The Matter for Birth, Life, and the Elements

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Abstract:

In this essay I consider three case studies of Aristotle's use of matter, drawn from three different scientific contexts: menstrual fluid as the matter of animal generation in the *Generation of Animals*, the body as matter of an organism in Aristotle's *On the Soul* (*De Anima*), and the matter of elemental transformation in *Generation and Corruption*. I argue that Aristotle conceives of matter differently in these treatises (1) because of the different sorts of changes under consideration, and (2) because sometimes he is considering the matter for one specific change, and sometimes the matter for all of a thing's natural changes. My account allows me to explain some of the strange features that Aristotle ascribes to the matter for elemental transformation in *Generation and Corruption* II. These features were interpreted by later commentators as general features of all matter. I argue that they are a result of the specific way that Aristotle thinks about the transmutation of the elements.

Introduction

One of Aristotle's major contributions to natural science was his development of the idea that he called '*hulê*', which we translate into English as "matter." The notion of matter seems quite ordinary to us today, but Aristotle was developing an idea that was quite new at the time. The word '*hulê*' originally meant forest, brushwood, or cut wood and, aside from a single occurrence in Plato's *Philebus* (54c), Aristotle is the first author to use the term in a general account of the natural world. Our notion of matter is a descendant of his, but we should be careful not to assume that he thought of it the way we do today.

One way to understand how Aristotle thinks about matter is to look closely at his *Physics* (*On Nature*) I and II, where he describes matter at a high level of generality. This can help us understand his reasons for identifying matter as one of the two principles and four causes needed to do natural science. However, it does not provide much insight into what concrete role he thinks matter plays in our understanding of the natural world.[1] Moreover, his account in the *Physics* leaves several important questions open, which can be answered by looking closely at his scientific treatises. In

[1] I explore his notion of matter through *Physics* I and II in Ebrey 2007, 2014, and Ebrey unpublished.

what follows, I examine three places in Aristotle's scientific treatises where he discusses matter, as a way of clarifying how he thinks of matter and as examples of matter's concrete role is in his scientific practice. Aristotle's scientific corpus is quite large, and in places it melds seamlessly with what we would consider philosophical works. While we typically distinguish science from philosophy, Aristotle himself considered his scientific works to be natural philosophy.[2] Natural philosophy comprises slightly over nine hundred pages in the *Revised Oxford Complete Works of Aristotle* (184a10-789b20, with two short apocryphal works interspersed). Of this, over four hundred pages are detailed biology. Aristotle was the first systematic biologist and his biology contains his most impressive scientific work.[3] But for Aristotle it is important to understand the entirety of the natural world, from the elements to the cosmos as a whole. His scientific concepts are meant to apply generally to all natural things. For this reason, among others, it is illuminating to consider different places where Aristotle discusses matter. I first consider menstrual fluid as the matter of animal reproduction in the *Generation of Animals*, then the body of living things as their matter in the *De Anima* (*On the Soul*), and finally the matter for the transformation of the elements in *Generation and Corruption*. I focus on two thorny questions about matter that arise in these works.

One question is how to reconcile the apparently incompatible ways that Aristotle discusses matter. Sometimes, he treats it as relative to some particular type of change. Thus, in the *Parts of Animals* he says that blood is matter of the body that nourishes it (651a12-15, 668a1-4) and in *Generation and Corruption* he discusses the matter of size, which is what is involved in growth (320b22-25, 321a6-7).[4] The menstrual fluid as the matter for animal generation is an example of this sort of matter that is relative to a change. According to this way of treating matter, there are different types of matter for different types of change. However, other times Aristotle says that substances (paradigmatically, living things like trees, dogs, and spiders) are composed of form and matter, where

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[2] Only the *De Anima* (*On the Soul*) is controversial. Shields 2016, for example, has recently argued that the parts of the work should be considered first philosophy (i.e., metaphysics) rather than natural philosophy. The parts I discuss here are uncontroversially natural philosophy.

[3] For an introduction to interesting issues in Aristotle's biology, I suggest Gotthelf 2012.

[4] In *Generation and Corruption* Aristotle says that "what is most strictly matter is the substratum receptive of generation and corruption; but, in a way, so is that of other changes, since all substrata are receptive of contrarieties of one sort or another" (320a2-5). C.f., H 1, 1042a32-1042b3, and in Λ 2, 1069b9-20. Just as Aristotle is often not only interested in power (*dunamis*) in the "strict" (*kurios*) sense (c.f., *Metaphysics* Theta 1), so, as we will see, he is often only interested in matter not in the strict sense. In the *Metaphysics* Aristotle discusses the matter of place (which is what allows the stars to move) in H 1, 1042a32-1042b3, H 4, 1044b6-8; Θ 8, 1050b20-22, Λ 2, 1069b9-26. In general, this paper focuses on Aristotle's natural philosophy without drawing on his *Metaphysics*. It is often difficult to determine the dialectical structure of the *Metaphysics*, and there are questions about how to understand it as a separate science. My approach here is to try to understand the natural works on their own, at which point one can ask how they relate to the *Metaphysics*.

this is not a bundle of forms and a bundle of matters – it is one form and one matter. This latter way of thinking about matter does not seem relative to a particular change, in the way that the former is. It is not clear that it is relative to change at all. Does Aristotle have a coherent notion of matter that fits with these two ways he identifies matter?

The other question is how to understand the matter involved in the transmutation of the elements. Aristotle thinks that fire, earth, air, and water are the simplest substances there are, and he thinks that they can transform into one another. He is clear that there is a matter for the transformation of these elements, but his discussion of this is notoriously difficult. There is a medieval tradition that takes this matter to be actually nothing, but a pure potentiality to become anything. This matter is typically taken to remain through every change, not only the transformation of the elements.[5] This traditional view came under attack in the middle of the twentieth century, and was the subject of an intense debate.[6] Part of what gave the debate its particular fervor is that it was connected with the question of whether or not, in all changes, the matter must remain.

