

CHAPTER 1

On the Principles of the Natural Beings

In the first book of the *Physics*, Aristotle presents in outline his understanding of the principles of the natural beings. According to this account, natural beings come into being from form and from the underlying substrate or, in other words (since the substrate is itself twofold), from form, substrate, and the privation or lack which belongs to this latter when the form is not yet present.¹ Thus, for instance, to take an analogy from the arts, a bronze statue comes into being from its form as a statue, the bronze in which that form comes to be present, and the shapelessness of that bronze prior to its being made into a statue. Now after his initial account of these three principles, Aristotle goes on to say that only in this one way ($\mu\omicron\nu\alpha\chi\omega\varsigma$ οὕτω, 191a23) can the perplexity of the ancients be resolved. The perplexity that he has in mind here had led some of the early philosophers to the paradoxical conclusion that nothing either comes into being or perishes. For those, he continues, who first, in accord with philosophy, sought the truth and the nature of the beings were misled by their inexperience into making this claim, on the grounds that what came into being would have to do so either from what is or from what is not, and that both of these are impossible. For as Aristotle has said in an earlier passage, all those who are concerned with nature agree in the opinion that nothing can come from nothing, or from what is not. And these early philosophers seem also to have held that there is no coming into being from what is, or even of what is, since what is, or that from which alone coming into being would be possible, already exists. By contrast, Aristotle says that his own account of the principles of the natural beings allows him to do justice to the appearance that there is coming into being. He explains that “we” (i.e., he and his school) also say that

nothing comes into being simply from what is not, but (say) that this nevertheless happens, as by concomitance, since beings do come into being from privation, which is not (anything) in itself, but which exists as a concomitant in the substrate from which a being comes to be. Likewise, Aristotle continues, (we say that) there is no coming into being from what is, or of what is, except by concomitance. There is no coming into being simply of what is, his argument implies, since that from which anything comes to be already is, so that the thing does not come *into* being insofar as it is; and yet it remains true in a sense that what is comes into being, and that it does so from what is, inasmuch as one kind of being comes into being from another.² Thus, there is coming into being from what is, though not insofar as it is, and also from what is not, though only in the sense that the eventual form is not yet present.

This response to the philosophers' perplexity about coming into being would be a straightforward application of the principles which Aristotle has laid out were it not for his choice of a most peculiar example to illustrate one kind of being coming into being from another. For rather than saying, for instance, that a statue comes into being from bronze, he asks us to consider what it would mean if one kind of animal, a dog, were to come into being from another kind, a horse.³ This example is so bizarre that modern editors have been tempted to emend the text so as to make it read "if a dog were to come into being <from a dog or a horse> from a horse," and a number of English translators have translated the passage in this way. However, the surviving manuscripts are unanimous in support of the former, more difficult, reading.⁴ And this difficulty helps call our attention to another surprising feature of Aristotle's discussion. For after presenting the response that I have outlined here, he speaks of it as "one way" (εἷς μὲν δὴ τρόπος, 191b27; cf. 191a36) of responding to the perplexity of the ancients, and he follows it by mentioning another response (ἄλλος δ' 191b27). This other response, moreover, is based, not on his three principles, but rather on the distinction between potency and being at work, which he tells us has been elaborated more precisely elsewhere.⁵ And yet we recall that he had introduced the discussion by saying that it is "*only* in this *one* way" (emphasis mine), that is, on the basis of his three principles, that the perplexity of

the ancients can be resolved. Now if we assume that our manuscripts are correct, and that Aristotle meant what he wrote, these difficulties, taken together, invite the suggestion that he himself may think that the first of his two responses merely *appears* to resolve the perplexity, and that the second one, which may not really even attempt to *resolve* it, is nevertheless a better or more truthful response.⁶ This suggestion itself, of course, is in need of interpretation. But in order for me to explain it and to confirm that it is legitimate, we first need to look more closely at the principles on which Aristotle appears, at any rate, to rely in responding to the philosophers who denied becoming.

