

Introduction

I

I know twenty or thirty people who, given the chance, could come up with a vastly improved Aristotle. I count myself among this group, and if we had ever formed a committee to do the job, I know the assignment I would have wanted: inserting texts in which Aristotle says that as a given thing can survive without a certain characteristic, the characteristic is not essential to the thing.

Aristotle does, from time to time, invoke the survivability criterion, or what amounts to the same thing – most typically, in claiming that living things and their parts are essentially animate. And in the *Metaphysics* VII, 15, he criticizes those who would define the sun as “going round the earth”: “they err . . . by adding attributes after whose removal the sun would still exist.” On their view, if the sun were to stand still, it would no longer be the sun – a strange consequence, “for ‘the sun’ means a certain substance” [1040^a28–33]. Outside of a biological context this sort of statement is rare, and at crucial junctures where a quick invocation of the survivability criterion would seem appropriate, Aristotle refrains.

In *Metaphysics* VII, 4, he addresses the question of whether an essence corresponds to “pale man” by asking whether “pale man” involves one thing’s being said of another. How much easier it would have been to point out that, if the pale man spends some time in the sun, he will tan: that paleness is an attribute loss of which people survive each summer.

In *Metaphysics* X, 10, he mentions that “the same man can be, though not at the same time, pale and dark.” But two paragraphs earlier, in chapter 9, arguing that there is no difference in species “between the pale man and the dark man, not even if each of them be denoted by one word,” he does not say that this is clear, as the same man can be, though not at the same time, pale and dark. Instead he gives us the following:

For man plays the part of matter, and matter does not create a difference; for it does not make individual men species of man, though the flesh and the bones of

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which this man and that man consists are other. The compound thing is other, but not other in species, because in the formula there is contrariety, and man is the ultimate indivisible kind. Callias is formula together with matter; pale man, then, is so also, because Callias is pale; man, then, is pale only incidentally. Nor do a brazen and wooden circle differ in species; and if a brazen triangle and a wooden circle differ in species, it is not because of the matter, but because there is a contrariety in the formula. [1058^b5–15]

In this case my editing job would have been quite easy: to eliminate all the intervening text. The new, improved text would have read, “There is no difference in species between the pale man and the dark man, not even if each of them be denoted by one word . . . because the same man can be, though not at the same time, pale and dark.”

Alas, our committee has not yet duly formed itself. So I reluctantly decided, for the time being at least, to leave the texts as they stand, retaining the obscure passage quoted above and many others that occur where an appeal to the survivability criterion would simplify matters (including all of *Metaphysics* VII, 12). This, I knew, would please the purists.

It then occurred to me that Aristotle’s reluctance to invoke the survivability criterion might be attributable to something more than mere oversight. Perhaps he did not trust it. Briefly, the idea is that Aristotle was developing a new account of nature, and one of the consequences of this account was that he could get only limited mileage out of the survivability criterion. That it needs to be wielded with caution can be seen in the dialogues of Aristotle’s teacher, Plato.¹ Toward the end of the *Phaedo*, in a well-known passage, Plato holds that snow in the face of heat must withdraw or perish – it cannot admit the hot. In the *Timaeus*, however, he hypothesizes that snow is water mixed with a little fire – just enough fire to keep it from becoming ice.² So not only can snow tolerate a certain amount of heat, it requires a certain amount of heat. Stating the survivability criterion is simple; applying it to the real world is tricky.

Furthermore, Aristotle’s concept of nature made him a *qualified* essentialist: in his aristocratic world, some plebeian things come into existence and pass out of it without ever having an essence. So before we can wield the survivability criterion, we need an independent way of deciding whether a thing has been essentially blessed, for even if a thing has no essence, there still will be conditions it must meet to persist. We might, for example, be able to lay out the conditions under which my estate continues to exist – i.e., retains net value – but it does not follow that anything is essential to it. (Although my estate might have components – e.g., cattle and gold that do have essential natures, this is not the same as

1 See Chapter 2; “Elemental Change and Substances That Lack Some of Their Essential Characteristics,” “The Paradox.”

2 At 59D.

the pale-man case, because being a man *is* essential to him.) My example might seem adventurous, but the basic point is clear. For example, in *Metaphysics* VII, Aristotle invents the real/nominal essence distinction: even if “cloak” means “pale man,” it does not follow that pale man as such has an essence; here we might have only the meaning of a word. Understanding the conditions under which an *F* ceases to exist need not, then, tell us what is essential to an *F*, for the *F* need not be essentially an *F*. (This will be so if one imagines that the pale man ceases to exist when he acquires a tan.)