In what follows, I argue that we can reconcile the two apparently incompatible ways that Aristotle describes matter, and in doing so develop a new account of the matter of the elements. There is a single, coherent notion of matter found in all three treatises, and at the same time important differences that result from (1) the different sorts of changes under consideration, and (2) whether Aristotle is considering the matter for a specific change, or the matter for all of a substance's characteristic changes. Aristotle's single coherent notion is this: matter changes insofar as it is matter.[7] It does not change in the active sense of changing something else, but in the passive sense of being itself changed. In saying that matter does this "insofar as it is matter", Aristotle is saying that it does this because it is matter, not because of some other feature that it happens to have. Thus, the matter in a change is what is properly suited to undergo that change. Just as an efficient cause, insofar as it is an efficient cause, changes something else, so matter, insofar as it is matter, is changed. Note that there are no generic efficient causes; instead, there are sculptors, doctors, and – in Aristotle's view – male *sperma* in the case of animal reproduction. Similarly, there is no entirely generic matter; instead, there is bronze, bodies, and in Aristotle's view, menstrual fluid. Menstrual fluid, according to Aristotle, is what is properly suited to become a newborn animal. When acted on by the *sperma*, it becomes the appropriate animal insofar as it is menstrual fluid, not

[5] Sometimes the term "prime matter" is used to refer to this view. I discuss this further in the relevant section below.
[6] The first article was King 1956. The debate about it perhaps was at its most intense in the 1970's. For recent discussions, see Krizan 2013 (with useful bibliography) and Henry 2015.
[7] I argue for that this is the notion of matter in *Physics* I in Ebrey 2007 and Ebrey unpublished.

because of some other feature it happens to have. In the *De Anima*, the body is what is properly suited to undergo all the changes characteristic of a given living creature. So, for example, a robin's wings allow it to engage in a characteristic activity, flying. Many of the features that Aristotle ascribes to the matter of the elements in *Generation and Corruption* do not result from general commitments he has about all matter, as is generally assumed, but rather from the unusual type of change that he is considering. Aristotle's views on the elements and how they change into one another entail that the sort of thing suited to become air is the same as the sort suited to become earth, water, or fire; this is why it turns out that there is the same matter for all four elements.

Generation of Animals

The *Generation of Animals* is one of Aristotle's explanatory scientific treatises, that is, it seeks to determine the answers to "why?" questions for a given subject matter. Broadly speaking, Aristotle's *History of Animals* sets out empirical facts about animals in such a way as to make salient what explanatory relations could obtain between these facts.[8] By contrast, treatises such as the *Generation of Animals*, *Parts of Animals*, and *Movement of Animals* seek to determine the explanations for empirical facts. In particular, the *Generation of Animals* seeks to determine explanations for such things as why animals and some plants reproduce sexually and why animals resemble their parents.

Aristotle argues in the *Generation of Animals* that menstrual fluid is the matter in animal reproduction. It is the patient in the change, and the male's *sperma* is the agent. On a traditional understanding of matter in Aristotle, it is crucial that matter remain through a change. This causes a prima facie problem, since the menstrual fluid does not remain through the generation of an animal.[9] There is no menstrual fluid in the newborn animal. The solution, I suggest, is that while Aristotle sometimes describes matter as remaining, that is not essential to his notion of matter. Just as the agent of a change may remain through the change, but this is not what makes something the agent, so the matter may remain through the change, but this is not what makes it the matter. Although this is quite controversial, I would argue that this fits naturally with Aristotle's account of matter in *Physics* I & II and *Generation and Corruption* I.[10] Aristotle says in *Physics* I.7 and I.9 that things come to be from matter not by virtue of concurrence (*me kata sumbebêkos*) (190b23-30, 192a32). Just as a doctor heals because she is a doctor, not because she happens to be a lyre player, so things come to

[8] The classic defense of this view is Lennox 1987.
[9] For a classic statement of this problem, see Charlton 1970, 76-77.
[10] I argue for this at length in Ebrey 2007 and Ebrey unpublished. Henry 2015 also closely considers *Physics* I and *Generation and Corruption* I and argues that matter need not remain through change.

be from matter because it is matter, not because it concurs with something else. Aristotle says in *Generation and Corruption* I.7 that matter insofar as it is matter is passive (324b18). Matter should be understood primarily in terms of this role in change, being the patient that undergoes the change.

The menstrual fluid is the sort of thing that is properly suited to become an animal. It is acted on by the *sperma* and becomes the animal in question. Since it is the patient of the change, the change happens within the menstrual fluid.[11] Not just anything can become an animal. It requires a very special sort of patient. Just as you cannot build a house out of just anything, or make an axe out of just anything, so also – in fact, to a much greater degree – you cannot make an animal out of just anything. As long as we take the matter to be what is suitable for undergoing the change, it does not pose a problem that the menstrual fluid does not remain. There is nothing suitable for becoming an animal at the end of the change.

If an interpreter is strongly committed to something remaining through change, he or she might think that Aristotle must not really think that the matter is the menstrual fluid, precisely because it does not remain. But that comes at quite a large cost. What is powerful about Aristotle's account is that it identifies precisely the thing that is suitable for undergoing the change, and that thing is the menstrual fluid. That is what has the potentiality to become a fully formed organism (if properly acted upon by the sperma), not something else. The search for something that remains draws us away from what has the potentiality to undergo the change. Aristotle thinks that matter is a principle and a cause because it is needed to explain why changes happen; thus, it is important that we identify it as the thing that plays the relevant explanatory role: the menstrual fluid. Of course, merely identifying it as the menstrual fluid is not enough. If one left it here, Aristotle's view might seem open to the sort of early modern criticism of Aristotelianism, that it simply identifies the cause of sleep as "dormative virtue" without explaining how wine, for example, accomplishes this effect. But Aristotle does discuss, throughout the *Generation of Animals*, how menstrual fluid and sperma, together, bring about the formation of an animal (see esp. *GA* I.18-23, IV.1-3). Identifying menstrual fluid as matter does not end the explanation; it identifies what plays a certain explanatory role, which then should be investigated in further detail. On Aristotle's account, menstrual fluid and *sperma* are concocted in the parents' bodies in such a way that they have changes in their heat and coolness. These changes are used as tools in the production of the offspring.[12]

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[11] This is argued for in Gelber 2010. See *Physics* III.3 for the general view that changes happen within the patient.
[12] For a complimentary account, which discusses the role of these motions at much more length, see Gelber 2010, especially section 6.

Matter's passivity does not mean that it is dormant or featureless. Aristotle thinks the patient in a change plays a crucial role in explaining how and why the change happens in the way that it does. This is why Aristotle thinks we must identify the matter to understand a given change. Sometimes interpreters talk of menstrual fluid and similar highly-developed matter as "informed" matter, suggesting that this development is to be understood in terms of the contribution of form rather than that of matter.[13] But notice that it is precisely the fact that the menstrual fluid has these highly developed features that qualifies it for being matter: only the menstrual fluid is suitable for being acted upon to produce an animal, and in fact only the right sort of menstrual fluid for a given kind of animal. While the menstrual fluid is the patient and acted on by the *sperma*, it is in no way dormant or featureless, and if it became dormant or featureless it would no longer be able to be the matter for this change. On the account I am defending here, Aristotelian matter is never a generic or featureless stuff; it is always something that is suitable to undergo some change.