Aristotle's account of the principles of the natural beings takes its cue from the way we speak about coming into being in general. Our speech suggests, in the first place, that beings do come into being. For if the beings that we speak of according to their various forms—such as dogs, cats, or even statues—are truly beings, and not mere modifications of some other substance, then there are at least some beings that come into being. And a sign that a statue, for instance, is indeed a kind of being is that we do not say that bronze becomes “statuey,” or even a statue, as we do say that a man becomes healthy or a general, but rather that *from* bronze there comes into being a statue. In other words, even though bronze persists as such in its transformation into a statue, we do not speak of being a statue as a mere modification of the bronze.⁷ Our speech also suggests, in the second place, that there must always be some underlying thing from which a being comes to be, and that this substrate, though one in number, is more than one in kind. We say, for instance, that it is an unmusical (i.e., uncultured) human being who becomes a musical one; and his unmusicalness, which does not survive his becoming musical, is different in kind from his being human, which persists throughout the change. Now this illustration is not, to be sure, a case of the simple coming into being of a new being, but rather one of the qualified coming into being of a new attribute in a being that persists. But having begun from the way we speak in these more evident cases, Aristotle adds that it would become clear to one who reflects that even beings themselves always come into being from an underlying thing, as animals and plants do from a seed, and that this thing is both what it is as such and also something lacking in the eventual form. Thus,

he says, it is clear, "if there are causes and principles of the natural beings, from which primarily they are and have come into being, not by concomitance, but each [as] what it is called according to its being [κατὰ τὴν οὐσίαν], that everything comes into being from the substrate and the form."⁸ And he goes on to repeat that this substrate, though one in number, is both what it is as such and also that which contains, by concomitance, the privation of the eventual form.

Now Aristotle does not give a thematic account of the mode of being of these principles or of the way in which they are responsible for natural beings. But it appears at first, at any rate, that the principles are elements into which composite beings can be broken down, and that form, if not also privation, is an active element, while the substrate is passive.⁹ And in keeping with Aristotle's claim that "the principles ought to remain forever,"¹⁰ it also appears that these principles are unaffected by the changes to which they give rise. Thus, the form—or each form, if there are several—fashions the substrate by its presence, or else by its absence allows it to be deformed, while itself remaining eternally unaffected. And even the substrate, though it is said to become and perish, in a sense, by virtue of the presence or absence of this or that form, is nevertheless also treated as a single nature that remains imperishably throughout all these changes.¹¹

This initial interpretation of the principles of the beings provides the basis for Aristotle's first response to the perplexity of the early philosophers. For it allows him, as we have seen, to say that things come into being from what is not, in the sense that the substrate is not yet shaped by the eventual form, and also from what is, in the sense that it is at least something even then. This view also allows him to respond, moreover, to a further perplexity of those philosophers. For Aristotle tells us that they went on to say that there is no multiplicity, or that nothing exists except for "that which is itself" (αὐτὸ τὸ ὄν, 191a33), apparently on the grounds that each of many beings would have to be an impossible combination of what is and of some particular determinant, which, not being what is, therefore is not.¹² But if, as our speech suggests, "that which is itself" can be meaningfully understood, in each case, only as that which is precisely some definite being, rather than another,¹³ then there can indeed be a multiplicity of beings.

Despite the merits, however, of this account of the principles, its very connection with Aristotle's first response to the perplexity of the ancients points to a difficulty. For the bizarre illustration that troubled us in that response, namely, that of a dog coming into being from a horse, calls our attention to the fact that nothing in this account of the principles would seem to rule out such an event. If the forms are elements whose mere presence in the substrate gives rise to natural beings, there would seem to be no reason why the form of a dog could not supplant immediately that of a horse. For the notion of a single substrate that receives in turn the various forms offers no way of explaining why a certain being must come to be from definite antecedents; or in other words, it offers no way of explaining why the privation that is succeeded by a certain form must be present in the substrate along with some definite form, rather than others. This interpretation of the principles, then, though it may allow us to deny that something can come from nothing, does not rule out, or at least not evidently so, the notion that anything, among the possible beings, can come into being from anything else.¹⁴

