CHAPTER 8

Metaphysics *Θ.7 and 8*

Some issues concerning actuality and potentiality

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INTRODUCTION

In *Metaphysics* H.6 Aristotle famously remarks:

What then is the cause of what is potentially F being actually F in the case of things that come to be over and above the efficient cause? For, nothing other is the cause of what is potentially a sphere being actually a sphere; rather this [i.e. the cause] is what it is to be for each of them singly. (1045a30–3)[1]

This passage and its immediate context can be interpreted in several ways. One interpretation, which I have defended elsewhere, runs as follows.

> 'If we consider the issue of the unity of a composite in terms of
> matter : form
> potentiality : actuality[2]
> there is no longer a difficulty. What makes it the case that
> potentiality : actuality
> are paired in such a way as to form a composite unity is that they share a cause: what it is for each of them to be what they are (a formal cause).'[3]

An early version of this chapter was read at the École Normale Supérieure in Paris in January 2004 and I am indebted to Justin Broackes, Michel Crubellier, Mary Louise Gill and David Lefebvre for their comments on that occasion. It was revised and extended for a conference held in honour of Allan Gotthelf in Pittsburgh in October 2004, where I gained greatly from his comments and those of Jim Lennox. I have subsequently been helped by discussions with Ursula Coope, Edward Hussey, Michael Peramatzis and Dory Scaltsas. My attempt to connect issues in *Metaphysics* Θ.7 and 8 with Aristotle's teleology stems from an understanding, secured by many enlightening conversations with Allan Gotthelf, of its central role in Aristotle's metaphysics. In this chapter I have sought to characterize Aristotle's teleology in a way which abstracts from issues we have discussed elsewhere. Indeed, my aim has been to sketch an account of Θ.7 and 8 with which Allan could, in general terms, agree.

[1] In this translation 'this' is taken to refer back to 'cause' in 1045a32. Other possible translations are mentioned below.

[2] In this summary, 'potentiality' and 'actuality' are simply used as stand-ins for '*dunamis*' and '*energeia*'. I shall use 'capacity' and 'potentiality' interchangeably in this essay. Others prefer 'activity' as a translation for '*energeia*'.

[3] I have argued for this interpretation in Charles 2000, 294–300.

Consider an example: in the case of man the actuality, according to this view, is *being alive in a given reason-involving way*. This is what it is to be a man: the relevant formal cause. The matter in question is made what it is by this formal cause: it is what is capable of being alive in this way. When what is capable of being alive in this way is actually alive, there is a unified composite. The unity in question is non-accidental: for the matter is defined as what is capable of being alive in a given way, the form as being alive in that way. Aristotle's re-conceptualization of the unity of the composite in terms of potentiality and actuality enables him to show how the issue of its unity is solvable. The *relata*, matter and form, are non-accidentally connected in the way potentiality and actuality are.

H.6, it must be admitted, leaves many problems unresolved. It says little about what the formal cause is, other than noting that it makes the composite a unity and an F. Although in H.4 Aristotle had remarked that the final and the formal causes are often the same and in Z.17 had pointed to the final cause as the formal cause in the case of things that are (presumably including substances), he does not refer back to these remarks in H.6. Nor does he give an account of the actuality (*energeia*) or capacity (potentiality: *dunamis*) involved; still less does he show how the former is prior to the latter. If Aristotle is attempting to clarify the unity of the composite by introducing these terms, he needs to address these issues. One would expect this to be his project in *Metaphysics* Θ. Is it?

Aristotle's strategy in *Metaphysics* Θ appears relatively clear: he begins by examining a basic sense of 'capacity' (*dunamis)* and 'actuality' (*energeia*) in which the active power to produce a change in something else is called a 'capacity' (1045b34–1046a4) and the change it produces (an activity) is called 'an actuality' (*Metaph.* Θ.1–5). He then turns to talk about applications of these terms to further cases. We learn that the capacity to undergo a change can also be called a 'capacity' (1048a29) as can (*inter alia*) (a) the ability to think or see (1048a33; 1048b1f.) and (b) matter. The latter are describable as capacities by analogy. Thus, Aristotle notes:

> matter stands to *ousia*
> as
> [the] capacity to produce a change stands to the corresponding change

He remarks, replacing talk of 'changes' with talk of 'processes':

> All things are not said to exist actually in the same way, but only by analogy . . . for the relation is either that of process (*kinēsis*) to capacity (*dunamis*) or substance (*ousia*) to some type of matter . . . (1048b8–9)

The questions raised in H.6 now seem pressing. Aristotle needs to say how matter (of a certain type) can be correctly described as regarded as 'a capacity', substance (*ousia*) as 'actuality' and the relation between them be described as analogous to that between the capacity for a process and the process itself. He also should set out the advantages of applying the terms 'capacity' and 'actuality' to the case of substance. He must do both if he is to provide a reflective understanding of his use of these terms in this context. My aim in this chapter is to examine how far and how successfully he achieves this goal in Θ.7 and parts of Θ.8.[4]

The line of interpretation just sketched remains controversial. One problem is this: in H.6 talk of capacity (*dunamis*) and actuality (*energeia*) was, as has just been suggested, introduced to illuminate the relation between matter and form in a composite substance. But in 1048b8–9 it might look as if Aristotle is using these terms to describe the relation between matter and the composite substance itself. For in Θ.6 the substance in question is, it appears, not the form but rather the composite: the finished substance, the statue of Hermes (1048b3f.). If so, it might look as if in Θ.6 the unity of the composite substance is simply taken for granted, not explained (as in H.6) in terms of actuality and capacity. Has Aristotle quietly given up in Θ.6–8 his attempt to articulate the unity of the composite substance in terms of its more basic components?

Reflection on the last point might support an alternative, non-explanatory, reading of Aristotle's strategy in H.6 and Θ.1–8. According to this view, the key notions of actuality and capacity are best seen as abstractions from a more basic notion of one unified substance. According to this alternative interpretation, the unity of the composite is taken for granted (as an actuality) and matter understood simply as what is potentially a unified composite.[5] There is, therefore, a challenge for those of us who favour the explanatory interpretation sketched above: to find in *Metaphysics* Θ.6–8 answers to the following questions:

1. What is meant by conceiving of matter as capacity (*dunamis*)? What are the advantages of so doing?
2. What is meant by conceiving of substance or form as actuality (*energeia*)? What are the advantages of so doing?
3. What is the basis for the analogy between capacities for change and capacities (or potentialities) for substances?

[4] These chapters raise many other fascinating issues which lie outside the scope of the present study. Some will be mentioned *en passant*, others simply ignored.

[5] Those who have favoured this interpretation include Wilfred Sellars: see Sellars, 1967, 73–124. I sketch their view in Charles 1994, 87–93. For further discussion of this issue, see Lewis 1994.

I shall examine what Θ.7 (and especially 1048b37–1049a18) and Θ.8 (especially 1050a4–b5) contribute to these issues. My proposal is that these sections contain answers to these three questions, ones which rest in large measure on Aristotle's interest in teleological explanation. I shall first offer a reading of parts of Θ.7 and (from p. 183) of certain lines in Θ.8. I shall then sketch (on pp. 183–97) Aristotle's answers to the questions just outlined, commenting on their significance for his account of matter and substance.

Metaphysics 1048b37–1049a12: the basic model

1048b36–1049a2: what question is being raised in this chapter?

We should determine when each thing is potentially [something] and when not. For it is not potentially something at any time whatsoever. For example: is earth potentially a man? Or not, but rather when it has already become the sperm or not even then perhaps. Just as not everything is capable of becoming healthy (whether through medical skill or by chance), but there is something which is capable of becoming healthy and this is what is potentially healthy.

Here is one way to understand this question:

(A) 'Under what conditions is A potentially B?'

(A) can be understood as the traditional question: 'what conditions are necessary and sufficient for A to be potentially B?'

Here is another:

(B) 'At what point/time is A potentially B'?

(B) can be understood as follows: in a sequence of a given kind, what is the first point at which it is true to say 'A is potentially B'? This will be the first point at which A is potentially B; before that it was not potentially B.