The menstrual fluid is matter for a substantial change, whereas blood, according to Aristotle in the *Parts of Animals*, is the matter for nourishment and growth.[14] Nonetheless, it works in fundamentally the same way, which is to be expected since nourishment and growth are, on Aristotle' theory, types of coming-to-be (*GC* I.5) and menstrual fluid is a concocted form of blood (*GA* II.3). When blood nourishes bone, there is no reason to think that the blood remains. Nonetheless, blood is, precisely speaking, the matter because it is what is suitable to become the parts of the body. The parts of the body are sustained by blood insofar as it is blood, just as the animal comes to be from the menstrual fluid insofar as it is menstrual fluid.

The Body of an Organism as Matter in the *De Anima*

Next let us consider the body as the matter of a living organism, which is introduced in *De Anima* (*On the Soul*) II.1.[15] The soul, for Aristotle, is the principle of life, and so it not only plays an important role in his work devoted to the soul, but also in works that we would consider biological: the *Generation of Animals* and the works known as the *Parva Naturalia*, which discuss phenomena that are "common to body and soul." Aristotle thinks that living things are composed of body and soul.

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[13] For example, Peck 1942, xii-xiii.

[14] For a discussion of blood as matter in the *Parts of Animals*, see Ebrey 2015.

[15] Matter is mentioned in several different places in the *De Anima*. Here are three other important places it arises. (1) Aristotle discusses how a dialectician and a natural philosopher would define anger, that latter doing so in terms of matter (403a3-b19). This leads into his hylomorphic account of affections like anger. (2) he says that perception involves grasping the form without the matter (424a17-21), having earlier mentioned moisture as the matter of flavor (422a11). And third, he describes passive reason as matter-like (430a10-25).

The body does not have some single change that it is clearly suited to undergo, unlike the menstrual fluid. Given this, many scholars have suggested that the body is identified as matter because it is what the living thing is composed of.[16] This suggests a very different criterion for something to count as matter, one not directly connected to undergoing change. I'll argue here, instead, that the body is matter because it is suitable for undergoing the various changes that are characteristic of the living thing, as determined by the soul. An organism's body is what undergoes the organism's natural changes, and so it is its matter.[17]

Near the beginning of *De Anima* II.1, Aristotle declares his view, that the soul is substance as form and the body substance as matter, and the thing composed of each is also a substance (412a15-21). He then says that the soul is "the first actuality of a body that has life potentially" (412a27-28).[18] Thus, the matter, namely the body, is something that has life potentially. In the next chapter, II.2, Aristotle says that life is said in many ways; reason, perception, motion and rest in relation to place, nourishment, decay, and growth, are all forms of life (413a22-25). Thus, we would expect the body to be matter that has the potentiality for these activities. This is basically correct, although it turns out that there is no bodily part for reason according to Aristotle.

The body and soul together compose the living thing; they are, respectively, what has the potentiality for life and its first actuality. We will examine this notion of potentiality and actuality shortly. First, we need to consider the division of labor here, according to which some features of the organism are due to the soul and others to the body. What features of an organism are each responsible for? Aristotle's view is that soul, insofar as it is a soul, does not change.[19] Instead the changes (*kineseis*) happen in the body, insofar as it is a body. After distinguishing the soul's coincidental movement from bodies' non-coincidental movement (406a16-20), Aristotle says that "it is evident that it [the soul] moves the body" (406a30), and that the soul is thereby coincidentally moved (406a30-b3). This does not merely apply to locomotion. Living things could not digest without the soul, but the soul does not change when we digest something; the body does, in virtue of the soul. The body is what is receptive of health; health and such things reside in the body, which is disposed to receive health (414a12). An animal's body changes incidentally when it is blown over

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[16] e.g., Charlton 1970 (esp. 73), Ackrill 1972/73, and Shields 2016 (esp. xvii-xxviii).

[17] Perhaps the organism's various changes should all be thought of as together constituting a single activity (see Frey 2015a), the life of the organism, in which case we could think that the body is suitable for a single change, albeit a very complex one.

[18] All *De Anima* translations from Shields 2016.

[19] This is especially emphasized in *De Anima* I.3-I.5. He claims this, e.g., at 406a2, 408b30-31, and 411a24-26. For a general discussion of the importance of this for Aristotle's conception of the soul, see Menn 2002.

by a wind, but it changes insofar as it is a body when it is moved by the soul. Of course, the whole organism undergoes change when the body does, but it does so insofar as the body changes. There is a complicated question of whether an organism's overall changes should only be attributed to the organism as a whole, or can also be attributed to the body. But regardless of how we decide this, when we move our body moves, and we move in virtue of our body moving.[20] The body is what is suitable for moving. This overall picture fits with Aristotle's claim in II.1 that the type of body that has a soul is "organic" (412b1). As Stephen Menn has argued, to call the body organic (*organikon*) is to say that it is a tool (*organon*) of the soul, the instrument by which the soul produces its characteristic activities.[21] Tools change when a craftsman is active. Aristotle's view is that, in fact, the craft itself does not change. In a parallel way, the soul does not change insofar as it is a soul, but the body does.

The next step in understanding Aristotle's account of the body in the *De Anima* is to understand his claim that the body is a potentiality and the soul is first actuality. Aristotle distinguishes between two types of potentiality in the *De Anima* (II.1 and II.5). His standard example is that a person who does not know something, say mathematics, has a first potentiality for mathematics. A rock, by contrast, does not have this potentiality. Once someone learns mathematics, she removes a privation, her ignorance, and now possesses a first actuality. This first actuality can at the same time be described as a potentiality, a second potentiality. This person has this first actuality/second potentiality even if she is asleep; if she actively thinks about some mathematics, e.g., the Pythagorean proof, this exercise of the second potentiality is the second actuality. Aristotle says that the soul is a first actuality, which would make the body a first

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[20] Those who think that strictly the whole organism does its characteristic changes, not the body, include Barnes 1971-72, 103 and Menn 2002, 100-101. Before discussing the textual support for this, suppose it is correct. If so, then (as Menn says) these activities would happen in virtue of changes within the body (except in cases of pure contemplation). Again, the parallel with the craftsman is instructive. When a builder builds a house her hammer changes, and this is not a coincidence. At the same time, the builder builds the house, not her tools. This is because the builder is the unchanging efficient cause of the change (c.f., 416a34-b2). The builder's body changes because of her soul, thereby the whole organism changes. When we attribute a change to an entire organism, we are crediting its soul, as form and efficient cause, as well as its body, as matter. To take a different sort of example, when I walk to campus, I move as a whole. But it is in virtue of my legs moving, not in virtue of my nose moving, that I move to campus. My nose is coincidentally moved, just as much soul is.