Another difficulty with this account of the principles of the beings is that it leaves it unclear what a being is. To be sure, Aristotle has spoken of the coming to be of each thing (as) what it is called "according to its being" (*κατὰ τὴν οὐσίαν*, 190b19), thus suggesting that the being of each thing is what it is called, or its form as it comes to light in speech. But his presentation also invites a quite different account of it. For if there is a single substrate that remains imperishably throughout all changes of form, it could well seem, despite our habits of speech, that this is the true being of everything, and that the so-called forms are mere attributes of the one substance.¹⁵ On this view, what come into being would not be beings in the strict sense, but only various attributes of the one persistent being; and Aristotle's account would not differ significantly in this respect from that of the earliest philosophers, at least some of whom allowed for changes in the attributes of the underlying substance.¹⁶ Now clearly enough, Aristotle has been trying to avoid this position. But he acknowledges that he has not simply succeeded in ruling it out by telling us, near the end of his general statement about the principles, that

it is not yet manifest whether the form or the substrate is (in the paramount sense) being (οὐσία, 191a19).

Still another difficulty with this interpretation of the principles concerns privation, which Aristotle also calls the opposite to form. Aristotle has said, we recall, that beings do come into being from this third principle, though only by concomitance. His grounds, apparently, for limiting himself to this qualified claim are that the privation or lack of form is only a concomitant in the substrate, and one that ceases to exist there in any sense once the completed being has come to be.¹⁷ But if privation is merely this temporary lack of form in the substrate, one wonders why it is even treated as a principle at all. The mere fact that form cannot come to be present in something without its having not been there before hardly seems a sufficient reason for elevating its initial absence to the status of a principle of becoming. And Aristotle himself suggests at one point that there is no need to speak of a principle opposed to form, since the form itself suffices, by its absence and by its presence, to bring about change in the substrate.¹⁸ Still, he does not follow up on this suggestion, and he continues his account as if it had been established that privation is to be included among the principles. Now this difficulty as to whether, and in what sense, privation is a principle may help to remind us that when Aristotle had first spoken of an opposite to form—before he had even introduced the terms *form* and *privation*—he argued that it was *not* merely by concomitance that something comes into being from its opposite. He also stressed at that time that the true opposite to an ordered arrangement (or “form”) is not the mere absence in general of that order, but rather a definite kind of absence, such as the particular manner in which the materials for building a house must first be available.¹⁹ And since a house can be put together only after the materials have been prepared in the appropriate way, it indeed makes sense to speak of this particular kind of absence of its form as a true principle, and not merely one by concomitance, of its coming to be. But by thus helping us to understand the importance of what is opposed to form, Aristotle only adds to the puzzle of why his thematic account of the principles presents a view, or so it appears, according to which this opposite is at most a principle by concomitance.

The difficulties with this initial interpretation of the principles suggest that we should look for another way of understanding them. To this end, it is of help to note that Aristotle has never explicitly even asserted that beings all come to be from a single, persistent substrate (such as might receive, for instance, the form of a horse and then that of a dog). To be sure, he has invited us to assume that he thought so, first by arguing that the passive principle is only one and then by claiming, in the course of the development of his own account, that the substrate, insofar as it is not opposite to the new form, persists throughout the process of coming to be.²⁰ And yet he has also made it clear that we sometimes speak of a single principle in reference to a number of principles that are one in kind; and though he does later characterize the substrate as one in number, he is referring there, at least primarily, to the particular substrate of an artifact or to a particular being as the substrate of its various attributes. Furthermore, in his first thematic reference to the substrate from which a being, as distinct from a mere attribute, comes to be, he uses as an illustration the seed of a plant or animal, and this clearly is not something that persists.²¹ And if the substrate from which a being comes to be need not persist, then we must abandon the interpretation of this principle of becoming as a single something that receives in turn the various forms.

Let me suggest, therefore, that the true substrate from which a being comes to be is in every case something particular and perishable, such as a seed, which in addition to being whatever it first shows itself to be also has the potency to give rise to a new being of some definite kind. This interpretation of the substrate from which a being becomes can help us, as the other could not, to speak properly of unqualified becoming, or the coming into being of a new being, in its distinctness from alteration and the other changes in which a being merely acquires a new attribute (cf. p. 17). And a closer look at what we mean by unqualified becoming confirms the superiority of this interpretation. Later in the *Physics*, Aristotle will tell us that unqualified becoming, as opposed to the other changes, is the coming into being of something that is, i.e., is signified by an affirmative expression, from what is not, or is not signified by any affirmative at all.²² This account, by the way, makes it all the more difficult for us to be