We can see a problem even with Aristotle’s example of the sun. On his view, celestial objects by their very nature possess a uniform circular motion. They cannot cease this motion, nor can anything else stop it. If, given what they are, this motion is necessary to them, how can Aristotle suggest that as “the sun” means a certain substance” it would still be the sun even if it stopped moving? Wouldn’t that mean that it had become a different substance (e.g., no longer composed of ether)?

The difficulty arising here has an even greater range in the mundane realm. For example, on the received interpretation Aristotle holds that clay by its nature has a downward motion. Yet when the potter lifts some clay from the floor to her wheel, it has an upward motion, and as she shapes it on the wheel it has a rotational motion. If what belongs to something in virtue of its nature belongs to it essentially, it would seem that clay can lack a characteristic essential to it (downward motion), and even possess characteristics contrary to its essential nature. Aristotle addresses this difficulty by distinguishing natural as opposed to forced motions, though, as we shall see, there is a great deal more to this story. But even if there were not, our example suggests that the survivability criterion has to be used with discretion: we cannot say without qualification that if being *F* is natural or essential to a thing, that thing cannot exist without being *F*. At a minimum we have to ask whether something external is hindering the thing from being *F* or whether it is by force that it lacks *F*. This will require an empirical investigation and, for some values of *F*, may require, say, a general theory of motion as well.

That is at a minimum. More realistically, we will have to say a good deal more. For how can something be so determined to exist that it will not give up the ghost even though it has been shorn of essential characteristics, so long as the shearing was by force or due to external causes? Whether I am murdered or die of natural causes, my song has ended.

II

Most Greek philosophers tried to explain the world by appealing to basic substances. For two centuries they did this by postulating material elements: basic forms of matter out of which the nonelemental things arose.

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Then Plato struck out in a new direction. The abiding basic natures were not elemental forms of matter but immaterial substances – Plato’s Forms.

To Aristotle the most attractive options had been presented by Plato and Empedocles, but he could not wholeheartedly embrace either. Plato’s Forms were too detached from the physical world for Aristotle’s taste, and though he was attracted to Empedocles’ view that the elementary physical substances are earth, air, fire, and water, he could not accept his claim that these elements are eternal and unchanging: it was obvious to Aristotle that they come into existence and perish – we *see* this happen, he protests.

This partial embrace of Plato and Empedocles sets the stage for Aristotle’s own thought. He accepts Empedocles’ elements, but they are not imperishable; he accepts Forms, but they are not separate from the physical world. But perishable elements and incarnate Forms are almost oxymoronic in the Greek tradition, and Aristotle will not have an easy time readying these notions for the philosophical marketplace.

To take one example of the pressures generated by his approach, once Aristotle declares that the most basic forms of matter are not eternal, a primary source of intellectual comfort and explanatory force in pre-Socratic accounts of nature has been jettisoned. The things we see around us in his model cannot be regarded as various permutations of unchanging building blocks. If the building blocks themselves are in flux, how does stability arise? From the Forms, as in Plato? But if forms are not segregated from the growth and decay of the material world – a material world in which, at that, the elements themselves are prone to decay – how can they be sources of stability? Greek metaphysics had, up until Aristotle, anchored itself in material elements or separate Forms. Aristotle cuts himself loose from both of these anchors and is in danger of being adrift.

