries (188b23-25). He concludes by saying that, if all this is right, then "all of the things that come to be by nature either are contraries or consist of contraries" (188b25-26) – a result he evidently regards as tantamount to the conclusion that all such things have contraries for their principles (see 189a9-10).

Though there are many questions one might raise about all this, the point I want to focus on here is the second one, that everything comes to be from its contrary (or something in-between). Why exactly does Aristotle subscribe to this? The point is obviously supposed to be somehow informed by the first point, that nothing comes to be from just anything whatsoever. Even so, it is one thing to say that things do *not* come to be

from just anything, another to say that they *do* come to be specifically from some kind of opposite (ἀντικείμενον) or contrary (ἐναντίον). Why does Aristotle think this second, further thing?

Although he does not say why here in *Physics* I 5, it is both possible and illuminating to fill out what he is thinking on the basis of things he says elsewhere, in particular in his discussion of action and passion in *GC* I 7. There he asks (among other things) why things that are utterly unlike do not act on, and are not affected by, one another; the reason, he says, is that action and passion have to be between contraries. (His idea is that contraries are always like one another to some extent, inasmuch as they are always the same in genus.) His reason for thinking that action and passion have to be between contraries in the first place is interesting. He says:

> For whiteness would not be affected at all by a line, nor a line by whiteness, except perhaps incidentally, e.g. if the line happened to be white or black; for things that are not contraries or do not consist of contraries *do not drive themselves out of their own nature* (οὐκ ἐξίστησι ἑαυτὰ τῆς φύσεως). (323b25-29)

In this passage Aristotle treats the "action" of one thing upon another as something essentially violent and destructive – as a matter of "driving" a thing "out of its own nature." This is why he thinks that action and passion are always between contraries (or something in-between); the thought is that it is only thus that the thing acted upon will be forced by what is acting upon it out of its own nature. In fact this conception of action and passion, as fundamentally destructive of the thing acted upon, is an important element in Aristotle's thinking about change quite generally.[10] Given this, and given the similarity of language and point between our passage from *GC* I 7 and *Physics* I 5, it is natural to think that the thought behind Aristotle's reasoning in the two places is similar. If that is right, then Aristotle's

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[10] See e.g. *Phys.* IV 12, 221b3 (ἡ κίνησις ἐξίστησι τὸ ὑπάρχον); IV 13, 222b16, 21 (μεταβολὴ πᾶσα φύσει ἐκστατικόν); VI 5, 235b9-12 (τὸ μεταβάλλον ἐξ οὗ μεταβάλλει ἐξίσταται). Also *Phys.* VIII 7, 261a20 (locomotion makes the least departure from *ousia* as compared with the other kinds, namely alteration (on which see *Top.* VI 6, 145a4, 10) and growth); see also *Met.* α 2, 994a22-24, 30-31; Z 8, 1033a19-23. (Cf. Plato, *Rep.* II 380e3-381b7, where it is taken for granted that when something changes at the hands of something else, it changes *for the worse*; cf. also Augustine, *Contra Maximin* II 12 (*PL* 42, 768), "in omni mutabili natura nonnulla mors est ipsa mutatio." The sentiment is repeated with approval by Aquinas, to whom I owe the reference, at *ST* Ia.50.5 *ad* 1.)

reason for thinking that everything comes to be from its contrary (or from something in-between) is that it is only thus that its appearance will be the result of change, which he conceives of as a kind of violence done to the *status quo*.[11]

The suggestion then is that Aristotle is operating in *Physics* I 5 with a very specific and (we might say) one-sided conception of change, according to which the action of change upon its subjects is essentially destructive. This suggestion is confirmed, I believe, by its power to sharpen and clarify the antimony between *Physics* I 5 and I 6, as I will now try to explain. Again as noted earlier, the reasons Aristotle gives in I 6 for thinking the principles are more than two take the form of certain problems which arise on the supposition that contraries are the only principles there are; as it turns out, it is precisely the point of the second of these problems to draw attention to another, non-destructive side of change not visible in *Physics* I 5. The problem is set forth in the following passage:

> For one might puzzle how density is such as to make rarity into something, or how rarity is such as to make density into something, and similarly also any other contrariety whatsoever. For Love does not gather up Strife and make something from it, nor does Strife from Love, but both some different third thing. (189a22-26)[12]

The problem Aristotle is developing here arises on the supposition that the only principles there are are contraries; with this in mind, we might spell the reasoning out a little more fully as follows. If contraries were the only principles, then when they make or produce something, they must do so from a contrary. (Implicit here must be the assumption that the principles of a thing include what it is made from.) But (the argument continues) contraries cannot be what things are made from; things are not made from

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[11] Contrast Charlton, for whom the point rests on "the purely logical doctrine that change is within definite ranges," (Charlton 1970, 66); somewhat similarly, Horstschäfer suggests that the point is supposed to explain why change is between things of quite definite kinds – a task he thinks *Physics* I 7 takes away from the contraries and reassigns to matter (Horstschäfer 1998, 204). In my view this last suggestion fails to do justice to the strength of Aristotle's commitment to the idea that change is from contraries, an idea which can be found throughout the corpus (see e.g. *GC* II 4, 331a14; II 5, 332a7; II 8, 335a7; *DC* I 3, 270a22; *GA* I 18, 724b9; V 14, 23b14; *Phys.* V 3, 227a7; VI 5, 235b13-16; VI 10, 241a27; VIII 7, 261a33; *DA* II 4, 416a33).