The differences between questions (A) and (B) are important. Here is an example of question (B):

At what point is something potentially an oak tree?

One answer to this question is:

When it is an acorn and can grow into an oak.

Before that stage there was nothing which was potentially an oak tree. Two points should be noted about this answer:

1. Possessing the qualities involved in being an acorn is not sufficient for the presence of the finished tree. The tree has yet to develop. The acorn may not get there.
2. In the process of becoming an oak tree, the acorn will grow, develop and change. Its original abilities and capacities will be refined, modified and

altered in the process of the growth of the tree. Although, throughout the process, the object will retain the capacity to be an oak tree, what is involved in having that capacity will change over time.

Several factors in *Metaphysics* Θ.7 suggest that Aristotle is seeking to answer question (B).

1. The immediate text contrasts the relevant time (or point) with others: some before the crucial time *(oupō*, 1049a17), some just after it (*ēdē*, 1049a15; see *Ph*. 222b7f.), anytime you like (1049a1). The original question is posed as follows: 'At what point in the following sequence is something potentially a man: earth, sperm, some later stage (1049a1–2)?' At some stages it is not then (*tote*, 1049a2) a man. What is being sought is the point in this temporal sequence at which it is true to say 'A is potentially a B' such that before then it is not true to say this.
2. Later, Aristotle focuses on the issue of where in an ascending series something is rightly called potentially a B (earth, wood . . . : 1049b19ff.). Here, too the question seems to be: 'At what point in the ascending series is something potentially a box such that before then it is not potentially a box?'
3. Conversely, Aristotle nowhere explicitly addresses the further issues required to answer question (A): (i) How long does A continue to be potentially a B? (ii) At what point does something cease to be potentially a B (when it is a B, on B's death, on B's decomposition)? For an answer to question (A) requires one to say what are continuity and exit conditions of the relevant potentiality.

If one takes Aristotle as answering question (A) in Θ.7, one might suggest that he offers an implicit answer to this question: A is potentially a B for just as long as it retains the potentiality to become a B. But he fails to offer any reason for taking the potential to be a B to be coterminous with the potential to become a B. Nor is it at all obvious that these two potentials can be coterminous. Consider the case of a fully formed (or ageing) human being: its matter is still, it seems, potentially a human being even though it is no longer capable of becoming a human being. At the very least, much would need to be said to argue the contrary and there is no sign of the required argument in *Metaphysics* Θ.7–8. Indeed, if we assume (in the light of Aristotle's remarks elsewhere) that what is actually a B is also potentially a B, it looks as if something can be potentially a B and lack the ability to become a B.[6] If so, it seems safest to take Aristotle as focusing in Θ.7 not on the full range of conditions under which something is potentially a B but

[6] For an alternative view, see Frede 1994, 188–93.

on the narrower issue of the first point at which something is potentially a B.

So what is Aristotle's answer to question (B)?

1049a5–12: the external cause

The dividing point (limit) in the case of what comes to be in actuality [*entelecheiai*] from what is potentially in production by practical thought is when it comes to be (actually) at the will of the agent without any hindrance from factors outside his (or her) will, and in this case (the one just mentioned) when nothing in the patient being healed hinders his (or her) being healed. Similarly, in the case of what is potentially a house. If nothing in it (i.e. in the matter) prevents it from becoming a house, and there is nothing which needs to be added or taken away or changed (for it to become a house), it is potentially a house. And the same account applies in all cases where the starting point of the process of coming to be is external (to the matter).

What is the point at which something is potentially a house? Aristotle is clear: the point at which nothing in the matter prevents its being turned into a house. All that is required is the decision (and subsequent actions) of the builder. But which point is this? Several possibilities have been canvassed.[7] I shall consider three: (1)–(3).

(1) The matter is potentially a house at that point at which it can be turned immediately into a house (and not before). Nothing needs to be added, taken away or changed for the house to be completed.

    But this suggestion is problematic: strictly understood, it would mean that something was only potentially a house when all the bricks except the last one had been put in place. It would only be at the very last step in the process of building that something was potentially a house. However, so understood, it would not be bricks and pieces of wood that are potentially a house but rather bricks and wood arranged *in a given way* (in the all but finished house). And this does not seem to be the way in which Aristotle conceives of his examples (see 1049a19ff. and the embryo case below).

(2) The matter is potentially a house at that point at which no further material change is required for it to be ready to be turned into a house by one activity of an art (house building/medicine) and not before.

[7] Several of these were discussed at a reading party on Θ.7 held at the European Cultural Centre in Delphi in 2002. I am indebted to those who participated in those discussions and to two major recent interpretations of this chapter (Gill 1989 and Frede 1994). I have not attempted to specify in detail where I agree or disagree with either Gill or Frede, still less to argue systematically for my interpretation as against theirs. My aim is only to offer an alternative reading of Θ.7.

The idea in (2) is that the matter is potentially a house at that point at which it could be handed over to the builder for him (or her) to make a house by the exercise of his (or her) skill as a builder (and not before).[8] The relevant exercise of the skill will be one which begins with bricks in a certain state and turns them into a house. Before there were bricks, another skill was needed (other than that of the builder) to produce matter on which the builder's skill could operate.

This proposal is problematic in two respects.

First, it seems to lack the generality required for Aristotle's purposes. For something can be potentially a B not only when it can be turned into a B by one act of an art but also when it can be turned into a B by some internal natural cause (1049a11ff.). Reference to skill is not wide-ranging enough for present purposes. Nor is it clear how it is to be generalized.

Second, it is difficult to see how talk of skill can provide the reflective understanding we require. For it immediately raises the following question: how are the operations of the relevant skill themselves to be individuated? Presumably, these are processes and as such individuated by their starting and finishing points (see *EN* 1174b5). The finishing point is the completed object. But what sets the starting point of the operation? What is it about bricks that make them (rather than cement) the appropriate starting point for the relevant skill of house building (let alone one operation of it)? Why is there one skill (let alone one operation of a skill) which takes one from bricks to a house? Why not take there to be one skill (or even one operation of that skill) which begins with cement (or cement mix and water) and ends up with houses? Perhaps one can find one craftsman who can do both. Why should we not say that he has just one skill: that of making earth into houses?

To address these two issues, one needs to see skill as a special case of some more general phenomenon and to explain why the starting points for operations of one skill are to be found at one point rather than another. We can address the first challenge as follows:

(3) The matter is potentially a house at that point at which no further material change is required in it for it to be ready to be turned into a house by an actuality-inducing agent and not before.

This proposal differs from the second in attempting to fix the lower boundary at which the relevant art is to begin by specifying the point at

[8] This suggestion requires that the matter in question could be handed over to the builder, not that it is actually handed over. Although the builder might be several hundred miles away waiting for the matter to arrive, the matter for the house would exist when it left the factory gates. I am indebted to Larry Jost for advice on this point.

which the matter is ready for the *actuality-inducing agent* to do its work: nothing need be added or taken away from the matter for it to be ready for the actuality-inducing agent to begin the process of turning it into the relevant actuality. Skill is an external, nature an internal actuality-inducing agent.

But what of the second question: what is to count as an actuality-inducing agent? Why does it, in the case in point, start its work with bricks rather than cement? A sentence in *Metaphysics* Θ.8 provides a clue:

> Further, the matter is potentially [an F] when it would proceed towards the form; when it is actually [an F] it is in the form [enformed]. (1050a15–16)

Something is potentially an F when it will (if all goes well) turn into an F.[9] I shall begin with an overview of the relevant context in Θ.8 and seek to provide a basic model of what is going on. I shall fill in some of the relevant background in Θ.8 below (pp. 183–7).

The sentence just quoted is part of a passage in which Aristotle argues for the priority in being of actuality (*energeia*) over capacity (*dunamis*) in composite substances (1050a4–b4). His argument (1050a7–23) is heavily dependent on teleological concepts: goal (*telos*, 1050a8, 17, 18, 21), that for the sake of which (*hou heneka*, 1050a7), in order to (*hina*, 1050a1–2). At the outset, Aristotle reasons as follows:

(1) In cases of coming to be, everything proceeds towards its goal (1050a7–8): premise
(2) [In these cases] the goal is the relevant actuality (*energeia*): (1050a9): premise
(3) In cases of coming to be, everything proceeds towards the relevant actuality (from (1) and (2))
(4) The relevant capacity (*dunamis*) is present for the sake of it: premise

and concludes

(5) The actuality (*energeia*) is prior to the capacity in being (1050a4).