In this study I argue that Aristotle dealt with this situation by forging a new concept of nature, based on the ideas that: (1) nature is an internal source of change and stasis in substances, (2) a thing’s right to be called a substance is a function of the type and degree of unity it possesses;³ and (3) a thing can exist without possessing all the properties that belong to it by nature.

Working out this new concept of nature proved to be an extremely difficult task. At almost every turn, Aristotle found that as soon as he answered one question, others arose, leading him into new and uncharted territory. The study that follows traces his progress. I begin by examining one of the roots of the problem in the *Categories* and go on to show how Aristotle attempts, in various ways, to deal with the problem. In

³ One of the effects of this new approach is to downgrade the status of the elements. They will not, in his system, be quite the principles they used to be; their role becomes more local.

doing so I roughly follow the generally accepted order for his writings, such as it is, but chronology plays little or no role in my story. My thesis is that Aristotle undertook several distinct marches on his problem, each of which helped somewhat, but none of which proved totally satisfactory. (This is not a sign of a poor philosopher; Aristotle was a great philosopher, honestly wrestling with difficult issues.) I have little to say about the order in which he explored these ideas; he most likely explored several of them simultaneously. These approaches to his problem are connected in some ways, but they are basically independent: each is a fresh start – a new way of addressing the same issues. They are, to twist Aristotle’s phrase, *pros hen* lines of inquiry.

One approach, following a Platonic innovation, was to introduce the notion of essence. This, however, does not tell us what sorts of things have essences, and it seems clear that Aristotle held that some things, at least in some sense of “things,” do not have essences. A second advance comes in the *Physics*, where Aristotle introduces nature as an internal principle of change or stasis. He embarks on a third approach under the general rubric of “the problem of the unity of definition.” This culminates in the *Metaphysics* Z doctrine of proper differentiae. A fourth approach can be seen in his attempts to distinguish different types of unity. A fifth depends on the notion of complete and incomplete substances, an outgrowth of commitments he accumulated in the course of the other approaches. At this point he has a fairly consistent doctrine, and one far more coherent and articulated than he began with, though in some respects it is still troubled. (Again, this is not a criticism of Aristotle – life is troubled.)

My Aristotle stands in stark contrast to, say, the view presented by Daniel C. Graham in *Aristotle’s Two Systems*. As Graham sees it, we have two more or less monolithic Aristotles, each with his own system (S_1 and S_2), each system being fairly consistent. I see a far messier Aristotle. Mine begins working in one room and moves on to others as the limitations of each room press in on him. In each new room he improves on the work he did in previous rooms, yet he keeps going back to the old rooms to check his notes. He is making progress, but he does not always see how to reconcile every conclusion he arrives at in a new room with the sheaf of notes he has brought with him from earlier rooms. Convinced that those earlier investigations were not totally misguided, but equally convinced that his more recent investigations are an improvement upon them, he enters each new room clutching notes from the earlier rooms, and he does the best he can, often presenting both the old and the new, even if they seem to conflict. He thinks that in the end he can work it all out, and perhaps he can, but he is so busy that he never really finds the time to do so.

This is not a man with two neat positions but one simultaneously

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pursuing different lines of investigation, uncertain whether they will all take him in the same direction – and even whether they all deal with the same problems – and constantly modifying his own position. (I have attributed five rooms to him, but if I had more time I could claim ten or twenty-seven.) He has a few principles that, he is convinced, cannot be very wrong, but he is not sure how they fit together, and he expends more effort in exploring new avenues of investigation than he does in trying to reconcile everything to which he has become, in the course of his investigations, committed. He never formulates a completely consistent system – something is always nibbling at the edges.

Nonetheless, though he never reconciles everything, he does end up with a mature doctrine which, on my interpretation, has a surprising feature. It is a characteristically Platonic doctrine that at least some particulars are imperfect instances of forms. On my account, Aristotle ends up holding the same view, for he maintains that particulars sometimes incompletely possess their essential properties. I will argue that he claims this both for his most elemental substances – the elements themselves – and for some of his least elemental substances – people. Unlike Plato (on one reading), Aristotle holds that this is not an inherent defect of particulars, but is due to the fact that nature's work, which is to perfect particulars, is not always finished. But this too, may be thought of as a Platonic doctrine in that, for Aristotle as for Plato, the existence of imperfect particulars is the price we pay for the existence of the realm of becoming, or at least of Aristotle's analogue to Plato's realm of becoming – the sublunar realm.