The main reason in the *De Anima* for thinking the whole organism changes is found in *DA* I.4, where Aristotle says "Yet saying that the soul is angry would be like saying the soul weaves or builds. For it is perhaps better not to say that the soul pities or learns or thinks, but that the human being does these things with the soul; and this is not insofar as there is motion in the soul, but rather because motion sometimes reaches as far as the soul, and sometimes proceeds from it." (408b11-16). Note that Aristotle does not say that it is wrong to say that the body changes. He does not mention the body; he simply says that it is better to say that the human does these things than that the soul does.

[21] Menn 2002, 108-112.

potentiality.[22]

How does the first main idea discussed in this section – that the soul is the source of motion and the body is what's moved – fit with the second idea – that the soul is first actuality and the body a potentiality? On the face of it, it might seem that the first actuality should be what changes, rather than the first potentiality. Our knowledge of mathematics is what is developed, and this seems to be what becomes active. But the soul, the first actuality, does not change. While we can deny that the soul changes by saying that it merely becomes active (*energeia*), that still does not explain what role there is for the body. Let me suggest a solution. When the soul becomes active (*energeia*) it typically produces changes (*kineseis*), any and all of which happen within the body. The key to seeing how this works is that when something has a first potentiality, it typically has this in virtue of certain capacities, and these very capacities are changed in the second actuality. Humans have the first potentiality to dance. If they develop this potentiality, they will have a first actuality/second potentiality – the ability to dance – which they can then exercise. The basic features of people that ground the first potentiality for dancing – sense of time, ability to move limbs, sight and hearing – are exercised when we exercise this skill. On Aristotle's account, any such skill does not change once it is perfected. When we exercise our ability to dance, changes happen in our bodies because of our ability, but the ability itself does not change.[23] The soul, for Aristotle, is like our ability to dance. When it becomes active it uses the body as a tool, thereby producing changes in it, to reach its goals. After identifying the body as what is receptive of health, Aristotle says that "the actuality of productive things resides in that which is capable of receiving them" (414a11-12). The soul is productive of health, but its actuality resides in the body; the body is what undergoes the changes involved in being healthy.

It is important not to overextend this analogy between the soul, on the one hand, and crafts and skills, on the other. In particular, we can have the first potentiality to dance without being able to dance. But the body cannot exist without the soul, according to Aristotle. When we die or a limb is cut off, this is a body or limb in name only, not actually one.[24] If you think of matter primarily in

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[22] *Pace* Whiting 1992, 88-89, who takes the body to be a potentiality for the activity/second actuality, which would make the body a first actuality. Whiting is trying to explain why the body ceases to exist when the soul does. I present my explanation for this below.

[23] For a similar idea, very briefly expressed, see Frede 1992, 104. Lorenz 2007, esp. 211-219, develops the idea that in sense perception the soul undergoes the change from first-second actuality while the sense organ undergoes an ordinary change, altering the organ.

[24] E.g., *GC* 1. 5, 321b29–32; *Meteor.* 4. 12, 390a10–12; *DA* 2. 1, 412b12–13; 412b21–3; *PA* 1. 1, 640b34–641a34; *GA* 2.1, 734b24–7. For a general discussion of this "homonymy principle" and its relevance to Aristotle's notion of a body, see Frey 2007, especially section 2.

terms of what remains through a substantial change, this raises a puzzle, which Ackrill develops in a classic article: the body does not exist before or after the soul, and so it seems that the matter does not remain longer than the form.[25] But again, if we think of matter as what is suitable to undergo change, no puzzle arises. When a hand is cut off, what is left is not suitable for grasping; it cannot change in the characteristic way of a hand. And when an animal dies, its body is not suitable for living in the way characteristic of an animal, and so it is a body in name only. It is in virtue of the soul that the body is able to change in the way that it does, and so without the soul it cannot engage in its characteristic changes.

On Aristotle's account the body can only be understood in terms of the activities it engages in, as determined by the soul; the soul needs the body to perform (most of) these activities. Aristotle brings out this close interrelation between body and soul at the end of *De Anima* II.2, when he argues against predecessors that allow any soul to be in any body. Earlier, Aristotle said that this view is found in "Pythagorean myths" (407b13-26); it is also found in Plato's account of reincarnation in the *Phaedo*, *Phaedrus*, *Republic*, and *Timaeus*, where human souls can reincarnate into animal bodies. Here is how Aristotle puts his view:

> For this reason, those to whom it seems that the soul is neither without body nor some kind of body understand things rightly. For it is not a body, but is something belonging to a body; and because of this it is present in a body, and in a body of this sort—not as our predecessors supposed when they fitted the soul into the body without additionally specifying in which body or in which sort, even though it appears that whatever happens to show up does not receive whatever it happens upon. It happens rather in this way, in conformity with reason: the actuality of each thing comes about naturally in what has it in potentiality, that is, in its appropriate matter. (414a17-27)
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> *καὶ διὰ τοῦτο καλῶς ὑπολαμβάνουσιν οἷς δοκεῖ μήτ' ἄνευ σώματος εἶναι μήτε σῶμά τι ἡ ψυχή· σῶμα μὲν γὰρ οὐκ ἔστι, σώματος δέ τι, καὶ διὰ τοῦτο ἐν σώματι ὑπάρχει, καὶ ἐν σώματι τοιούτῳ, καὶ οὐχ ὥσπερ οἱ πρότερον εἰς σῶμα ἐνήρμοζον αὐτήν, οὐθὲν προσδιορίζοντες ἐν τίνι καὶ ποίῳ, καίπερ οὐδὲ φαινομένου τοῦ τυχόντος δέχεσθαι τὸ*

[25] Ackrill 1972/73.

τυχόν. οὕτω δὲ γίνεται καὶ κατὰ λόγον· ἑκάστου γὰρ ἡ ἐντελέχεια ἐν τῷ δυνάμει ὑπάρχοντι καὶ τῇ οἰκείᾳ ὕλῃ πέφυκεν ἐγγίνεσθαι.