(1) introduces the idea of the goal and a general teleological principle: in these cases (if all goes well) everything proceeds towards its goal. (4), it appears, extends the operation of the teleological cause back beyond the stages of the process to the capacity for the change. It too is present for the sake of the goal and will (if all goes well) assist in producing the goal.

Aristotle next gives a range of examples designed to support (4): we have sight in order that we may see; we possess the capacity to build in order

[9] For this reading see Burnyeat 1984, 142.

that we may build; we possess the capacity for theoretical activity in order that we can engage in such activity (1050a10–15). This teleological order is (in some way) taken to underwrite the final conclusion (5).[10]

In 1050a15–16 (quoted above), Aristotle is seeking to apply the line of thought he has just developed to the case of matter and composite substance.

The first claim:

> Again matter is potentially something when it will (if all goes well) proceed towards the form

is, it appears, an instance of premise (1) above, with 'matter' replacing 'everything' and 'form' replacing 'goal'. Aristotle certainly intends the form to be a goal. For he continues by identifying actuality (*energeia)* with the goal in the case of processes and of nature (1050a16–19). The object (or person) achieves the relevant goal when they are active in the appropriate way; for the goal is to be active in that way. He explains this as follows:

> For the result (in the case of action) is a goal and the actuality (*energeia*) is the result. (1050a21–2)[11]

The result (*ergon*) in cases of action can be either a finished product (e.g. an enformed statue) or the activity itself (such as flute playing).[12] From these claims it follow that the actuality in question is a goal. In some cases, the goal is the finished product (1050a25–7, 30–4), in others it is to be active in a given way (1050a23–5; 1050a34–b1).

[10] How to understand (5) and the associated claim of priority of actuality over potentiality? While an examination of this question lies outside the scope of the present study, I should note that I do not understand the claim to require that the relevant actuality can *exist* without its associated potentiality. The actuality may be prior *in being* to the potentiality in that it is what it is independently of the potentiality being what it is (although the converse is not true). This order of being is the basis for the order of definition. So understood, the line may be prior in being to the triangle (even if both are necessary existents). I am indebted at this point to many discussions with Michael Peramatzis; see Peramatzis 2008, 187ff.

[11] In cases involving matter, the form (being an F) is the goal both of the process of becoming an F (1050a8–10) and the potentiality to be an F: the form is the actuality (*energeia*) in question. Further, in this case the actuality (*energeia*) is an *entelecheia:* the completed or perfected result which is to be achieved as the goal in question (1050a21ff.). Aristotle notes that the term '*energeia*' is complex and can apply both to actions (such as using knowledge) and to the perfected state (e.g. of a statue: 1050a20). While in both cases the goal is an actuality (*energeia*), in the first it is an activity (in the case of (e.g.) seeing) and in the second the perfected state which results from the process of making a statue (or building a house). '*Energeia*' can refer both to actions and to the results of actions. I discuss the act/result ambiguity of '*energeia*' in Charles, 1986, 132–9.

[12] Both could be called 'works': art works (such as statues) and the work of the flute player (e.g. flute playing). For discussion of this ambiguity, see *EE* 1219a12–17. Given these considerations, '*ergon*', like '*energeia*', is act/result ambiguous.

Aristotle, it seems, is already committed (in 1050a15–16) to the following claims:

[A] The goal for matter is to be enformed.

[B] To be enformed is an actuality (*energeia*, in the sense of *entelecheia*).

From [A] and [B] he can infer:

[C] The goal for matter is an actuality (being enformed).

If so, he can redeploy the original argument (1050a5–15) in the case of matter and form as follows:

(1)* In cases involving matter, matter will proceed towards its goal (being enformed) (premise)

(2)* The goal is an actuality (premise)

(3)* In cases involving matter, matter proceeds towards its relevant actuality (from 1 and 2)

If he can secure as a further premise:

(4)* The relevant capacity (*dunamis*) is present for the sake of the goal,

he will be as well placed as before to conclude:

(5)* The actuality (*energeia*) is prior to the capacity in being (1050a4).[13]

Further, since in these cases the form is the relevant actuality (1050b2), Aristotle can also infer (after an interlude focusing on somewhat different points (1050a23–b2) that

(6) The form is prior to the capacity in being (1050b3ff.).

This discussion helps to fix more precisely the idea of an actuality-inducing agent. We can now see the importance of the term '*entelecheia*' in 1049a5–6: what is salient about skill is that it brings about a goal of this type, a perfected state, by thought. Skilled actions are explained by the goal which the agent seeks to achieve. So too is the presence of his (or her) capacity to build, since this too is acquired for the sake of this goal. In these cases, the goal in question teleologically explains both the actions that lead to it and the presence (and nature) of the required capacity. An actuality-inducing agent is an agent (i) whose actions (and capacities) are teleologically explained by the relevant goal in this way and (ii) who (if all goes well) achieves that goal.

I shall try to spell out this idea in more detail, using Aristotle's favoured example: house-building. The form of the house guides the action of the builder who turns the bricks into a house but it does not guide the actions of the craftsman who turns earth into bricks; for the actions of the builder are

[13] There remains a problem as to how (5)* follows from the premises: see also n. 10 above. It is left unaddressed here.

sensitive to the fact that the goal in question is a house. It is the presence of this goal that explains why he does some things and not others. His actions, beginning with the bricks, are intelligible only on the assumption that he is building a house (and nothing else). By contrast, the form of the house does not guide the actions of the craftsman who is turning earth into bricks; for his actions would have been just the same whether the final product was a house or (e.g.) a town wall. His actions are not made intelligible by the fact that a house is the final product. (And this would be so even if he was in fact aware that he was contributing to the building of a house; for even then his specific actions would have been made intelligible by the goal of building a house. He would have acted in just the same way had he been contributing to building a town wall!) Intelligibility by reference to the relevant goal is lost once one goes below the level of the bricks (in the case of house building). This is why the relevant skill (house building) begins with bricks and not with earth. And this will be so even if one man has, as it happens, both skills and can begin a set of operations with earth and end up with the finished house. For his actions will not be guided throughout in the favoured teleological way by the final goal of the house he builds.

On this understanding, the matter is potentially a house at that point at which no further material change is required for it to be ready for the form to be imposed by an agent (i) whose actions are intelligible in the way just specified by the relevant goal (the form) and (ii) who will (if all goes well) achieve the relevant goal. It will be in such a state when and only when that agent's subsequent actions can be explained (teleologically) by the fact that it is this form (and no other) that is being imposed. If so, the potentiality to be an F will extend back as far as do the actions of such an agent which are teleologically sensitive (in the way just sketched) to the fact that it is this form that is his (or her) goal. The potentiality to be an F is first found at the point at which the intelligible action of this agent commences.

Does this proposal have the necessary generality? Let us turn to the second case discussed in *Metaphysics* Θ.7: 1049a14–18.

THE BASIC MODEL EXTENDED: 1049A13–24

1049a13–18: the internal cause

In cases where there is an internal starting point of the coming to be, A is potentially a B when a B will come into being by itself. For example, the sperm is not yet potentially a man (for it needs be placed in something else and change); rather

something is potentially a man when it is the state in which it can be a man by virtue of a starting point which belongs to it.[14] The sperm needs another starting point to turn into a man in just the same way as earth is not yet potentially a statue (for when it changes it will be bronze).

In the case of an external starting point, the matter is potentially a house at that point at which no further material change in matter is required for the form to be imposed from outside (by an external agent) governed by the relevant teleological end (in the way just specified). If the analogy holds, in the case where the starting point is internal, A will be potentially a B at that point at which A is in the state required for the relevant form to be imposed from within (if nothing prevents) by the operation of a principle internal to A (governed by the relevant teleological end).