[12] I have learned much from the careful discussion of this passage in a paper by David Ebrey.

contraries, but always from some other non-contrary *tertium quid*. The problem then with supposing that contraries are the only principles is that this forces us to cast contraries into a role they cannot play: the role of what things are made from.

It is clear, I think, that this line of argument undermines Aristotle's reasoning in I 5; it does so by relying on a different and seemingly competing conception of what happens to things when they change. In I 5, I have suggested, the underlying idea is that changing things are corrupted or destroyed by change; the thought is that coming to be must be from a contrary (or something in-between), because it is only thus that the *terminus a quo* will be driven out of its own nature in the process. By contrast, here in I 6 the emphasis is rather on another, essentially constructive side of change; the idea is that coming to be must proceed from something that is not therein destroyed, but positively made into something. This, I submit, is the reason Aristotle thinks it will not do to make contraries the *only* principles; it is not contraries that are positively made into things.[13] Moreover, if this is a reason not to make contraries the *only* principles, it is also a reason to wonder whether it was a mistake to make them principles in the first place. Again, the reason offered in I 5 for making the principles contraries was that contraries are what things come to be from; the reason offered in I 6 for not limiting the principles to contraries is that contraries are not what things are made from. If we assume that things "are made" from whatever they "come to be" from, this will also be a reason for not making contraries principles at all. If something is not "made" from a contrary, then neither will it "come to be" from one.[14]

To conclude, we were asking why *Physics* I 6 ends in *aporia*. Following up a suggestion of William Charlton, I suggested that although Aristotle begins the chapter as if he were going to build on the results of *Physics* I 5, he is in fact constructing an antimony between the two chapters. In particular, the reasons he gives in I 6 for not making contraries the only principles systematically undermine the reasons he gave in I 5 for making them

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[13] Note the double accusative with ποιεῖν (189a21-2), and later the phrase ποιεῖ τι ἐξ αὐτοῦ (189a25): at issue is not merely being acted upon, but being therein made into something. (Note too that it is natural and correct for Aristotle to think that the materials we make into things are not thereby "driven out of their own nature," that is, corrupted, destroyed, ruined (φθείρεται).)

[14] I am implicitly assuming that there is but a single thing from which things "come to be"; for Aristotle's attitude to this assumption, see p. 195ff. below.

principles in the first place. In I 6, Aristotle presents two problems that arise from making contraries the only principles, each of which undermines one of two reasons given in I 5 for making the principles contraries in the first place. The first problem suggests that things do not after all come to be from a contrary (from something that is therein destroyed), but rather from something else (from something that is therein made into something). The second problem suggests that contraries do not after all have the sort of priority we demand in a principle; it is not true that there is nothing prior to them, nor is it true that they are what everything else consists of. Given this, it is no wonder that Aristotle says the question of whether there are two principles or three is "full of difficulty"; the antinomy he has constructed is about as tight as it could be.

II. *Physics* I 7

I believe that the *aporia* we have been discussing forms the essential backdrop to *Physics* I 7, to which I now turn. This chapter divides clearly and naturally into two parts at 190b17. The second part begins with a definitive statement, as of a conclusion, of Aristotle's doctrine of principles (190b17-20, quoted above on p. 181). Our question is about the first part: how does it bear on this conclusion? Does it contain an independent, self-contained argument for it? I will argue that it does not. Rather its function is to supply the materials necessary to dissolve the concluding *aporia* of *Physics* I 6, thereby allowing a larger argument begun in I 5 and continued in I 6 to reach its natural and proper conclusion.

II.1. *Preliminaries*

I begin with some preliminaries it will be useful to have out of the way. The first is that although Aristotle makes several points in the first half of *Physics* I 7, these points are ultimately all subordinate to a single thesis. This thesis, which is first stated at 190a14-16 and comes in two parts, says, first, that "things that come to be" (τὰ γιγνόμενα) are always "subjects" (ὑποκείμενα), and second, that they are never "one," at least not "in form" (εἴδει).[15] This is *the* point around which the rest of the first half of I 7 is

[15] Though Aristotle says that τὰ γιγνόμενα *are* one "in number" (ἀριθμῷ), it is clear that he does not regard this as part of his thesis, but rather as a concession (this is well argued in Cohen 1984, 182).

organized. So, after a brief introduction (189b30-32), the chapter begins with some observations about how we speak about coming to be (188b32-190a13), from which we are invited to draw the following conclusion:

> These distinctions having been made, in all cases of coming to be, if they are looked at as I suggest, this may be taken as definite, that it is necessary for what comes to be always to be a subject, and this, even if it is one in number, is not one in form. (190a13-16, tr. Charlton, modified)

This is Aristotle's first statement of our thesis, which is here introduced as the moral to be culled from the observations that precede; it is also the conclusion to be drawn from the discussion that follows, as the following survey makes clear. The passage quoted above continues with some arguments for the second part of the thesis, that τὰ γιγνόμενα are never one (190a17-31, note the γάρ in a17); next follow arguments for the first part of the thesis, that τὰ γιγνόμενα are always subjects (this is argued by cases at 190a31-b10); third and finally the thesis is restated and illustrated with examples (190b10-17). This brings us to 190b17, which inaugurates the chapter's second half with a statement of Aristotle's doctrine of principles. As this brief review makes clear, then, the first half of I 7 is single-mindedly devoted to establishing our two-part thesis.[16]

