

Aristotle's Peculiarly Human Psychology

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For Aristotle, human cognition has a lot in common both with non-human animal cognition and with divine cognition. With non-human animals, humans share a non-rational part of the soul and non-rational cognitive faculties (*DA* 427b6–14, *NE* 1102b29 and *EE* 1219b24–6). With gods, humans share a rational part of the soul and rational cognitive faculties (*NE* 1177b17–1178a8). The rational part and the non-rational part of the soul, however, coexist and cooperate only in human souls (*NE* 1102b26–9, *EE* 1219b28–31). In this chapter, I show that a study of this cooperation helps to uncover some distinctive aspects of human cognition and desire. Humans have a peculiarly expanded non-rational perceptual and desiderative range. This difference in sophistication is not merely a matter of enhanced discriminatory capacities: humans also have the peculiar ability to exercise deliberative *phantasia* at will and the peculiar ability to synthesise many *phantasmata* into one.¹ Human rational cognition, in turn, differs from divine cognition because it can be hindered or supported by non-rational cognition. Human rational cognition also involves peculiar abilities, including the ability to direct non-rational cognition and non-rational affections by means of concentration and the appropriate kinds of pleasures, pains, exhortations and reproofs.

Uncovering these peculiarities of human cognition is important in order to solve a puzzle about the links between Aristotle's psychology and his ethics. Aristotle thinks that ethicists and political scientists should have some knowledge of psychology and in particular of the rational part and the non-rational part of the human soul (*NE* 1102a23–8). He also endorses a “peculiarity criterion” according to which ethicists and political scientists

¹Throughout this chapter I leave the term *phantasia* and its cognates untranslated. Imagination is a fitting translation for deliberative *phantasia*, but the translation seems less fitting in other contexts, including for example Aristotle's view on *phantasia*'s involvement in memory. The unity and the nature of Aristotle's views on *phantasia* are debated topics, see further Wedin, *Mind and Imagination in Aristotle*, Schofield, ‘Aristotle on the Imagination’, Frede, ‘The Cognitive Role of Phantasia in Aristotle’, Nussbaum, *Aristotle's De Motu Animalium*, essay 5, Caston, ‘Why Aristotle Needs Imagination’, Scheiter, ‘Images, Appearances, and Phantasia in Aristotle’ and Johansen, *The Powers of Aristotle's Soul*, ch. 10.

should only study aspects of the soul that are peculiarly human (*NE* 1102b4–13, *EE* 1219b38–9). This raises the challenge to explain how the rational part and the non-rational part of the human soul can have lot in common with the souls of non-human beings and yet meet the peculiarity criterion advanced in the ethical works. If my thesis in this chapter is correct, the rational and non-rational parts of the human soul meet the peculiarity criterion because they are built to cooperate.

Peculiarly Non-rational

In the ethical works, Aristotle divides the human soul into a rational and a non-rational part. The non-rational part has two sub-parts. The first sub-part is nutritive, “plantlike” and shared among all living things (*NE* 1102a35–b1 and *EE* 1219b36–40). The second sub-part is the seat of cognitive and desiderative faculties like appetitive desire and perception (*EE* 1219b23–5). Aristotle calls it “the passionate part” (*to pathētikon*, *Pol.* 1254b8) and “the desiderative part” (*to orektikon*, *NE* 1102b30). Human and non-human animals share a number of cognitive faculties and states including perception, *phantasia*, experience, spirited desire (*thumos*), appetitive desire (*epithumia*) and memory. However, unlike non-human animals, humans can think, reason and form beliefs.² This suggest that the non-rational part of the soul is shared between humans and animals: it is desiderative and perceptual, but it cannot think.³

Despite the similarities with non-human animals, humans are peculiar because their non-rational cognition and desire cooperate with the rational part and with *logos*.⁴ To give a closer look at this peculiarity, let us start with human perception. For Aristotle, both human and non-human animals can perceive things *as* being in a certain way. For example, we can perceive fire as hot, or food as near and available, or an object as white.⁵

²See *Met.* 980a28–b28 for perception, *phantasia*, memory and experience. See *DA* 414a29–b19 for perception and appetitive desire. See *DA* 428a20–2, *DA* 433a9–12, *DA* 433b27–30, *DA* 433b27–30, *DA* 434a6–9 for the difficult case of *phantasia*. For appetitive and spirited desire see *NE* 1111b10–13 and *EE* 1225b24–6. See *DA* 427b7–27 on non-human animals lacking thought.