satisfied with his first response to the perplexity of the ancients, according to which coming into being from what is not (understood as privation) occurs only by concomitance (on the grounds that privation is only a concomitant of something that is). But in this same later passage, Aristotle will propose an interpretation of "what is not," an interpretation that builds upon our new view of the substrate, that allows us to see it as a genuine source of becoming. He says there that what is only potentially a being simply or a being at work is in one sense—and in a truer sense than privation, as he also suggests—what we speak of as what is not.²³ Of course, Aristotle does not mean by this claim that a seed, for instance, is not something; but he does mean that what the seed is, above all, is its unfulfilled potency to be the being that has not yet come to be. Accordingly, it makes sense to deny that it is any being in the fullest sense of the word, and even, therefore, to speak of it as what is not.²⁴ Moreover, as we have noted, it is not merely by concomitance that a being comes to be from something with the appropriate potency. And so my interpretation of coming to be from a particular substrate or potential being has allowed us to understand how unqualified becoming can both require a substrate from which the thing becomes and yet still be a true emergence from what is not.²⁵ And this interpretation also helps us to see the strength of Aristotle's second response to the perplexity of the ancients, a response that he had told us was based on the distinction between potency and being at work.

Now if the substrate from which a being comes to be does not persist, as at least in the case of natural beings it does not,²⁶ then the being can not consist of a form in that substrate. Indeed, it does not make sense to describe it as a form in anything else. For what there is, is just the being with various aspects. The form of the being is of course fundamental among these aspects, for it is in terms of form that we give the being its name. And the very fact that we give to it the name of some species—that is, a class of beings whose members are the same in form—shows that there must be other aspects to it as the particular being it is. But none of these other aspects is related to the form as a substrate in which the form exists. And accordingly, we are in a position to begin to resolve Aristotle's question as to whether the form or rather the

substrate is being (in the paramount sense: οὐσία; cf. pp. 17–18). For to the extent that we mean by “substrate” something belonging to the being in question, then it now appears that the form *is* the substrate, that is, the being itself, though considered in abstraction from its other aspects. And to overcome this abstraction, or to give a fuller characterization of what the being, or the substrate, is, we may call it a particular instance of that form.²⁷

A further advantage of this new interpretation of the principles is that it allows us to understand, as the earlier one did not, what Aristotle can mean in saying that form is an active principle in the production of a natural being. According to the earlier view, we recall, the forms are independent beings that produce embodiments of themselves by somehow becoming present in (a portion of) the substrate, and that eventually cause the perishing of these embodiments by becoming absent from it, while themselves remaining eternally unaffected. On this new view, by contrast, a natural form is the principal aspect of a being that becomes and perishes, and it is this being that has the power to produce others of its kind, as for instance through the production of seeds like the one from which it came itself. And Aristotle helps direct us to this thought by an otherwise puzzling feature of his treatment of the perplexity of the ancients. For he restates the perplexity to include not only the original question of how there can be coming into being from what is or from what is not, but also the question of how what is not or what is can act or be acted upon so as to produce something.²⁸ And now that we have interpreted form as what (a being primarily) is, we can understand this newest question as a way of asking what it means to say that form acts upon what is not (that being) so as to produce something. Aristotle responds to his question by reminding us that when we say that a doctor, for instance, acts or is acted upon so as to produce something, we mean that he does so insofar as he is a doctor, even though he might also be a builder, a man of fair skin, and many other things as well. By analogy, then, when we say that what is acts upon what is not so as to produce something, we are not thinking of what is, or even of what is something definite, as a form that exists or acts independently. Rather, we mean, in the case of natural beings, that a being, insofar as it is (i.e., is characterized by its form), acts upon

what is not, in this sense, but has the appropriate potency, so as to produce another being of the same kind. Thus, a mature animal or plant, insofar as it is characterized by its form, acts upon its nourishment so as to produce a seed of its own kind, and this seed may produce changes in the appropriate material from which a new member of the species comes to be.²⁹ Or a mass of air, insofar as it is characterized by the form of air, which involves heat, may heat the cooler water beneath it so that it fulfills its potency to be transformed into air.