The second preliminary point I want to make is just a corollary of this first one: it is that questions about the function of the first half of I 7 are

[16] The interpretation of 190a21-31 is controversial; I read it as follows. Aristotle has just been arguing that τὸ γιγνόμενον is always two "in form", by appeal to various differences between the two "forms": e.g. that one remains and the other does not, or that in the construction "comes to be from" (γίγνεται + ἐκ) we use the one that does not remain, rather than the one that does (190a17-20, 21-23). As an exception to this last point, he admits that there are cases where we say of what remains, e.g. bronze, not that *it* comes to be a statue, but rather that statues *come to be from* it, using the construction γίγνεται + ἐκ (190a24-26). However, he continues, even in these cases there remains *this* difference, namely, that unlike the one that remains, which prefers the construction γίγνεται + ἐκ, the one that does not remain goes into both constructions indifferently (190a26-28). He concludes by illustrating this last point with an example and then offering the observation, apparently as a piece of evidence confirming it, that we also use both constructions indifferently with expressions compounded from both forms (190a28-29, 29-31). (I regret that I lack space to do justice to the excellent discussion in Horstschäfer 1998, 277-95. Very briefly, my own view is that while he makes several advances on points of detail, the larger lesson he draws from the passage is out of proportion to its subordinate place in this part of Aristotle's discussion.)

ultimately just questions about the function of this thesis. Here I suppose one could object that, in thinking about the function of this part of the chapter, one should consider the content of the several points made therein and ask what if any conclusions they force or permit (rather than focus primarily on how the points are organized, and to what end). This is certainly one interpretive strategy, and although it strikes me as misguided, I do not so much want to argue the superiority of my own approach as to make clear what it is and to say something about its rationale. Given that the first part of I 7 is as carefully put together as it is, another approach is to reduce questions about its function to questions about the function of our thesis. That is the approach I take here.

The third and final preliminary point I want to make is that our thesis is not anything like a statement of Aristotle's final doctrine of principles. Though this should not be controversial, it is a point worth making and emphasizing at the outset. So, first, our thesis does not even mention principles; it is a thesis about "things that come to be" (τὰ γιγνόμενα), and what it says about them is, not that they are principles, or that they have such and such other things for principles, but that they are [i] always "subjects" and [ii] never "one." Second, these "things that come to be" which our thesis is about are *not* the things whose principles Aristotle is seeking. Consider again the first statement of his doctrine of principles at 190b17-20:

> It is evident, then, if there really are causes and principles of things due to nature, of which they primarily consist and from which they have come to be, not incidentally but each what it is called in respect of its substance, that everything comes to be from both the subject and the form.

In this passage Aristotle is making a claim about certain *products* of coming to be (namely, the ones that are "due to nature" and that have come to be "not incidentally, but each what it is called in respect of its substance");[17]

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[17] μὴ κατὰ συμβεβηκὸς ἀλλ' ἕκαστον ὃ λέγεται κατὰ τὴν οὐσίαν. Commentators disagree about how to parse this (for some discussion see Charlton 1970, 46-47; Horstschäfer 1998, 330-32). I believe that Ross had it right (Ross 1936, 345): it goes with εἰσὶ καὶ γεγόνασι and the point is to make clear that the principles and causes Aristotle is speaking of are those from which things "are" and "have come to be" the very *substances* they are. (It is true that the thesis that organizes the first half of *Physics* I 7 is about every kind of coming to be, not just substantial change (see e.g. 189b30, 190a13, 190a31-b3). Nonetheless, the principles and causes at issue in the passage quoted above (and indeed throughout *Physics* I)

he is saying that, if there really are principles from which these things have come to be, and of which they primarily consist, these principles are both the subject and the form. By contrast, the thesis for which Aristotle argues in the first half of *Physics* I 7 says nothing at all about the products of coming to be. It is a thesis about τὰ γιγνόμενα, which in this context refers to what coming to be is *from*.[18]

None of this is to deny that the thesis argued in the first half of I 7 bears somehow on the doctrine of principles stated and developed in the chapter's second half. However, in asking *how* the thesis bears on that doctrine, it is useful to have made explicit and done away with the suggestion that it is (more or less) just a statement of that doctrine. It is not.

II.2. *That τὰ γιγνόμενα are Never "One"*

These preliminaries out of the way, and having now isolated the thesis which it is the burden of the first half of I 7 to establish, I now want to ask about the meaning of this thesis and also about its function. I take the thesis in parts, in the order Aristotle argues for them at 190a17-b10.

The first point then is that (at least "in form") τὰ γιγνόμενα are never "one." I want to argue that the function of this point is to dissolve some of the *aporia* we were left with at the end of I 6. Certainly the point is capable of functioning this way. As we have seen, the *aporia* stems in part from a difficulty about what things come to be from. On the one hand, Aristotle thinks, everything comes to be from some kind of contrary or opposite; this (I suggested) is because he thinks of change more generally as fundamentally destructive: to change a thing is to drive it out of its own nature. On the other hand, Aristotle thinks, it is likewise true that everything

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are the principles and causes of substance; see e.g. Aristotle's comment on the inquiry at *Physics* I 2, 184b22-25, or his remarks about the underlying nature at 191a7-12 or 192a5-6. As for the illustration in terms of "musical man" at 190b20-23, it is just that – an illustration.)

