



ARISTOTLE'S DEFINITION OF SOUL AND THE PROGRAMME OF THE *DE ANIMA*

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I

ARISTOTLE'S *De anima* is a very fashionable book. It is fashionable chiefly because Aristotle develops a doctrine of the soul, as the form or 'first actuality' of an organic natural body, which seems to offer a *via media* between materialism and dualism. On Aristotle's account, an animal's soul is something other than its body, indeed something of a different ontological type from the body, but the soul is not *independent* of the body, and no problem arises of how soul and body can be united into a substantial whole: 'there is no need to investigate whether the soul and the body are one, any more than the wax and the shape, or in general the matter of each thing and that of which it is the matter; for while "one" and "being" are said in many ways, the primary [sense] is actuality' (*De anima* 2. 1, 412^b6–9). Many twentieth-century philosophers have been looking for just such a *via media* between materialism and dualism, at least for the case of the human mind; and much scholarly attention has gone into asking whether Aristotle's view can be aligned with one of the modern alternatives, or whether it offers something preferable to any of the modern alternatives, or whether it is so bound up with a falsified Aristotelian science that it must regrettably be dismissed as no longer a live option.

It seems to me, however, that the idea of a *via media* between

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materialism and dualism distorts Aristotle's aims in defining the soul as the first actuality of an organic natural body, and makes it difficult to see the work that Aristotle actually intends the definition to do. Undeniably, Aristotle is in some sense proposing a *via media* when he says that 'the soul is neither a body nor without a body' (*De anima* 2. 2, 414^a19–20). But this is not a *via media* between dualism and materialism in the modern sense. A modern materialist says (eliminatively) that there is no soul and the animal is simply its body, or (reductively) that the soul is identical to the body, and the states of the soul are states of the body. But the 'materialist' view that Aristotle is opposing here is that the soul of an animal is *a body*, of fire or air or little round atoms, not identical with the animal's body but present in it, moving it and being moved by it. We might call this position a kind of materialist dualism.¹ So if Aristotle is steering a *via media* in this passage, it is between two kinds of dualism; the only position discussed in the *De anima* that is akin to modern materialism is the view that the soul is an attunement of the body, but Aristotle quickly dismisses this position in *De anima* 1 with the usual arguments from the *Phaedo*, and does not seem to be concerned to reply to it in *De anima* 2. And Aristotle does not usually represent Platonic dualism and materialist 'dualism' as opposite errors between which we must steer. Rather, he tries to show that they come to much the same thing. 'Democritus . . . says that the indivisible spheres are moved, since it is their nature never to rest, and that they move the whole body and drag it along with them . . . and Timaeus too physicizes [*φυσιολογεῖ*] that the soul moves the body in this same way, namely that by being moved itself it also moves the body, since it is interwoven with it' (*De anima* 1. 3, 406^b20–2, ^b26–8). Likewise, when Xenocrates says that the soul is a self-moving number, then, since numbers are composed of units, and since units that are moved must have position and so must be points, 'it follows that the animal is moved by the number in just the same way that we have said Democritus made it moved: for what difference does it make whether we say small spheres or big units, or more generally units in locomotion? For in either case it

¹ So Deborah Modrak: 'According to Aristotle, ancient dualism took several forms: one form was materialistic in that the separate psychical substance was identified with a material element; the other was dualist in the modern sense, i.e., the psychical substance was incorporeal. Aristotle is sharply critical of all two-substance views as well as materialist monism' (*Aristotle: The Power of Perception* (Chicago, 1987), 83 n. 1).

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is necessary that [the soul] moves the animal through these things' being moved' (*De anima* 1. 5, 409^b7–11; cf. 1. 4, 409^a6–15).

In these texts, and systematically in *De anima* 1, Aristotle is trying to reduce a Platonic or Academic theory of the soul to a materialist theory, and trying to show that the Platonists should reject this theory for the same reasons that they reject the materialist position. For Plato and Xenocrates, as for Democritus, the soul moves the body by first moving itself and then communicating its own motion to the body, and this explanation depends on the soul's being moved with the same kind of locomotion that the body is: the soul must be coextended or 'interwoven' with the body, and attached to it in such a way as to communicate locomotions to the body in voluntary motion and pick up locomotions from the body in sensation (cf. esp. *Tim.* 36 D 8–E 5, 37 A 5–B 8, 43 B 5–44 C 1; *Phileb.* 33 D 2–34 A 5). Aristotle takes these descriptions to show that the Platonists are conceiving the soul as body-like—that, although they formally deny that it is a body, they have no other model for conceiving its causality, and so fall back on descriptions which would in fact be appropriate only to bodies. The fundamental criticism of Democritus' theory that the soul moves the body by 'dragging it along' with its own motion is that 'the soul seems to move the animal, not in this way, but by choice and thinking [*νόησις*]' (*De anima* 1. 3, 406^b21–2, 24–5), recalling the *Phaedo's* critique (98 C 2–99 B 2) of Anaxagoras' explanation of why Socrates is sitting on this bench in prison. But the *Timaeus* is all too similar. Aristotle recognizes that the world-soul's circular motions of the Same and the Different are supposed to be activities of *νόησις* (cf. *De anima* 1. 3, 407^a2–6), but he thinks that Timaeus' description of these 'circuits of *νοῦς* in the heavens' (*Tim.* 47 B 7), one moving in the plane of the equator and seven in the plane of the ecliptic, all bearing the heavenly bodies along with them, in effect reduces this psychic motion to something corporeal, 'as if the locomotions of the heavens were the motions of the soul' (*De anima* 1. 3, 407^a1–2). In these passages of *De anima* 1 Aristotle's approach to the soul appears not as a *via media* between the Platonists and the physicists, but as an internal critique, by Platonist standards, of Plato and Xenocrates.

Guided by these clues from the critical *De anima* 1, I shall try to read Aristotle's positive treatment of soul beginning in *De anima* 2. 1—his definition of soul and his programme, implicit in

this definition, for studying the particular powers, activities, objects, and instruments of souls—as the result of such an internal critique of Platonic approaches to the soul. But to see what in Aristotle’s treatment of soul needs to be explained, and to see whether it can be explained in this way, we must first see where Aristotle’s approach is distinctive, that is, where it diverges from the background assumptions about the soul that Aristotle and his audience would originally have taken for granted; and so we must first see what these assumptions were. While it is always generally plausible, since Aristotle was Plato’s student, that views we find in Plato would be Aristotle’s starting-point for internal critique, we are on much firmer ground if we can find the Platonic views expressed in Aristotle himself, and then compare the *De anima* to see how it agrees and disagrees. And there are indeed many texts in Aristotle that, if taken at face value, express an interactionist dualism about soul and body. In some cases, we could without too much violence harmonize these texts with the theory of soul in *De anima* 2. 1 ff., by saying that Aristotle, in contexts where the soul’s ontological status and causal relations are not the main topic of enquiry, speaks with the vulgar, using terms which could be literally justified only on more exoteric theories of soul and not on Aristotle’s own views. However, there are texts that cannot be ‘saved’ in this way without violence, and I shall briefly mention some passages here which seem to require a developmental solution: Aristotle was at one point an interactionist dualist, and only later worked out the distinctive position of the *De anima*.² For my purposes here it is not actually all that important whether Aristotle, in these apparently dualist and interactionist texts, is expressing an opinion which he later modified, or whether he is speaking with the vulgar; either way, the texts would reflect the background default assumptions about the soul which Aristotle would be starting from and modifying in the *De anima*, and which he would also be trying to persuade his audience to modify. But there would be nothing surprising in Aristotle’s having been at one point an interactionist dualist, since almost everyone who had written about the soul before him had been such a ‘dualist’, whether of a materialist or anti-materialist variety.

The fragments of Aristotle’s lost works are best known in this

² I shall discuss these texts in detail in ‘The Origins of Aristotle’s Concept of *Ἐνέργεια*: *Ἐνέργεια* and *Κίνησις*’, in draft.

connection. The *Eudemus* argued for the soul's immortality and separability from the body, and, notoriously, the *Protrepticus* says that 'as they say the Etruscans torture their captives by binding corpses face to face with the living, attaching each part to the corresponding part, so too the soul seems to be stretched out and fastened to all the sensitive parts [i.e. sense-organs] of the body' (B 107 Düring). But there are also many texts in apparently early parts of the transmitted *Corpus Aristotelicum* that seem to maintain an interactionist dualism. In particular, Aristotle says in several places that in sensation or (sensory) pleasure the soul is moved by the body. Thus *Physics* 7. 2–3 says that 'sensation as an activity is a motion via the body, when the sense is affected in some way [ἡ αἴσθησις ἢ κατ' ἐνέργειαν κίνησις ἐστὶ διὰ τοῦ σώματος, πασχούσης τι τῆς αἰσθήσεως]' (7. 2, 244^b 11–12), and the *De somno*, repeating the same formula almost verbatim but spelling out that it is the *soul* that is moved, says that 'sensation in the sense of the activity is a motion of the soul via the body [ἡ λεγομένη αἴσθησις ὡς ἐνέργεια κίνησις τις διὰ τοῦ σώματος τῆς ψυχῆς ἐστὶ]' (454^a 8–10); *Magna moralia* 2. 7 says that pleasure is a motion of the soul, and *Physics* 7. 3, 247^a 6–19, specifies that in sensory pleasure the sensitive part of the soul is moved by the sensible things. In these texts the catchphrase *κίνησις διὰ τοῦ σώματος*, 'motion via the body', signals reference to, and acceptance of, the *Philebus–Timaeus* account of sensations as *κινήσεις διὰ τοῦ σώματος ἐπὶ τὴν ψυχὴν φερόμεναι* (*Tim.* 43 C 4–5, slightly rearranged), that is, as motions (whether locomotions or otherwise) that begin in the body and are communicated to the soul.³

When scholars have noticed these Aristotelian texts at all, they generally say that Aristotle is speaking loosely, and that he really means just that the soul acts (*ἐνεργεῖ*) on the occasion of something that happens in the body, not that the soul is moved by the body or that it is in motion at all. But, in the first place, this begs the question whether Aristotle, at the time when he wrote these texts, had the notion of an *ἐνέργεια* that is not a *κίνησις*; in at least some of the

³ For more Platonic texts elaborating this theory of sensation see *Phileb.* 33 D 2–34 A 5 and *Tim.* 43 B 5–44 C 1, and specifically on vision 45 C–D and on hearing 67 B (and cf. *Theaet.* 186 B 11–C 2). For the catchphrase *κίνησις διὰ τοῦ σώματος* see also the parallel *Rep.* 9, 584 C 4–5, account of pleasure (everything except *κίνησις*, mentioned earlier at 583 E 9–10), and also Arist. *Top.* 4. 5 on whether *αἴσθησις* is a *κίνησις διὰ τοῦ σώματος* (Aristotle rejects this here only on the ground that an *αἴσθησις* is a *ἕξις* and a *κίνησις* is an *ἐνέργεια*, so he would apparently accept it as an account of *ἢ αἴσθησις ἢ κατ' ἐνέργειαν*).

texts where he describes sensation or pleasure as a *κίνησις*, there are strong reasons to think that he did not have such a notion.⁴ Second, at least *Physics* 7. 2–3 just cannot be read as speaking ‘loosely’ in this way. Aristotle is taking extraordinary care here to be precise about what can properly be called a *κίνησις* and what cannot. In *Physics* 7. 2 he has argued that everything that is moved is ‘together with’ (i.e. immediately touched by) its proximate mover, whether the motion is a locomotion or an augmentation or diminution or an alteration. But in making his argument for the case of alteration he has assumed the premiss that ‘everything which is altered is altered by sensible things, and alteration occurs only in those things which are said to be affected [*πάσχειν*] *per se* by sensible things’ (7. 3, 245^b3–5), which 7. 3 argues for at length. To prove this thesis Aristotle goes exhaustively through all possible changes in the category of quality (e.g. the acquisition of a science or a virtue or vice), and argues either that the alteration is produced by a sensible thing, or that the change is not really a *κίνησις* (and so not an alteration). But Aristotle carefully avoids saying that the only things which are altered *are* sensible things: he maintains instead that there are alterations in the *two* kinds of things which are *per se* affected by sensible things, namely ‘in sensible things and in the sensitive part of the soul’ (248^a7–8). ‘Pleasures and pains are alterations of the sensitive [part of the soul]’ (247^a16–17), and Aristotle goes out of his way to assert that pleasures and pains and sensations, unlike the acquisition of sciences and virtues, are genuine *κινήσεις*, produced *by* sensible things (by the body, or by external sensible things or sensible qualities) but not *in* a sensible thing. *Physics* 7 thus asserts, not just that sensation is a *κίνησις* and alteration of the soul, but also that the soul is moved by the body, and also that the soul and its bodily mover are in spatial contact. These theses are all contradicted by the *De anima*, but Aristotle is, none the less, clearly and deliberately maintaining them in *Physics* 7.⁵

⁴ Especially *Protrepticus* B 80 and *MM* 2. 7; I shall give a detailed discussion in ‘The Origins of Aristotle’s Concept of *Ἐνέργεια*: *Ἐνέργεια* and *Κίνησις*’. It would not be surprising if Aristotle had started by assuming that all *ἐνέργεια* is *κίνησις*, since this had been the normal background assumption before his time and would continue to be so for centuries after (see n. 13 below). Everyone, including Aristotle, continues to assume that all *κίνησις* is *ἐνέργεια*; the only question is whether there are also other *ἐνέργεια* that are not *κινήσεις*.

⁵ Against R. Wardy, *The Chain of Change* (Cambridge, 1990), 222 n.: ‘But of course if in an un-Aristotelian spirit one distinguishes between soul and ensouled body, then it no longer makes any sense to say that the soul undergoes alteration. So

I realize that the developmentalist approach to Aristotle's psychology is often thought to have been discredited. Certainly Nuyens, and Ross following him, stated their developmentalist views in crude and unconvincing forms; but the quick dismissals of developmentalism that one sees these days are not convincing either. Nuyens and Ross contrast the 'instrumentalist' theory of soul that they see in (some parts of) the biological works and the *Parva naturalia*, according to which the soul is an immaterial substance using the body as its instrument, with the hylomorphic theory of soul present in the *De anima* (or rather, as Ross says, in *parts* of the *De anima*, for it is clearly stated only at 2. 1–4 and 2. 12); and they propose a chronological solution, supposing that the biological works and *Parva naturalia* are early, and that Aristotle comes to his mature hylomorphic theory of soul only in the *De anima*. More recent writers (Block, Lefèvre, Modrak, Nussbaum) point out that Aristotle describes the animal body and its parts as instruments of the soul in the *De anima* too (even at 2. 1–4, the core texts for hylomorphism); they rightly conclude that we should try to understand how hylomorphist and instrumentalist language can be compatible, and that the mere presence of instrumentalist language in a text does not show that Aristotle did not believe in hylomorphism when he wrote it. So they try to harmonize at least the *Parva naturalia* with the *De anima*, by saying that the texts that Nuyens and Ross had taken to express instrumentalist dualism are either just loose expressions or else are literally compatible with hylomorphism; and then, if nothing in the *Parva naturalia* contradicts hylomorphism outright, they propose to interpret these texts from the standpoint of the *De anima*. But I do not think this last step can be justified. While nothing in the *Parva naturalia* explicitly denies that the soul is the form of the body, the texts of the *De somno* and *Physics 7* describing sensations as *κινήσεις τῆς ψυχῆς διὰ τοῦ σώματος* do formally and flagrantly contradict another central doctrine of the *De*

if Aristotle does allow himself to say this, it must be because he is characteristically thinking in terms of an animate *σύνολον*, in which the individual *αἰσθήσεις/αἰσθητήρια* collectively are the sensitive part of the soul.' It is not un-Aristotelian even in the *De anima* to distinguish between the soul and the ensouled body, and *Physics 7* makes it perfectly clear that the sensitive soul, which is not a body or a sensible thing, undergoes alteration. I do not know why Wardy thinks that 'of course' such a soul could not undergo alteration; Plato certainly thought the soul could be moved by the body, and *Physics 7*, while criticizing the *Timaeus*' theory of soul on some points (notably in denying that *νόησις* is a circular motion in the intellectual soul—more on this below), remains close to it on others.

anima (that the soul is not moved, and specifically, not moved in sensation); and I do not understand how a form can be ‘moved’ by its matter (except *per accidens* because the composite is moved).⁶ Rather than forcing these texts to harmonize with the *De anima*—and rather than ignoring them or athetizing them—we should treat them as part of the background from which the *De anima* emerged. The right lesson to draw is that Aristotle never repudiated instrumentalism, and that we should see the hylomorphic theory of soul (which need not contradict instrumentalism, but does contradict the interactionist theory of sensation) as an immanent critique, of Plato and of Aristotle’s own early views, growing out of the difficulties of instrumentalist interactionism. In what follows I shall not dwell on Aristotle’s early views on the soul, or on the problems of dating different texts;⁷ rather, I want to use these background texts to bring out what is distinctive about the hylomorphist reform programme of the *De anima* and what may have motivated it.