Let us spell out the details more fully. The sperm lacks the type of matter required for the operation of an internal principle whose actions are governed specifically by the goal of becoming a human being. It is not yet in a state ready for the relevant actuality-inducing agent to do its work. For it to be ready it has to change (1049a15). By contrast, the *embryo* will be potentially a human at just the stage at which no further material change is required for its development to be governed solely by a cause internal to it, one guided by the goal of developing into a human being. In this it is like the bronze on which the statue maker operates: nothing needs to be added to it to make it be in the state required for his actions to be governed solely by the goal of forming a statue. Indeed, Aristotle adds this example presumably to show what is common to the cases of internal and external change. Art and nature are both governed by similar teleological principles (1049a16–18).

The example of the sperm sharpens our understanding of Aristotle's claim. Its actions (and nature) can, no doubt, be explained teleologically by the goal of making a human being. However, it is not itself capable of being a human being since it is not in a state in which the relevant internal agent can operate on it so as to make it into a human being. What is important for something's status as matter is its being in a state on which the relevant actuality-inducing agent can operate. While the actions of the sperm may be sensitive to the goal to be produced, it is not what produces the finished product. The sperm needs to be changed before it is ready for the operation of the teleologically sensitive agent whose actions culminate

[14] Punctuating the Greek text with a colon, not a comma, after *metabalein* (1049a15) to allow Aristotle to distinguish between sperm and embryo.

(if all goes well) in the relevant goal. For this reason the sperm is not the matter of the human being.[15]

There is another aspect of this example which requires comment: the embryo, when not separate from the mother, has the nutritive soul only potentially (*GA* 736b13ff.). As such, it is potentially but not yet actually a human being (as the wood is potentially but not yet actually a house). Similarly, the *embryo* is potentially a human body and so potentially something which is necessarily alive in the ways a human is but not yet itself alive in the way a human is. Of course, for Aristotle, the human body, once formed, is both potentially and actually alive as a human (*de An.* 412a20f.). Indeed, it seems that a human body is necessarily alive as a human. If so, there are two separable ways of being potentially a human. The *embryo* is potentially but not yet actually alive as a human being while the human body is both potentially and actually alive as a human being. In the latter case, the matter is actually an F: something which is enformed by F (1050a15f.). While both body and *embryo* can be described as potentially a human being (and as the matter for a human being), the ways in which they are so differ. Indeed, the *embryo* offers an example of something which is potentially (alive as) a human being but not yet actually (alive as) a human being. Something can first be potentially a B when it is capable of being turned into a B in a given way and later be potentially a B when it has in fact been turned into a B.

To make the last point quite specific: in varying stages of development, there will be something which is capable of being a man in that it is capable of being organized by the form of a man. Something will be capable of being a man if either (a) it is in state ready for the operation of an agent specifically sensitive to this goal or (b) it is in a state which is currently

[15] At what point does the *katamēnia* itself have the potentiality to be a human? Is it only when it has been fertilized or before? The issue presumably is this: is the *katamēnia* ready for the internal principle to operate before it is fertilized or only when it has been fertilized? Aristotle is not clear on this point here. There are two possibilities. First, if one focuses on the analogy with bricks and the builder, the *katamēnia* (prior to fertilization) will be in a state ready for the internal principle to operate. It is ready for the internal agent to do its work. Alternatively, one might take it to be required not only that the *katamēnia* be ready for the internal principle to operate but also that the internal agent be present and actually operating. In which case, the unfertilized *katamēnia* would not yet be potentially a human. Which is correct? In the present context, one might translate 1049a15–16 as saying it is only when it is in a state in which it can be operated on by the relevant internal principle that it is potentially an F (in line with the first alternative), or as saying it is only when it is being operated on by the relevant internal principle that it is potentially an F (in line with the second).

It may well be that Aristotle is not (at this point) concerned to adjudicate between these two possibilities. This said, Aristotle's analogy with the case of the bricks and the builder seems to favour the first alternative: the bricks are potentially a house not only in the presence of the actual builder but also when they are (e.g.) on the way to the building site.

organized so as to realize that goal. In the first case it will only be potentially a man; in the latter it will also be actually a man. The matter of a man is what is capable of being a man in either of these ways. There can be considerable changes in what constitutes the matter in question provided that throughout these changes it is capable (in one of these ways) of being a man. In the later stages of the story, the matter of the human will be his (or her) body. In the earlier, the matter will be the *embryo* capable of developing into a man under the operation of the relevant internal agent. Both of these will be what is potentially a man (*to dunamei F*) provided that both (in their differing ways) possess the potentiality (or capacity) to be a man.[16]

1049a18–24: more of the same?

It seems that when we describe something not as a this but by the '. . . *en*' locution (as we call a box not wood but wooden and wood not earth but earthen and similarly with earth if in a similar way it is not a this but describable with the '. . . *en*' locution), that [which we use to call something else '. . . *en* . . . '] is always, without qualification, potentially the next thing up in the series. For example, the box is not earthy nor earth but wooden. For wood is potentially a box and the matter of a box . . . wood in general of box in general and this wood of this box.

This section follows the pattern of thought in the preceding sections. Aristotle remarks that we call something (e.g. a box) 'wooden' when the latter (the wood) is potentially the former. It is natural to interpret this in the light of his remarks earlier in the chapter as follows:

> The wood is potentially a box at that point at which no further material change is required for the form to be imposed by an external agent (i) whose actions are intelligible in the way just specified by the relevant goal (the form) and (ii) will (if all goes well) produce the finished product.

By contrast, earth is not potentially a box since further material change is required for the form to be imposed by the external agent whose actions are intelligible only in the light of the goal of the finished product: the box. The nature of the transition from earth to wood is not itself sensitive to

[16] On this understanding, the matter of a human being can exist (and be conceived as existing) other than in an enformed human body. For it can pre-exist the formation of such a body. This is consistent with accepting that the body of a human being cannot exist (or be conceived of existing) except as in an enformed human body. For the matter of a human being can pre-exist the formation of the body in question. This point is relevant to one aspect of a famous puzzle raised by Ackrill 1972/3.

the fact that it is a box rather than (e.g.) a table which is being produced. In this way, Aristotle has principled grounds for blocking the following inference:

> A [earth] is potentially B [wood], B [wood] is potentially C [a box] so A [wood] is potentially C [a box].

For while A is intelligibly connected (in the way specified) with B and B is also intelligibly connected with C, A is not intelligibly connected in the required way with C. Once one gets below the level of B, the transitions that occur to generate B are no longer intelligible on the basis of what is required for *a box* to exist. Rather, they are intelligible in terms of what is required for wood to exist. There is no single thread of intelligibility which leads from the top level to the bottom.

The direction of intelligibility is important: what is to count as the matter of the box is determined in terms of what has to be present if the form is to be imposed in the teleologically based way just specified. Thus, for example, what it is to be the relevant matter of the box is determined by what is required for the form to be imposed by the relevant agent in the way just specified. There is no way of specifying what the matter is except in these terms. If one tries to do so, one loses one's understanding of why this matter has to be present if the box is to exist. The relation is asymmetric: given the presence of the wood one cannot specify which form will be realized (as the wood has many potentialities). One could, of course, specify which form will be realized if one adds reference to the actions of a carpenter who aims to transform the wood into a box. But this will only be because he is guided in his actions by the relevant form (of a box).

There are several further points to make about this passage:

1. The wood (this wood) is undetermined (1049b1) only in the sense that it has not as yet been made into the (new) determinate box by the imposition of the form of the box. At this stage the wood has several potentialities (to be a box, to be a table, etc.), and it is only when the form of the box is imposed that it is determined which of its potentialities will be realized. In this way, the form of the box acts as a determinant selecting which of the potentialities of the wood is realized in forming a new determinate object: the box.
2. If wood is that from which a box is formed and is also potentially a box, there is no difficulty here in allowing that the matter from which something is formed persists in the composite. It persists in that one of its potentialities is exercised. For the introduction of talk of matter as the potentiality to be a B (understood as above) allows matter to be both

that from which the box is formed and to persist in the box. For at both stages its potentiality to be a box is present.