[18] τὸ γιγνόμενον does not always refer to what coming to be is "from"; sometimes it refers to what coming to be is "of" or "to" (so e.g. 190b11-12). However, that it refers to the *terminus a quo* here, in the statement of our two-part thesis, is clear from the fact that when Aristotle says later that τὰ γιγνόμενα are two in "form," namely "subject" (ὑποκείμενον) and "opposite" (ἀντικείμενον), the "opposite" he has in mind is privation (as shown by his examples at 190b13-16). Privation is emphatically not a product of coming to be: it is not what coming to be is "to," but one of the things it is "from." (Indeed, the very idea of γένεσις εἰς τὸ μὴ ὄν borders on a contradiction in terms; it is not γένεσις but φθορά that is εἰς τὸ μὴ ὄν – γένεσις is coming to *be*.)

comes to be from some kind of non-contrary "subject" (ὑποκείμενον); this (I suggested) is because Aristotle also thinks of change more generally as fundamentally constructive: to change a thing is not only to drive it out of its own nature, but also to *make* it something new, and this requires that it not be any kind of contrary or opposite, but rather a subject. There is then a difficulty about what things come to be from: is it a kind of contrary or a kind of subject? Or rather, there would a difficulty, if we supposed that each thing comes to be from but *one* kind of thing; for it is only thus that we will be barred from saying that each thing comes to be both from a contrary and from a subject. But it is of course precisely this supposition that is denied by the point that τὰ γιγνόμενα are never one. As we have seen, this is a point about, not the products of coming to be, but what coming to be is from; in particular, it is a point about how many "forms" or "kinds" of thing coming to be is from, and that not just "coincidentally" (κατὰ συμβεβηκός) but "as such" (καθ' αὑτά).[19]

So, the point that τὰ γιγνόμενα are never one certainly can dissolve that portion of our *aporia* that stems from difficulties about whether coming to be is from a contrary or from a subject. Moreover, this is precisely the use to which Aristotle puts the point, as the following passage makes clear:

> That's why on the one hand one must say that the principles are two, but on the other hand that they are three, and on the one hand that they are contraries, e.g. if one should mention the musical and the unmusical or the hot and the cold or the assembled and the unassembled, but on the other hand that they are not contraries; for it is impossible for the contraries to be affected by one another. This too is dissolved by the point that the subject is other; for this is not a contrary. (*Phys.* I 7, 190b29-35)

In this passage, when Aristotle says "it is impossible for the contraries to be affected by one another," he is alluding to the point that it is not their contrary that contraries make into something (I 6, 189a22-27); when he says "this too is dissolved by the point that the subject is other," he is alluding to the difficulty that arises when that point is conjoined with the point

[19] Aristotle makes clear in *Physics* I 5 that when he asks what things come to be *from*, he is not interested in what they come to be from κατὰ συμβεβηκός (188a34, 35-36, b4-5). (This is with good reason – κατὰ συμβεβηκός, things could come to be from virtually anything.) Given this, the new point Aristotle makes in *Physics* I 7 – that τὸ γιγνόμενον is always *two* in form – must be a point about how many kinds of thing coming to be is from, not coincidentally but *as such*.

that it is their contrary (or something in-between) that things come to be from (see I 5, 188b21-23). The claim Aristotle is making in this passage is that this difficulty is dissolved by the fact that, at least "in form" or "in being," the subject is not the same as any contrary. Of course, this fact will only dissolve the difficulty in question – dissolve it, that is, while leaving both of the points from which it arises intact – if we further assume that τὰ γιγνόμενα are *two*, that is, *both* contrary *and* subject, and neither of them just coincidentally but as such. But this (close enough) is just what it is to say that τὰ γιγνόμενα are never one.

So, not only is the point that τὰ γιγνόμενα are never one capable of dissolving some of our *aporia*, but this is in fact how it is used; I conclude that this is its function. Perhaps some will object that this reading is too deflationary. Let it be that one function of the point is to dissolve some of the *aporia* inherited from I 6; to let it go at that is to overlook entirely the all-important fact that the point is also nothing less than a statement of hylomorphism. That this is so is suggested by Aristotle's use of the vocabulary of "composition" in the first half of *Physics* I 7, in the course of stating the point (190b11; see too 189b32-34, 190a3-5, 12, 20); this suggestion is strengthened by his use of the same vocabulary in the second half of I 7, in the course of elaborating upon his doctrine of principles (190b19-22). Given this, and given that hylomorphism surely does lie at the very heart of Aristotle's doctrine of principles, it is hard to believe that Aristotle's sole or even main point in saying that τὰ γιγνόμενα are never "one," or (what is the same) that they are always "composite," is to solve a problem inherited from I 6. Surely he is also and indeed primarily providing an anticipatory statement of hylomorphism.