There is an appropriate type of matter for each type of soul, and this is the body for that soul. What makes it appropriate is that it has the potentiality that corresponds to a given type of soul. Thus, the body has the potentiality of sight, or of hunting down rabbits, or whatever is appropriate for the given type of living being it is. A wolf's soul could not be in a sheep's body. What makes a wolf's body appropriate is precisely that it can undergo the changes characteristic of wolves. If it sounds like the body and soul are almost two sides of the same coin, that is a welcome conclusion for Aristotle. For he thinks that once we see that soul relates to body as form to matter, we do not need to inquiry into the unity of body and soul (412b6-9). Together they form a tightly unified substance.[26]

When Aristotle says that the body is matter he is saying that it is the right sort of thing to engage in a whole range of changes, those characteristic of the organism in question. When an animal goes from hungry to full, or from here to there, or from tired to awake, it is the body, insofar as it is a body, that undergoes this change.[27] This is unlike menstrual fluid, which is properly suited to just one change. Nonetheless, the basic account of matter is the same in the *De Anima* and in the *Generation of Animals*. Matter, in general, is what is properly suited to engage in change. Matter changes insofar as it is matter. Different sorts of things engage in different sorts of changes, so there are different kinds of matter. A body is a complicated instrument used by the soul to engage in a wide range of changes, which together constitute the life of the organism.

The Matter for Elemental Transformation

Lastly, let us consider the matter involved in the transformation of the elements into one another. Aristotle agrees with Empedocles that there are four elements: earth, air, fire, and water. He discusses them in a number of places in the corpus, in most detail in *De Caelo* (On the Heavens) III and IV, *Meteorology* IV, and *Generation and Corruption* II. *Generation and Corruption* II is where he

[26] Frey 2015b, esp. 19, argues for a stronger form of unity, which is compatible with the one suggested here.
[27] There is one, or perhaps two, exceptions to this. As mentioned earlier, there is no bodily organ for the exercise of reason, although Aristotle thinks that every exercise of reason involves an exercise of imagination, which does have a bodily organ. It is controversial whether the body, in general, goes through changes when we perceive. Burnyeat 1992 provocatively claims that there is no physiological change when we perceive. For a recent survey and proposed resolution, see Caston 2005. The scholarly consensus now, which I share, is that there is some sort of physiological change in the sense organ, although the exactly nature of this under dispute. See also Lorenz 2007.

discusses their transformation in detail, so we will focus on it here. It is clear that Aristotle is committed to there being matter in this transformation, but it is controversial how to understand it. The traditional view is that he is committed to something sometimes called "prime matter," which is pure potentiality, not actually anything, and which remains through the transformation.[28] This is generally treated as something that remains through *all* changes, not simply the transformation of the elements, and which has the potentiality to become anything. It is thought of as 'pure' matter, as opposed to informed matter, which is thought of as matter combined with some form. It is easy to see how this notion of matter could naturally lead to thinking of matter as featureless stuff.

Let me lay out my alternative briefly before providing evidence for it. Aristotle thinks that there are several types of change; one sort involves a substance coming-to-be and another sort, alteration, involves changes between affections that are strict contraries. In Aristotle's natural works, he considers the elements substances and so the transformation of one element into another is a type of substantial change.[29] Although the elements themselves do not have contraries, they are each essentially characterized by two contraries from among the pairs: hot/cold and wet/dry. I argue that because of this, changes between the elements work the same way as alterations, and so the sort of matter involved in the transformation of the elements is the sort needed for an alteration. Aristotle argues that in an alteration there is a single matter that is able to take on both the contraries, the one at the beginning and the one at the end. When changing from hot to cold or from wet to dry, there is the same sort of matter at the end as there is at the beginning, because the sort of thing suitable for becoming hot is exactly the same as the sort suitable for becoming cold. Since elemental transformations simply involve changing whether an element is hot or cold or whether it is wet or dry, all of the elements will have the same matter for their elemental transformations. But we should not think that this matter is a pure potentiality to become anything; instead, it is simply a potential to become hot or cold, wet or dry. And we should not think that this sort of matter is involved in every

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[28] The classic statement is by Zeller: "If we abstract entirely from anything which is a product of Becoming—that is to say, if we think to ourselves a kind of object which has not as yet become anything, then we shall have pure Matter without any determination by Form. This will be that which is nothing, but can become everything the Subject to which no one of all the thinkable predicates belongs, but which precisely on that account is equally receptive of them all. In other words, it is that which is all in Possibility and nothing in Actuality: it is purely potential Being, without any kind of actual existence." (E. Zeller, Aristotle and the Earlier Peripatetics (London, 1897), 347-8).

[29] E.g., *Physics* II.1 192b8-13 and *De Caelo* 3.1 298a29-b1. Famously, in *Metaphysics* 7.16 (1040b5-10) he denies that the elements are genuine substances. But elsewhere in the *Metaphysics* he accepts that they are substances (*Meta.* 5.8 1017b10-14, 7.2 1028b8-13, 8.1 1042a6-12). More importantly, I see no evidence for such doubt in Aristotle's natural philosophy (*pace* Gill 2009). He routinely puts them in his lists of substances, and treats them as such. Moreover, the change between elements are one of the two examples Aristotle gives of substantial generation in one of his chapters on substantial change in *Generation and Corruption*, GC I.4 (319b15-20). This said, my account can be accepted even if (like Gill 2009) one does not think that Aristotle thinks they are genuine substances, and so do not undergo substantial change.

change; instead, the features of this matter are necessary to explain the specific details of elemental transformation.