Now my claim that the substrate from which a being becomes does not persist as a substrate of the being itself, along with the related claim that the form does not, strictly speaking, produce anything, is a modification of what appears on the surface of Aristotle's account. But to say nothing of the hints to which I have already called attention, that surface account is explicitly based on the assumption that there are principles from which natural beings are (constituted as what they are) and that are also those from which they have come into being.³⁰ And Aristotle presents this assumption in a hypothetical clause, thus helping to call attention to its possible weakness. So we should not be too surprised that the argument as a whole has led us to conclude that there are no such principles. And since the difference between Aristotle's preliminary interpretation of substrate and form and the one that his argument has now led to is largely the difference between their being regarded as imperishable or not, our preference for the latter of these interpretations receives support from a striking suggestion that he makes, in *On the Heaven*, that the principles of the perishable beings may well have to be perishable.³¹

We have now seen, I think, that Aristotle's surface account of the principles (as form, persistent substrate, and privation) and its corollary, the first of his two responses to the perplexity which denied becoming, are not true expressions of his own serious views. But then even apart from the obvious question of why he would say these things at all, there remains the question of why he asserted, after his summary of that surface account, that it was "only in this one way" that the perplexity could be resolved. Did he mean to imply in particular that his second and, as it seemed to me, more adequate response to it, which response does not rely on that account of the three principles, is also not really a resolu-

tion (cf. p. 15)? And if he did mean to imply this, what did he find lacking in that response?

Now to try to answer these questions, let us begin by reconsidering the perplexity that surrounds becoming. We recall Aristotle's observation that all the students of nature agree in the opinion that there can be no coming into being from what is not, i.e., from nothing.³² Yet we know from Hesiod's *Theogony* that it was possible for a thinker of stature to deny this claim. For Hesiod says that at first Chaos, and then Earth, Tartaros, and Eros, came into being; but he does not say, as he does with regard to the subsequent generations, that they came into being from anything or from anyone.³³ But if it is truly an open question whether there can be coming into being from nothing, then for all we know, anything can come into being from anything, and even the assumption that there is nature, or that beings become and perish in accordance with fixed natures, becomes questionable. An indication of what is possible if there is coming into being from nothing is the assumption in the *Theogony*, for instance, that all the gods have come into being but will never perish. In order, then, to avoid having to allow that such things are possible, or in other words to secure the foundations of their study, it would seem necessary for students of nature to give an intelligible account of how coming into being takes place. And it is the apparent impossibility of giving such an account that led those whom Aristotle speaks of as the first, in accord with philosophy, to seek the truth and the nature of the beings, to hold on to their denial of coming into being from nothing by denying that things come into being at all. Now the majority of Aristotle's predecessors in natural philosophy seem to have tried to avoid this paradox by claiming to have identified one or more basic substances (e.g., water, or the atoms), whose nature or natures remain permanently the same, but whose changes in density or whose separations and combinations give rise to the beings that become and perish.³⁴ Yet Aristotle implicitly rejects all these attempts by saying that his own account of the principles, that is, his own surface account, offers the only resolution of the perplexity. Later, he adds that at least the primary reason for his predecessors' failure to resolve it was their failure to grasp the nature of the (permanent) substrate.³⁵ For in his view, as it

seems to me, the substance or substances on which their doctrines had relied in order to rule out coming into being from nothing do not suffice to make it intelligible, even allowing for separations and combinations and the like, how all the beings of our world, and in particular the living beings, come into being.³⁶ By contrast, the substrate of his own surface account, since it is characterized above all by a receptivity to and even striving for form,³⁷ can promise at any rate to play a role in an explanation of the coming into being of these higher beings.

Yet as I have argued, this promise of an explanation is merely that, and there is no permanent substrate in Aristotle's genuine view of the coming into being of things. In his true view, natural beings come from seeds and other such sources, which have the potency to give rise to the various kinds of beings, but which do not persist as substrates of the beings themselves. And this, the second of his responses to the perplexity which denied becoming, has the great advantage, in comparison to the other responses we have considered, of speaking only about the world as we commonly experience it. However, precisely because of its modesty, this response is not even a real attempt to make intelligible how coming into being takes place. It does not even try to say why it is necessary, in normal circumstances, that a given seed should give rise to some definite kind of being. Thus, it does not give grounds for its rejection of the alternative that this "seed" merely ceases to be, and that the emergent being then comes into being from nothing. In other words, since as it now seems, we have only our own limited experience of the world as a guide to tell us what can come from what, we can not be certain that it is impossible for things to come into being from nothing, and the perplexity of the early philosophers remains unresolved.