Though I fear that an objection along these lines may be well entrenched, I want to say something to explain why I think it goes wrong in important respects. Aristotle certainly does use the vocabulary of composition in making the point that τὰ γιγνόμενα are not "one." However, this vocabulary notwithstanding, it is a mistake to think that the point is therefore tantamount to a statement of hylomorphism. In the first place the "components" are all wrong; as noted earlier, when Aristotle says that τὰ γιγνόμενα are never one, or that they are always composite, the "components" he has in mind are not matter and form, but matter and privation.[20] Second, and more importantly, not only are the "components" all wrong

[20] p. 195, n18.

for the doctrine of hylomorphism, but also the manner of composition is wrong as well. The kind of "complexity" Aristotle is attributing to τὰ γιγνόμενα, when he says that they are "two" or "composite," is the kind exhibited by a single token exemplifying two distinct types. The man who comes to be musical is composite, in that he exemplifies the types "unmusical" and "human being"; the stuff that comes to be a statue is composite, in that it exemplifies the types "unshapen" and "bronze"; and so on with the rest of Aristotle's examples: as far as we are told, the "unity" of these forms consists solely in the fact that they are exemplified by a single token (in Aristotle's language, that they are one "in number"). By contrast, the kind of complexity at issue in hylomorphism is not that exhibited by a single token exemplifying two distinct types, but rather a sort of complexity exhibited within the structure of a single type. That is, the doctrine of hylomorphism is not just that (for example) human beings are a kind of "composite" of such and such matter and form, but also and more powerfully that they have both matter and form for their very elements and principles (in the language of *Physics* II, that they have them for their very "nature" (φύσις) and "substance" (οὐσία)). This is a fact about human beings which makes itself manifest in the very definition of the type "human being," and which as a consequence requires that matter and form be "combined" or "united" far more closely than could be ensured by the fact that they are exemplifed by a single token (that they are one "in number"). It requires, in fact, that they be combined so as to be in some sense one "in being"; otherwise their distinctness from one another would compromise the unity of the types they define (and along with it that of the individual substances of which they are principles).[21] By contrast, the idea that matter and privation should be thus united in τὰ γιγνόμενα is what Aristotle is here at pains precisely to deny: although they are one "in number," they are not one "in form" or "being."

If something along these lines is correct, then it is a serious mistake to take the point that τὰ γιγνόμενα are never "one," or that they are always "composite," as a statement of hylomorphism. For this reason I think it

[21] So, for example, when Aristotle says that *body* and *soul* are "one," the idea is not just that they are both exemplified by the likes of (e.g.) Socrates or Callias; the point is not just that some things are both *living* and *bodies*, but rather that *living* marks a *type* of body. (Though such points may smack of "first philosophy," they do lurk in the background even here in *Physics* I: see e.g. 190b20-23, 191b28-29.)

important to persist in a deflationary reading. Casual first impressions to the contrary notwithstanding, the point is not an anticipatory statement of hylomorphism.

II.3. *That τὰ γιγνόμενα are Always "Subjects"*

We have been discussing one part of the thesis which organizes the first half of *Physics* I 7, the part that says that τὰ γιγνόμενα are never one; I now turn to the other part, which says that τὰ γιγνόμενα are always subjects. Here too I want to offer a deflationary reading and here too I anticipate resistance.

We may start by asking what Aristotle means when he says that τὰ γιγνόμενα are always "subjects" (ὑποκείμενα), or that they always "underlie" (ὑπόκειται). It is often thought that at least part of what he means is that, *qua* matter, τὰ γιγνόμενα always persist through coming to be. So understood, the point would appear to be an important part of Aristotle's theory of principles; for if matter did not persist through coming to be, it is difficult to see how it could be a constitutive principle – a kind of "element" (στοιχεῖον) – of what comes to be from it. Moreover, it is on just this point that Aristotle makes a decisive advance on the philosophy of his predecessors. These philosophers all believed that the coming to be of substance is impossible, because they thought that if substances did come to be, they would have to do so *ex nihilo* (which itself is impossible). By contrast, Aristotle's achievement is precisely to distinguish the coming to be of substance from *genesis ex nihilo*, by pointing out that the former (like all coming to be) proceeds from a persisting subject. If all this is right, then the point that τὰ γιγνόμενα always "underlie" (ὑπόκειται) would appear to be the very centerpiece of Aristotle's theory of principles. One of the chief virtues of that theory is that it dissolves the long-standing difficulty about the possibility of the coming to be of substance, which it does by pointing out that everything comes to be from something that persists (a point argued in the first half of *Physics* I 7, where it appears in the guise of the point that τὰ γιγνόμενα are always "subjects" (ὑποκείμενα)).

It is from this sort of interpretation that I expect resistance to the view I am developing here, for I deny that it is an innovation of Aristotle's theory to say that substances come to be from something that persists. It is not that I deny that Aristotle holds that the subject from which substances come to be is somehow present in the substances that come to be from it; this much I do not think can credibly be denied (though I am sympathetic

to the *animus* against prime matter which motivates some interpretations to the contrary).[22] Where the interpretation goes wrong, I believe, is not in the idea that Aristotle *holds* that substances come to be from a persisting subject, but in the idea that this is in any sense the point at issue. Here again it is crucial to bear in mind that Aristotle's doctrine of principles is a doctrine of *principles*; in the language of *Physics* II, it is about the "nature" (φύσις) and "substance" (οὐσία) of certain beings (namely τὰ φύσει ὄντα, the ones "due to nature"). On this topic, the innovation in Aristotle's own position does not lie in the very distinction between the "subjects" from which things come to be and the "forms" or "kinds" of which they thereby come to be, nor again in the idea that this subject survives the generative process. The innovation in Aristotle's theory of principles lies rather in the idea that, despite the fact that they come into being and perish, plants and animals and so on really are kinds of *substance*, and as such have *both* subject *and* form for their very nature – in the language of *Physics* I, as the very principles "of which they consist and from which they have come into being, not incidentally but each what it is called in respect of its substance" (I 7, 190b17-20). In other words, the innovation does not lie in the idea that when substances come into being, they do so from a persisting subject, but rather in the idea that they come into being at all.