I think it is wrong to locate the distinctive innovation of the *De anima* in a rejection of soul-body dualism. There is a legitimate sense in which the *De anima*’s theory of soul is non-dualist, but the different things that Aristotle says about the soul in different treatises do not neatly divide into dualist and anti-dualist (how exactly do you say ‘dualist’ in Greek?): there are many texts even in the *De anima* itself which if we were not looking over our shoulder at *De anima* 2. 1–4 we would probably call dualist, and I think Aristotle would be surprised to be told that he had been a dualist up to a certain point in his life and had then become an anti-dualist. However, the *De anima* differs sharply from earlier texts of Aristotle, as well as from the views of Aristotle’s predecessors

⁶ As far as I know, the scholars I have mentioned have never discussed the texts on the soul’s being moved. The only recent scholar I know who shows any awareness of these texts is Robert Heinaman, in ‘Aristotle and the Mind–Body Problem’, *Phronesis*, 37 (1990), 83–102, who briefly discusses some of the texts, pp. 86–7, and rightly concludes that Aristotle has changed his mind between these texts and the *De anima*.

⁷ In my view, these problems are largely intractable, because Aristotle kept revising earlier material. It is not so much that the *De somno* is early, as that there are some characteristically early views expressed in it that were not corrected on revision. (Cross-references are not much help in dating: if e.g. the *De sensu* refers back to a *De anima*, this need not be the version of the *De anima* that we have now.) Part of the special evidential value of *Physics* 7, the *Eudemian Ethics*, the *Protrepticus*, etc. is that these are texts that, for one or another reason, Aristotle stopped revising (because he replaced them with *Physics* 8 or the *Nicomachean Ethics*, because he had already sent it to Themison in Cyprus and it was too late to do anything about it).

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(and doubtless of his contemporaries, and of the vast majority of his successors), in denying that the soul is moved. The Aristotle of the *De anima* still thinks, like all other Greek philosophers,⁸ that the soul moves the body, but he is no longer an *inter*-actionist, since he denies that the body moves or acts upon the soul. Aristotle's denial that the soul is moved seems to have come in two stages. In *Physics* 7. 3, while saying that the sensitive part of soul can be moved, he is already rejecting the view of the *Timaeus* that thinking (*νόησις*) is a motion (specifically, a circular locomotion) of the soul. *Physics* 7. 3 argues that there is no coming-to-be [*γένεσις*] of knowledge [*ἐπιστήμη*], since on pain of an infinite regress there can be no coming-to-be of motion or of rest, and knowledge is a kind of being-at-rest:

The original acquisition of knowledge is neither coming-to-be nor alteration, since we are said to know and to understand [*φρονεῖν*] through thought [*διάνοια*] having come to rest and being still, and there is no coming-to-be of resting, nor indeed of any change, as has been said before. Furthermore, as when someone has passed from drunkenness or sleep or illness to their contraries, we do not say that he has come-to-be a knower again, although he was previously unable to use his knowledge, so neither when someone originally acquires the state [does he come-to-be a knower]. For it is through the soul's settling down from its congenital disturbance [*φυσικὴ παρασχῆ*]⁹ that he comes-to-be an understanding and knowing thing: this is why children can neither learn nor distinguish by means of the senses as [well as] adults can, since there is much disturbance and motion. But the soul settles down and is brought to rest, in some cases by nature itself, in others by other things, in either case when some things in the body are altered, as with use and activity, when someone becomes sober or awakens. (247^b9–248^a6)

This is very close to *Tim.* 43^a6–44^b7, but where the *Timaeus* says that in the infant the natural circular motions of soul are disturbed by sensory motions, Aristotle says that the sensory motions disturb what would otherwise be a *resting* condition. Thus Aristotle is already denying the Platonic *self*-motion of soul (and the description of *νόησις* as the soul's undisturbed self-motion), while accepting that the soul is moved via the body; and still in the *De anima* he says that 'one would rather say that the soul is moved by

⁸ Except Dicaearchus and perhaps Aristoxenus, and possibly earlier harmony theorists if there were any.

⁹ *φυσικὴ* here must mean not 'natural' but 'consequent on birth and nutrition'—seen as *not* natural to the soul.

the sensibles [sc. than by itself], if it is moved at all' (406^b10–11). The *De anima*, like *Physics* 7, argues that 'νόησις more resembles a stopping and ἐπί-στασις¹⁰ than a motion' (407^a32–3), and says that the more plausible ground for thinking that the soul is moved is that 'we [ordinarily] say that the soul feels pain and pleasure and daring and fear and is also angry and senses and considers [διανοεῖσθαι], and all of these seem to be motions' (408^b1–4).¹¹ But then Aristotle promptly proceeds to say—contradicting *Physics* 7, and going much further than *Physics* 7 in criticizing Plato—that even these sensations and passions are in fact not motions of the soul, and to sketch an alternative analysis of these activities. One main aim of *De anima* 1 is in fact to argue, against the consensus view of the earlier philosophers that Aristotle discusses, that 'it is impossible for motion to belong to [the soul]' (*De anima* 1. 3, 406^a2).¹²

¹⁰ Aristotle's point, here and in *Phys.* 7. 3, 247^b11, turns on the etymology of ἐπιστήμη and is taken from *Crat.* 437 A.

¹¹ The list seems partly taken from Plato's at *Laws* 10, 897 A 1–3: 'wishing, aiming, caring, deliberating, opining rightly and wrongly, feeling pleasure and pain and daring and fear, hating and loving'. Aristotle's inclusion of διανοεῖσθαι alongside the passions and sensations is initially surprising, and might seem to separate the doctrine Aristotle is here describing as plausible (although, as he goes on to say, false) from the doctrine of *Physics* 7 that passions and sensations are motions of soul and νόησις is not. But διανοεῖσθαι here is not supposed to mean the same as νοεῖν: half a Bekker-page down, at *De anima* 1. 4, 408^b24–7, Aristotle distinguishes sharply between τὸ νοεῖν καὶ τὸ θεωρεῖν, which are acts of something ἀπαθές (thus purely of some soul, not of soul and body together), and thus certainly not motions, from διανοεῖσθαι, an act not of this but of a composite, which at 408^b5–18 he has described as a motion. For why διανοεῖσθαι would be a motion and νοεῖν would not, relevant background is not only the *Republic*, where δίανοια is reasoning from a hypothesis, contrasted with ἐπιστήμη, direct grasp of a truth (7, 533 B–534^a; νόησις is here used for both activities), but especially *Theaet.* 189 E 4–190 A 7, where διανοεῖσθαι is the soul's dialogue with itself, which δόξα, i.e. making up your mind, puts a stop to. I would take διανοεῖσθαι in *De anima* 1. 4 to mean something like 'puzzling through a problem': it is thus the motion that νόησις, the successful insight resolving the problem, puts a stop to. This still seems unlike the sensations and passions in not being essentially involved with the body; but in fact *De anima* 1. 4, 408^b7–9, ^b13–15, and ^b25–7 say that διανοεῖσθαι too essentially involves the body: thus if a rational soul existed without a body, it would perceive immediately whatever it would be capable of perceiving.

¹² This point is rightly stressed by Charlotte Witt in her article 'Dialectic, Motion, and Perception: *De Anima*, Book I', in M. Nussbaum and A. Rorty (eds.), *Essays on Aristotle's De Anima* (Oxford, 1992), 169–83; it is also discussed by M. Tweedale, 'Aristotle's Motionless Soul', *Dialogue*, 29 (1990), 123–32, by Heinaman, 'Aristotle and the Mind–Body Problem', and otherwise by almost nobody. Many scholars have difficulty in recognizing this basic fact about *De anima* 1, and insist on reading as 'naturalistic' criticisms of soul–body dualism what are in fact 'anti-naturalistic' criticisms of the thesis that the soul is moved.

I shall come back shortly to Aristotle's grounds for thinking that the soul is not moved, and to his strategies for reinterpreting what are usually taken to be motions of the soul. But first it is worth recalling why the thesis that the soul is not moved was so far out of the mainstream of Greek philosophy. All philosophers before Aristotle, and most philosophers after him, assume that when X ἐνεργεῖ, when it is *doing* something, there must be some process going on in X , it must be moving or changing in some way; things that are incapable of motion, like numbers or Platonic Forms, are also incapable of acting or *doing* anything.¹³ Since the soul, when it thinks or senses, is doing something, it seems that the soul is moved. Furthermore, the case seems especially strong that when X moves another thing, and is thus acting on another thing, then X cannot be static; and everyone agrees that the soul moves the body. As Aristotle says, 'some [of our predecessors] say that it is soul which moves [things] especially and primarily, and, thinking that what is not itself moved cannot move something else, they thought that the soul was something that is moved' (403^b28–31); indeed, when Aristotle sums up the characteristics that his predecessors have used to determine the nature of the soul, one is that the soul is 'most capable of moving [other things] because it moves itself [κινητικώτατον τῷ κινεῖν ἑαυτόν]' (409^b20). Most obviously, Plato defines the soul as 'what moves itself' (several times, with small variations, in *Phdr.* 245 C 1–246^a2), or even as itself 'a motion which moves [or: can move] itself' (*Laws* 10, 895 E 10–896 A 4, cf. 894 B 8–C 8, D 3–4), and argues that, barring an infinite regress of movers, every motion must have such a self-mover as its ultimate source of motion (*Phdr.* 245 C 1–D 7; *Laws* 10, 894 E 4–895 B 7). Plato's basic argument is that each mover, in order to move something, must be moved either by itself or by something else, and that therefore, since the *first* source of motion to something cannot itself be moved by

¹³ Before Aristotle I know only one possible exception: Plato in the *Sophist* may think that Form F acts on soul S in bringing it about that S knows F , without Form F thereby being moved or changed (this seems to be the only option not excluded at *Soph.* 248 D 4–E 5). But if this is Plato's view, he leaves it to be inferred indirectly, and does not actually state it. (Perhaps this model can also explain how the demiurge of the *Timaeus* acts on the world, without having to suppose that he is changed; but the *Timaeus* does not address this issue even indirectly.) For discussion of these issues in Plato see my *Plato on God as Nous* (Carbondale, 1995), ch. 7. After Aristotle and before the Aristotelian and Platonist revivals of the 1st–2nd cents. AD, Theophrastus may be the only philosopher who thinks that something can ἐνεργεῖν without κινεῖσθαι (see his *Metaphysics* 7^b9–15 and fr. 307D Fortenbaugh–Huby–Sharples–Gutas).

something else, it must be moved by itself;¹⁴ Plato either has never considered, or has rejected as absurd, the possibility that the first mover in a series might not itself be moved at all, that a being in a steady state might produce motion in other things.¹⁵ Aristotle, by contrast, has argued in *Physics* 8, and recalls in the *De anima*, ‘that it is not necessary for the mover itself to be moved’ (*De anima* 1. 3, 406^a3). This is not a question just of absolutely unmoved movers (of which there is only one, the God of *Metaphysics* Λ)¹⁶ but also of what Aristotle in *Physics* 8. 6 calls ‘unmoved movers moved *per accidens*’. These might be things which can be moved only *per accidens* (as, in Aristotle’s view, my soul is locally moved *per accidens* when it locally moves my body, since my soul is accidentally in the successive places where my body is, *De anima* 1. 3, 406^a4–12; 1. 4, 408^a30–4), but apparently even something that can be moved *per se* can be called an ‘unmoved mover moved *per accidens*’, as long as it does not move something else *by* being moved *per se*, and is not moved *per se* in moving something else. If X is in any of these ways the ‘unmoved mover’ of Y , then X ’s *ἐνέργεια* of acting on and moving Y cannot be a *κίνησις* of X .¹⁷ Since the other philosophers, and apparently Aristotle himself at one time, had assumed that

¹⁴ Or, in the terms Plato prefers in *Laws* 10: every motion must, if it is not self-generated (‘self-moving’), be produced (‘moved’) by something else, and that something else, in order to produce a motion, must itself be a motion, so that the ultimate cause of a motion must be a ‘self-moved motion’. Whether we speak of a series of movers or of motions, in either case the fundamental assumption is that only a motion, or something which has a motion, can be a sufficient cause of a motion, and thus that there can be no unmoved movers.

¹⁵ Aristotle would concede to Plato that if the whole universe is in a steady state at some time t_1 , it will not subsequently start moving at t_2 (for why now and not sooner?); but an eternally unchanging being can beginninglessly produce motion in other things, and an intrinsically unchanged being might begin to produce motion in other things on the occasion of some change in the other things or in its relation to the other things.

¹⁶ The movers of the non-equatorial celestial motions are moved *per accidens*, as is clear from *Phys.* 8. 6, 259^b28–31; Aristotle deliberately calls only the *first* of the movers of the heavens ‘unmoved both *per se* and *per accidens*’ at *Metaph.* Λ 8, 1073^a23–5 (against G. E. R. Lloyd, ‘*Metaphysics* Λ 8’, in M. Frede and D. Charles (eds.), *Aristotle’s Metaphysics Lambda* (Oxford, 2000), 245–73 at 253).

¹⁷ For clarity, let me emphasize that when I say that some *ἐνέργεια* of X is not a *κίνησις* of X (or, for short, that it is not a *κίνησις*), I always mean that it is not a *κινεῖσθαι* of X : that is, for X to act in this way is not for it to be moved in some way (this *ἐνέργεια* might be a *κίνησις* of something else, if it is an action of moving, *κινεῖν*, in X , and a passion of being moved, *κινεῖσθαι*, in something else). Every *κίνησις* of X is an *ἐνέργεια* of X , but the mature Aristotle thinks that not every *ἐνέργεια* of X is a *κίνησις* of X . None of what I shall say about *κίνησις* and *ἐνέργεια* in this paper, or of what Aristotle says about them in the *Physics* and *De anima*, depends on the

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every ἐνεργεῖν (and thus every κινεῖν) is also a κινεῖσθαι, he needs to find some countermodel, some case of a power (preferably a power for acting on other things) such that the power—or the thing possessing the power, *qua* possessing the power—is not affected, not locally or qualitatively or quantitatively changed, when the power is exercised. An example of this kind can give Aristotle a model for conceiving the soul, and any other unmoved movers there may be in nature.

Aristotle's favourite model of such a power, to which he returns time and again, is an art or a science. Thus in *De anima* 2. 4 'the carpenter is not affected [οὐ πάσχει τι, from ^a34 ff.] by the matter[/wood], but it by him; the carpenter changes only from inactivity to activity' (416^b 1–3); and again in the next chapter, 'someone who has the science comes-to-be contemplating, and this is not a being-altered . . . or it is a different kind [i.e. a special or improper sense] of being-altered. So it is not right to say that what understands is altered whenever it understands [φρονῆ], any more than the builder is when he builds' (*De anima* 2. 5, 417^b 5–9, cf. through ^b16). Here Aristotle is thinking of an art or science which has already been perfectly acquired, and which is either exercised or not but does not develop further; by contrast, when I am still learning geometry, my exercising my nascent ability by re-proving the Pythagorean theorem on my own will affect me by contributing to the growth or perfecting of the ἕξις, the habit or state of geometrical knowledge. In Aristotle's terms, the student geometer is still incomplete (ἀτελής, and the ἐνέργεια of what is incomplete is a κίνησις, while the ἐνέργεια of something that is already complete or perfect (τέλειον), and does not need to develop further, is not a further κίνησις (*De anima* 3. 7, 431^a 6–7). Aristotle is here building on Plato's point, in *Republic* 1, that an art such as medicine is already intrinsically perfect (τελέα, 341 D 10–11) and not in need of anything further, so that it is exercised not in order to supply any deficiencies of its own, but in order to supply deficiencies of the object it operates on (341 D 5–342 E 11).¹⁸ And to say that the art is not qualitatively altered in being exercised is also to say that the artisan, *qua* artisan, is not moved in exercising his art: the carpenter

interpretation or even the authenticity of the controversial passage *Metaph.* Θ 6, 1048^b 18–35.

¹⁸ Though here Plato is just making a point about the *purpose* of the exercise of the art, not about its metaphysical status.

of *De anima* 2. 4 will of course locally move his limbs in exercising his art, but he will not be changed in respect of his being a carpenter. The case of the carpenter or doctor, as opposed to the geometer, is particularly instructive because his is a *productive* art: the art of carpentry (or the carpenter *qua* carpenter) acts on and moves the wood, without itself being affected or moved, and this gives Aristotle a model for an unaffected agent or unmoved mover in nature:

The same account holds for acting and being acted on as for being moved and moving. For 'mover' is said in two ways: that in which the principle of motion exists is said to be the mover, and so is the last thing, the thing proximate to the thing moved and the coming-to-be. So likewise with 'agent' [πρῶτον]: for we say both that the doctor is what heals and that the wine is. So nothing prevents the first mover in a motion from being unmoved (and in some cases this is even necessary), whereas the last [mover] always moves by being itself moved; and so too in action the first [agent] is unaffected, but the last is itself affected. For those [agents] which do not have the same matter [as their patients] act without being affected (like the art of medicine, which in producing health is in no way affected by the person who is being healed); but the food is also an agent [of health] and it is affected (for it is heated or cooled or affected in some other way at the same time that it acts). Here the art of medicine is [the agent] as the principle, and the food as the last [agent] and as the thing in contact [with the patient]. So those agents which do not have their form in matter are unaffected, whereas those which are in matter [sc. the same kind of matter as the patient] are subject to affection. (*GC* 1. 7, 324^a24^b6)

Here, while the doctor is certainly an efficient cause of healing, the *first* efficient cause is the art of medicine itself, as present in the doctor (so, emphatically, *Phys.* 2. 3 195^b21–5), and it is the art that is strictly unmoved when it acts. If the soul, or particular powers of the soul, are like the arts or sciences (it is the vegetative soul that is compared to the carpenter in the passage cited from *De anima* 2. 4, and the sensitive soul that is compared to the scientist in 2. 5),¹⁹ then we can understand how the soul acts without having to assume that it is moved; and Aristotle sees this understanding as opening the way to a scientific treatment of the soul.