Let us turn to the evidence for this interpretation, filling it out in the process. Aristotle's fullest description of this matter is in a quite difficult passage in *Generation and Corruption* II.1. I quote it in full and then examine it piece by piece:

> Our own theory is that whereas there is a sort of matter of the perceptible things, this is not separable but is always with a contrariety, from which the so-called 'elements' come to be. A more precise account of them has been given elsewhere.[30] However, since according to the present approach too [in addition to that of the *Timaeus*, which he has just been discussing] the primary bodies are from the matter, we must give an account of these too, regarding as a principle and first, the matter that on the one hand is inseparable but on the other hand underlies the contraries (for neither is the hot matter for the cold nor the latter for the hot, but the underlying thing is matter for both); so first that which is potentially perceptible body is principle, and secondly the contrarieties (I mean, for example, heat and cold), and then thirdly fire and water and the like. For these change into one another, and it is not as Empedocles and others say (for there would be no alteration); but the contrarieties do not change. (329a24-b2)[31]

> Ἡμεῖς δὲ *φαμὲν μὲν εἶναί τινα ὕλην τῶν σωμάτων τῶν αἰσθητῶν, ἀλλὰ ταύτην οὐ χωριστὴν ἀλλ' ἀεὶ μετ' ἐναντιώσεως, ἐξ ἧς γίνεται τὰ καλούμενα στοιχεῖα. Διώρισται δὲ περὶ αὐτῶν ἐν ἑτέροις ἀκριβέστερον. Οὐ μὴν ἀλλ' ἐπειδὴ καὶ τὸν τρόπον τοῦτόν ἐστιν ἐκ τῆς ὕλης τὰ σώματα τὰ πρῶτα, διοριστέον καὶ περὶ τούτων, ἀρχὴν μὲν καὶ πρώτην οἰομένοις εἶναι τὴν ὕλην τὴν ἀχώριστον μέν, ὑποκειμένην δὲ τοῖς ἐναντίοις· οὔτε γὰρ τὸ θερμὸν ὕλη τῷ ψυχρῷ οὔτε τοῦτο τῷ θερμῷ, ἀλλὰ τὸ ὑποκείμενον ἀμφοῖν. Ὥστε πρῶτον μὲν τὸ δυνάμει σῶμα αἰσθητὸν ἀρχή, δεύτερον δ' αἱ ἐναντιώσεις, λέγω δ' οἷον θερμότης καὶ ψυχρότης, τρίτον δ' ἤδη πῦρ καὶ ὕδωρ καὶ τὰ τοιαῦτα· ταῦτα μὲν γὰρ μεταβάλλει εἰς ἄλληλα, καὶ οὐχ ὡς Ἐμπεδοκλῆς καὶ ἕτεροι λέγουσιν (οὐδὲ γὰρ ἂν ἦν ἀλλοίωσις), αἱ δ' ἐναντιώσεις οὐ μεταβάλλουσιν.*

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[30] It is controversial what "from which" refers back to in the first sentence, and what 'them" and "elsewhere" refer to in the second sentence. For my purposes this does not matter. For a discussion of the issues, and alternative accounts, see Williams 1982, 154-156, Gill 1989, 244-245, and Broadie 2003 140-142.

[31] My translation draws primarily from Broadie 2003, 140, as well as Williams 1982 *ad loc.* and Gill 1989, 244.

Aristotle is clear at the beginning that there is a matter from which the elements come-to-be. (He calls them "so-called elements" because calling them "elements" suggests they are the simplest things, but in fact they are composed of matter and contrarieties.)[32] What is this matter for the generation of the elements? Aristotle says that it "underlies the contraries" and that it is "perceptible body in potentiality." In the next chapter he identifies the contraries as the essential features that differentiate each element from the others, making each the element that it is. An element is differentiated by possessing contraries from among the pairs hot/cold and wet/dry: fire is hot and dry, air is hot and wet, water is cold and wet, earth is cold and dry. Aristotle is saying that the matter for the elements underlies the contraries, which turn out to be hot-cold and wet-dry.

In the passage quoted above Aristotle prioritizes and contrasts the matter with the contrarieties: "so first that which is potentially perceptible body [i.e., matter] is principle, and secondly the contrarieties" (329a32-34). This is connected to the previous clause, where he says that the matter underlies the contraries and that it is a principle and first. This speaks against the suggestion that Montgomery Furth and Mary Louise Gill have developed that a contrary from one pair (e.g., hot or cold) can serve as the matter for a transformation between the other contraries (e.g., from wet to dry).[33] Aristotle here contrasts matter with the contraries and prioritizes matter over them; thus, matter cannot be the same as one of the contraries.[34] Moreover, the Furth-Gill interpretations runs into a problem with something Aristotle reminds us of at the end of the passage: that the contrarieties do not change. This recalls Aristotle's first argument in *Physics* I.6 for needing an underlying thing (189a20-27)). Contraries are not the sort of thing to undergo change; we need a third thing to be what changes, which he identifies in *Physics* I.7 as the matter, with a

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[32] C.f., *Timaeus* 48b-c, where Timaeus similarly denies that the so-called elements really are such.

[33] Furth 1988, 221-227; Gill 1989, ch. 2 and appendix. My criticisms of Furth and Gill's views in this paragraph also apply to the recent account in Krizan 2013. She distinguishes between a matter that the element is composed of, and a distinct matter that remains through the change. The latter, which she calls the "material continuant," functions the way that matter does for Furth and Gill.

[34] Gill 1989, 245, suggests that Aristotle means that in a given change, one contrary (e.g., hot) will be matter, which is the prior principle, and contraries from the other spectrum (e.g., wet and dry) will be the "contraries" that are the second principles. Certainly, the natural reading of the passage is that the matter is distinct from any contraries, and that it underlies them. Aristotle never says that he is restricting his claims to only one pair of contraries. Moreover, he identifies matter simply as "perceptible body in potentiality." It does not seem that what should count as "perceptible body in potentiality" should change depending on whether one is changing in the hot-cold spectrum verses the wet-dry spectrum. "Perceptible body in potentiality" is the same in both cases, so the matter should be the same. I discuss why Aristotle calls matter "perceptible body in potentiality" below.

reference back to this argument (190b23-33).[35] Just as the soul, insofar as it is a soul, does not undergo change, so too contraries, insofar as they are contraries, do not change. To put it somewhat differently, the contraries themselves do not have a potential to change, and that is precisely what is required of matter. Furth and Gill's suggestion is driven by the thought that matter must remain through the change. But even if we accept this, Aristotle requires matter to do something else: it must be suitable for undergoing a given change. And neither hot nor cold is suitable for becoming wet or dry. Furth and Gill are explicitly motivated by trying to avoid positing prime matter. My account offers another way to do that.