It is now clear, I think, that the question of why Aristotle did not openly present his true views about the principles of natural beings is bound up with the deeper question of whether those true views include an adequate vindication of the study of nature. And it seems to me, at least, that a chief purpose of his surface account of the principles was to postpone, and even to conceal from many of his own readers, his most serious response to this deeper question. But rather than trying to say more about either of these questions now, I will return to them in a broader context, after

first giving more evidence for the legitimacy of my whole approach, in my concluding discussion of Aristotle's manner of writing.

As an appendix to my argument that there are these several levels to Aristotle's thought regarding the principles, I would like to call attention to his discussion of what seems to me to be the somewhat similar case of the philosopher Anaxagoras. To appreciate this discussion, we should first note that it is Aristotle's habit to present his preliminary doctrines as what "we say," that is, what he says as the spokesman for his school. Thus, we have already seen, for instance, that he introduces his first response to the perplexity of the ancients by calling it what "we say" (ἡμεῖς δὲ λέγομεν, 191a34; cf. pp. 13–14). And there are other examples in the *Physics* of this usage. One of the most noteworthy of these examples occurs in his discussion of void, where he introduces the claim that the matter of hot and cold—which in the context means, especially, of air and water—is one in number by saying that this is what "we say on the basis of what has been laid down" (ἡμεῖς δὲ λέγομεν ἐκ τῶν ὑποκειμένων, 217a21). Now in the light of this usage, we are prepared to remark that Aristotle's discussion of Anaxagoras contains an unusual density of references to what "they," that is, he and his followers, say. It is true that he first mentions Anaxagoras in the singular as the author of a doctrine according to which the permanent substrate consists of infinitely many kinds (including all the uniform bodily parts such as flesh and bone, together with the contraries). But when he goes on to speak explicitly of what Anaxagoras thought (οἰηθῆναι, 187a27), as distinct from what he authored (ποιεῖν, 187a24), he uses an ambiguous expression that could mean that he merely "seemed" (ἔοικε δὲ . . . , 187a26–28) to have thought this.³⁸ And the continuation of Aristotle's account of this view of the substrate, with its further claim that there is some of everything in everything else, presents it only as what "they" say (φασί, 187b1) or as what "they believed" (ἐνόμισαν, 187a36), and there is no reference to Anaxagoras in the singular. Another sign, moreover, that Anaxagoras may not have accepted this doctrine about the substrate is the claim which Aristotle attributes to him, both here and in *On Coming into Being and Perishing*, that coming to be of

such and such a sort is alteration.³⁹ For alteration involves the emergence of new characteristics in a substrate, but at least with regard to the characteristics of the infinitely many original kinds, that is precisely what this doctrine is meant to deny. Yet one can understand, on the basis of what we have seen in the case of Aristotle, that Anaxagoras might have taught this doctrine without accepting it. For those who do accept that some of everything, including even flesh and bone and the like, has always been present in every portion of a permanent substrate, are therefore sheltered—at least more than those who believe only in inanimate elements—from doubts regarding their philosophic claim that life could not have come into being from nothing. And yet it seems to me that no genuine philosopher could have accepted this bizarre doctrine.⁴⁰ Thus, I propose that it plays somewhat the same role in Anaxagoras's thought as does Aristotle's own surface account of the principles.

NOTES

1. *Physics* 190b17–29.

2. *Physics* 191a23–b27; 187a26–35.

3. *Physics* 191b20–21; and contrast 190a24–26, 190b4–5.

4. The only support within the ancient tradition for distrusting the surviving manuscripts is a variant reading mentioned briefly by the commentator Simplicius. Simplicius, *In Aristotelis Physicorum Libros Quattuor Priores Commentaria*, in *Commentaria in Aristotelem Graeca* vol. 9, ed. H. Diels (Berlin, 1882), 239.28–30; but contrast 239.18–19. Modern discussions of the passage include *Aristotle's Physics: A Revised Text with Introduction and Commentary*, ed. W. D. Ross (Oxford: Clarendon Press, 1936), 495, and *Aristotle's Physics, Books I and II*, trans. W. Charlton (Oxford: Oxford University Press, Clarendon Press, 1970), 80–81.