So far, however, we have only seen reasons why the soul *need not* be moved in order to act or in order to move the body, not reasons

¹⁹ I shall come back in sect. 11 to the question of whether it is more correct to compare the soul to the art or to the artisan; Aristotle runs the comparison both ways, often without clearly distinguishing between them.

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for thinking that it *is not* in fact moved. While Aristotle gives piles of arguments in *De anima* 1. 3 for saying that the soul is not moved, it is not easy to extract his basic reasons: if the arguments of *De anima* 1. 3 refute anything, it is more specific pictures that fill in the thesis that the soul is moved (especially the *Timaeus* and the *Phaedrus-Laws*), not the basic thesis itself. Many of the arguments simply point out that Plato (or whoever) is describing the soul as if it were bodily, an embarrassing consequence for a Platonist but not in itself a refutation. But perhaps a clue to the underlying criticism comes in a short passage arguing against the *Phaedrus-Laws* thesis that the essence of soul is self-motion: 'if [the soul] moves itself, then it too would be moved, so that if every motion is a displacement [ἐκστασις] of the thing moved, in the respect in which it is moved, then the soul too would be displaced out of its οὐσία, if it moves itself not *per accidens* but rather the motion belongs to its οὐσία *per se*' (406^b 11–15). At one level this is a technical objection to defining anything in such a way that motion belongs to its essence: the thing must preserve its οὐσία through time, and so the respect in which it changes must be merely some accident of itself, place or quality or quantity, and there must be some οὐσία underlying these accidents, which remains constant while these change.²⁰ However, there is a deeper point: Aristotle's 'the soul would be displaced out of its οὐσία' is a reply to Plato's 'only what moves itself, since it does not depart from [ἀπολείπειν] itself, never ceases to be moved, but is a source and principle of motion also to the other things which are moved' (*Phdr.* 245 c 7–8); for Plato, this is a foundation for proving the immortality of soul. Plato thinks that if being moved belongs to the essence of soul (so that it must move itself, not depending on anything else to move it), this will explain the inexhaustibility and continuity of the motion with which the soul is moved, and so of the motion it imparts to whatever it happens

²⁰ The essence of something could be *to be a motion* of such-and-such a kind, but not *to be moved* in such-and-such a way: see *Top.* 4. 1, 120^b21–7, and cf. 2. 2, 109^a34–^b12. Aristotle himself will give definitions that predicate of some substance a *disposition* to move in such-and-such a way, but not the actual motion. (Question: does Aristotle's refutation of the thesis that 'motion belongs to [soul's] οὐσία *per se*' (*De anima* 1. 3, 406^b15) turn on confusing what Plato meant, 'the fact that it is in motion belongs to its οὐσία', with the absurd thesis 'the features in it which change belong to its οὐσία'? Aristotle might reply that, if the features of soul which change are merely accidents of the soul, then, if they were prevented from changing, the soul would not cease to be itself; thus it would be merely the disposition to motion, not actual motion, which is essential to soul.)

to be present in. Aristotle, by contrast, argues that the continuity and inexhaustibility of motion depend on an *unchanging* cause: if the cause were changed, it would 'depart from' or 'be displaced from' the state that was responsible for producing the motion, and the motion would be interrupted and replaced by a different motion or by rest.

This is, of course, how Aristotle argues that the eternally constant motions of the heavens must be produced by eternally unmoved movers. But it also represents a broader theme in Aristotle's natural philosophy, and specifically in his critique of the Presocratic physicists; in the application to soul, Aristotle is criticizing Plato for remaining too close to the Presocratics. 'All the wise except Parmenides', as Plato had already complained, think that everything is in motion, and they think that everything that acts on other things will be reciprocally affected by them; thus, having no stable cause to regulate the physical world, they will have no explanation for the persistence of a stable order amidst the flux of material things. Aristotle, by contrast, can trace the persistence of order back to an unmoved first cause: the perfect order of the heavenly bodies is due to their being moved by entirely unmoved causes, and the imperfect order of the sublunar world is due to its being governed by the heavenly bodies, which, though not entirely unmoved, are unaffected by the sublunar things (as against the common Presocratic and Hellenistic view that the heavenly bodies are fed by exhalations from the earth or the sea), and so can preserve their own perfect mathematical order and impose a semblance of it on the sublunar world. And Aristotle argues in a similar way to soul as the preserver of order within the flux of the animal body. Thus in *De anima* 2. 4 he argues against physicists who attribute the nourishment and growth of plants and animals to the fire within them, since 'this alone of bodies is seen to be nourished and to grow' (416^a10-12); Aristotle replies that fire 'is in some way an auxiliary cause [*συναίτιον*] [of plant and animal growth], but not a cause *simpliciter*, rather the soul is: for the growth of fire [tends] to infinity, as long as fuel is present, but all things constituted by nature have a limit and a *λόγος* of size and growth; and these belong to soul, not to fire, and to *λόγος* rather than to matter' (416^a13-14). The soul's ability to preserve a constant *λόγος* in growth depends on the fact that the soul itself remains constant, and does not itself (for instance) grow with the animal, as the fire would on the theory that Aristotle is rejecting; as

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we shall see, Aristotle's account of nutrition and growth is radically innovative in the causal role it gives to a soul that remains itself unaffected by the process.

In asserting the necessity for an art-like governing power, immune to the flux of material things and therefore able to preserve order among them, Aristotle is close to Plato's criticism in *Laws* 10 of those who say that earth and fire and so on are the first principles and that soul and art are posterior. Plato argues from the fact of motion that soul is prior to body, and from the fact of the mathematically precise motions of the heavenly bodies (and thus of the souls that move them) that art is prior to what is ordinarily called nature: the celestial souls, by participating in art and virtue and *νοῦς*, communicate mathematical order to at least the celestial part of the physical world. Art and kindred notions are important here because they show how eternal and indeed normative things (the Forms which are the objects of knowledge, or the Forms of knowledge and virtue which the souls participate in) can become causes to the physical world, and thus how the physical world can come to be ordered. Aristotle is not willing to follow Plato in saying that art is prior to nature, but he none the less takes an art as a paradigm case of an unmoved mover, and Aristotle's souls and heavenly bodies, and the movers of the heavenly bodies, are art-like in being unmoved causes of constancy and normative order to physical things.

So, from Aristotle's point of view, Plato has taken a step in the right direction in his criticism of Presocratic physics, but has relapsed and remained too close to Presocratic materialism in saying that the soul is moved. Perhaps Plato was dimly trying to represent soul as acting but unmoved, but he did not see how, and wound up attributing to souls things that should only be attributed to bodies. The activities of 'the circles of *νοῦς* in the heavens' involve only the most minimal change of state that Plato could imagine, the mutual displacement of indiscernible parts of a uniform circle. And when Plato attributes to souls the motions of 'wishing, aiming, caring, deliberating, opining rightly and wrongly, feeling pleasure and pain and daring and fear, hating and loving' (*Laws* 10, 897 A 1-3), he does so because he sees no alternative. Aristotle is trying to provide an alternative when he says that, although 'we [ordinarily] say that the soul feels pain and pleasure and daring and fear and is also angry and senses and considers [*διανοεῖσθαι*], and all of these seem to be

motions' (*De anima* 1. 4, 408^b1–4), and although it might seem to follow that the soul is moved, in fact this is not necessary:

for however much feeling pain and pleasure or considering may be motions, and each of them a being-moved, and the being-moved is *by* [i.e. is a being-moved-by] the soul, e.g. being angry or fearing is the-heart-being-moved-thus, and considering is presumably [*ἕσως*] either something like this [=the heart's being moved in some other way?] or something else [=some other organ's being moved somehow?], and some of these happen when some [parts of the body] are moved locally, others when some [parts of the body] are altered (which [parts] and how [moved] is another issue); still, saying that the soul is angry is like saying that the soul weaves or builds: it is presumably better not to say that the soul pities or learns or considers, but that the man does so *through* the soul [*τῆ ψυχῆ, dative*]: not in such a way that the motion is *in* the soul, but in some cases the motion is *up to* [*μέχρι*] the soul, and in other cases it is *from* the soul, e.g. sensation is [a motion] from these [bodily] things [which affects the soul], and recollection [is a motion causally arising] from the soul [and resulting in] the motions or rests in the sense-organs. (*De anima* 1. 4, 408^b5–18)

Aristotle is here taking up, but also deliberately modifying, the idea of the *Philebus* that sensation and the like are joint affections (*κοινὰ πάθη*) of soul and body: 'when the soul and the body, having come-to-be jointly [*κοινῆ*] in a single *πάθος*, are also jointly moved, this motion would rightly be called sensation' (*Phileb.* 34 A 3–5; Aristotle speaks programmatically of the *κοινὰ πάθη* of soul and body at *De anima* 1. 1, 403^a3 ff., and *De sensu* 1). Aristotle differs from the *Philebus* in reanalysing these apparent joint motions of body and soul either as motions in the body caused by the soul (i.e. by an *ἐνέργεια* of soul which is not a motion) or as motions in the body which cause or occasion something in the soul (again, an *ἐνέργεια* of soul which is not a motion). Obviously, his aim is to avoid positing motions in the soul. It is *not*, as (for instance) Michael Frede says, to avoid dualism:²¹ although Frede apparently reads the text as saying that the body does these things under its description as a living or ensouled body, it says rather that the soul–body *composite* does them through one part of itself, namely

²¹ M. Frede, 'On Aristotle's Conception of the Soul', in Nussbaum and Rorty, *essays on Aristotle's De anima*, 93–107 at 103–4. Frede speaks of Aristotle's 'rejection of the assumption that the soul is an entity distinct from the body it animates and the proper subject of a class of predicates we ascribe to living things, namely the mental predicates' (p. 103).

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the soul.²² Each of these *κινὰ πάθη* of soul and body, as Aristotle describes them here, involves as one component an act of the soul alone, acting on the body or responding to a motion in the body; if the act of the soul is in some way identical with an act of the body (and Aristotle does not say here that it is), this is only because the *ἐνέργεια* of the agent is identical with the *ἐνέργεια* of the patient, not because the soul and the body are somehow the same. And while Aristotle denies that the soul alone is the subject of the complex *πάθος* of sensation or anger or even *διανοεῖσθαι*, he never denies that the soul alone is the subject of the non-kinetic activity of *νοεῖν*. Indeed, the present passage is building up to a contrast between 'considering and loving or hating, [which] are not *πάθη* of *that* [sc. the soul] but of this which *has* that [i.e. the soul-body composite, cf. ^b28–9 *τοῦ κοινού*], inasmuch as it has that' (408^b25–7), and *νοεῖν*, which belongs exclusively to the soul.

One consequence is that *νοεῖν* is the only activity that can be attributed to the soul after death, when it is no longer bound up with a body (cf. *De anima* 1. 1, 403^a10–12). In reading *De anima* 1. 4, 408^b5 ff., we might expect that Aristotle's agenda would be to redescribe all apparent activities of the soul as activities of the soul-body composite (or even, with Frede, of the body), leaving nothing to the soul alone, with the anti-Platonic consequence of denying immortality. In fact Aristotle's intention is simply to deny *motions* to the soul, redescribing all apparent motions of the soul either as non-kinetic activities or as motions of the body that are causally connected with the soul, with the result that souls separated from bodies will be purified from all descriptions which imply motion, and also from any possibility of irrationality or vice. The effect is similar to that in *De caelo* 1. 9, where Aristotle argues laboriously that there is not only no body, but also no place, no void, no motion, and no time, outside the outermost heaven; and then, instead of concluding that there is *nothing* outside the outermost heaven, Aristotle breaks into a little hymn of praise to the life of the

²² Thus 408^b28–9 describe these activities as being *τοῦ κοινού*, of the soul-body composite (not of the body). While it might be possible, using book 2, to argue that what the body-soul composite does is just what the living body does, the present passage from *De anima* 1. 4 is not saying anything of the kind. This issue is presumably connected with Frede's view that Aristotle regards the soul as 'just a disposition of the body' ('On Aristotle's Conception of the Soul', 98), a view which seems plainly ruled out by the present passage, 408^b19–24 (as is pointed out by Heinaman, 'Aristotle and the Mind-Body Problem', 90, and Tweedale, 'Aristotle's Motionless Soul', 130).

beings outside the heaven, free from all the conditions of body. And just as that passage is an internal Platonist critique and purification of the ‘place above the heavens’ of the *Phaedrus*, so the present passage is an internal Platonist critique and purification of what can be attributed to soul alone, and thus in particular of what can be attributed to the soul when it has been separated from the body.²³

II

So far I have spoken chiefly about the critical *De anima* 1. But the test of any interpretation of Aristotle’s approach to the soul must be its treatment of Aristotle’s positive construction of his science of soul in *De anima* 2, starting from his definition of soul in 2. 1. So it is natural enough that, in interpreting the *De anima*, we would first want to interpret the definition of soul, and then Aristotle’s programme (which must somehow be implicitly contained in this definition) for a scientific study both of the soul and of living soul-body composites. But Aristotle must have had a reason for starting with *De anima* 1. Aristotle thinks (and says in *De anima* 1. 1) that the soul is peculiarly difficult to treat scientifically, and this is at least in part because it is peculiarly difficult to define. He speaks in *De anima* 1. 2–5 of his predecessors’ having tried to ‘define’ (ὀρίζεσθαι) the soul through one or more of its distinguishing features: ‘everyone defines the soul, pretty much, through three [features], motion, sensation, and incorporeality’ (1. 2, 405^b11–12); using these features, they have tried to say what the soul is, inferring because it is apt to initiate motion that it is also most mobile or self-moving, or inferring because it can know each thing that it is the same in nature with the knowable objects, or with the simples among them, and then trying to find the object (fire? little round atoms? self-moving number?) that best meets these criteria.²⁴ Aristotle in *De anima* 1

²³ Disclaimer: I am not saying that, on Aristotle’s considered view in *De anima* 3, any part of soul can exist separately from body—he certainly thinks that the activity of νοεῖν can exist separately from bodies, but the question is whether that is then an activity of soul, and I tend towards the negative. Here I am talking only about what he is doing in *De anima* 1. 4.

²⁴ Aristotle gives all three criteria, with the verb ὀρίζεσθαι, at *De anima* 1. 5, 409^b19–24, as well as 1. 2, 405^b11–12; 1. 2, 403^b25–31, and 404^b7–11, list just the soul’s motivity and therefore mobility, and its cognitivity and thus composition out of the knowable elements. τὸ ἀσώματον does not seem to have quite the same status as these other two criteria; ‘incorporeal’ is something of an overtranslation, since τὸ ἀσώματον comes in degrees, and sometimes just means ‘fine’ = λεπτομερές.

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is trying to show the inadequacy of these earlier accounts of soul, but he is also trying positively to motivate his own approach to a science of the soul (which must begin from a correct definition of soul) in *De anima* 2: Aristotle is proposing to his readers a criterion for judging his own account of what the soul is, namely that it should resolve the aporiai raised in *De anima* 1, or, perhaps more precisely, that it should satisfy the different expectations about soul that Aristotle's predecessors had been trying (explicitly or implicitly) to satisfy, but that he has shown that they have failed to satisfy. *De anima* 1 is important for interpreting the definition of soul in *De anima* 2, because it helps to show what problems the definition is trying to solve. Above all, it is trying to show how the soul can be a source of motion to the body, while avoiding the difficulties that follow from saying that the soul is moved; Aristotle has dealt much more briefly in *De anima* 1 with attempts to define the soul through cognition, but here too he will try to show that his account of the soul explains its cognitive powers while avoiding the difficulties of saying that it is the same in nature with the simple knowables; and he will also show a legitimate sense in which the soul is incorporeal, although not by being extremely 'fine'. By contrast, the question of dualism is *not* one of the problems he is trying to solve: some form of dualism is presupposed by *all* the views discussed in *De anima* 1 except the attunement view, and is never criticized.²⁵ This does not mean that the definition of soul in *De anima* 2. 1 cannot have implications for the question of dualism, but such implications will not be the main point.