3. On this understanding, the analogy with the universal is precise but limited: neither (this) wood nor whiteness is yet the determinate thing in question (this box: this white object). Both require a determinant to make the determinate object in question.[17] There is no requirement that the wood in the wooden object itself becomes indefinite having originally being something definite (this wood).[18] All that is needed is that one of its potentialities persists and is actualized in the box. It does not follow from this that matter is like a universal in any further way: being indefinite while in the new composite, and so forth etc. And this may prove a benefit: the presence of one persisting potentiality is just what is required to allow for the new composite not to be a *de novo* replacement of the original matter but something in which that matter persists.

SOME SECTIONS OF Θ.8 AND THE BASIS FOR THE ANALOGY BETWEEN PROCESSES AND SUBSTANCES

It might reasonably be objected, at this point, that more needs to be said in favour of the teleological understanding of the notion of matter in Θ.7 just sketched. My interpretation has rested on (i) giving the term '*entelecheia*' in 1049a5–6 a teleological gloss (what has the goal in it) and (ii) pointing to some teleological material in Θ.8 to account for one use of matter as potentially a B. But, it will be said, I need to show first that the teleological material in Θ.8 is important for that chapter and, second, that it is at work in Θ.7 (or before). I shall seek to address these concerns in the next two subsections.

Teleology in Θ.8

In *Metaphysics* Θ.8, as noted above, Aristotle commits himself to the following claims concerning the case of matter and form:

[A] The goal for matter is to be enformed.

[B] To be enformed is an actuality *(energeia)* (1050a15–16).

From [A] and [B] he can infer:

[C] The goal for matter is an actuality (being enformed).

[17] At the bottom of the series, fire is not a determinate object at all but just stuff, since it is not itself made determinate by a determinant: 1049a24–6.

[18] For a contrasting view, see Gill 1989, 158ff.

[C] is an instance of a more general claim:

[C]* The goal for matter and for processes is an actuality (see 1050a9).

Aristotle tends to reify talk of actuality and form in this passage and permit himself to draw the further conclusion that

[D] the form is an actuality (1050b2–3)

and finally that

[E] the actuality is prior in being to the capacity (1050b3–4).

Teleology has a pervasive role in this part of the chapter. I shall give three examples.

1. The reason why actuality is prior *in being* to capacity is that the presence and nature of the potentiality is teleologically explained by the goal in question (1050a9–19). We acquire (or possess) the relevant capacity in order to engage in the associated actuality. Introducing talk of teleology gives Aristotle a reason for taking actualities as prior in being (and not merely in account) to capacities. Teleology gives a real world basis for this claim. While more needs to be said about this, teleological concerns are central (it seems) for a proper understanding of claim [E].
2. Aristotle relies on teleological concerns when his comparison between processes and substances comes under pressure. After he has separated the activity of house building from the final product (the *entelecheia*: the house), he is faced with a problem. It appears that the goal is the house, not the process of house building. Aristotle, however, still wishes to maintain that house building (the activity, not the perfected state) is prior to (and more a goal than) the potentiality (1050a28). Can he consistently do so?

His explicit answer runs as follows: house building is more a goal than the potentiality because it occurs in what is being built and 'comes to be and is together with (*hama*) the house' (1050a29). But why should these factors be relevant to the goal-status of the activity of house building?[19]

[19] Aristotle's claim that 'house building comes to be and is together with (*hama*) the house' (1050a29) may mean no more than that the house building occurs in the same place as the house. For this use of 'together with' see *Ph.* 226b22ff., where, as Ross correctly notes, two things are said to be 'together' (*hama*) if there is one place which contains nothing but the two. So understood, the train of thought in 1050a28–9 is as follows: since house building occurs in what is being built and what is being built is in the same place as its successor, the finished house, the house building occurs in the same place as the house. If so, there is no suggestion (in this passage) that the builder's activity of house building continues (in some way or other) after the house has been completed. Sarah Broadie, in Chapter 9 of this volume, seeks to make sense of the latter idea as she (i) takes the type of togetherness to be temporal and (ii) understands all temporal togetherness as requiring extended co-temporality. However, even if (i) were correct, it is not clear that 'temporal togetherness' always requires extended co-temporality. For example, when in *MA* 702a19–21 a resulting action is said to occur 'together (*hama*), that is quickly' and to be 'together so to speak with the act of thinking', Aristotle appears to

Teleology provides a clue. In a teleological account (i) the goal of the house explains why we engage in house building (to achieve that goal) while (ii) we acquire the capacity to house build in order to build houses (to do the activity which leads to that goal: 1050a11–12). Further, the goal (the house) explains why the activity is the way it is (in order to achieve that goal) and the nature of the latter activity explains why the capacity to build houses is the way it is: it is what is needed if one is to build houses in the way we do.[20] If so, the teleological chain of explanation begins with the house, comes first to the activity of house building and only then moves to the capacity for house building. The relevant teleological order of explanation runs as follows:

House [A]
House building [B]
Capacity for house building [C]

The status of being a goal spreads from A to B down the chain of teleological explanation. B is more a goal than C (1050a27f.) because B is closer than C to A in the order of teleological explanation. The 'togetherness' of [A] and [B] is evidence for their relative positions in the order of teleological explanation and can be invoked to support the claim that, while A is the goal, B is more goal-like than C.[21]

Consider a case of goal-directed practical reasoning. Evans's final goal is, let us imagine, to climb Everest [A]. To achieve this he sets himself a number of intermediate goals: climbing K2 [C] and climbing the South Col of Everest [B]. Although Evans climbs the South Col in order to climb Everest, climbing the South Col is still a goal for him. Indeed, it is more of a goal for him than climbing K2 because (i) it is spatially closer to his final goal and (ii) he climbed K2 in order to achieve this as his next goal. In this case, as in Aristotle's example, [A] is the goal and that [B] is more goal-like than [C] in the order of teleological explanation.

be thinking (only) of immediate temporal contiguity (when nothing intervenes). Further, when in *Cat.* 14b24–6, two things are said to be together (*hama*) when their coming to be (*genesis*) is at the same time, there is no requirement that they continue to exist for all the same times. If so, the house and the house building might come into existence at the same time (the house then, no doubt, at some low level of actuality) even though the house (once completed) goes on existing after (see *para*, 1050a30) the process of building has finished.

[20] Reference to the intermediate goal of house building is important. Remove it and retain just the goal (the completed house) and one fails to explain why the capacity is as it is. For reference to the way in which houses are built is needed to explain the nature of the relevant capacity. Further, one acquires the capacity to build in order to build (1051a12f.) not in order to have a completed house. (One could acquire a completed house without becoming a builder!)

[21] Consider a non-teleological analogy: in geometry, the point may be the basic starting point (*archē*) but the line can still be more of a starting point than the triangle. For an example of this type, see *Ph.* 2.9.200a19ff.