5. In claiming that this second response is not based on the same three principles, I am presupposing the interpretation of it that I will develop later in this chapter. For one could formulate a response in terms of potency and being at work that would be little more than a restatement of the first one (cf. 217a21–31). On that interpretation, however, it seems odd that Aristotle would speak of it as “another” way of responding to the perplexity.

6. That the second response is the better one is also the view of Thomas Aquinas. See Thomas Aquinas, *In Octo Libros Physicorum*

Aristotelis Commentaria, ed. P. M. Maggiolo, (Rome: Marietti, 1965), bk. 1, lecture 14, par. 126. Aquinas's commentary has been translated by R. Blackwell, R. Spath, and W. E. Thirlkel as *Commentary on Aristotle's Physics* (New Haven: Yale University Press, 1963), 60.

7. *Physics* 190a24–26; cf. *Metaphysics* 1033a5–23.

8. *Physics* 190b17–20.

9. *Physics* 189b16–18, 27–28 (and cf. *Metaphysics* 1014a26–34); 189a20–26, 190b30–35, 191a6–7, and also 192a16–19.

10. *Physics* 189a19–20.

11. *Physics* 192a34–b2; 192a25–34. Aristotle says that the substrate can be considered both as “that in which” (there is privation) and also “according to potency.” By this latter expression, he goes on to explain, he has in mind a nature from which something comes into being (and) which is (also) inherent (in the completed thing); and he argues that the substrate in this sense (or matter, as he also calls it) is necessarily imperishable and ungenerated. It is, moreover, this latter view of the substrate that follows most readily from his earlier discussion of it (cf. *Physics* 190a13–25, 192a12–14).

12. Cf. Simplicius, *In Libros Quattuor Priores Commentaria*, 236.1–12.

13. Cf. *Physics* 187a8–9.

14. Compare Plato, *Cratylus* 393b7–c6ff.

15. *Physics* 189a27–34; cf. *Metaphysics* 1029a10–27.

16. *Physics* 187a26–31; cf. *Metaphysics* 983b6–18ff.

17. *Physics* 191b13–17; 190b25–27. cf. Alexander of Aphrodisias, as quoted in Simplicius, *In Libros Quattuor Priores Commentaria*, 238.8–14; Themistius, *In Aristotelis Physica Paraphrasis*, in *Commentaria in Aristotelem Graeca*, vol. 5, pt. 2, ed. H. Schenkl (Berlin, 1900), 30.16–29.

18. *Physics* 191a5–7; cf. 192a14–16.

19. *Physics* 188a31–b21. The definiteness of this opposite to form strengthens the analogy between Aristotle's account of these cases, in which an ordered being first comes to be, and his account of those simpler cases in which change is between contraries in the strict sense (such as hot and cold), and in which privation is accordingly not the mere absence in general of some form, but rather one of the specific contraries in question. Cf. *On Coming into Being and Perishing* 318b14–18, 332a22–23; *Metaphysics* 1055a33–b11ff.

20. *Physics* 189b16–19, 190a13–19. Note, however, that this claim regarding the persistence of the substrate is explicitly based on the premise that we can consider Aristotle's first example of an unmusical man becoming musical as the model for understanding all coming into being.

21. *Physics* 188b36–189a9, 190b23–25; 190b1–5; cf. *On Coming into Being and Perishing* 324b6–7. A further indication that Aristotle does not believe that there must be a single substrate for becoming is his use of the plural $\alpha\upsilon\tau\omicron\iota\varsigma$ at 191a1. See also the valuable discussion by W. Charlton, *Aristotle's Physics*, 74–79, 129–45, and also in his “Prime Matter—a Rejoinder,” *Phronesis* 28 (1983): 197–211. Charlton fails to recognize, however, how much Aristotle himself contributed to the traditional misinterpretation of his text, and thus he also fails to wonder why Aristotle might have chosen to do so.

22. *Physics* 224b35–225a20.