Certainly *De anima* 2. 1's two main formulae about the soul—that it is the first *ἐντελέχεια* of a natural body potentially having life, and that it is the first *ἐντελέχεια* of an organic natural body—do not, by themselves, solve all the problems from *De anima* 1. This is in part because these formulae do not make it sufficiently

²⁵ The usual current approach to the *De anima*, which sees Aristotle as looking for some kind of *via media* between dualism and materialism, does not seem to have faced up to this fact about *De anima* 1. As noted above, Frede takes *De anima* 1. 4, 408^b1 ff. (pleasure and pain and so on as *πάθη* of the composite rather than of the soul alone, no motion in the soul), as a criticism of dualism, but this is just a mistake. Modrak takes *De anima* 1. 3, 407^b13–26 (a passage that will be important for my project in this paper), to be a criticism of dualism (Modrak, *Aristotle*, 1, and again 27), but again this is a mistake: Aristotle is criticizing here, not dualism, but people who 'try to say only what sort of thing the soul is, and determine nothing further about the body that is to receive it, as if it were possible, as in the Pythagorean myths, for any old soul to clothe itself in any old body' (407^b20–3).

clear what the soul is. Rather, they are two stages in an ongoing process of making clear what the soul is, a process which begins in *De anima* 1 (with the characterizations of soul as motive, cognitive, and incorporeal) and is not complete either in the first or in the second definition in *De anima* 2. 1; even after the second definition, Aristotle says ‘in this way let it have been sketched and defined/determined in outline [τύπω . . . διωρίσθω καὶ ὑπογεγράφθω] about the soul’ (413^a9–10),²⁶ and he adds that we must go on to give a fuller and more scientific definition, which expresses the cause (*De anima* 2. 2, 413^a11–20). Here Aristotle is following his usual procedure of giving progressively clearer definitions of some object under study, ‘trying, by means of what is said truly but not clearly, to grasp what is said both truly and clearly’ about the thing. As he puts it in *Eudemian Ethics* 2. 1, when we say ‘virtue is the best disposition of the soul’ we are in the same position as when we say ‘Coriscus is the darkest man in the market place’, ‘for we do not know what [or who] either of these [sc. health and Coriscus] is, but being in this condition is useful towards knowing what each of them is’ (all quotes from 1220^a15–22). To say that health is the best disposition of the body, or that the soul is the first ἐντελέχεια of a natural body potentially having life, helps us by locating the thing we are seeking in its appropriate genus (in *De anima* 2. 1 Aristotle stresses, as a first step towards a definition, that the soul is a substance, and specifically substance as form rather than matter or composite—whereas a ἀρμονία would be a quality, and a self-moved number would be a quantity), and by locating it in its appropriate underlying subject, and by noting a distinguishing feature by which we can recognize it (or recognize a more precise description of it). It will help—focusing, to begin with, on the definition of the soul as the first ἐντελέχεια of a natural body potentially having life—to say a little both about how much Aristotle thinks this definition does tell us, and then about how he thinks it can be further filled in.

Aristotle starts by saying (as the result of a process of division excluding the soul from inappropriate genera and inappropriate subjects) that the soul is the ‘substance-as-form of a natural body potentially having life’ (412^a19–21); but he then promptly shifts from speaking about substance to speaking about ἐντελέχεια (21–

²⁶ ὑπογραφή and τύπος are standard terms for an early stage in a process of defining, with many parallels in Aristotle: the metaphor is from a painter’s first drawing outlines of his figures (in charcoal or the like) and then going back to paint them in.

22), then further divides *ἐντελέχεια*—it is said in two ways, in one way as [the habit or state, *ἕξις*] *ἐπιστήμη* and in another as [the activity, *ἐνέργεια*] of contemplating [*θεωρεῖν*]’ (A 22–3)—and concludes that the soul ‘is clearly [*ἐντελέχεια*] as *ἐπιστήμη*: for within the soul’s being present there are both sleeping and waking, and waking is analogous to *qewrei’n*, and sleep to having-[some *ἕξις* of knowledge]-but-not-*ἐνεργεῖν*’ (23–6). The contrast of *ἐπιστήμη* with *θεωρεῖν* is a standard example, going back to the *Protrepticus*, of a *δύναμις* or *ἕξις* as contrasted with its *ἐνέργεια*;²⁷ Aristotle favours this example here because (as he will make clear in *De anima* 2. 4 and 2. 5) it gives a model for how a *ἕξις* can be exercised without any further *κίνησις*. The advantage of describing the soul as the first *ἐντελέχεια* of the appropriate kind of body, rather than as the form of that body, is that it brings out that the soul is essentially directed towards some *ἐνέργεια*, and that any more precise account of the soul will turn on giving a more precise account of this *ἐνέργεια*;²⁸ whereas the shape of a geometrical object, the ‘from’ in the most obvious sense,²⁹ has no such directedness towards an *ἐνέργεια* and does not suggest any such programme for filling in a more precise definition. To say that *X* is the first *ἐντελέχεια* of *Y* is to say that *X* is whatever completes a *Y* so as to render it capable of carrying out the characteristic activities of a *Y* (this is true, not only of forms in the straightforward sense, but also of the pilot, who is what completes a ship so as to render it capable of carrying out the characteristic activities of a ship, and who may thus be called the *ἐντελέχεια* of the ship, so *De anima* 2. 1, 413^a8–9);³⁰ thus the first *ἐντελέχεια* of a natural body potentially having life, say of an embryo or a fruit, is whatever completes the embryo or the fruit so as to render it a living animal or plant, i.e. so as to render it capable

²⁷ And the *De anima*’s analogy, waking is to sleeping as *θεωρεῖν* is to merely having the *ἐπιστήμη* without *θεωρεῖν*, is already at *Protrepticus* B 79–80.

²⁸ For, as Aristotle argues in *Metaph.* Θ 8, the *δύναμις* is always posterior in *λόγος* to the *ἐνέργεια*, i.e. its definition has to mention the appropriate *ἐνέργεια*. The point can also be put by saying that the *δύναμις* is *πρὸς τὴν ἐνέργειαν*, again with the result that its definition must mention the *ἐνέργεια*, and that it will be specified more precisely by specifying the *ἐνέργεια* more precisely.

²⁹ And Aristotle has just referred to form as *μορφή καὶ εἶδος* at *De anima* 2. 1, 412^a8.

³⁰ Accepting the manuscripts’ *ἔτι δὲ ἄδηλον εἰ οὕτως ἐντελέχεια τοῦ σώματος ἢ ψυχῆ ὡσπερ πλωτῆρ πλοίου*, and rejecting Ross’s arbitrary and contextually implausible insertion, in his *editio maior*, of an *ἦ* after *ψυχῆ*;. But even Ross’s text, on its most natural construal, would still imply that the pilot is somehow the *ἐντελέχεια* of the ship. I discuss this passage in an unpublished paper, ‘A Sailor in a Ship’.

of carrying out the different vital activities.³¹ This description is vague, but so far as Aristotle makes it more precise what the soul is, he does so by specifying what activities the soul is a power for, and also by specifying more about the body that the soul uses to carry out these activities—rather than, like the Presocratic and Platonist theories discussed in *De anima* 1, trying to specify what the soul is by saying what constituents it is composed of.

One reason why the formulae of *De anima* 2. 1 are vague is that they are designed to fit every case of soul. As Aristotle says, ‘if one must say something general about every soul, it would be [that soul is] the first ἐντελέχεια of a natural organic body’ (2. 1, 412^b4–6, my emphasis). But, as he says in *De anima* 2. 3, the different kinds of soul are like the different kinds of polygon, and, while there is indeed a common formula for polygons too (414^b22–4), it is none the less ‘ridiculous’ to seek such a common formula and disregard the distinctive formulae of triangles, quadrilaterals, and so on (414^b25–8). This is not simply in the sense in which it would be ridiculous to be interested only in the common formula of bird and not examine the difference between sparrows and ostriches: there is a *serial* relationship between the different kinds of polygon, so that, as Aristotle puts it, triangle is ‘potentially present’ in quadrilateral and this in pentagon (414^b29–31). The scientific point here is that to prove substantive propositions about polygons (even those that are true of all polygons, e.g. that there is a rectangle with any given base equal in area to any given polygon) it is not enough to begin with a general definition of polygon; we have first to prove the proposition in the case of triangles, and then extend it by breaking other polygons down into triangles. Aristotle suggests that there will be a similar serial relationship between the different kinds of soul, with all kinds of soul definitionally dependent on the nutritive soul as all kinds of polygons are on triangles. In defining souls in

³¹ Aristotle apparently specifies the embryo or its analogue as the natural organic body, or natural body potentially having life, mentioned in the definition of soul, at *De anima* 2. 4, 412^b25–7: ἔστι δὲ οὐ τὸ ἀποβεβληκὸς τὴν ψυχὴν τὸ δυνάμει ὄν ὥστε ζῆν, ἀλλὰ τὸ ἔχον· τὸ δὲ καὶ ὁ κάρπος τὸ δυνάμει τοιονδὶ σῶμα. For some reason the standard view, going back to pseudo-Simplicius and Philoponus, is that Aristotle is saying that the σπέρμα (whatever exactly he means by that here) is only *potentially* a body potentially having life. But the more obvious interpretation, that the σπέρμα (embryo?) is a body potentially having life (τοιονδὶ σῶμα = ὥστε ζῆν), is presupposed at Alexander *De anima libri mantissa* 103. 7–10. It would do no harm to my overall interpretation if the standard view here is right, but Alexander’s interpretation seems much more likely.

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terms of 'bodies having life' Aristotle is trying to explain the less-well-known-to-us, the soul, through the better-known-to-us, the ensouled things or bodies having life, but to make it genuinely clear what these are we have to specify the different activities that constitute life, starting with the basic activities of the nutritive soul which the others presuppose.

In this way, a precise knowledge of what the soul is will depend on the *parts* of the soul, where these parts are different *powers* of the soul; and this is one way in which the initial definition of soul is vague. But Aristotle goes on to add another way in which the definition is vague and needs to be completed, namely that a precise account of each power depends on an account of its *ἐνέργεια*, and that a precise account of the *ἐνέργεια* depends in turn on an account of the correlative object, as the account of the power of sensation depends on an account of the act of sensation which in turn depends on an account of the sensible objects (*De anima* 2. 4, 415^a16–22).³² (Indeed, when Aristotle discusses the particular senses in *De anima* 2. 6–12, his main effort goes into describing the sensible qualities, with very little further explanation of what must happen for the soul to perceive them.) Because the *De anima* 2. 1 definition of soul is deliberately set up to demand clarification both by specifying the soul's powers and by specifying their acts and objects, the investigation of sensation (and so on) should be seen as filling in the account of what the soul is—even though Aristotle never again after *De anima* 2. 4 explicitly calls the soul a form or an *ἐντελέχεια*. But in fact this clarification of what the soul is extends even beyond the *De anima*'s specification of psychic powers, acts, and objects, into the *De partibus animalium*'s specification of *organs*, that is, of the bodies by means of which the psychic acts are carried out. The *De partibus animalium* presents this specification of organs as the way of specifying or defining the different species of animals, but it must also specify different kinds of *soul*, so that a soul whose acts are executed by one bodily structure is intrinsically different from a soul whose acts are executed by a different bodily structure. As Aristotle complains in a passage that will be of central importance, most of

³² This text of *De anima* 2. 3–4 is thus answering the questions from the beginning of the *De anima* about the proper order of procedure: whether we should give a single account of soul in general or different accounts for different kinds of souls, and whether we should start by studying the parts of soul or the whole soul, and, if the parts (i.e. the powers), then these or their actions, and the actions or the correlative objects (*De anima* 1. 1, 402^b1–16).

his predecessors ‘try to say only what sort of thing the soul is, and determine nothing further about the body that is to receive it, as if it were possible, as in the Pythagorean myths, for any old soul to clothe itself [*ἐνδύεσθαι*]³³ in any old body: rather, each [sc. soul?] seems to have its own proper shape and form. But these people are saying something close to saying that the art of carpentry could clothe itself in flutes; but the art must use [its proper] instruments [*ὄργανα*, and the soul must use [its proper] body’ (*De anima* 1. 3, 407^b20–6).

The basic and crucial fact about the bodies of animals and plants, on which all this further investigation depends, is that they are *organic*: and this is the first step Aristotle takes beyond defining the soul as the first *ἐντελέχεια* of a natural body potentially having life, to say that it is ‘the first *ἐντελέχεια* of a natural organic body’ (*De anima* 2. 1, 412^b5–6). It will be important to see exactly what this assertion means and how it functions in Aristotle’s project of determining more clearly what the soul is and how it is related to its body.

Perhaps surprisingly, it is controversial both what ‘organic body [*ὀργανικὸν σῶμα*]’ means, and which organic body Aristotle means to refer to. Ross paraphrases the definition just cited by saying that the soul is ‘the first *ἐντελέχεια* of a natural body furnished with organs for the exercise of its faculties’ (in the introduction to his *editio maior* of the *De anima*, p. 20): so he takes the organic body in question to be the body of any animal or plant, and he apparently takes ‘*X* is *ὀργανικόν*’ to mean ‘*X* has *ὄργανα* or instruments’. Perhaps the most widespread view these days would take Aristotle to mean not just that the animal or plant body *has* instruments, but that it is *composed* of these instruments.³⁴ However, as Stephen Everson has correctly pointed out, any such meaning for *ὀργανικόν* would be unparalleled in Aristotle or elsewhere.³⁵ Rather, *ὀργανικόν* means

³³ For the verb *ἐνδύεσθαι* in a context of metempsychosis, see *Rep.* 10, 620 c 2–3.

³⁴ Or, perhaps, that it has such instruments and they are *parts* of it, whether or not it is *entirely* composed of them. This family of interpretations can take support from *De anima* 2. 1, 412^b1–4, arguing that ‘the parts of plants too are *ὄργανα*’, which may suggest that the body of a plant or animal is *ὀργανικόν* merely because its parts are *ὄργανα*, not because it itself is. However, 412^b11–17 goes on to compare the *whole* animal body to an artificial *ὄργανον* such as an axe; see below. In what follows, to save space, I shall generally say ‘animal’ when I mean ‘animal or plant’.

³⁵ *Aristotle on Perception* (Oxford, 1997), 64. Actually, Everson just says that this is not what Aristotle means by *ὀργανικόν* here, and that ‘as far as he has been able to determine’ it is not what Aristotle means by it elsewhere either. But in fact such

'instrumental': an *ὀργανικόν* *X* is an *X* which is an instrument or is suited for being used as an instrument (as in the very common phrase *ὀργανικὸν μέρος* or *μόριον*, an instrumental part of an animal body, very often opposed to the homoeomerous parts, sometimes opposed to the locomotive parts) or which is an *X* in the characteristic way that an instrument is or has an *X* (so *ὀργανικὸν ἀγαθόν*, *ὀργανικὴ αἰτία*; *ὀργανικὴ ἀρετή*, the kind of *ἀρετή* appropriate to an *ὄργανον*, *Pol.* 1259^b21–4).³⁶ Everson draws the bizarre conclusion that the *ὀργανικὸν σῶμα* Aristotle is referring to in the definition of soul is not the animal body, but rather an organic *part* of an animal body, such as an eye, so that an animal would not have one soul, but rather as many souls as it has organic parts.³⁷ However, we can accept Everson's correct observation about the meaning of *ὀργανικόν* without his false identification of which *ὀργανικὸν σῶμα* Aristotle is referring to. The whole body of an animal is *ὀργανικόν*, because it is an instrument or is suited for being used as an instrument, just as much as its individual parts are: 'just as, since one must cut with an axe, it must be hard, and if hard, then of bronze or iron, so too, since the [animal] body is an *ὄργανον* (for each of the parts is for the sake of something, and so likewise the whole), it must be of such-and-such a kind and out of such-and-such materials, if that [sc. the activity the body is for the sake of] is to be' (*PA* 1. 1, 642^a9–13).³⁸

a meaning would be unparalleled, except inasmuch as Alexander and Philoponus interpret the present passage of the *De anima* in this sense (Alexander *De anima*, esp. p. 16, but already p. 11 and p. 15; Philoponus *In De anima* p. 217, *ὀργανικὸν δέ ἐστι τὸ ἔχον ὄργανα*; pseudo-Simplicius does *not* make this mistake, see his *In De anima* esp. pp. 87 ff., but already p. 52). LSJ do not list any such meaning for *ὀργανικόν*; but they should, even if it is used in this sense only by the commentators and only through a misunderstanding of this text of Aristotle.

³⁶ I am not sure how many people agree or disagree with Everson on the semantic issue, or indeed how many people are aware of the problem. Nussbaum is aware of it, and apparently agnostic: '*psuchê* is said to be the *entelecheia* of *sôma phusikon organikon*, a natural tool-like body, or body equipped with useful tool-like parts' (in her 'The Text of Aristotle's *De Anima*', in Nussbaum and Rorty, *Essays on Aristotle's De Anima*, 1–6 at 6).

³⁷ *Aristotle on Perception*, 63–9. Everson is scarcely slowed down by the fact that *De anima* 2. 1, 412^b18–25, which he duly discusses, clearly rule out his interpretation: he claims, bizarrely, that τὸ ὅλον σῶμα τὸ αἰσθητικόν at 412^b24–5, and even ὅλον τὸ ζῶν σῶμα at 412^b23, are not the whole animal but only a part of it, something corresponding to the sensory-nervous system (pp. 66–7).

³⁸ So too *PA* 1. 5, 645^b14–17: 'since every *ὄργανον* is for the sake of something, and each of the parts of the body is for the sake of something, and that for whose sake they are is some activity, it is clear that the composite body too is constituted for the sake of some multipartite activity'.

And *De anima* 2. 1, as well as the *De partibus animalium*, compares the whole animal body to an axe: '[the soul] is the essence of this kind of body [sc. organic natural body], just as, if some ὄργανον, such as an axe, were a natural body, essence-of-axe would be its οὐσία, and this would be soul' (*De anima* 2. 1, 412^b11–13).³⁹ That is, while an axe is an ὄργανον which is *not* a natural body, an animal body (whose essence is a soul) is an ὄργανον which *is* a natural body: 'ὄργανον which is a natural body' and 'organic natural body' are interchangeable.