Two Terminological Notes

1. At the heart of Aristotle's metaphysics and philosophy of nature is his inquiry into *ousia*, usually rendered as "substance." If we mean to be speaking current English, this is a dreadful choice, for "substance" in English has come to be a general mass-term, roughly synonymous with "stuff": cocaine is a substance; a dog is not. "Substance" is therefore now closer in meaning to Aristotle's "matter" than it is to his *ousia*: in current English the only "substance" we are dealing with when we deal with a bronze statue is bronze.

If we focus, on the other hand, on the etymological connotation of "substance" as that which stands under or supports, Aristotle already has a word for that: *hypokeimenon*, generally translated as "subject." As *ousia* is a participle from the verb "to be," this might make the Latin translation, *ens* ("being"), seem the best choice, but then we lose the important nuances that derive from the frequent opposition of *ousia* to characteristic, property, or accident, and the occasional opposition of *ousia* to matter. It seems to me that in English this is best captured by playing things

off against both characteristics and the stuff things are made of, so in discussion I sometimes use “thing” where Aristotle would use *ousia*. For direct translations of Greek passages, however, I have retained the hal-
 lowed “substance.”

Unfortunately, “substance” has another meaning: “the substance of his remarks” is, roughly, the essence of his remarks. This is a translator’s convenience when Aristotle is asking about the *ousia* of a thing, and in this case “the thing of his remarks,” let alone “the thing of a thing,” would be quite senseless.

No one word can happily handle all these contexts. I have accordingly felt free to translate *ousia* in a variety of ways, though at the price of occasionally holding it up for display in brackets. In general, however, I have translated it as “substance” or “thing.”

2. Another warning is in order for “change” and “motion.” The Greek, *kinêsis*, once corresponded to the Latinate “motion.” Motion then covered various sorts of change, of which change of place – locomotion – was only one. In current English, however, “locomotion” has come to be redundant: “motion” has come to mean “locomotion.” We do not speak of a leaf’s motion from green to orange, nor of a man’s changing down the road. Both the man’s progress and the leaf’s change of color are, however, instances of *kinêsis*. Kinêsis must therefore sometimes be translated as “change,” sometimes as “motion,” and sometimes as “process.” Where the distinction is important, Aristotle may specify that he is talking about a *kinêsis* of place, or an alteration, or all types of *kinêsis*, but in general the reader must beware, for a passage in which Aristotle seems to be talking about motion may be a passage in which he is talking about change in general, and vice versa.

A Final Admonition

Many of the concepts that we take for granted were not available to Aristotle, and some of them were to a large extent developed by him.⁴ In this latter case, what we obtain as a birthright he had to wring laboriously from his own philosophical inheritance. To do so, he did not hesitate to do some violence to common usages.⁵ One of the notions he thus recast is the concept of nature. “Nature” became, for Aristotle, a technical term: what he finally means by “nature” is not what any of his predecessors meant by it, and it is not what we mean by it today. If we want to understand his account of nature, we must recapture that meaning. Fortunately, he has given us a proof-text.

⁴ For example, the concept of matter or the distinction between chemistry and biology.

⁵ Despite the fact that he is often said to be, with some justification, a defender of commonsense views.

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In my first chapter I examine that text and sketch out an interpretation of what Aristotle means there by “nature.” This turns out to involve several strands, each with its own textual and philosophical burdens, and each raising questions about its compatibility with other strands and texts. Most of this book is an exploration of these problems, but to keep the exegetical sprawl within tolerable limits, in this first chapter I turned a deaf ear to their cries. My intention here was to get an initial account out into the open. The obstacles are tackled in subsequent chapters.