23. *Physics* 225a20–25, and contrast 225b1–5; cf. *On Coming into Being and Perishing* 317b14–18, *Metaphysics* 1051a34–b1. In this section of the *Physics*, Aristotle speaks of privation as an opposite to form only in cases of qualified becoming, or of motion. In other words, he speaks of change from privation to its contrary form only if it is a change of attributes in a persistent substrate, as distinct from a change from what is not to what is. He even suggests, moreover, that privation can always be signified by an affirmation (as for instance, by “what is naked” instead of “what is not clothed”). See *Physics* 225b1–5, and compare 193b20–21; see also *Metaphysics* 1055a29–b16, esp. a29–30 and b7–8.

24. In the case of the four elements, which come into being from one another rather than from seeds, it is admittedly difficult to treat the coming into being of any one of them as a change from what is not to what is. Yet Aristotle suggests explicitly that it might be correct to do this, at least if the new element is higher, or higher in rank, than the old one (*Physics* 213a1–8; cf. *On the Heaven* 310b11–15; *On Coming into Being and Perishing* 318a35–b33, but contrast 319a29–b5). On the other hand, he does not regard the four elements themselves as beings in the full sense that plants and animals are, and so it is not wholly surprising if the character of unqualified becoming should be less clearly manifest in their case than it is in the case of those other beings (cf. *Metaphysics* 1040b5–10).

25. At *Physics* 225a27–29, Aristotle does not say, as it might appear, that there is coming to be only by concomitance from what is not. What he says, rather, is that even on this supposition (a supposition which he himself has encouraged in book one, and which he might not wish openly to undermine), it is still that which is not that comes to be.

26. An acorn, for instance, does not remain as part of an oak tree, nor does air remain as part of the water that has been formed from it (cf. *On Coming into Being and Perishing* 319b14–18). I am disregarding here the secondary question regarding artifacts, which might be said to

come into being from the reshaping of a substrate—such as wood, for instance, or bronze—which persists at least as long as the new beings do. Even in these cases, however, I do not think that the being is appropriately characterized as a form in a substrate. cf. *Metaphysics* 1045a7–b23 and see p. 17.

27. Consider *Physics* 188b16–21, and cf. pp. 18 and 85–86. See also Charlton, *Aristotle's Physics*, 71–73.

28. *Physics* 191a34–36.

29. See *On the Generation of Animals* 724a14–726a28, 729a34–730b32, and throughout.

30. *Physics* 190b17–23; cf. pp. 15–16.

31. *On the Heaven* 306a9–11; consider, again, *Physics* 192a25–b4.

32. *Physics* 187a32–35. The reference, at 191b35–192a1, to a Platonic claim that there is coming into being from what is not should be compared, rather, to Aristotle's own later suggestion that what is not may be understood as what is only potentially a being in the full sense. See, again, 225a20–25.

33. Hesiod, *Theogony* 116–22.

34. *Physics* 187a12–26; *Metaphysics* 983b6–984a29.

35. *Physics* 191b30–36.

36. Cf. *On Coming into Being and Perishing* 333b3–20, 335b24–336a12.

37. *Physics* 192a16–19.

38. To be sure, the simpler interpretation of this sentence is that it “seems” to be for the two reasons that Aristotle here proposes that Anaxagoras thought that the substrate was thus infinite (without there being any further suggestion that it only “seems” to be the case that he did think so). But the reading that I have suggested is also possible, and it seems preferable in the light of the other factors discussed in the text.

39. See *Physics* 187a29–30. That this is a reference to Anaxagoras (and his followers) is confirmed by the explicit statement in *On Coming into Being and Perishing*, 314a13–16, that Anaxagoras did identify coming into being and perishing with alteration. It is true that there is no evident support for this statement in the fragments that remain to us from Anaxagoras. Yet I see no reason to distrust what Aristotle says on this matter. And his use in both passages of the verb καθέστηκεν(v) strongly suggests that he had a specific Anaxagorean text in mind. It is worth noting that the passage in *On Coming into Being and Perishing* stresses the inconsistency between Anaxagoras's claim that becoming is alteration and his doctrine about the substrate.

40. Consider the difference between the singular and plural subjects in *On Coming into Being and Perishing* 314a24–b1. See also Alexander of Aphrodisias, *In Aristotelis Metaphysica Commentaria*, in *Commentaria in Aristotelem Graeca* vol. 1, ed. M. Hayduck (Berlin, 1891), 68.5–70.9.