But although these texts make it clear that the whole animal body is an ὄργανον, scholars have often found it difficult to accept this conclusion, because they assume that the parts of an animal's body are ὄργανα of the *whole* body, so that there would be nothing for the *whole* body to be an ὄργανον of. But what Aristotle thinks is that the parts of the body, and the whole body, are ὄργανα of the *soul*: 'all natural bodies are ὄργανα of soul, as those of animals so too those of plants, as being for the sake of the soul' (*De anima* 2. 4, 415^b18–20).⁴⁰ To say that the soul is the ἐντελέχεια of a natural body potentially having life is to say that it is whatever completes such a body so that it becomes actually alive, i.e. capable of carrying out vital activities; but since a body can be completed by a soul only by becoming the ὄργανον of the soul (and the vital activities, which are the soul's activities, will also be the body's activities inasmuch as the soul carries them out with the body as its ὄργανον), the ἐντελέχεια of a natural body potentially having life can only be the ἐντελέχεια of an *organic* natural body. When the body only *potentially* has life it is not actually the ὄργανον of anything, as a flute not connected

³⁹ Note that, in context, Aristotle is unambiguously comparing the axe to the *whole* animal body, not to the *parts* of the animal body, which are mentioned only later, starting at 412^b17–18 ('we should observe [that] what has been said [holds] also in the case of the parts'). Aristotle is trying to illuminate the relation between the soul and the animal body by two independent comparisons: first he compares the animal body to an artificial instrument such as an axe, and then he compares the animal body to a part of the animal body such as an eye.

⁴⁰ It is not totally obvious from this text whether he is thinking about the whole body of an animal or plant, or the parts of its body, or both, but nothing in the context suggests that he is thinking about the parts. In any case, we know, from the other texts we have seen, that the whole body is an ὄργανον, and even if the present text is talking about the parts and saying that they are ὄργανα of the soul, it will still imply that the whole too is an ὄργανον of the soul. The point that Everson can be right about the meaning of ὄργανικὸν σῶμα even though the ὄργανικὸν σῶμα in the definition of soul is the whole animal body, since the whole body is an ὄργανον of soul, has been made quite rightly by Jonathan Barnes in his review of Everson, *Classical Review*, NS 49 (1999), 120–2.

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to a flute-player is not actually an *ὄργανον* of flute-playing, though it is intrinsically such that it *could* be an *ὄργανον* of flute-playing; an embryo is, or is becoming, intrinsically such that it could be an *ὄργανον* of a soul, and for it to become actually a living body is for it to become actually the *ὄργανον* of a soul.

If the animal body is an instrument of the soul, then conversely the soul *uses* the body: 'part of what is in us is soul and part is body: the first part rules and the second is ruled, the first part uses and the second lies under it [*ὑποκεῖται*] as an *ὄργανον*' (*Protrepticus* B 59); this is not given up in the *De anima*, where, as we have seen, a soul cannot clothe itself in a body of another species any more than the art of carpentry can clothe itself in flutes, because 'the art must use [its proper] *ὄργανα*, and the soul must use [its proper] body' (*De anima* I. 3, 407^b25–6). The source of the picture of the soul 'using' the body and its parts as *ὄργανα* is of course in Plato. In the *Theaetetus* Socrates argues that it is not the eyes that see or the ears that hear, but rather a single thing, the soul, which sees by means of [*διὰ*] the eyes and hears by means of the ears, using the eyes and ears as *ὄργανα* for sensation (184 C–D).⁴¹ Similarly, the (First) *Alcibiades*, although it does not quite use *ὄργανον* as a technical term, says that just as a shoemaker cuts leather by using his *ὄργανα* (the tools of the trade, 129 C 7–8, D 4–5), so too he cuts by using his eyes and his hands (D 4–9), and that a man (*ἄνθρωπος*) also uses his whole body (E 3). Plato infers that, since in each case the user must be distinct from the thing used, the man who uses his whole body cannot be identical with the body (and also, Plato argues, cannot be a composite one part of which is the body); therefore, there must be something else that uses the body and rules the body, namely the soul, and it is this soul that is properly the man (129 E 5–130 C 3). This comes very close to saying that the whole human body is an *ὄργανον* of the soul, and seems close especially to the *Protrepticus*

⁴¹ Strictly speaking, what Plato says is not that the soul rather than the eyes see, but that we see *τῆ ψυχῇ* rather than *τοῖς ὀφθαλμοῖς*: there is one thing, the soul, *ἣ διὰ τούτων οἶον ὀργάνων αἰσθανόμεθα ὅσα αἰσθητά* (184 D 4–5). But it seems difficult in English to express the contrast between seeing *τοῖς ὀφθαλμοῖς* and seeing *τῆ ψυχῇ διὰ τῶν ὀφθαλμῶν* except by saying that in one case it would be the eyes that see, and in the other case the soul that sees by means of the eyes. This passage of the *Theaetetus* (a bit further down, at 185 D–E) is clearly the source for Aristotle's idea that the soul carries out some activities (perhaps activities of pure thinking) by itself, and others (such as activities of sensing) by means of *ὄργανα*; perhaps it is also a source for the idea that properly speaking it is not the soul that carries out the latter kind of activities, but that the composite does so *τῆ ψυχῇ* (and *διὰ τῶν ὀργάνων*).

text. But in writing the *Protrepticus* and the *De anima*, Aristotle is reflecting, not just on these particular Platonic passages, but on the more fundamental Platonic thought that we should care more about the good condition of our soul (i.e. about virtue) than about the good condition of our body or of our external possessions, because the soul *uses* the body and its possessions either well or badly, as it is virtuous and wise or vicious and foolish; and it is better to have a good doctor with bad instruments than a bad doctor with powerful instruments that he will misuse.⁴²

One consequence of this Platonic way of thinking is that we should value the body, and *a fortiori* external goods, merely as tools and not for their own sakes; Aristotle draws this consequence at *Politics* 1. 5, in saying that ‘the soul rules over the body with a despotic rule’ (1254^b4–5), i.e. in the way that a master rules over a slave, not primarily for the slave’s own good but to use him for the master’s benefit (although this is supposed to be best for the slave as well). As *Politics* 1. 4 had argued, slaves and possessions (κτήματα) in general are ὄργανα for living and acting (as opposed to for producing), and a slave is distinguished from these other ὄργανα by being ‘an ensouled possession’ (1253^b32) and by being an ὄργανον πρὸς ὀργάνων (1253^b33) by which we use the other ὄργανα; this description closely fits the ensouled body as described in the *De anima*, and indeed *PA* 4. 10, 687^a20–1, describes the human hand as ὄργανον πρὸς ὀργάνων.⁴³ However, beyond the evaluative implications of the Platonic description of the body as ὄργανον of the soul, there is also a picture of the soul as an artisan, and of virtue (the good condition of the soul) as an art, and specifically an art of *using* one’s own body and other ὄργανα. Aristotle is alluding to and drawing on

⁴² For various pieces of this argument see *Euthyd.* 279 D 6–282 A 6; *Meno* 87 E 5–89 A 1, *Clit.* 407 E 5–12.

⁴³ So too *De anima* 3. 8, 432^a1–2, ἡ χεὶρ ὄργανόν ἐστω ὀργάνων. The slave comparison is also drawn at *EE* 7. 9, ὁμοίως ἔχει ψυχὴ πρὸς σῶμα καὶ τεχνίτης πρὸς ὄργανον καὶ δεσπότης πρὸς δούλον (1241^b17–19). Note also Aristotle’s comment in *Pol.* 1. 4 that if our other ὄργανα were like the statues of Daedalus or the tripods of Hephaestus, we would not also need slaves (1253^b33–1254^a1), which suggests that an ὄργανον that could function like the statues of Daedalus would resemble an ensouled ὄργανον such as a slave or our own hand or body. I shall come back later to the question of how like or unlike the animal body is to the works of Daedalus and Hephaestus. In this passage the statues of Daedalus seem to perceive beforehand where they ought to go, like the tripods of Hephaestus and the ships of the Phaeacians, whereas the comic Daedalus of Philip the son of Aristophanes, cited in *De anima* 1. 3, makes statues that move but do not seem to have perception or purpose, and are therefore less appropriate as a model for real animals.

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this picture when he defines the soul as the *ἐντελέχεια* of a natural body which is its *ὄργανον*, but he is doing something different with the picture, and, as we shall see, he crucially modifies the picture in the process.

Most obviously, Aristotle is speaking not specifically of the human soul, but of the souls of animals and plants in general. These certainly do not literally possess arts. But, as we have already seen (in Section I above), Aristotle finds the arts useful as a model for how something stable and 'perfect' can move and give order to something subordinate to itself. In particular, the art, or the artisan *qua* artisan, is an unmoved mover, of the *ὄργανα* and of the bodies that the *ὄργανα* are applied to, and Aristotle thinks that the soul must be an unmoved mover of the body in order for it to be constantly a source to the body of the same teleological order. If the soul is related to the body as an art or an artisan to an *ὄργανον*, this is an essentially hierarchical relationship, contrasting with the Democritean and Timaeian picture of the soul and body as forming a single dynamical system, in which large motions in the body could spill over to shake the soul as well. And I think that much of the programme of the *De anima* and the *Parts and Generation of Animals* is to work out the picture of the body as *ὄργανον* of the soul and use it to explain particular vital activities. This is a teleological programme, since the *ὄργανον* and its activities will be explained by showing how they are for the sake of the user. Merely calling the soul the form of the body is not enough to suggest such a programme: triangle is the form of a bronze triangle, but the bronze is not an *ὄργανον* of the triangle and need not be for the sake of the triangle. Nor is it sufficient to say that in the animal case the form is not the shape but the function. For, while a thing may be said to exist and to act for the sake of its function, this is *not* the sense in which the animal body is said to be for the sake of the soul: Aristotle makes clear that the body is for the sake of '[participating in] the eternal and divine' as $\tauὸ οὖδ$, the to-attain-which (by securing the eternity of the species), as a thing is for the sake of its function; whereas the body is for the sake of the soul as $\tauὸ φ̂$, the to-benefit-whom, as an *ὄργανον* is for the sake of the art or the artisan (*De anima* 2. 4, 415^a26–^b7, B 15–21).⁴⁴ Aristotle does of course say that

⁴⁴ I am not denying that the body is also for the sake of the soul as $\tauὸ οὖδ$, but what *De anima* 2. 4 is saying is that the body is for the sake of the soul as $\tauὸ φ̂$, and this also needs to be explained. This seems to pose a serious difficulty for some modern

the soul is the form of the body, and I shall come back to this later; my point now is just that hylomorphism of itself does not explain Aristotle's conception of the teleological relation of soul and body, or his explanatory programme.

However, while Aristotle is in some ways just applying and elaborating Plato's picture of the body as *ὄργανον* of the soul, he also makes a crucial change in the comparison. Plato thinks that the soul is to the body as an artisan to his *ὄργανον*, and while Aristotle sometimes says this too—'the soul is to the body as an artisan to his *ὄργανον* and as a master to his slave' (*EE* 7. 9, 1241^b17–19)—his mature considered opinion is that the soul is to the body more properly as the *art* to the *ὄργανον* than as the *artisan* to the *ὄργανον*. Often, when he talks about the body or its parts as *ὄργανα*, or compares animal bodies to things produced by art, Aristotle leaves it unclear whether he is comparing the soul to the art or to the artisan. Sometimes he deliberately leaves both options open, as in *De partibus animalium* 2. 7, where 'to say that the soul is fire is like saying that the saw or the drill is the carpenter or the art of carpentry, on the ground that the result [*ἔργον*] is brought about when the two [the *ὄργανον* and either the artisan or the art, or the fire and the soul] are close to each other' (652^b13–15). The question is also, in a sense, deliberately left open in *De anima* 2. 1, since if soul is the *ἐντελέχεια* of the body in the way that the sailor is the *ἐντελέχεια* of the ship, then the soul will be to the body as the artisan to the *ὄργανον* (although a special kind of *ὄργανον*, in which the artisan himself is carried). So in calling the soul the *ἐντελέχεια* of the body, Aristotle cannot mean to *exclude* the possibility that the soul may be to the body as the artisan to the *ὄργανον* (and certainly no arguments he gives in *De anima* 2. 1 would be sufficient for such a conclusion): an artisan, such as the sailor, can be called the first *ἐντελέχεια* of his *ὄργανον*, because he is what completes his *ὄργανον* so as to render it capable of carrying out the characteristic activities of the kind

interpreters. Thus Nuyens thinks that the middle-period Aristotle thought that the body was for the sake of the soul as $\tau\acute{o}\ \phi\acute{\iota}$, but that Aristotle's mature hylomorphism entails that the body is for the sake of the soul as $\tau\acute{o}\ \omicron\delta$ and *not* as $\tau\acute{o}\ \phi\acute{\iota}$; and he claims, outrageously, to find this 'mature' view expressed in *De anima* 2. 4 (*L'Évolution de la psychologie d'Aristote* (Louvain, 1948), 245–6). In *Phys.* 2. 7, where the $\tau\acute{\iota}\ \acute{\epsilon}\sigma\tau\iota$ and the $\omicron\delta\ \acute{\epsilon}\nu\epsilon\kappa\alpha$ of a natural thing coincide, so that a soul would be $\tau\acute{o}\ \omicron\delta\ \acute{\epsilon}\nu\epsilon\kappa\alpha$, this is apparently $\tau\acute{o}\ \omicron\delta$ (which is what Aristotle usually means by $\omicron\delta\ \acute{\epsilon}\nu\epsilon\kappa\alpha$), and so too apparently in *PA* 1. 1; but Aristotle does not draw the distinction in either text, as he does in *De anima* 2. 4.

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of *ὄργανον* it is. None the less, it is clearly Aristotle's view in the *De anima* that, except possibly in the case of the rational soul, the soul is *not* an *ἐντελέχεια* in the way that the sailor or the artisan is, i.e. not as a further underlying substance which has its disposition to use its *ὄργανα* merely as a quality; the art comparison will come closer to the truth, although even here (as we shall see) Aristotle thinks there are important differences. We have already cited the passage from *De anima* 1. 3 where Aristotle first introduces the art comparison into the *De anima*, criticizing his predecessors who 'try to say only what sort of thing the soul is, and determine nothing further about the body that is to receive it, as if it were possible, as in the Pythagorean myths, for any old soul to clothe itself in any old body: rather, each [sc. soul?] seems to have its own proper shape and form. But these people are saying something close to saying that the art of carpentry could clothe itself in flutes; but the art must use [its proper] instruments [*ὄργανα*], and the soul must use [its proper] body' (407^b20–6). But what reasons does Aristotle have for preferring the art comparison to the artisan comparison?

Once we pose the question this way, I think the answer is fairly straightforward. Aristotle takes up the art-or-artisan comparison from Plato in the service of his programme for reforming natural philosophy: if the animal body is governed by something like an art, which moves the body while itself remaining in a steady state, and if the body exists and acts in order to be an instrument of this art, then we have the hope of explaining the order within the animal body teleologically, and explaining its stability-in-lawlike-motion as the constant effect of an unchanging principle. But all this is threatened if, in addition to positing an 'art' within the body of an animal or plant, we also posit a further underlying substance, an 'artisan', which would be capable of participating or not-participating in this art, of acting according to it or against it. Plato is not especially worried by this problem, because he is chiefly using the artisan comparison for ethical, not physical, purposes: he is thinking of the human rational soul, which can indeed either participate or not-participate in its art, i.e. in virtue. By contrast, plant and irrational animal souls do not have virtues or vices, and here it makes more sense to compare the soul to an art than to an artisan possessing an art as a quality. The underlying nature and the causality of such an 'artisan' would be obscure,⁴⁵ and Aristotle sees a threat of a relapse

⁴⁵ Think of the disastrous attempt at *Tim.* 35A 1–B 3 to explain the nature of

into mythology, in which the soul's actions on the body would simply be personal choices which cannot be further explained.⁴⁶ Furthermore, if the animal's motions are explained by positing a 'homunculus' within the animal, there is a threat of a regress: if this homunculus is like a driver within a chariot, then, although he is unmoved *qua* artisan (that is, his art does not change when he moves the animal body), his limbs would be moved when he moves the animal body, and we would have to distinguish again between his soul which is unmoved and his limbs which are moved. To stop the regress we need an entirely unmoved mover, and only the art, not the artisan, gives us a model for this.

The art-or-artisan comparison, and Aristotle's refinement of the artisan comparison into the art comparison, should thus be seen as programmatic for his detailed explanations of particular powers and activities of the soul. The point of the art comparison, and thus of Aristotle's definition of the soul as the first ἐντελέχεια of a natural organic body, emerges more clearly in these detailed explanations, especially when it is seen how radically they diverge from the usual pre-Aristotelian accounts. This is evident already in the outline accounts of nutrition and sensation in *De anima* 2. 4 and 2. 5, which are samples for Aristotle's programme of replacing earlier 'naturalistic' accounts of the vital activities with accounts that show the dependence of these activities on souls understood as art-like. By presenting his accounts, as usual, as new and reasonable solutions to old aporiai, Aristotle tends to disguise how radical he is being.

soul underlying its activities or motions (it is a mixture of the being, sameness, and difference which are undivided with those that are divided about the body). The *Laws* avoids the difficulty by describing the soul as a self-moved motion rather than an underlying self-moved mover, which has something in common with Aristotle's describing it as a quasi-art rather than a quasi-artisan, but from Aristotle's perspective to call the soul a motion is to put it in the wrong genus. Aristotle himself is forced to recognize a distinct artisan nature underlying the art analogue in the case of the rational soul, and he is in aporia about how to describe it, describing it in negative terms borrowed from the receptacle of the *Timaeus* (oddly harmonized with Anaxagoras' descriptions of *νοῦς*), and saying that it is of itself actually nothing, though potentially all intelligible things. The soul-art comparison begins to break down in the case of the rational soul, but I think that observing how it breaks down, and how Aristotle tries to deal with the problem, will yield useful results for *De anima* 3. 4–5. But I shall stay away from these extremely controversial chapters in this paper.