Here it will perhaps be objected that the idea that coming to be is always from something that persists is precisely what enables Aristotle to remove his predecessors' difficulty with the idea that substances come into being at all. But this is simply not true. The text in which Aristotle tackles this difficulty is *Physics* I 8 and in this text he nowhere invokes the idea that coming to be is from something that "persists." It is true that he does once say that coming to be must always be from a "subject," or from something that "underlies" (191a31). However, even if this is taken to mean, what I

[22] Aristotle says repeatedly that τὸ ὑποκείμενον "remains" (ὑπομένει), or again that it "is present in" (ἐνυπάρχει) what comes to be from it; he also thinks that τὸ ὑποκείμενον, which he identifes with matter, is one of two elements of which the products of coming to be are in some sense composed. As far as I can see, he could not think these things unless he also thought that the material or subject from which things come to be remains, at least somehow and in some sense, through their coming to be from it. (Nonetheless, I do not think that this is part of what Aristotle is *saying* when he says that τὰ γιγνόμενα are always subjects, as if the idea of persistence were part of the very meaning of ὑποκείμενον and its cognates as Aristotle uses them; on the contrary, on this point I am in agreement with those who have argued that it is not (see e.g. Kahn 1975).)

think it does not mean, that coming to be is always from something that "persists," the fact is that Aristotle makes this remark, not in the course of solving his predecessors' difficulty, but in the course of formulating it; for the difficulty takes the form of a dilemma and the point that "something must underlie" is introduced by way of sharpening one of its horns (namely, the one that says that things come to be from "what is not" (191a30-31)). Indeed, it is not easy to see how coming to be could be from a "subject" – for this throws us squarely back on the dilemma's other horn (namely, that things come to be from "what is"). Nor is this latter horn blunted by pointing out that the "subject" from which things come to be always persists; the difficulty does not turn on the supposition that the *terminus a quo* does not "persist," but on the supposition that (being a subject) it already "is" (191a30). It is then simply not true to say that Aristotle uses the idea that coming to be is always from something that persists to assuage his predecessors' concerns about the coming to be of substance. Their concerns would be impervious to such a treatment and the remedy he in fact applies is quite other.[23]

The idea then that coming to be is always from something that persists is not an innovation in Aristotle's theory of principles. First, this idea does not mark a place where Aristotle parts ways with his predecessors; they do not disagree with him about whether τὸ ὑποκείμενον is *present* in the products that come to be from it, but about whether it enters into – enters into and exhausts – their very nature and substance. Second, the idea cannot resolve the difficulty which led Aristotle's predecessors to deny that substances ever come into being. As Aristotle represents it, that difficulty turns on the thought that if substances come into being, they must do so either from what is or from what is not, both of which are impossible (*Phys.* I 8, 191a27-30); in relation to this difficulty, the idea that substances come into being from something that persists would not open up a *via media*, nor would it show that one of the roads previously considered is passable. Third, and last of the reasons I have mentioned, the idea is not in fact invoked by Aristotle in solving this difficulty. Consequently, even allowing, what I am prepared to admit, that Aristotle holds that coming to be is always from something that in some sense persists, and even allowing, what in fact I deny, that this is part of what he is saying when he says that τὰ γιγνόμενα always ὑπόκειται, still, even so, there is no reason to think

[23] For further discussion see Kelsey 2006.

that it is precisely here that he takes himself to be innovating. On the contrary, the idea that coming to be is from a subject is one which Aristotle attributes to the great majority of his predecessors; moreover, it is evident that he thinks they think this subject persists (see e.g. *Phys.* I 6, 189b1-16; I 4, 187a12-23; *Met.* A 6, 983b6-18).

What then are we to make of the point that τὰ γιγνόμενα are always subjects? What does it mean? And what is its function? We may begin by taking a look at how it is argued, by cases at 190a31-b10, first the case of non-substantial change, and then the case where the coming to be is of substance. In the first case, Aristotle says, the point is evident, "because substance alone is not predicated of any other subject, while all the rest are predicated of substance" (190a35-b1).[24] Here it appears as if ὑποκείμενον means something like "ultimate subject of predication": things that others things are predicated of, but that are not themselves predicated of anything else.[25] As for the second case, the case of substantial change, Aristotle provides two arguments that τὰ γιγνόμενα are always subjects. The first simply asserts that when substances come to be, there always *is* a subject from which they do so; this is accompanied by the remark that the point would be evident to anyone who looked into it, which is then illustrated with the example that "plants and animals [come to be] from seed" (190b1-5). The second argument, which is more developed, builds on the argument made earlier for the case of non-substantial change; it says that substances come into being *by way of* certain accidental changes, and that "it is evident" that anything that comes into being in this way does so from a

[24] Presumably the thought is that in non-substantial change, because they are not themselves substances, the quantities and so on that come to be must end up by being predicated of some subject, and further that this subject, besides being that "of" which these non-substances "are predicated" (καθ' οὗ λέγεται), will also be that "from" which they "come into being" (ἐξ οὗ γίγνεται). (On the idea of quantities "coming into being," this must of course be understood as per 190a31-33. In fact, when speaking of non-substances, Aristotle is quite careful in *Physics* I 7 *not* to say that they come to be "from" (ἐκ) a subject; he uses other formulae instead, in keeping with the observations he makes at 190a7-8, 21-23.)