One of Aristotle's central claims is that this matter, which underlies the contraries, is the same in different elements. In the passage quoted above he says that the underlying thing is the matter for *both* of the contraries. We see a similar thought in GC II.7[36]:

> The sort of thing I mean is that water can come to be from fire, and fire from this, since there is something in common, the underlying thing. (334a24)
>
> *Λέγω δ' οἷον ἔστιν ἐκ πυρὸς ὕδωρ καὶ ἐκ τούτου γίνεσθαι πῦρ· ἔστι γάρ τι κοινὸν ὑποκείμενον.*

Aristotle says that there is a matter in common between fire and water. It might seem that he thinks this follows from the fact that water can come from fire. This sort of reading would lead you to think that matter survives through all changes. That, in turn, would suggest that there must be a matter in common between the menstrual fluid and the animal in the case of substantial generation. But note that in the above passage Aristotle is not merely explaining why water can come from fire, but also fire from water. His explanation for this reciprocal relationship is that they have an underlying thing in common. By contrast, while menstrual fluid can transform into an animal, an animal cannot transform into menstrual fluid.[37] The fact that elements have common matter is what explains their ability to reciprocally transform, which cannot happen in animal generation. This is

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[35] Gill says "If for Aristotle hot and the cold were not the sorts of entity that could serve as the matter for something, his statement is bizarre" (245). To the contrary, his point in *Physics* I.6 (repeated in I.7) is precisely that contraries, in general, cannot be matter, which is why we need a third thing. See Ebrey unpublished.

[36] See Also GC II.5, 332a17-18.

[37] Of course, adult female animals sometimes produce menstrual fluid, but such animals are not transformed as a whole in this process.

why there is no reason to expect a matter in common between menstrual fluid and the animal.[38]

Fire and water have a matter in common because of the specifics of how the elements transform into one another. The elements are transformed by changing which contraries they have from among the pairs hot/cold and wet/dry. The matter for the elements is the thing that underlies these primary contraries. Normally, for Aristotle a change between (strict) contraries is a form of alteration. For this reason, it is worth considering Aristotle's account of the matter for alteration, which he discusses in *On Generation and Corruption* I.6:

> What is more, it is impossible for there to be alteration, or segregation and aggregation, unless there is something which acts and something which is affected. For, those who posit several elements make them come to be by their acting upon and being affected by one another, and equally those who make them come to be from a single element cannot avoid speaking of action. And Diogenes is right to say that if it were not the case that everything is from a single thing, there would not be any acting upon or being affected by one another, e.g. what is hot being cooled, and vice versa – for heat and cold do not change into each other. What changes is clearly the underlying thing; so objects between which there is action and passion necessarily have a single underlying nature. But it is not true to say that everything is of this kind, but only those things between which there is interaction. (Williams trans., 322b9-21)

> *Ἀλλὰ μὴν οὐδ' ἀλλοιοῦσθαι δυνατόν, οὐδὲ διακρίνεσθαι καὶ συγκρίνεσθαι, μηδενὸς ποιοῦντος μηδὲ πάσχοντος· καὶ γὰρ οἱ πλείω τὰ στοιχεῖα ποιοῦν τες γεννῶσι τῷ ποιεῖν καὶ πάσχειν ὑπ' ἀλλήλων, καὶ τοῖς ἐξ ἑνὸς ἀνάγκη λέγειν τὴν ποίησιν, καὶ τοῦτ' ὀρθῶς λέγει Διογένης, ὅτι εἰ μὴ ἐξ ἑνὸς ἦν ἅπαντα, οὐκ ἂν ἦν τὸ ποιεῖν καὶ τὸ πάσχειν ὑπ' ἀλλήλων, οἷον τὸ θερμὸν ψύχεσθαι καὶ τοῦτο θερμαίνεσθαι πάλιν· οὐ γὰρ ἡ θερμότης μεταβάλλει καὶ ἡ ψυχρότης εἰς ἄλληλα, ἀλλὰ δῆλον ὅτι τὸ ὑποκείμενον, ὥστε ἐν οἷς τὸ ποιεῖν ἐστι καὶ τὸ πάσχειν, ἀνάγκη τούτων μίαν εἶναι τὴν ὑποκειμένην φύσιν. Τὸ μὲν οὖν πάντα εἶναι τοιαῦτα φάσκειν οὐκ ἀληθές, ἀλλ' ἐν ὅσοις τὸ ὑπ' ἀλλήλων ἐστίν.*

[38] In Williams' appendix on prime matter in Williams 1982 he defends the traditional prime matter view by arguing against his opponents. His best evidence is the passages I have cited where he notes that we have the same matter, or some underlying thing, for contraries. But that does not give us evidence for matter being all things in potentiality. The passages only provide evidence for it having a potentiality to be the elements.

In order for there to be alteration, there must be acting and being affected. And in order for there to be acting and being affected, there must be a single underlying nature shared by the things acting or affecting one another. Aristotle uses as his example heat and cold, which, as we have seen, turn out to be differentiae of the elements. He says that there must be a common nature between hot and cold. Intuitively, this makes sense. The sort of thing that becomes hot is the same as the sort of thing that becomes cold. The sort of thing that becomes dark is the same as the sort that becomes light. In general, changes between contraries are changes of the same sort of subject.[39] Thus, we should expect the elements to have a single nature, which is what underlies the change between contraries. All elements must possess the ability to be hot/cold and wet/dry. Their matter is the element insofar as it has this underlying nature. Normally, when there is a change between contraries, it is simply a case of alteration. But in the special case of the elements, it is a substantial generation because the elements are substances differentiated by these contraries.[40]

We can now return and provide a fuller answer to why there is not a common nature in the case of the generation of animals. The basic reason is that animals are not differentiated by contraries; thus, the matter for the creation of an animal is not the matter for a contrary.[41] But why not think there is a common nature in all cases, not just in those between contraries? In general, substantial change involves transitioning from a privation to the possession of a substantial form. The right sort of thing to become hot is something that has the same nature as the things that *are* hot. But the right sort of thing to become a rabbit is not something that has the same nature as the things that are rabbits. You cannot just take a rabbit, turn it into something else, and then make

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[39] This also fits quite naturally with the account Aristotle develops in *GC* I.7, according to which all agents and patients share a genus, which gives them a common nature that allows them to affect one another.

[40] In fact, Aristotle is quite clear in the II.1 passage quoted above and in GC II.4 (331a9-10) that there would be no alteration at all if the elements could not transform into one another. This, I take it, is because all other contraries depend on hot/cold and wet/dry (*GC* II.2), and for these to change requires the elements to transform. This suggests, without explicitly stating, the radical view that every alteration involves the substantial change between the elements. One complicating factor is that more things are composed of mixtures of the elements, in which, on Aristotle's view, the elements only exist potentially. For a discussion of this issue, see Frey 2007 and 2015a.