⁴⁶ Think again of *De anima* 1. 3, 407^b20–6, on the 'Pythagorean myths' of reincarnation: the art of dog-body-use cannot be clothed in a horse-body, but an underlying artisan could be reincarnated as long as he could pick up a new skill.

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But, to begin with, the fact that he is explaining nutrition and sensation as exercises of psychic powers is itself noteworthy. Aristotle is apparently the first philosopher to have invoked a soul in explaining nutrition; he had not mentioned a nutritive or vegetative soul at all in *De anima* 1, except in complaining in 1. 5 about what his predecessors had left out.⁴⁷ Even sensation had often been treated without any mention of soul, simply by describing the encounter between the sensible object and the sensitive part of the body; Aristotle is following Plato in insisting that the sensitive parts are merely *ὄργανα* through which the soul senses. But Plato too, when he takes up sensation among other topics of Presocratic natural philosophy in the *Timaeus*, and makes sure to stress the central role of the soul, continues to describe sensation ‘naturalistically’, as the spillover of movements of the body into the soul, conceived as forming a single dynamical system with the body. By contrast, Aristotle will deny that the soul is moved either in nutrition or in sensation, and use the art comparison to explain both activities.

III

De anima 2. 4 gives a resolutely ‘instrumentalist’ account of how the soul operates in nutrition.⁴⁸ Aristotle develops this account by criticizing naturalistic theories of nutrition, and arguing that, beyond the merely bodily agencies (e.g. fire) which they posit to explain nutrition, there is need of a further cause, the soul, which uses these bodily agencies as *συναίτια*. Aristotle starts by rejecting, on the one hand, the (Heraclitean, but widely shared) theory which makes fire the cause of nutrition and growth to living things, and which takes fire as the paradigm case of nutrition, saying that fire is ‘fed’ [*τρέφεται*] by its fuel, and, on the other hand, a saying of Empedocles that attributes the growth of plants to the tendency of the fire in them to rise and of the earth in them to sink (415^b28–416^a18). Here it is important to distinguish between ‘growth’ or ‘augmentation’

⁴⁷ Indeed, the last sentence of the book is an argument for the controversial claim that in plants too there is *ψυχή τις*, *De anima* 1. 5, 412^a27–30. Some philosophers had attributed souls to plants, and used *ζῶον* to cover plants as well as animals, but they had not used the soul to explain nutrition: the *Timaeus* attributes a kind of soul to plants (77b–c 5), but this is because it attributes to them *ἐπιθυμία* and *αἰσθησις* (which they need presumably in order to seek nutrients, not in order to assimilate them). Aristotle’s innovation here had, as usual, no immediate impact: the Stoics, and as far as I know the Epicureans, did not attribute souls to plants.

⁴⁸ As Modrak notes, *Aristotle*, 13.

(ἀξάνεσθαι) and ‘nutrition’ or ‘being fed’ (τρέφεσθαι). While Aristotle certainly does not deny that fire grows, the phenomenon to be explained in living things is not just growth but *natural* growth (cf. 415^b26–7), that is, growth directed towards some intrinsic τέλος. Fire does not exhibit natural growth in this sense, since it will grow *ad infinitum* as long as there is fuel (416^a15–16), and so fire is not be an adequate cause of growth to anything else. Anything that has *natural* growth must have the power of τρέφεσθαι, where this is ‘a power of *preserving* the thing that possesses it, *qua* thing that possesses it’ (416^b17–19): this is primarily a power of maintaining the thing at its natural size, and only incidentally a power of augmenting the thing when it is too small (or diminishing it when it is too big); nutrition rather than growth is the deeper phenomenon, and indeed the physicists had tried to explain nutrition as well. But their explanations do not explain the ability of a thing to preserve itself in a natural condition: fire is not ‘nourished’ in this sense, and the Empedoclean explanation fails to explain why the plant is not torn asunder when its elemental constituents pull in different directions; it needs something else (namely, says Aristotle, its soul) to preserve it as a natural compound (i.e. as a thing having a single nature or tendency to natural motion), and the power that preserves it is the principal cause of its being nourished and thus also of its growing (while remaining the same thing), whereas the natural powers of the elements can only be auxiliary causes (συναίτια) of its growth.

Following his principle that powers can be known only through knowing their acts, and acts can be known only through knowing their correlative objects, Aristotle asks about the nutriment or food (τροφή) which is necessary for the act of nourishing or preserving the living body. Aristotle raises an aporia here exactly parallel to the one he will raise about sensation in 2. 5: is a thing nourished by its like or by its contrary? Anaxagoras, most obviously, thinks that a thing is nourished by its like; the Heracliteans, who think nourishment takes place by fire converting its fuel (identified, oddly, as moisture) into more fire (and discarding the unburnable residue), take nourishment to be of a contrary by its contrary. As in 2. 5, Aristotle takes a tone of sweet reasonableness in resolving the dispute. He concedes to the Heracliteans that nutrition requires digestion—πέψις, literally ‘concoction’ or ‘cooking’—of the nutriment, and that this requires fire or ‘vital heat’ to act on the nutriment and transform it into something else (for Aristotle, blood, or its analogue

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in 'bloodless' animals). But an animal does not consist entirely of blood, and so the process of nourishment cannot end here; the end product of concoction must still be distributed to the different homoeomerous parts of the body and assimilated to them (and, of course, this must happen in the right proportions and in the right places for the organic parts to remain capable of performing their activities, and thus for the whole living body to be preserved as the thing it is). So, Aristotle says, the dispute about nourishment through likes or contraries can be resolved by drawing a distinction: 'it makes a difference whether the τροφή is the final thing added [to the body] or the first; or if both, but one is undigested/uncooked and the other is already digested/cooked, then it is possible to speak of τροφή in both ways: for inasmuch as it is undigested/uncooked, contrary is nourished by contrary, and inasmuch as it is already digested/cooked, like is nourished by like' (416^b3-7).

However, this resolution mostly serves to disguise what is radically different in the way Aristotle thinks of nutrition. The Heracliteans from whom Aristotle takes over the theory of digestive fire think of the process of nutrition as involving two terms, ἡ τροφή, nourishment or food, and τὸ τρεφόμενον, what is nourished or fed, where τὸ τρεφόμενον acts on ἡ τροφή to transform it into more of τὸ τρεφόμενον. Aristotle, by contrast, thinks that there are at least three terms, τὸ τρεφόμενον, what is nourished or fed, ᾧ τρέφεται, that by which or with which it is nourished or fed, and τὸ τρέφον, what nourishes or feeds it: 'the τρέφον is the first [i.e. the nutritive] soul, the τρεφόμενον is the body which possesses this [soul], and ᾧ τρέφεται is ἡ τροφή' (416^b20-3 Bekker, 416^b25-25c after Ross's transposition). Aristotle is thus inserting the soul into the process of nutrition: the soul feeds the body with food, so that the primary efficient cause of nutrition is distinguished from the thing which is increased (or whose losses are compensated) in nutrition; the primary efficient cause of nutrition is thus not the body but an unmoved mover. That such a cause is necessary follows from the definition of the nutritive power as 'a power of preserving the thing that possesses it, qua thing that possesses it' (416^b17-19): this is therefore an efficient cause which (once the body it inhabits has attained its teleologically intended size and condition) constantly produces the same effect, which for Aristotle shows that the cause must itself remain in the same persisting state, i.e. that it is an unmoved mover. Indeed, far from the animal body's being the agent and the food the patient,

properly speaking the animal body is the primary patient of the soul's action of nourishing or preserving: the food gets involved, and gets acted on, only as an instrument or necessary condition of the soul's activity of nourishing, being that with which the soul preserves the body, as the wood is that with which the carpenter repairs the house, and the drug is that with which the doctor heals the patient:⁴⁹ '[the nutritive power is] a power of preserving the thing that possesses it, *qua* thing that possesses it, and the food provides [this power with] *ἐνερργεῖν*; this is why, when deprived of food, it cannot exist' (416^b17–20).⁵⁰

The nutritive power is importantly unlike the art of carpentry in that, instead of building or repairing an external object, it 'preserves the thing that possesses it, *qua* thing that possesses it'; and so, while carpentry works with tools which are separate from the house it is building, the nutritive power's tools are parts of the animal body that is being built, and the tools and the art cannot exist without the animal body to sustain them. Indeed, Aristotle's definition of the nutritive power seems intended to show that the nutritive power falls under the definition of nature as 'a principle and cause of motion [*κινεῖσθαι*] and rest in the thing in which it is primarily present, *per se* and not *per accidens*' (*Phys.* 2. 1, 192^b21–3). But while the nutritive power is thus different from ordinary arts, it is like the arts and unlike ordinary natures in being an *active* power: heavy and light bodies are not self-movers or (equivalently) do not contain a principle that moves them—they contain a principle of motion, not of *κινεῖν* and *ποιεῖν*, but of *πάσχειν* [i.e. not a principle of (transitive) moving but only of being moved]' (*Phys.* 8. 4, 255^b30–1)—whereas a living thing is a genuine self-mover and so its soul must be a principle that moves it, or, as in the case of the nutritive power, preserves it. Indeed, by arguing that the nutritive power is a nature, but is unlike ordinary natures in being an active power, Aristotle is implicitly also arguing for his controversial thesis that the nutritive power is a soul: since it is a nature, it is the *ἐντελέχεια*

⁴⁹ In the comparison Aristotle is apparently drawing at 416^b25–9 Bekker, 416^b25c–29 Ross, the vital heat is that with which the soul nourishes the body as the hand is that with which the pilot steers the ship, and the food is that with which the soul nourishes the body as the rudder is that with which the pilot steers the ship: the hand and the vital heat are moved and move in turn, while the rudder and the food are simply moved. But the text here is troubled.

⁵⁰ Food as a cause of nutrition is thus comparable to the obstacle-remover as a cause of a heavy body's falling, as described in *Phys.* 8. 4; but see below for a disanalogy.

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of a natural body, but since it acts, on the *τροφή* with which it is constantly replenishing the living body, by means of the vital heat and by means of the whole living body which sustains the vital heat, the body whose *ἐντελέχεια* it is is an *organic* natural body, and so the nutritive power falls under the definition of soul.

Aristotle intends his treatment of the quasi-art of nutrition as programmatic for the other psychic powers as well; but the nutritive power also has a quite special status among the other psychic powers. In Aristotle's comparison from *De anima* 2. 3 it is fundamental to the other kinds of soul as the triangle is fundamental to the other polygons; it is the 'first and most universal power of the soul' (*De anima* 2. 4, 415^a24–5), present in everything which has any kind of life.⁵¹ It is also inferior to the other psychic powers, in that it exists primarily for their sake and not vice versa, since it belongs to the nutritive power to nourish the organs of e.g. the sensitive power, so that the sensitive power can use them. The nutritive power is thus related to the sensitive power as, in general, the art of making something is related to the art of using it: in each case the art of making is subservient (*ὑπηρετική*, and the art of using is able to command (*ἐπιτακτική*, *ἀρχιτεκτονική*), because the art of using sets the ends for which the art of making must shape its products (thus Plato *Rep.* 10, 601 c–e; *Cratylus* 390 b, Arist. *Protrepticus* B 9). Indeed, Aristotle thinks that the nutritive power is best described, not simply as a power of *repairing* the body and its organic parts so that they can continue to fulfil their functions, but as a power of *producing* the organic parts and the whole organic body. For, in the first place, the aim of the nutritive power is not just to preserve the body and its organic parts so that the soul can use them for a limited time, but to preserve them so that the soul can use them for ever; and 'since it is unable to participate in the eternal and divine by continuous existence, since no corruptible thing can persist numerically one and the same', each animal or plant within the sublunar world aims to reproduce its kind, and 'persists, not itself, but something like itself, one not in number but in species' (*De anima* 2. 4, 415^b3–5, 6–7). So the same power of soul that aims at nourishing the living body it inhabits also aims at generating another living body *like* the one it inhabits. And since everything which is *πρός τι* (as every *δύναμις* is *πρός* its *ἐνέργεια* or its *ἔργον*)

⁵¹ So Aristotle says, but there should be a caveat about *divine* living things, such as the heavenly bodies, which surely do not have nutritive activities or powers.

should be described as being *πρός* 'its τέλος . . . [i.e.] the best thing, for the sake of which the others are' (*Top.* 6. 8, 146^b9–10), and since in the case of the nutritive power this is the generation of another living thing and the preservation of the species for eternity (so esp. *De anima* 2. 4, 415^a26–^b2), it is more proper to call this power of the soul not nutritive but generative (so Aristotle argues at *De anima* 2. 4, 416^b23–5).

To think of this power of the soul as generative, and to take generation as its paradigmatic act, has implications also for our understanding of nutrition. The generation of an animal is more obviously art-like (and analogous to housebuilding) than nutrition is, and Aristotle wants to bring out the art-like aspects of nutrition by reconceiving it on the model of generation. Nutrition is not simply adding new material to already existing organs, but continually *remaking* organs that are in continual decay—for Aristotle's picture of the living body, described especially in the *De juventute* (and cf. *GC* 1. 5, 321^b21–8), is starkly Heraclitean. The key to this process of remaking is the vital heat, which continually produces blood through digestive cooking, and then the blood itself, which (for Aristotle as much as for Harvey) is in continual movement: but whereas on the modern account the blood goes out from the heart to the different parts of the body and then returns to the heart, for Aristotle the blood goes out and does *not* return, so that more must continually be produced, because all the blood is needed in the organs to replace the parts that they are continually losing through decay. Thus while the task of replenishing the decaying organs is easier than the task of producing a whole new organ system, it is not an essentially different kind of task, and the same psychic power accomplishes both by the same means, namely by 'cooking' nutriment into blood and blood into organs: both the female and (more completely) the male seed are the ultimate concoction of the blood, and the formation of the embryo is again a 'cooking' until the fully formed animal is produced. So Aristotle is applying the same principles in explaining both nutrition and generation; but these principles often appear more starkly in the case of generation.⁵²

⁵² 'As the things which come-to-be through [*ὑπό*] art come-to-be by means of [*διὰ*] the instruments, or it would be truer to say by means of their motion, and this [motion] is the *ἐνέργεια* of the art, and art is the form [*μορφή*] of what comes-to-be in another, so too the power of the nutritive soul, just as, later on, in the animals and plants themselves it produces growth out of the nutriment, using heat and cold as if as instruments (for its motion is in them, and each thing comes-to-be by a certain

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In particular, the *Generation of Animals* draws very heavily on the principle that the soul is related to the (male) seed as an art is related to its instrument. 'The nature of those [animals] which emit seed in the male uses the seed as an instrument and as having motion in actuality, in the same way that the instruments are moved in things that come-to-be by art: for the motion of the art is somehow in [the instruments]' (*GA* 1. 22, 730^b19–23). This text by itself may not settle whether the nutritive soul (the 'nature' of the father) is being compared to the artisan or to the art; in context, Aristotle's main point is that the artefact does not acquire its form by having any part of the artisan or of the art (both mentioned, 730^b12–14) transmitted to it, but by the art or the artisan's soul (both mentioned, 730^b15–16) producing 'the motion of the art' in the artisan's hands and thus in the instruments and thus in the matter that becomes the artefact, and that likewise the male seed need not become part of the offspring, but produces the form in the matter of the offspring (the blood or female seed) simply by producing the appropriate motions in it. But the primary causal relationship in the case of artefacts is between the art and the artefact, not between the artisan and the artefact, and natures and specifically nutritive souls are compared and contrasted with arts; if something in the biological case can be compared to the artisan, it is not the father's soul but the father as a composite. Thus in a parallel passage to the one just cited, in which Aristotle is again insisting that the offspring and its parts acquire their forms through the different motions introduced into the blood, he says by way of analogy that 'in things which come-to-be by art, the hot and cold make the iron hard or soft, but [what makes it] a *sword* is the motion of the instruments, [that motion] containing the *λόγος* of the art: for the art is a principle and form of the thing that comes-to-be, but [a principle and form] existing in another; whereas the motion of nature in [a thing that comes-to-be] is from another nature which possesses [the same] form in actuality' (*GA* 2. 1, 734^b36–735^a4). So here it is the art or the nature which

λόγος [=ratio of hot and cold, pattern of movements, or the like?]), so too from the beginning it constitutes [=puts together] the thing which comes-to-be by nature. For it is the same matter [i.e. blood or its analogue] by which [the animal or plant] grows and out of which it is first constituted, so that the power which produces [the growth] is also the same as the [power that produces the animal or plant] from the beginning; but this [production from the beginning] is superior. So if this is the nutritive soul, it is also the generative [soul]; and this is the nature of each thing, being present both in plants and in all animals' (*GA* 2. 4, 740^b25–741^a2).

is properly the cause of the production of the artificial or natural thing. The way that the art or nature causes the production is that, being a *ξίς* or more generally a first *ἐντελέχεια*, it tends essentially towards *ἐνεργεῖν*; and since the *ἐνέργεια* of the agent, the *ἐνέργεια* of the instrument, and the *ἐνέργεια* of the patient all coincide, the *ἐνέργεια* of the art or nature just *is* the motion of its instruments ('things which come-to-be through art come-to-be by means of the instruments, or it would be truer to say by means of their motion, and this [motion] is the *ἐνέργεια* of the art, and art is the form of what comes-to-be in another', and likewise with the nutritive soul, *GA* 2. 4, 740^b25–9, cited in n. 52 above); and the activity of the instruments in locally moving or heating or cooling the matter according to the art just *is* the matter's activity of becoming the artefact or the offspring. Presumably some of the point of calling the art (or the father's soul) an extrinsic 'principle and form' of the product is that it is the *ἐντελέχεια* of the instruments and of the potential product as the sailor is the *ἐντελέχεια* of the ship: that is, it is what completes the instruments and the potential product so as to render them capable of carrying out the characteristic activities of the instruments and of the potential product, so that the *ἐνέργειαι* of this *ἐντελέχεια* just are the *ἐνέργειαι* of the instruments and of the potential product.⁵³

In this analysis the artisan and his body almost disappear. Aristotle does mention the artisan's body in (the context of) one of the passages I have cited: 'nothing comes from the carpenter to the matter of the wood, nor is any part of the art of carpentry in the thing which comes-to-be, rather the shape and form come-to-be from [the artisan] through the motion in the matter, and the soul in which the form is and the science move the hands or some other part [of the artisan's body] with some kind of motion (a different motion where the thing that comes-to-be is different, the same motion where it is the same), and the hands and the instruments move the matter' (*GA* 1. 22, 730^a12–19). But here the hands, or the artisan's body generally, are just one more thing in which the motion of the art is present: they are a kind of instrument (recall the texts cited above on the hand, like the slave, as *ὄργανον πρὸ δργάνων*), and

⁵³ Note that *τέχνη* can also sometimes be used to mean the 'workmanship' as a quality inherent in the artefact (so e.g. *Phys.* 2. 1, 193^a16), or even the artefact itself (ibid. 193^a31–2, and references given by Ross ad loc.; but Aristotle is mentioning this sense rather than using it).