[25] If that is right, then Aristotle is apparently using ὑποκείμενον here in just the way he was using it earlier in *Physics* I 6; see esp. 189a27-32, and the connections implicit there between being a subject and being what things are predicated of. (Note too the connection implicit in I 6 between being a subject and being a *substance*. At 189a29-30 it is argued that since contraries are not the substance of anything, they must be predicated of a subject; presumably the reason their not being substance shows they must be *predicated* of subjects is that their not being substance shows they are not *themselves* subjects.)

subject (190b5-10). Presumably the idea is that anything that comes to be *by way of* accidental changes will be "from" whatever those changes are from (itself, as we have already seen, a subject).

So, when Aristotle says that τὰ γιγνόμενα are always subjects, what he means is that coming to be is always from something that meets the qualifications for being an ultimate subject of predication. That said, we may now ask how Aristotle uses this point in his argument for his doctrine of principles. Here the first thing to notice is that the point was implicit in things Aristotle has said already in *Physics* I 6. There he argued that we run into difficulties "if we do not posit as subject some additional nature for the contraries" (189a27-29); one of these difficulties was that contraries do not make things from contraries, but rather from some non-contrary *tertium quid* (189a22-26). However, Aristotle evidently thinks that this non-contrary *tertium quid* is in fact some kind of subject; if we further assume that things "come to be" (γίγνεται) from whatever they are "made" (ποιεῖται), then the point that everything *is made* from a *non-contrary tertium quid* is easily converted into the point that everything *comes to be* from a *subject*, which is just the point we are now discussing, namely that τὰ γιγνόμενα are always subjects. If that is right, then the point that τὰ γιγνόμενα are always subjects simply makes explicit an idea that was already implicit in Aristotle's reasoning in *Physics* I 6. Presumably then its contribution to the larger argument is simply to make clear that, however we resolve the *aporia* arising from the antimony between I 5 and I 6, we are to retain the point that everything is made from (and so comes to be from) some kind of subject.[26]

II.4. *Completing the Larger Argument*

We were asking how the material Aristotle introduces in the first half of *Physics* I 7 contributes to his argument for his doctrine of principles. In pursuing this question we have gotten tangled up in some details. I now want to step back from these details and try to answer our question succinctly.

As I understand it, the argument gets underway in *Physics* I 5 with the point that the principles are contraries. (This point rests on the idea that

[26] I owe this way of putting it – that the point that τὰ γιγνόμενα are always subjects is a *constraint* on the solution of the *aporia* inherited from I 6 – to David Ebrey.

contraries are what everything else ultimately comes to be from, and thus ultimately "is" or "consists of" (188b25-26).) The argument continues in *Physics* I 6 with the point that there are reasons not to limit the principles to contraries, but to include in addition some non-contrary "subject." However, tempting though it may be simply to combine these points and conclude that there are three principles, two contraries and one subject, we are not yet in a position to do this. First, as emerges in I 6, contraries are not what anything is *made* from (189a22-26); this makes it difficult to see how they could be what anything *comes to be* from (despite Aristotle's contention in I 5 that they are what everything comes to be from). Second, as also emerges in I 6, even if it is true that there is nothing the primary contraries "consist of" (ἐξ ὧν ἐστι), there are things that they are "said of" (καθ' οὗ λέγεται), and therefore posterior to (189a31-32); this makes it difficult to see how even the primary contraries could have the kind of priority we expect in a principle. For these reasons it is unclear whether the points made in I 5 and I 6 *can* be combined; the argument has been brought to a standstill.

The materials necessary to get this argument moving again, *without* compromising any non-negotiable Aristotelian principles, are supplied by the thesis argued in the first half of *Physics* I 7. The first difficulty, about whether things come to be from a contrary or from a subject, is simply dissolved by the point that (at least "in form") τὰ γιγνόμενα are never one. With this point in hand Aristotle can now say that everything comes to be from both: from a kind of contrary or opposite, which is therein destroyed, and from a kind of subject, which is therein made into something. As for the second difficulty, about whether contraries have the kind of priority we expect in a principle, this difficulty too can now be, if not dissolved, then effectively side-stepped. Again, the fundamental points behind Aristotle's reasoning in I 5 were that coming to be is always from contraries and "what things come to be from" should be reckoned among their principles. Invoking the two-part thesis introduced in the first part of I 7, Aristotle can now say that there are *two* kinds of "what a thing comes from," and that although one of these is indeed always a contrary or some kind of opposite, it is the other that natural substances consist of (and that is thus to be reckoned among their principles). In this way he can side-step the difficulty about priority, without giving up his deep-seated commitments about the fundamental place of contrariety and opposition in processes of change and coming to be.