3. In Θ.8 teleology underwrites Aristotle's central comparison between matter and form and the capacity for change and change itself. In both cases: (i) the end product (or result) is a goal; and (ii) since the end product is an actuality, the resulting actuality is a goal. The goal-like status of the actuality in the two cases allows Aristotle to present both types of result as actualities even though they differ ontologically: in one case there is an activity (e.g. displaying knowledge: 1050a18), in the other a state (being a house/ being a statue). Their shared goal-like status entitles him to speak of both as actualities. Thus, he notes:

The result (in the case of action) is a goal, the actuality (*energeia*) is a result, and this is why the term '*energeia*' is predicated on the basis of what is the result (in the case of action) and extends to the perfected state (*entelecheia*).[22] (1050a21–3)

In this passage it seems that goal-like status of the results of actions and of perfected states entitles us to refer to both as '*energeiai*'. If so, teleological concerns ground the analogy between activities (the results of action) and perfected states.[23]

This point can be spelled out more fully. In the case of processes, the relevant capacity is defined as the capacity for a given type of process. What makes the process (type) the one it is is the goal (or result) that it achieves if all goes well (*Ph.* 202a25).[24] Since process-types are defined by their goal (or end point), the relevant capacity will be defined as the capacity to reach that end point. Here, the final cause (or goal) plays a role in defining both the nature of the process (to move towards that end point) and of the relevant capacity. In Aristotle's favoured example, house building is defined

[22] For a similar line of thought, see Θ.3.1047a30 where Aristotle notes that the name '*energeia*' is extended from a primary application to processes to refer (derivatively) to *entelecheiai* (that which has the goal in it: the perfected state). In 1050a21–3 he refines his earlier thought, noting that the term '*energeia*' is predicated of what is done in the case of action (either the action or the result of action) and together with this refers also to the perfected state. In this translation '*teinei eis*' can indicate 'refer to' (Pl. *Cra.* 439b10–c1) when words 'stretch to' objects. The prefix '*sun*' in '*sunteinei*' suggests (as in 1047a30) 'together with its basic reference'. The '*pros*' in '*pros tēn entelecheian*' may indicate the direction in which the term '*energeia*' is stretched when it refers to the perfected state. '*Teinei pros ti*', however, can mean 'come near to' or 'be like' (*Tht.* 169b; *R.* 584d). While I have followed Ross in using the first translation of '*sunteinei*,' an alternative would be to understand 1050a22–3 as follows: 'the term "*energeia*" comes to be like the term "*hē entelecheia*"'. Since the difference in sense between these two (acceptable) translations is not germane to my purposes, I shall not seek to adjudicate between them.

[23] The translation of '*energeia*' remains controversial. While I have used the term 'actuality' simply as a stand in for '*energeia*' in this essay, it seems important to capture the idea of something's being '*en . . . ergoi*' (literally 'being in or at work'). If so, the basic sense should (perhaps) be tied to activity but the term can extend to the product (work as in artwork).

[24] On this issue, see Charles 1984, 23ff.

as the process it is by its goal (a house) and the relevant capacity is defined as the potentiality to achieve this goal by building a house.

If substance is understood on a similar model, there should be a goal which reveals both its nature (conceived of as its perfected state: *entelecheia*) and the relevant potentiality (or capacity: its matter). Here too both actuality and potentiality will be defined (directly or indirectly) in terms of the relevant goal. The form will be the perfected state of the organism and the matter will be that which achieves that goal (if all goes well). The final cause plays a role in defining both the form and the relevant potentiality. The matter of a man, to use Aristotle's favoured example, will be defined as the potentiality to achieve its goal (e.g. the perfected state of being rational in certain ways) which is used to characterize the form in question.[25]

Teleology and Θ.6–7

In Θ.6 Aristotle lists five cases which fall under his favoured actuality/capacity (or potentiality) terminology (1048a36ff.):

(1) Building : what is capable of being built with
(2) Being awake : being asleep
(3) Seeing : what is capable of seeing
(4) What is separated from matter : matter
(5) What is worked up : that which it is not yet worked up.

The Greek term 'actuality' ('*energeia*') can, it seems, apply in some way to all the terms on the left of the colon and 'capacity' ('*dunamis*') to those on the right. But what is offered in Θ.7 and 8 (on the present account) is a philosophical explanation of why this is so: the terms on the left of the colon are (i) the goals of what is specified on the right and (ii) what enable us to define the relevant potentiality on the right. Indeed, this account offers a way of establishing the unity of Θ.6–8: the first chapter points to an analogous use of the terms 'actuality' and 'capacity' in a variety of contexts while Θ.7–8 provide an explanation of this based on the presence in (1)–(5) of a similar teleological structure.

Consider Aristotle's examples (3)–(5). The case of seeing is reintroduced in Θ.8 both as what explains why we have the relevant capacity (1050a10ff.) and as what defines that capacity (1049b20ff.). Similarly with the case of what is worked up from matter and the unworked matter from which it comes (1050a19ff., see 1049b27ff.). More generally, in Θ.8, matter is

[25] This formulation is intended to be neutral on the issue of the precise relative priority of goal and actuality. On this latter issue, see Gotthelf 1989; and Charles 1991, 108ff.

understood in terms of what will lead to the relevant product (the goal) if all goes well (1050a15ff.). This is taken to be true of cases involving external agency, such as the Hermes (1050a20) which is mentioned earlier in Θ.6 (1048a32) and internal agency (nature: 1050a19). In this way Aristotle can address the issues raised by examples (1), (4) and (5).

Case (1) is discussed as the first example in Θ.7 where the buildable is what is potentially a house. As I suggested above, what is capable of being built with (and the matter for a house more generally) is to be defined in terms of the art of building: it is the matter which is required for building to occur in the way which is intelligible given the goals of house building, and so on. Here, too, the term on the left of the colon is used to define the one on the right by noting the goal to be achieved by the builder. It is the latter which defines the art of building, the capacity to build and what is capable of being built with. But, that said, Aristotle struggles to show how building can be a goal even when the final goal is the house built (1050a23ff.). He needs this claim to sustain the comparative goal-like status of the term on the left over that on the right in this case also.

Aristotle does not return to case (2) in what follows, but elsewhere sleeping is taken as a case of having but not using certain capacities. If so, one can define sleeping as the state in which one is capable of achieving certain goals, the goals which define the activities in question. Further, as in the case of knowledge, Aristotle may intend us to think that being awake is the goal (1050a20–1) and that sleep is acquired (like the capacity to know) for the sake of this goal (see also 1050a9–14). He certainly sees sleep in this way elsewhere (*Somn. Vig.* 455b22ff.: 'the goal [of sleep] is being awake').

Only one example given in Θ.6 does not fit into this structure:

(6) The whole line: the half line when it has been cut away (1048a33).

This example does not re-emerge in Θ.7–8, perhaps because the teleological account developed there does not readily apply to it. It may be that Aristotle thought that if he had provided an account of matter in teleological terms, the case of the half line (the matter of the whole) could be understood by analogy. Or it may simply be that he focuses in the remainder of Θ.6–8 on the basic case of substance, where the formal and final goal are the same, leaving other types of example (where the explanation is not teleological) for discussion elsewhere.[26]

[26] In the case of the line, the line may be prior to the half line in the favoured mathematical order of explanation: see n. 21. Similar cases are discussed in (e.g.) *APo.* 2.11.94a25–35.

BEING AND BECOMING: THE ANALOGY BETWEEN PROCESSES AND SUBSTANCES CONTINUED

Being and becoming

If (as is argued above, pp. 171–3) Aristotle is addressing only question (B) in Θ.7, he will not be offering an account of the conditions necessary and sufficient for something's being potentially a B. More specifically, he will not be claiming in this passage that (for instance) it is a necessary and sufficient condition for something's being potentially a B that it retains the ability to become a B. If so, he can accept, as seems plausible, that in the case of (e.g.) a human, there can be stages in its development (e.g. when fully mature or aged) when it is still potentially a human but has lost its ability to become a human.

Indeed, Aristotle will not even be committed in Θ.7 to the weaker claim that the potentiality (or capacity) to be a B must include (at some point) the potentiality to become a B. For question (B) can be answered by pointing to a time at which A becomes potentially a B: by saying at what point A has the potential to become a B (of the type specified). While this may be the best way to mark out the point at which A is first potentially a B, it does not require that Aristotle understands the potentiality to become a B as part of the potentiality to be a B. For the latter potentiality may be more basic, not itself (even partly) defined in terms of the potentiality to become a B.

The latter possibility can be made more definite as follows: A may (first) be potentially healthy only when A is capable of being cured even though the latter capacity is not any part of what it is to be potentially healthy. So, for example, A's capacity to be cured may be a result of his more basic capacity to be healthy: his being in a state fit to receive health. What makes A capable of being cured is precisely his being potentially healthy. Indeed, this is a natural way to understand 1049a4–5:

> There is something which is capable of being cured and this is that which is potentially healthy.