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privileged over the other instruments of the art only because the motion is present in them *first* and is transmitted from them to the other instruments. But in Aristotle's paradigm case in the *Generation of Animals* (the male seed in those animals whose males emit seed), there is nothing analogous to a hand guiding the instrument. Once the seed has been emitted it works on its own without further contact with the father's body; the motions of the art are simply present directly in the instrument, and Aristotle seems not to feel a need for any further explanation of how this can happen. Aristotle conceives of the relation of the art to the instrument as a primitive which does not need to be analysed in terms of relations of art to artisan and artisan to instrument (the seed is not itself an artisan, and while the father can be compared to an artisan he plays no further role once the seed is emitted); and so Aristotle feels free to use the art-instrument relation to analyse the art-artisan relation, by reducing the father's or the artisan's body to instruments of his nutritive soul or of his art.

It is worth noting here something special and a bit paradoxical about the nutritive soul and its activity of generation. At early stages of the generative process the embryo cannot perform its characteristic activities on its own, but must be continually guided from without by the seed which contains the motions of the art; this is to say that the embryo does not yet have its form intrinsically, but needs something extrinsic to serve as its form or *ἐντελέχεια*. However, in the process of development the embryo comes to be able to perform more activities on its own; the offspring possesses the form perfectly when it is able on its own to perform the *perfect* activities of the species, i.e. not just the activities of *acquiring* the form, but the activities towards which the form is directed. To some extent this description also applies when an artisan is at work producing an artefact; but natural things and especially living things have 'their own' activities in a stronger sense than artefacts do, since once they are perfected they have an internal principle of motion and do not need to be 'used' by something external to them. The process of the formation of the embryo is just a process of the embryo's coming to have the relevant internal principle of motion, that is, of the motions which it is continually undergoing coming to be driven from the inside and not simply from without. That is to say, it is a process of habituation, analogous to the process by which an apprentice learns an art: initially he performs the motions of

the art from an external principle (because he is told what to do at each stage; or the trainer may even physically guide his limbs), but gradually he internalizes the lessons and forms a *ἕξις*, a principle internal to him which will produce the motions of the art when they are appropriate.⁵⁴ Aristotle is making just this point, in more generic terms, at *Metaphysics* Θ 8:

matter is in potentiality when it is going into the form; when it is in actuality, it is already in the form. And similarly in other things, including those whose *τέλος* is a motion:⁵⁵ this is why teachers think they have produced their *τέλος* when they have displayed [the learner] *ἐνεργούντα* [i.e. actually carrying out the appropriate activity]; and nature acts similarly [sc. in generating something, of which presumably animals and plants will be at least the paradigm cases]. For if this does not happen, it will be like Pauson's Hermes: for it will be unclear whether the knowledge is inside or outside, as it is [likewise unclear] with [the Hermes]. (1050^a15–21)⁵⁶

What is special and a bit paradoxical about the case of biological generation is that we cannot distinguish between something analogous to the activity of building a house and something analogous to the activity of teaching someone the art of housebuilding. The nutritive soul is a quasi-art of horsebuilding or mousebuilding (etc.), analogous to the art of housebuilding, and its *τέλος*, i.e. its chief *ἔργον* for the sake of which its other *ἔργα* come about, is to produce a horse or a mouse. However, to produce a horse or a mouse is just to produce something else which possesses the relevant kind of soul—that is, to ‘teach’ something else the art of horsebuilding

⁵⁴ In speaking of ‘habituation’ here I mean not necessarily *ἔθισμός*, but the formation of any kind of *ἕξις*: what the apprentice acquires may not be mere *ἔθος*, but may also include the appropriate motivations (as in acquiring a virtue), or knowledge of the reasons why different kinds of action are appropriate in different circumstances (as in acquiring a *τέχνη* as opposed to mere *ἐμπειρία*). My intention here is not to decide which of these models is more appropriate in embryology, but simply to note that Aristotle is conceiving the process in embryology on the generic model which has these as specific cases.

⁵⁵ *κίνησις* here means ‘activity, i.e. action or passion, as opposed to actuality in other categories’, not specifically ‘incomplete activity’. Aristotle often uses ‘*κίνησις*’ this way in Θ , because he wants to make *ἐνέργεια* the uniform term for actualities in all categories; so when he needs a more specific term for activities (actions and passions), he drafts *κίνησις* into service, although (as he apologetically points out in the controversial passage Θ 6 1048^b18–35, marked by Jaeger as a later addition), on his own view not all activities are *κινήσεις*. See my discussion in ‘The Origins of Aristotle’s Concept of *Ἐνέργεια*: *Ἐνέργεια* and *Δύναμις*’ (*Ancient Philosophy*, 14 (Spring 1994), 73–114.

⁵⁶ For suggestions about what Pauson’s Hermes may have been, see Ross ad loc.: apparently some sort of trick painting.

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or mousebuilding, plus whatever other 'arts' may be contained in the soul of a horse or a mouse.

The situation is in fact strikingly close to the Socratic account of justice as described in the *Clitophon*, according to which justice or the political art is the virtue or best state of the soul, as health is the best state of the body, and according to which the art of producing the best state of the soul, as medicine is the art of producing the best state of the body, is justice or the political art. As Clitophon complains

medicine is said to be an art, and it has two kinds of results: the first is to produce more doctors besides those who already exist, and the second is health. This second thing is not itself an art, but is rather the *ἔργον* of the art which teaches and is taught, and this is what we call health. And in the same way a house is the *ἔργον* of carpentry, and carpentry is what is taught by carpentry. So we can agree that one result of justice is to make others just, as happens with craftsmen of every kind; but what shall we say the other thing is, the *ἔργον* which the just man can make for us? (409 B 1–C 1)⁵⁷

Clitophon's implication is that unless Socrates can describe the other (and chief) *ἔργον* of justice, we shall not really know what justice is (and presumably this would still be true even if we could specify some subordinate things that justice did as a means to teaching, since to know what it is we have to know what it is *πρός*, and this must be its *τέλος* rather than some subordinate activity); there is a further implication that, even if we accepted such a circular account of what justice is, an art which has no function except to perpetuate itself would not actually be for the sake of any good. Aristotle's answer to the second objection, as given in *De anima* 2. 4, is that the ultimate *τέλος* for the sake of which all things do everything they do is to participate in the eternal and (therefore?) the divine, and that no further reason is needed why self-perpetuation would be a good; his answer to the first objection is apparently that we can define the nutritive soul in general by saying that it is a power of preserving its possessor *qua* possessor of it, and of producing another similar possessor of it, and that we can define the different species of nutritive souls by specifying the kind of body that they have to preserve and reproduce, which we do by specifying the structure and function of the different *ὄργανα* that the nutritive soul (and, for

⁵⁷ Plato puts in Socrates' own mouth a similar question about the *ἔργον* of the art of kingship or politics, *Euthyd.* 291 D 7–292 E 5.

animals, the other psychic powers) uses to carry out its *ἔργον* in the different specific cases. Clitophon might not find this satisfactory, but he would not find it any *less* satisfactory than Aristotle's account of God as *νόησις νοήσεως*.

IV

However, in the case of an animal, the nutritive soul does exist for the sake of something superior to itself, namely the sensitive soul; the nutritive soul is the quasi-art of making the animal body, including the sense-organs, and the sensitive soul is the quasi-art of using them. And Aristotle uses the soul-art comparison to reconceive the sensitive power and its activities, and to challenge Presocratic and Platonic conceptions of them, just as he does with the nutritive soul and its activities. I shall not try to say anything comprehensive about Aristotle's theory of sensation, but only to note the ways that it, like his theories of nutrition and generation, depends on the art comparison.

Aristotle does ostentatiously introduce the art comparison in giving his general account of sensation in *De anima* 2. 5; his aim is to give an alternative to the 'naturalistic' accounts, whether Presocratic or Platonic, which interpret sensation as a *πάθος* and alteration either of the body or of the soul. As Aristotle says, 'what has the science comes-to-be contemplating, and this is not a being-altered . . . or it is a different kind [i.e. a special or improper sense] of being-altered. So it is not right to say that what understands is altered whenever it understands [*φρονῆ*], any more than the builder is when he builds' (*De anima* 2. 5, 417^b5-9); and Aristotle goes on to say that the 'change' that takes place in the sensitive thing [*αἰσθητικόν*] when it actually senses something is no more than the change from merely having the science to actually contemplating. Aristotle seems quite indifferent as to whether he is comparing the power of sensation to a theoretical science or to a practical or productive art like housebuilding; the *ἐνέργεια* of housebuilding does not take place without motion, indeed motion of the housebuilder's limbs as well as of his materials, but it does not involve any change in the art, or in the builder *qua* builder, and Aristotle's claim is that, similarly, actual sensation does not involve any change in the soul, or in the *αἰσθητικόν*—apparently meaning the sensitive power of the soul together with its bodily instrument—*qua* *αἰσθητικόν*. This is

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an extremely paradoxical thing to say: Aristotle was the first, and for a long time the last, to have said it, and he himself did not yet believe it when he wrote *Physics* 7. 3. As we have seen, even in the *De anima* Aristotle continues to believe that sensation is the most plausible case for the soul's being moved; but he is now pushing his anti-naturalist programme in psychology, denying motion in the soul, even to the most problematic case, sensation. Why is he doing this?

Aristotle's quarrel is in the first place with Presocratic theories that reduce sensation straightforwardly to the alteration of one body by another, e.g. of a contrary by its contrary (or however the given theory conceives alteration in general): θερμαίνεσθαι, to sense heat, is simply a particular case of θερμαίνεσθαι, to be heated. Aristotle's objection to this kind of analysis is analogous to his objection in *De anima* 2. 4 against saying that fire is 'fed' or 'nourished' by its fuel and that the feeding of an animal is the feeding of its fire. Thus against Democritus' theory that sight is the presence of reflected images in the pupil, he says, 'it is strange that it did not occur to him to raise the question why only the eye sees, and none of the other things in which [reflected] images are displayed' (*De sensu* 2, 438^a10–12). Of course Plato too rejects such straightforwardly physicalist analyses of sensation. But Aristotle is also suspicious of Platonic solutions that say that the body's being affected by the external object only results in sensation when the soul notices it, which just defers the question of explaining how the animal senses the world onto the question of how a homunculus within the animal senses the animal;⁵⁸ and he is especially suspicious if Plato fills this out by saying that the body's being affected only results in sensation when the motion in the body is strong enough to transmit a similar motion to the soul, which just transposes the physicalist analysis of sensation onto a magical quasi-body, the soul.

More generally, Aristotle thinks that any view that makes sensa-

⁵⁸ The claim of *De anima* 3. 2, that we *see* that we see, rather than perceiving through some other power that we see, may be directed against a view that we perceive that we see when some homunculus within perceives that the eyes are being affected. Aristotle seems to hold a view closer to this in texts of the *Parva naturalia*, especially *De omnino* 2, esp. 455^a15–22. Irving Block ('The Order of Aristotle's Psychological Writings', *American Journal of Philology*, 82 (1961), 50–77) thinks this makes the *Parva naturalia* texts likely to be later (because, Block thinks, more philosophically satisfactory) than the *De anima*; I think it is more likely that the *De anima* texts are later, and that from the point of view of the *De anima* the *Parva naturalia* account remains too close to Plato.

tion a *πάθος* or a motion, whether of the body or of the soul, implies that the sensing subject will sense different things when it is in different psychophysiological conditions (thus if sensing heat is just being heated, then we shall sense a thing as hot when our sensitive part is colder than the thing, as cold when our sensitive part is hotter than the thing), so that what we sense is something subjective, or the joint offspring of the sensible object and the sentient subject, rather than something objective; and indeed, this kind of physical account of sensation had commonly been given, by philosophers from Parmenides (in the *Doxa*) down to the ‘Heracliteans’ of the *Theaetetus*, precisely in order to undermine the objectivity of sensations. So Aristotle, in making sensation more like the exercise of an art, and less like being heated or shaken, is also trying to make sensation more object-directed, and (if sensation takes place successfully) more reliable at recognizing objective features—as Aristotle says, the ‘form’—of the sensible object. Sensation is of course not the exercise of a *productive* art (anyway, not a *productive* exercise of a productive art), but there are other kinds of arts; a Platonic example is the art of measurement (*μετρητική τέχνη*) of *Prot.* 356 D–E, which allows us to recognize which lengths are greater or shorter, no matter how misleadingly close or far they may be, and so would preserve our life if our preservation depends on selecting the long lengths and avoiding the short ones. Plato is here contrasting this art of measurement with ‘the power of appearance’ (that is, apparently, of sensation) which leads us astray and makes us accept and reject the same thing when it is presented in different perceptual contexts; but Aristotle, while he certainly agrees that the deliverances of the senses sometimes need to be corrected, is saying that the senses too, while they may be contrasted with human art, are themselves a kind of art of measurement exercised by nature or by the sensitive soul through appropriate artistic instruments—not instruments of production, like a hammer, but instruments of cognition (*κριτήρια*, as later writers will say), like a straight-edge or a plumb line.⁵⁹ Something like this Platonic example gives Aris-

⁵⁹ Aristotle thinks that the senses can go wrong, and can be corrected, chiefly in their judgements of the common sensibles, such as length (which are what Plato has in mind in the *Protagoras* passage); so it might be most precise to say that the senses are *μετρητικά* of the proper sensibles. It sometimes sounds as if the senses are infallible about the proper sensibles (conceived as objective qualities of bodies), but when Aristotle is being careful he says only that they err about the proper sensibles only in unusual circumstances. We do go wrong about the true colours of things

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tote a counter-model to the usual physicalist or quasi-physicalist accounts of sensation.

In *De anima* 2. 5, where he first compares the sensory powers to arts, Aristotle's immediate concern is not with the objectivity of the sensory powers, or with their relation to their instruments, but with showing that a cognitive power need not be qualitatively changed when it perceives different objects. Taking the example of the art of reading and writing (*γραμματική*), Aristotle distinguishes three situations a person may be in with regard to the art: he may not have the art in actuality, but only potentially, in that he is able to learn it; he may have the art and not be exercising it, and here too he may be called *δυνατός*, not as in the first case simply because he is the kind of thing that could possess the art, but 'because he is able to contemplate when he wishes, if nothing external prevents' (417^a27–8); or, third, he may be 'already contemplating, actually and in the primary sense knowing this-here-alpha' (^a28–9). He passes from the first situation to the second 'having been altered through learning, and having changed many times from the contrary state' (^a31–2), but he passes 'from having but not exercising sensation⁶⁰ or *γραμματική* to exercising it, in a different way' (^a32–^b2): 'for what has the science comes-to-be contemplating, and this is not a being-altered . . . or it is a different kind [i.e. a special or improper sense] of being-altered' (^b5–7, already cited). And indeed it seems obvious that our art of *γραμματική* is not qualitatively changed when we pass from attending to and recognizing this-here-alpha to attending to and recognizing the adjacent beta, despite the fact that *γραμματική* has different exercises in these different situations (and not simply the different *cognitive* exercises, but also the different *productive* exercises of the art which we may perform in the different situations, e.g. producing the sound of an alpha or the sound of a beta when we recognize those letters in a written text).

The art of *γραμματική*, like the art of *μετρητική*, is a particularly appropriate model for sensation, not just because it is a primarily cognitive rather than productive art (although, like sensation, it can

under unusual lighting conditions, and if these errors are *not* due to the senses, it is hard to maintain that our usual, allegedly correct judgements about the true colours of things *are* due to the senses. But such fallibilism about the senses is consistent with their being art-like, since Aristotle admits arts that succeed not always but only for the most part.