Note also that my account allows for a natural reading of Aristotle's claim in *GC* II.4 (331b13 ff.) that it is possible to transform from one element to the diametrically opposed element – the one that it shares no contraries with. Aristotle says that this transformation takes longer because you are simultaneously changing both contraries. Furth, Gill, Krizan and those with similar views are forced to argue that the process happens by first changing one of the contraries and then the other. But that does not seem to be what Aristotle says here, and such interpreters need to try to explain why we should think of this as one difficult change, rather than two ordinary changes. On my account, each element has matter that allows it to become hot-cold and wet-dry. Given this, something could change both of these simultaneously, turning into the diametrically opposed element, but (Aristotle is claiming) that would be harder, because in general it is harder to change two things at once, rather one.

[41] While this is true, there is an interesting role played by "the more and the less" in Aristotle's differentiation between species of the same genus. See Lennox 2001.

another rabbit out of it. But you can take something that is hot, chill it, and then make it hot again. This is why Aristotle says that in the first passage quoted in this section, from *GC* II.1, that the matter "underlies the contraries," without in any way restricting it to being a matter for *becoming* something new.[42]

Why should we think of the elements as having a single matter, given that the ability to become hot or cold seems independent of the ability to become wet or dry? By the same token, you might worry that we should not think of the elements themselves as having a unified nature, given that they are defined in terms of being hot or cold as well as wet or dry.[43] The answer, let me suggest, is that Aristotle thinks of these pairs of contraries as closely related to each other. Aristotle argues in *GC* II.2 that these two pairs are the fundamental features that make something tangible. Something cannot be wet or dry on its own; it must be paired with hot or cold. Once we see hot/cold and wet/dry as the two fundamental dimensions of being tangible, we can see why Aristotle would think of nature of the elements as unified – each is a different way of being tangible. The matter of the elements is unified, in turn, as the basic potentiality for being tangible. This is also why Aristotle refers to the matter of the elements, in the *GC* II.1 passage quoted above, as "the matter of perceptible bodies." This is not an accidental formulation – it is the matter of perceptible bodies *qua* perceptible bodies. The most fundamental form of being perceptible is being tangible (*GC* II.2, REFS …), so the matter of perceptible bodies is the matter that is able to take on any of the basic ways in which something can be tangible.

We have seen why Aristotle thinks that all four elements have the same matter. This means, at a minimum, that there is the same type of matter at the beginning of an elemental transformation as there is at the end. Does it also mean that the same token matter remains through the change? In other words, does this mean that the matter at the beginning is numerically identical with that at the end? Aristotle does not seem to say anything one way or another that would commit him to its being the same token matter. In general, he does not seem very concerned with such individuation questions in *Generation and Corruption*, although commentators are often quite interested in this. The

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[42] While Broadie 2004 does not identify the matter for the elements in the way that I do, in many ways her account is similar to my own. One principle difference is that she argues that each element only has a matter for becoming the other elements, which she thinks in no way underlies the form of the element (see esp. 146-150).

[43] Krizan 2013 usefully pushes the question of the unity of the elements. She addresses the problem by arguing that one of the pair hot/cold or wet/dry serves the form of an element, and the other as the matter. While this solves the problem of not having two forms (e.g., both cold and wet), I do not think this is sufficient to unifying matter and form. In general, Aristotle's solution to this is to view matter as potentially what form is actually (c.f. *DA* II.1, *Meta. Eta 6*), and I do not see how Krizan's account accomplishes this.

passages do not speak in favor, or against, the matter for elemental change remaining.[44] In *Generation and Corruption* I.4, he even seems to allow that numerically the same affection could remain through a generation, so that when water comes to be from air, the very same transparency could remain from the water to the air (319b21-24). If this is his considered view, then perhaps he would be happy to think that the very same matter could remain through the change, but this would tell us no more about the role and ontological status of matter than it does transparency.

Conclusion

The menstrual fluid and the body are each something we can point at; it is easy to think that we can understand them on their own, although on Aristotle's view this is a mistake. Instead, they can only be properly understood in terms of their relation to the activities that define them. In the case of the matter of the elements, there is no temptation to think that we can point at it on its own. This is part of what makes it natural to think of it as pure potentiality, actually nothing. If calling them "pure potentiality" suggests that it is a potentiality to be *anything*, that is not correct. But it is accurate to say that insofar as the elements are matter, they are nothing but a potentiality to be tangible body. The matter is one in number with the element in question, and so the matter is actually, e.g., fire, but not insofar as it is matter. It has a potentiality to be hot/cold and wet/dry, but not to be anything else. Whereas the eagle's body must actually have certain features (e.g., solidity) in order to have the potential to fly, the matter of the elements is not grounded in some actual features. In this way, we can think of it as more of a pure potentiality than the body of a living organism, or the menstrual fluid. But this does not make it generic; this matter has a very specific potentiality, which only allows two types of change, those along the hot-cold and wet-dry spectra.

Aristotle thinks that a fundamental feature of the natural world is that the things in it change. Thus, if we want to understand things in the natural world, we need to understand their changes. In

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[44] There is a tricky question of whether *GC* I.4 319b8-18 requires that matter not remain through a substantial change. Broadie 2004 argues that this passage requires that the matter not remain. If she is right, then we will have to say that there is a new matter at the end of the change, which is of the same kind as there was beforehand. I am not convinced that the passage requires this. Broadie is looking to avoid a prime matter interpretation. Again, I am offering another way to do this. In this passage in *GC* I.4 Aristotle distinguishes between the underlying thing changing and the affections changing, saying that in the former case we have a substantial change and the latter an alteration. How should we understand it if a substance's differentia changes? That is what happens in the case of the transformation of the elements, e.g., hot is replaced with cold. Given that differentiae are not affections, and that changing a differentia leads to a substantial change, it seems that such a change should count as the underlying thing changing, not the affection. But I see no evidence that such a change should require that the entire underlying thing be "exchanged" (Broadie 2004, 124) for another one. Why not think that part of the underlying thing remains, namely the matter, while another part is "exchanged," namely the differentia? This passage in *GC* I.4 seems perfectly compatible with such an option.

order to understand a thing's changes, we need to grasp it insofar as it is suitable to undergo those changes. To grasp it in this way is to consider it as matter. Given that different things are suitable for undergoing different types of changes, there will be different types of matter, and the features of these types of matter will differ depending on the specific change in question. Menstrual fluid is very different from an ostrich's body, which is very different from fire and water, considered insofar as they can become cold or dry. Nonetheless, Aristotle's notion of matter is fundamentally the same across a variety of scientific contexts: it is a thing insofar as it is able to undergo a given change. Examining Aristotle's scientific works helps us understand how he thinks of different sorts of matter, that is, how he thinks about the things suitable for undergoing natural changes.[45]

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