On this view, the notion of being potentially a B is basic: the idea of A being in a state defined as fit for the relevant form of B. In some cases, A is in this state and is actually a B. But in others, when A is potentially but not actually a B, A has the capacity to become a B. But its having the latter capacity is a result of its having the potentiality to be a B. So understood, having the capacity to become a B (in the way specified) *is*

good evidence that A is potentially B (in cases where A is not actually B). Indeed, one will acquire the ability to be a B first at the point at which one acquires the ability to become a B. But, even so, having the capacity to become a B need not be a constitutive part of what it is to be potentially a B.[27]

One will be attracted to the view just sketched if one thinks that the actualization of the capacity to become a B is *becoming* a B and not being a B, while the actualization of the capacity to be a B is *being* a B. For if capacities are defined in terms of their actualizations, these two capacities (or potentialities) will be different (even if, at certain stages in development, possession of one potentiality requires possession of the other). Thus, on one view, when A is potentially but not actually a B, A will have the potential to become a B.[28] (Acceptance of this latter point is not required for the present proposal.)

If the general view just introduced is correct, the potentiality to be a B can be present from the point at which A is capable of being turned into a B and persist through the period in which it is actually a B. So understood, there will be one account of the matter of B (as what is capable of being a B) which applies both to what is present before B comes to be and what is found when B actually exists. There is no need to see Aristotle as operating with two quite different notions of matter: the matter for becoming a B and the matter present when there is actually a B. Nor need one represent him as being committed in Θ to the project of accounting for the nature of either capacity (e.g. the capacity to be a B) in terms of the other (e.g. the capacity to become a B). If elsewhere he was attracted to the ambitious project of accounting for the latter capacity in terms of the former, this was the result of further theses he held, independent of his concerns in Θ.6–8.

The role of the analogy in the structure of Metaphysics *H and Θ*

If the account presented above is correct (in general terms), *Metaphysics* Θ will carry further the project of *Metaphysics* H.6 by showing how, in the case of substances, the relevant formal cause is identical with the final cause. For the actuality is the final cause and it is this which makes the potentiality the one it is. The potentiality is defined in terms of the goal it

[27] One way to make this possibility vivid would run as follows: one might take as the starting point of one's account the capacity to be a B and define the capacity to become a B as the *energeia* of the capacity to be a B at any stage at which the thing in question is not yet actually a B.

[28] For further discussion of this issue, see Charles 1984, 18ff.

will produce (if all goes well) and is what is required (teleologically) if that goal is to be achieved. Indeed, Aristotle, in introducing talk of actuality and potentiality, provided a way of conceptualizing matter and form so as to make his teleological commitments perspicuous and explicit (in the central case of substance).

On this account, when Aristotle remarked in Θ.6:

> All things are not said to exist actually in the same way, but only by analogy . . . for the relation is either that of process to potentiality or substance to some type of matter . . . (1048b8–9)

he was relying on an analogy between

the capacity for a process : the process itself
matter : substance

which he sought to underwrite through the teleologically based story told in Θ.7 and 8. Far from being the disappointing end to a failed attempt at explanation, this remark sets the target for the explanatory project undertaken in the next two chapters. When it is completed, the claim in H.6 (with which we began) will have been secured:

> What then is the cause of what is potentially F being actually F in the case of things that come to be over and above the efficient cause? For, nothing other is the cause of what is potentially a sphere being actually a sphere; rather this [i.e. the cause] is what it is to be for each of them singly. (1045a30–3)

For there will be one cause which makes the potentiality and actuality one: the formal cause (being an F) which is itself to be identified with the final cause. For this is (i) what the actuality is and (ii) what explains and defines the nature of the relevant potentiality.

In the course of Θ.7–8, Aristotle shows how the term '*ousia*' ('substance') in 1048b9 is to be understood. The relevant type of substance is identified with the form itself and not the composite (1050b2: 'the substance in the sense of the form'). Nor should this surprise us since in H.6 (1045a30ff.) talk of actuality (*energeia*) was taken as a replacement for talk of form and in Θ.8 (1050a16ff.) Aristotle regards the form as the relevant goal for the matter. In Θ.6 he is entitled to speak somewhat loosely of '*ousia*' ahead of the further clarification of this term given through his teleologically based account of its role in Θ.8. For there he wishes to argue for the priority of actuality over potentiality in a way consistent with his earlier comments on the priority of form (see, for example, *Metaph.* Z.10.1035a11ff.).

WHY REPRESENT MATTER AS POTENTIALITY AND FORM AS ACTUALITY?

There are several important consequences of presenting the matter of B as the potentiality to be a B. I shall mention four.

[A] *Continuity of matter liberalised (1)*: what is required for matter to persist in a new composite substance is just that no change or addition occurs which undermines the relevant potentiality to be a B. The matter of B (*to dunamei B*) will persist as long as the potentiality to be a B is preserved. The matter of B can change considerably throughout this period. It can persist without there being one quantity (one amount) of matter which persists throughout the generation and continued existence of the B in question, provided that no change, addition or subtraction undermines the relevant potentiality to be a B. However, that said, one does not need to go to the opposite extreme, thinking that, since the same matter does not have to remain unchanged in all respects throughout, it can be present in the new composite merely as something indefinite (or universal-like). This extreme, too, should be avoided. For if one is attracted to it, one cannot (easily) distinguish the case in which matter persists in the new compound from that in which a new entity comes into existence *de novo* with matter somewhat similar to the one it replaces.

[B] *Continuity of matter liberalised (2)*: what is required for the matter to persist in the case of a box is simply the persistence of the potentiality to be a box. In some cases, the actual wood may persist as what has this potentiality (e.g. as when placed as a door lintel). But in others, what is potentially a B may change in the process of formation and continuation of the composite (as in the case of the human mentioned above). At different stages in development, different types of matter can play the role of being potentially a B, provided that they all retain the relevant potentiality. Nothing is changed, added or taken away which removes that potentiality.[29]

This proposal allows the matter to be preserved even in cases where there is radical discontinuity. Thus, for example, in a thoroughgoing mixture, there need be no stable ingredients which pre-exist the mixture and persist throughout its existence. All that is required is that there is enough continuity in the matter for the same potentiality to persist. The mixture will be what is obtained when elements A and D mix (in a given ratio) to form a new matter capable of (1) sustaining some of the potentialities

[29] I am indebted to Dory Scaltsas for advice on this point.

of A and/or D (e.g. to heat/melt) and (2) returning to A and D on its dissolution. In such cases, one may not be able to state in general or informative terms what amount of continuity in the matter is required save in the tried and trusted formula: enough to sustain the relevant potentiality. If that potentiality is present both before and when the mixture is created, there will be the required continuity in the matter (what is potentially a B) without there being the same material stuff that persists throughout the process. Indeed, different types of material stuff can be at varying times the matter of a B. So understood, Aristotle's notion of the matter of a B is more abstract than might have originally been assumed.[30]

[C] *Essential unity of the composite confirmed:* thinking of matter as potentiality to be a B allows Aristotle to maintain the essential unity of the composite substance: it is what is found when the potentiality in question is actualized. Indeed, it seems essential to this matter's being the matter it is that it is what is actualized in this way in certain conditions. The matter cannot be properly defined except in terms of potentiality to be so enformed. This prevents the new composite from being a merely accidental unity in which matter (specified independently of its connection with form) happens at a time to play a given role: like Jones who is at some time given the rank of Regimental Sergeant Major.[31] Part of what it is to be this matter is to have the potential to be enformed in the relevant way: to be potentially a B (*to dunamei on*). The matter in question is intelligibly connected with the enformed composite in question (in virtue of the latter's connections with its form). The composite is not an accidental unity since matter and form (once conceptualized in this way) are essentially connected.

Indeed, this pattern will be reduplicated at all the stages in Aristotle's hierarchy where there is a combination of matter and form. Take the Θ.7 cases of box, wood and earth. Just as the matter of the box, is intelligibly connected with the form of the box, so too will the matter of the wood be intelligibly connected with its form – something will be the matter of wood provided that it has the potentiality to be wood (either when it is able to be made into wood by an actuality-inducing agent or when that potentiality is realized in actual wood). So too with the matter of earth

[30] I have argued for a similarly abstract view of prime matter in *On Generation and Corruption* in Charles 2004, 151–69.