⁶⁰ Assuming that we keep the manuscripts' *αἴσθησις* rather than Ross's *ἀριθμητικήν*; but Ross might be right.

serve to guide production or action), but also because its primary exercises are directed towards *tokens* of the types toward which the $\xi\zeta\iota\varsigma$ is directed: whereas the primary exercise of geometry is proving a universal theorem, the primary exercise of *γραμματική* is in distinguishing the letter-types instantiated in the token letters that are put before us, by recognizing each letter-token (or letter-sequence-token) as falling under the appropriate type. In the case of sensation, the qualitative change that corresponds to learning the art takes place before birth, before we have been exposed to any sensible-quality-tokens: 'the first change of the *αἰσθητικόν* is produced by the generator [i.e. the father of the animal], and when [the animal] has been generated it already possesses [$\xi\chi\epsilon\iota$] sensation, in the way that [someone $\xi\chi\epsilon\iota$] a science' (417^b16–18).⁶¹ For, as we have seen from the *Generation of Animals*, the task of the father or of the male seed in generation is precisely to 'teach' the blood or female seed all of the 'arts' that constitute the soul of that kind of thing, which must include all of the sensory powers that that kind of animal possesses. Aristotle is also recalling here *Physics* 8. 4, where the change of a potentially light body into an actually light body is compared to learning a science; the light body will then rise as soon as whatever obstructs its rising is removed, just as the knower will then contemplate whenever nothing obstructs him from doing so, without needing to be acted on by any further cause except the obstacle-remover. In *Physics* 8. 4 the lesson is that the generator of the light body, by causing its disposition to rise, is also the *per se* cause of its activity, and that the obstacle-remover is only a *per accidens* cause of its rising; in *De anima* 2. 5, likewise, the result seems to be that the generator of the animal is the *per se* cause of sensation, and that the token sensible quality (like the nutriment at *De anima* 2. 4, 416^b19) merely provides the opportunity for the power to act, rather than itself acting directly on the sensory power. In order to say this, Aristotle does not have to go to the extreme of saying that the token sensible quality is simply an obstacle-remover:

the difference [between the activity of sensation and contemplation] is that the things that produce the activity in the first case are external, the visible and the audible and likewise the rest of the sensibles. The reason is that

⁶¹ Ross's note on 417^b17–18, 'a new-born animal has the faculty of sense-perception, as the new-born man has the faculty of knowing', is confused: Aristotle is comparing the newly born animal to a newly taught human, not to a newly born human.

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sensation, in the activity-sense, is of individuals, while science [sc. even in the activity-sense] is of universals, and these are in some way within the soul itself; for this reason thinking [=contemplating] is up to it, whenever it wants, but sensing is not up to it: it is necessary for the sensible to be present. And this holds likewise also in the sciences which are about sensible things, and for the same reason, that the sensibles are individual and external. (*De anima* 2) 5, 417^b19–27)

While Aristotle does not say what he means by ‘sciences which are about sensible things,’ I take it that *γραμματική*, or *μετρητική* as described in the *Protagoras*, would be paradigm cases: these might reasonably be called sciences (*ἐπιστήμῃ*) rather than arts, because their primary exercise is simply an act of knowing rather than of acting or making, but because their primary exercise lies in recognizing an external individual as falling under its type, they are dependent on external things in a stronger way than (say) geometry is; and Aristotle is saying that sensation depends on external things in just the way that *γραμματική* and *μετρητική* do, and in no stronger way.

These examples give Aristotle a counter-model to the model of sensation as assimilation of the *αἰσθητικόν* to the sensible token, e.g. of sensing heat as being heated by a hot external object. The activity of *γραμματική*, certainly the activity which is the *τέλος* of *γραμματική*, is not becoming assimilated to or identified with this alpha, but rather distinguishing the different letters from each other, and discerning the different letters, in their proper order, which are all present together within the same letter-sequence.⁶² In this light Aristotle can reassess the claim made by his predecessors and discussed especially in *De anima* 1. 5, that knowledge is through likeness between the knower and the known, and therefore that the soul, in order to know all things, must be composed of the elements or ‘letters’ (*στοιχεῖα*) of all things. Aristotle must reject at least two points of this account. First, as he has said already in *De anima* 1. 5, the special role given to the *στοιχεῖα*, in preference to all other objects of knowledge, is misleading: we must be able to know not only the *στοιχεῖα* but also their combinations (and to discern the different proportions, orders, etc. in which they are present in different combinations); and since it is not credible that every recognizable

⁶² This is how Plato describes the activity of *γραμματική* in the *Theaetetus*, *Statesman*, and *Philebus*; the texts are gathered and discussed in my ‘Collecting the Letters’, *Phronesis*, 43/4 (Nov. 1998), 291–305.

combination of the *στοιχεῖα*, as well as the *στοιχεῖα* themselves, is separately present within the knower, the whole model of knowledge through something similar to the known within the knower must be reconceived. Second, as Aristotle is now saying in *De anima* 2. 5, the *ἐνέργεια* of knowledge is not a change in the knower, so that there is nothing more alpha-like in me now while I am contemplating an alpha than there was in me a minute ago when I was contemplating a beta. Aristotle feels no need to deny that knowledge is through likeness or even through identity, but it can only be the *ἕξις*-knowledge, not the *ἐνέργεια*-knowledge, which is a likeness of its object; and this object is not a perishable external token but an eternal type, which as we have just seen is 'in a way present within the soul itself' (*De anima* 2. 5, 415^b23). And since the knower cannot contain within himself a token of every recognizable letter-sequence, the likeness between the *ἕξις*-knowledge and its objects cannot be the likeness between two material tokens of the same type.

For this reason, while Aristotle is pleased to co-opt the traditional dictum that knowledge is through likeness or identity, he must reformulate it by saying that knowledge, including sensory knowledge, takes place through the *form*, or the *λόγος*, of the known object being present in the soul of the knower. While it has always been obscure what Aristotle means by this, and while I cannot do much to improve that situation, it seems that his model is again from the arts, and especially from the productive arts. Aristotle is fond of saying that before a house comes-to-be, the form or *λόγος* of the house is present in the soul of the housebuilder, or is present in his art of housebuilding, or indeed that the art of housebuilding just *is* the *λόγος* of the objects it can produce, as present in the soul. We can make sense of this if we think of the *λόγος* of a house as something like the *definition* of house, bearing in mind that a full scientific definition of house must include the causes of a house. As Aristotle explains it in *Metaphysics Z 7*, the artisan who is to produce some object begins by grasping the essence, as expressed in a definition, of that object-type, and then reasons back to the causes of the object until he reaches some action immediately in his power, which he then performs, so that the first thing in the soul is the form or *λόγος* of the completed object, and the last thing in the soul is the motion by which the object arises. So to have the art is just to have (appropriately connected with each other and with

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action) the *λόγοι* of the objects the art can produce—we might say, not just the definitions, but the *recipes* for the objects; and this will lead us, not only to produce the objects when required, but also to recognize them in an expert way when they are presented to us. And while sensation, of course, does not produce its objects, Aristotle seems to think that reflection on the way that the form or *λόγος* of an object is present in the art that knows that object (where this is clearest in the productive cases) will give us a model for understanding how the sensory powers too can contain the forms of the sensible objects.

To sum up what I have been saying about Aristotle's way of understanding sensation: he agrees with Plato that eyes and ears and so on are not the subjects but merely the instruments of sensation, and that the soul uses these instruments for sensation, as it uses other parts of the body, and the body as a whole, for other activities. But Aristotle rejects Plato's claim that the soul itself is moved by these parts of the body in sensation, as these parts of the body are moved by external objects; and, partly to avoid saying that the soul is moved in sensation, he proposes that the soul is to the body (or its parts) not precisely as the artisan is to his instruments, but as the art is to its instruments. In denying that the soul is moved in sensation, Aristotle is not necessarily denying that the *sense-organs* are moved (he clearly thinks hearing involves a motion in the inner ear, but it seems possible that the eyes are no more affected by the things seen through them than a mirror is affected by the things seen in it), but this variation can be matched in the case of the arts: a thermometer or a spring-scale is affected and moved by the object it is used to measure, but a straight-edge is moved only in an incidental way (by being laid next to the object to be measured, which is not a being-affected by the object), and an optical device might not be moved at all, or only by being pointed in the right direction. So, while what is used (the measuring device, the sense-organs) may or may not be moved in cognition, the ultimate user (the art or the sensory power) is not.

However, the examples from the arts may seem unsatisfying as models to explain how sensation takes place, and why it is not a motion. After all—so we might object—it is not the art *γραμματική*, but the person who possesses and uses the art, the *γραμματικός*, that perceives this-alpha-here. (This seems analogous to Aristotle's saying that it is not the soul but the soul-body composite that

senses: sensation, like anger, is a *κοινὸν πάθος* of soul and body, and ‘saying that the soul is angry is like saying that the soul weaves or builds: it is presumably better not to say that the soul pities or learns or considers, but that the man does so *through* the soul [τῆ ψυχῇ]: *De anima* I. 4, 408^b11–15, cited above). Furthermore, the *γραμματικός* perceives this alpha not simply by using his *τέχνη γραμματική*, but also by using his visual power. We might say that, while *γραμματική* does help the *γραμματικός* to recognize this object placed before him as an alpha, it does so (as an optical instrument, or the art of using such an instrument, might) only by ‘amplifying’ the power of discernment that he naturally has by his visual power: *γραμματική* would be something like a collection of rules about the letters as universal types, while its ability to discern individual letter-tokens would be parasitic on the individual-discerning ability of the visual power. It therefore seems unsatisfying to explain the activity of the visual power by saying that it is like the individual-discerning ability of *γραμματική*: this would really mean explaining the activity of the visual power by saying that it is like the individual-discerning ability of the visual power amplified by *γραμματική*, and so the explanation would be circular. And we can make a similar argument that the art analogy does not give a satisfying model for how the soul can remain unmoved in sensation. When the *γραμματικός* perceives the alpha, his art is not thereby changed, but—we might think—there must still be some underlying process or motion in the person who uses the art, because the exercise of the art presupposes an underlying exercise of the visual power: Aristotle’s analysis does not abolish the motion, but simply transfers it from the art to its user. It is most plausible to say with Plato that the motion is a motion in the soul, but perhaps we can say with Aristotle that the visual power and the sensitive soul are themselves art-like, and conclude that the soul is not moved in sensation; but this will simply transfer the motion to something more fundamental. Just as the motion is not in *γραμματική* but in the *γραμματικός* who uses it, so the motion will not be in the soul or the visual power, but in the living body that uses them. The art and the soul are not the things that perceive and are moved, but simply describe the *ways* in which the underlying artisan or living body perceives and is moved; the fundamental motion has not been explained away.

These objections miss the force of Aristotle’s soul–art comparison. His claim is not that the soul is to the body as the art is to

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the artisan who uses the art, but that the soul is to the body as the art is to the instrument that the art uses. Perceiving the alpha is an *ἐνέργεια* of *γραμματική*, indeed the primary kind of *ἐνέργεια* that the power is for, and likewise sensation is the primary *ἐνέργεια* of the sensitive power or of the sensitive soul. There is nothing more fundamental or underlying that uses the soul and applies it to the individual objects of sensation. The *ἐνέργειαι* of the sensitive soul are indeed *κοινὰ πάθη* or *κοινὰ ἔργα* of soul and body, but this does not mean that they are fundamentally acts of a body possessing and using psychic powers. Sensation is an *ἐνέργεια* of the soul and also of the sense-organs, and locomotion is an *ἐνέργεια* of the soul and also of the feet or wings (and also of the whole animal body), since one and the same act can be viewed as the *ἐνέργεια* of the agent, the patient, and the instrument. Likewise, knowing this alpha is an *ἐνέργεια* of *γραμματική*, of the *γραμματικός*, of his visual power, of his eyes, and so on. Because in many cases the *ἐνέργειαι* of the soul and of the art will involve motions, it is important for Aristotle to insist that these *ἐνέργειαι* are also *ἐνέργειαι* of something bodily and thus movable. But the soul needs the sense-organs for sensation only in the way that the art needs its instruments for its activities. And, likewise, the art needs the *artisan* for its activities, whether of production or of cognition, only in the way that the art needs its instruments for its activities. The artisan, or the relevant part of his body, is special only in being the *ὄργανον πρὸ ὀργάνων*, the first instrument through which the subsequent instruments are used. Indeed, as we have seen, anything analogous to an artisan can be dispensed with entirely in the case of the 'art' of generating an animal: nature 'uses the seed as an instrument and as having motion in actuality, in the same way that the instruments are moved in things that come-to-be by art: for the motion of the art is somehow in [the instruments]' (*GA* 1. 22, cited above).

It is true in *every* art that the motion of the art is present in the instruments. But usually it gets into the instruments via the artisan's limbs, and familiarity with this kind of case makes us feel that something essential is missing when the 'art' is a natural power, and there is nothing analogous to an artisan mediating between the 'art' and its instruments. The existence of an art of flute-playing and of a flute are not sufficient for the flute to be played: there must also be a human being who possesses the art of flute-playing and is in physical contact with the flute. And so we think that the

real agent of flute-playing, and the real user of the flute, is not the art of flute-playing but the artisan who possesses and uses the art; and this leads us to think that if the soul is analogous to an art, there must be something that *uses* the soul as the artisan uses the art. But for Aristotle, the reason why the flute needs a flute-player is that the flute is an *artificial* organic body rather than a natural one. An artefact is a body which does not have an internal principle of motion, or, more precisely, does not have an internal principle of the kind of motion characteristic of that kind of thing (the flute has an internal principle of moving downward, but not of producing music; even if the flute were an *objet trouvé* and so, under one description, a natural body, it would still not be a natural body inasmuch as it is a flute, and so would not count as a 'natural organic body'). So an artificial organic body needs to be moved by something outside itself in order to perform the *ἐνέργεια* for which it is an *ὄργανον*, but a natural organic body does not. Indeed, if a body is moved from without in being used as an *ὄργανον* by some art or art-like power, that power must be using some other body as an *ὄργανον* for moving the first body; so on pain of an infinite regress, the power must be primarily present in some organic body which it moves from within, and so that must be a natural organic body, and the power that uses that natural organic body must be its soul or something present within its soul. But this is apparently the *only* reason why the arts, to be exercised, need ensouled artisans. And these ensouled bodies operate in something like the way that an instrument would operate if its art were moving it from within.

Arts in the literal sense—the arts that we understand, and that might therefore serve us as models for understanding the operations of nature—do not in fact move their instruments from within. These arts depend for their exercise on the natural powers (as *γραμματική* depends on the visual power), and so we do not fully understand the *ἐνέργειαι* of these arts, since we do not understand what must happen in the artisan's body. None the less, we can understand a great deal about the arts and their external instruments without understanding the things that come in between, the soul and the natural instruments that it is present in; and so we can legitimately use the relation between the art and its external instrument, with cautions and corrections, as a model for understanding the soul's relation to its body. The soul-body relation is not like the relation of an ordinary nature to the natural thing (e.g. the relation of heaviness

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to the heavy body), since the soul acts on the body and uses it as an instrument.⁶³ The soul–body relation is in this respect more like the artisan–instrument relation. Aristotle begins with this model and refines it into the art–instrument relation. But the soul–body relation is still not like the relation of an ordinary art to its instrument, because the soul moves its body from within, as an internal and not merely an external ἐντελέχεια of the organic body, which must therefore be a natural body. Ordinary arts do move their instruments, and use their instruments to perceive individuals, but they do so only from without, by being present in some other body. But the first instrument of any art, or any art-like power, must be some ‘marvel’ (θαύμα) that the power moves from within, like the tripods of Hephaestus or the ships of the Phaeacians.⁶⁴ And a living body is just such a marvel.

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⁶³ For this reason I am reluctant to ascribe to Aristotle (as Myles Burnyeat urges that I should) a ‘refined dualism of form (actuality) and matter’, which might not be so different from the ‘refined monism/materialism’ that many other scholars attribute to Aristotle. I would be reluctant to say that for Aristotle the soul/body relationship is a form/matter relationship, just as I would be reluctant to say that the Jocasta/Oedipus relationship is a mother/son relationship: that is one relation that obtains between them, but not the only relevant one, and it is not a typical relationship of that type.

⁶⁴ Or the statues of Daedalus, assuming that they move purposefully rather than randomly. I am not sure whether, on Aristotle’s account, the ships of the Phaeacians (etc.) would be actual animals: perhaps only if they were self-reproducing and self-repairing? (The heavenly spheres are animals without having these nutritive powers, but they are incorruptible, and so do not need *artificial* generation and repair either.) To Aristotle it makes sense to ask whether an art is directly present in some matter, or only present in something which moves that matter from without—if the art of shipbuilding [ἡ ναυπηγικὴ] were present in the wood, it would act the same way that nature does’ (*Phys.* 2. 8, 199^b28–9)—and he applies the same question to the soul as art analogue, concluding that ‘there is no need for soul to be in each [part of the animal body]; rather, soul being in some ἀρχή of the body, the other things live by being naturally connected [to this part], and perform their own ἔργον by nature’ (*MA* 10, 703^a36–^b2, cf. 8, 702^a21–^b11).