It remains to show that this is (more or less) how Aristotle in fact proceeds. So, once Aristotle has finished arguing for the two-part thesis of the first half of *Physics* I 7, he passes immediately to draw his conclusions for the theory of principles:

> It is evident then that if there really are causes and principles of things due to nature, of which they primarily consist and from which they have come to be, not incidentally but each what it is called in respect of its substance – it is evident then that everything comes to be from both the subject and the form. For the cultured human being is composed in a way from human being and cultured; for analyses are into the *logoi* of these. It is clear then that things that come to be would come to be from them. (190b17-23)

When Aristotle speaks here of "the subject" and "the form," he is referring to two of our three finalists for the title "principle." (The third finalist is the other "contrary," the one *from* which things come to be, which in I 7 is referred to as τὸ ἀντικείμενον and identified with "privation.") Aristotle says that the fact that the principles are these two, the subject and the form, is "evident" from what has preceded (note the οὖν at 190b17). The little argument that follows – "for the cultured human being is composed in a way from human being and cultured; for analyses are into the *logoi* of these" – is meant to explain why. That is, the point of this argument is not to explain *de novo* why the subject and the form are principles, but to explain why the third finalist, τὸ ἀντικείμενον or privation, is not a principle. Privation is not a principle because, unlike the subject and the form, there is no mention of it in the analysis of any generated substance.[27]

Thus it emerges that the substance of Aristotle's argument for his doctrine of principles rests on points made in *Physics* I 5 and I 6. It is in these chapters that the field of candidates is first generated and then narrowed to our three finalists: the two primary "contraries" that coming to be is *from* and *to* in the γένος *substance* (see 189b22-7), plus a third, non-contrary "subject." The function of the thesis argued in the first half of I 7 is then to

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[27] Even this hearkens back to a point made in I 6, that contraries are not the "substance of things" (189a29); if their *logoi* did enter into the *logoi* of things, they would be. The difference is that now, thanks to the thesis advanced in the first part of I 7, Aristotle can affirm this point unreservedly, without prejudice to the points he wants to retain from I 5 (namely, that everything comes from its contrary, and that "what a thing comes from" should be reckoned among its principles).

show how the fundamental, non-negotiable, quintessentially Aristotelian doctrines lying behind this list of finalists can be consistently combined, and in so doing to allow the argument begun in I 5 and continued in I 6 to reach a definite conclusion. This conclusion is that, of our three finalists, speaking unqualifiedly the principles are these two: [i] the "subject" and [ii] the "contrary" that the genesis of substance is *to*, which Aristotle calls "form."

Conclusion

In this paper I have offered a reading of the place of I 7 in Aristotle's argument for his doctrine of principles in *Physics* I. Usually the first half of the chapter is taken to supply the materials for an independent and self-contained argument for that doctrine; even those who regard the points made in previous chapters as seriously meant treat I 7 as making an essentially fresh start on the entire inquiry. By contrast, I have argued that I 7 begins exactly where the previous chapter left off, by going to work on the *aporia* with which it concludes about whether there are two principles or three. This *aporia* arises from the fact that the reasons Aristotle gives for making the principles three systematically undermine the reasons he gave earlier for making them contraries. This "antinomy" between I 5 and I 6 forms the essential background to the thesis which organizes the first part of I 7; the function of the thesis is to resolve the antinomy.

If a reading along these lines is correct, it has an important negative consequence for where we should look for the considerations that ultimately motivate Aristotle's doctrine of principles; it implies that they are not likely to be found in the first part of I 7. In fact we might have expected as much on other grounds. As noted above, one of the distinctive features of Aristotle's theory of principles is his idea that both matter and form enter into the definition of natural kinds: "analyses are into the λόγοι of these" (*Phys.* I 7, 190b22-23). This idea is put to great effect in *Physics* II, where it is invoked in order to distinguish Aristotle's own approach to the study of nature from that of virtually all of his predecessors, both Platonist and Presocratic alike (*Phys.* II 2). By what considerations is this idea motivated? Presumably not by the thought that although change operates on a single thing, there are nevertheless two very different kinds of thing it does to it, and correspondingly two very different kinds of thing it is to be a changing thing. This thought does not yield an analysis of the products of

change as exemplifying a single kind, defined in terms of *both* matter *and* form; it yields rather an analysis of the subjects of change as exemplifying two kinds, one related to the product as material, the other as privation. No, the idea must rather be motivated by reflection upon the nature of change's essentially constructive action on the kind of thing it makes into something. It is this kind of thing that Aristotle calls "matter" and that he thinks enters into (but does not exhaust) the very definition of natural kinds. Surely his reasons for thinking this must ultimately turn on his conception of what change does to the material it makes into things: for example, that it does not corrupt or ruin that material, nor again just leave it intact, safe and unharmed, but rather positively *improves* it, bringing it to fulfillment by developing it into its own nature.[28]

To be clear, my point is not that the thesis which organizes the first part of I 7 has no role at all to play in Aristotle's inquiry into principles. On the contrary, as we have seen, it has a very specific role to play: its function is to get moving again the line of argument begun in I 5, by helping to resolve the difficulties that have brought that argument to a halt by the end of I 6. The point is rather that the thesis does not by itself generate the result that the products of change are defined in terms of matter and form. For that result we must move beyond the idea that change is multifaceted and reflect upon the nature of one of these facets – of change's essentially constructive action on the kind of thing it makes into something. What does Aristotle think it is to make something into something? What implications does he think this has for the nature of matter? And why should it follow from this that matter enters into the very definition of the kinds of thing made from it? These are the questions we must answer if we want to uncover the considerations that lie behind Aristotle's doctrine of principles.[29]

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[28] I develop this suggestion in "Hylomorphism in Aristotle's *Physics*" (unpublished ms.).

[29] Some of the ideas in this paper arose in conversation with David Ebrey, whom I also want to thank for many very helpful comments on countless earlier drafts. I would also like to thank, for many helpful conversations about this material, Pamela Hieronymi, and for his comments on an earlier draft, Gavin Lawrence.

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