[31] For a contrasting view, see the functionalist account of the realization of a mental description by a physical state.

if this too is made up by the imposition of a form on what is potentially earth. Each of these complex objects will be essential unities.[32]

[D] *Unity of definition sustained*: conceptualizing matter as potentiality and form as actuality allows Aristotle to underwrite the unity of definition of the composite in the following way: the actuality (given that it is the goal) explains why the matter (conceived as potentiality) is as it is by explaining both its presence and determining its nature (as both are required for that goal). In this way, the relevant goal both explains and defines the nature of the matter in the composite. If this is correct, the conceptual apparatus of actuality and potentiality (introduced in *Metaphysics* Θ) provides Aristotle with what he needs to provide an answer to questions such as 'What is man?' which at the same time explains why man's matter is the way it is. The formal cause is to be identified in this case with the final cause (as predicted in *Metaph.* Z.17.1041a32f., b4–9). The actuality is the one central feature (in this case) which makes man be the way he is (by teleologically explaining the presence and nature of his material being).[33]

INTELLIGIBILITY AND THE ROLE OF MATTER

Intelligibility and Aristotle's metaphysical proposals

The four points in the last section have a common source: the matter of a composite is what it is because it is teleologically required for the goal expressed in the actuality. This understanding of the matter allows for considerable flexibility in what constitutes the matter of the composite (see [A] and [B]) while making the unity of the composite fully intelligible in the ways captured in [C] and [D]. From this perspective the nature and unity of the composite becomes intelligible and perspicuous. One can see why its matter is as it is and why, given that its matter is understood in this way, the compound of matter and form is non-accidental (and captured in a properly unified definition). The nature of the matter and the composite are clear to us once we follow Aristotle's advice and see them as teleologically explained and defined by the presence of the relevant goal-laden actuality. In its light we can see why matter and composite are as they are (when all goes well).

[32] Fire, at the bottom level, will not be a unity of this type since it does not require an actuality-inducing agent to be what it is. The issue of what type of phenomenon fire is lies outside the scope of this study.

[33] So understood, the actuality is the basis for a definition of man given in a style which stems from Aristotle's views of definition in the *Posterior Analytics*. For more details, see Charles 2000, chapters 8–11.

The type of intelligibility which Aristotle seeks is distinctive. It cannot be secured simply by setting out an efficient causal story of what happens (in this case), still less by specifying the materials required for the composite in teleology-free terms. For both these routes would fail to explain why the organism has to be made up or brought about in the way it is. To meet this latter requirement Aristotle introduces the idea of a goal which simultaneously defines the nature of the organism and explains why it is the way it is. As in *Posterior Analytics* 2.2 (90a14–15) there is one feature which answers both the definitional (what is it?) and the explanatory question (why is it the way it is?). If one grasps this, the nature of the matter and the composite will be properly intelligible.

Aristotle's master-builder (or master mason: see *Metaph.* A.1.981a30ff.) exemplifies the kind of intelligibility sought. He (or she) knows why the house has to be built the way it is (given what the house is designed to do) and why it has to made up from some materials rather than others (if these goals are to be met). He (or she) also understands why in the finished house these materials have to be organized in the way they are. His (or her) type of understanding will not be available to one who knows only what steps have to be followed to construct a house or that a house will exist when certain pieces of wood and stone are organized in a given shape (characterized in a non-teleological fashion). For that person will not know why the house has to be organized in the way it is or why certain steps are required to build it. The master-builder's perspicuous understanding of these issues, by contrast, indicates the type of grasp the successful metaphysician will have of his subject matter.

Intelligibility and matter

It was acknowledged above (pp. 193–4) that it will not (in Aristotle's account) be possible to state what the relevant matter is (in the fully intelligible and general way required) without reference to the form in question. To this we might add a further point: it will not be possible to state intelligible and general principles of construction required to obtain the composite without reference to the form in question: they will be the ones required for this form to be present. These claims follow from the demand that it be intelligible why the relevant matter is present and why it is changed or altered in the way it is for its potential to be realized. One cannot state in a sufficiently general or perspicuous way why this matter is required or why it is acted on in the way it is without reference to the form

in question. And, for these reasons, one cannot state in sufficiently general or perspicuous terms what the matter in question is.[34]

The point just made is, however, fully consistent with the truth of a further claim: one can state (in particular cases or generally but in a less than fully perspicuous way) what changes will undermine the relevant potential and which will sustain it or allow it to develop. The latter changes are ones which will, for example, in particular cases, change the matter so that it degrades and loses its potential to be enformed. Equally, one could (in some particular case) begin with the capacity to be a house and investigate what features of the bricks are present when this capacity is present and what alterations would remove it (e.g. being melted). But such specifications of the matter would fail either to specify what types of matter in general have to be present for there to be a house (to unify the class) or to explain why it is just these types of matter that are needed. For one would lack the answer to these questions provided by reference to the teleological cause: it is the type of matter required for the goal in question. Remove that and one fails to make it fully intelligible why it is these types of matter (or changes in matter) that are present in a house. The limited and less than fully perspicuous explanations just mentioned will not concern the matter of a B (since that is conceptually connected with the potential to be a B) but rather the ingredients of that matter: the earth and water that compose blood (*Mete.* 389a19–22) rather than the blood thus composed (*PA* 2.4.650b14–21). For the matter (e.g. the blood) is what it is in virtue of its connection with the form in question.

The structure just outlined can apply even to the more radical case of mixture. Here, too, one may not be able to specify in general or perspicuous terms what the principles of mixing are except in terms such as those required for the relevant form. Nor need one be able to state in these terms what the ingredients of the new mixture are (let alone its *logos*) without reference to its form: the ones that are required for that form to be actualized. These points are, of course, important. But, as they stand, they are consistent with its being possible to state (in particular cases or in a less than fully perspicuous way) what changes will undermine the relevant potential or what is required to sustain it in terms which do not advert to its potentiality for form. Such specifications (in a non-form involving

[34] There is, nonetheless, more to the specification of the matter in question than the bare idea of its potentiality to be enformed. For Aristotle introduces the idea of matter as that in which no further changes or additions are required if the capacity is to be present (and the strictly correlative idea of there being changes or additions which will undermine that capacity and destroy the matter in question: 1049b10–11).

chemistry of mixture) would fail to make it intelligible to us why just such ingredients are required if the mixture is to exist. But nothing so far said rules this out. If it is to be ruled out, Aristotle would need to show that no chemistry of this type of mixture could be developed. It is doubtful whether he attempted to do that. But, more significantly, from the present perspective there was no need for him to do so. For such a chemistry would fail to give the kind of understanding of the phenomena which is only available from the downward perspective.

On this understanding, there need be no conflict between the form-involving 'top-down' approach to matter, which makes it fully perspicuous why the matter is as it is (in the ways indicated on pp. 193–4) and a 'bottom-up' account which begins with matter non-teleologically characterized and works in the direction of the form. For even if the latter account could be completed, it would not yield the fully perspicuous understanding we seek of the matter of the composite. At best, it would yield a set of conditions sufficient for the presence of blood. It could not tell us what blood is, why it needs the constituents it has or why they have to be organized as they are. The 'bottom-up' account would fail to specify the essential features of the matter of blood: those required for the relevant goal. It could only describe in non-essential terms what the matter in question is like: hot, wet, and so on.[35]

INTERIM CONCLUSIONS

In this chapter, I have tried to understand why Aristotle sought to conceptualize matter and form in terms of actuality and capacity (or potentiality) in parts of Θ.6–8. My suggestion is that he did so to capture the importance of teleology for a proper understanding of the required ontology. While I have not attempted to discuss the details of Aristotle's teleology, it provides the key to a proper understanding of these chapters of his *Metaphysics*. Or so I have argued.

[35] While it would take (at least) a further paper to assess how far Aristotle actually pursued the proposal just sketched, my aim here is a modest one: to show how the view of matter that is developed in *Metaphysics* Θ.6–8 is at least consistent with the possibility of such an upward 'material' story. While I began to sketch this type of account in Charles 1988, it needs to be developed further and in more detail.