The Aristotle quotations are generally from the revised Oxford translation by Jonathan Barnes, *The Complete Works of Aristotle* (Princeton University Press, 1984), although with a reduced number of semicolons. Where I have used a different translation, that is indicated in a footnote; where I have chosen to modify the Barnes translation, I have included the relevant transliterated Greek in brackets.

1

Nature and Things

To the delight of scholars, Aristotle's surviving writings are both extensive and obscure. One of the sources of this obscurity is familiar to us from scholastic philosophy: the arguments often seem to meander through a nearly featureless theoretical countryside. In this barren realm we find few familiar landmarks, so that even with the road map provided by the arguments, we are often unable to tell where we are headed or why we have taken a turn.

The first part of this chapter briefly sketches out some important features of the theoretical road map as it is presented in Aristotle's earlier, logical works, the *Organon*. This is not intended as a primary study of those features. Those seeking that can find other, far more detailed, discussions. My purpose is to introduce some key notions and to point out their limitations.

In the second I turn to the *Physics* and to questions about the geography and population of the landscape there. Some of these features are quite basic to Aristotle's philosophical concerns yet are never explicitly discussed by him; others he touches upon only tangentially or in unexpected contexts; still others he discusses over and over again. None of them is in any way esoteric: they are all homely features of the world that have been noted by ten year olds throughout history – things like spiderwebs, earth, houses, sheep, and ponds. To understand Aristotle's system, we need to see how these things fit into it. That is the job of later chapters. For the moment my purpose is simply to introduce a few of these things and show how questions about their status created options for Aristotle. Some previous thinkers had treated these mundane objects as worthy of philosophical investigation, but the gravity and methodological sophistication with which Aristotle approaches them, quite apart from the answers he gives to the questions they raise, was perhaps the most distinguishing characteristic of his philosophical stance; never before had a thinker so seriously addressed them. Aristotle's system of the world thus made everything that came before it look simplistic and

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was at the same time bound to be more complex and unwieldy than anything that had hitherto been offered. The handyman's shop is always cluttered with unfinished projects.

I. Before the *Physics*

A. *Freestanding Subjects*

In the *Categories*, generally thought to be one of his earliest surviving works, Aristotle tells us that some things are *present in* other things and some things are *said of* other things. Knowledge, for example, is present in the soul, and said of grammar. "Present in" is a technical term here. By "present in the soul" he means that (1) it is in the soul, but (2) not as a part, and (3) it cannot exist apart from the soul [1^a24–25].

What sorts of things are, in this technical sense, present in you? There is a disagreement among scholars about the answer to this question. On the view I am inclined to accept, your weight is an example of the sort of thing he has in mind. It is in some sense there in your body; it is not a part of your body (as your heart is); and it cannot float around apart from your body. Someone else might be the same weight, but that person's weight is that person's weight, and your weight is your weight, even if each of you weighs 160 pounds. On this view Aristotle holds to property-particulars: your weight is numerically diverse from mine even if we are the same weight, just as you and I are numerically diverse even if we are both human beings.

On the alternative view, Aristotle does not accept property-particulars.¹ This Aristotle would say that if I get a tan, my original complexion can continue to exist in other people and thus *can* exist apart from me. On this view the properties Aristotle is talking about are universals, and he holds only that my complexion cannot exist apart from bodies, not that my complexion cannot exist apart from me. Whichever of these interpretations we adopt, Aristotle is saying that it is characteristics or properties that are present in other things. On the first interpretation, these properties are particulars, peculiar to their bearers; on the second, they are not.

"Said of" is a technical term, too, in the *Categories*, for Aristotle explains that by it he does not just mean cases in which one term is predicated of another: he stipulates that if *F* is said of *a*, all things said of *F* are said of *a* as well, hence the definition of *F* must be predicable of *a* [1^b10–15]. So, although we can say, "Socrates is white," in his technical sense white is *not* said of Socrates, for the definition of "white" would be, in part, that white is a color, but though Socrates is white, Socrates is not a color [2^a19–34], so the definition of "white" cannot be predicated of Socrates.

1 See, e.g., Michael Frede (1987).