³For this view, I follow Moss, *Aristotle on the Apparent Good*, ch. 4.2 and Moss, ‘Aristotle’s Ethical Psychology’ *contra* Fortenbaugh, *Aristotle on Emotion*, pp. 26–30.

⁴*NE* 1102b31–5, *EE* 1219b38–1220a1. I tentatively translate *logos* with “reason” when it is used to indicate the difference between humans and animals. On the difficulties of translating *logos* in Aristotle’s moral psychology see Moss, ‘Right Reason in Plato and Aristotle: On the Meaning of Logos’.

⁵See *Met.* 981b10–12, *DA* 418a7–25, *DA* 428b18–29, *NE* 1118a20–3. For a similar view see Moss, ‘Aristotle’s Ethical Psychology’, pp. 130–131. These passages and the possibility of animal discriminative perception have been discussed by Sorabji, *Animal Minds and*

Different animals have different perceptual ranges. Often, the cooperation between perception and other cognitive faculties is responsible for the expansion of a certain animal's perceptual range. For example, at *Met.* 980a28–b25, every animal has perception and only some have memory. Those who have memory are more able to learn (*mathētikōtera*) and can gain a little experience (*empeiria*). Gaining experience and being able to learn involve, among other things, being able to discriminate a wider range of properties. For example, some animals are better learners because they discriminate perceptually differences in articulated sounds:

Some [sc. animals] also have a share in both some kind of teaching and learning, some from each other, some also from humans, in so far as they have a share in hearing not only sounds, but also in distinguishing perceptually (*diaisthanetai*) the difference between signals (*sēmeiōn*).⁶

Some animals are capable of recognising perceptually different signals (*sēmeia*). This contributes to their ability to learn and, presumably, it is in part due to the fact that they have better memories. Aristotle's studies on non-human animal behaviour corroborate the suggestion that memory enlarges the perceptual range of some non-human animals: at *HA* 605a7–9, horses discriminate between horses they already fought and horses they did not fight yet; at *HA* 612a3–16, goats and dogs recognise and remember which herbs induce vomiting or cure wounds and eat them when needed.

Human and non-human perception's discriminative range can be expanded by the cooperation with different non-rational faculties and states. In the human case, perception's discriminative range can also be expanded by the cooperation with rational cognition. In Aristotle's psychological works, we find various examples of non-rational perceptual cognition that is only available to rational creatures *because* they are rational. At the very beginning of *On Perception*, there is a description of the human ability to hear speech (*logos*):

Incidentally, hearing contributes for the most part to wisdom. Speech (*logos*) is the cause of learning because it is audible, not in

Human Morals, pp. 17–20, 30–40, Cashdollar, 'Aristotle's Account of Incidental Perception', pp. 158 ff, Modrak, *Aristotle: The Power of Perception*, p. 70 ff. Everson, *Aristotle on Perception*, Ch. 5.

⁶Ἐνια δὲ κοινωνεῖ τινὸς ἅμα καὶ μαθήσεως καὶ διδασκαλίας, τὰ μὲν παρ' ἀλλήλων, τὰ δὲ καὶ παρὰ τῶν ἀνθρώπων, ὅσαπερ ἀκοῆς μετέχει, μὴ μόνον ὅσα τῶν ψόφων, ἀλλ' ὅσα καὶ τῶν σημείων διαισθάνεται τὰς διαφοράς. *HA* 608a18–22. Translations of the *History of Animals* are based, sometimes loosely, on Thompson, *History of Animals*.

its own right but incidentally: for it is made of names, and every name is a symbol (*symbolon*).⁷

Speech is audible, though only incidentally, therefore it contributes to learning. The ability to hear names and symbols, and thereby speech, seems to be the peculiarly human version of the non-human animal ability to hear signals. Aristotle tells us little about the distinction between signals and symbols and he even uses the words interchangeably in some passages (*De Int.* 16a4–9).⁸ However, in this passage, he implies that speech is audible because it is composed of symbols (names) which can be discriminated perceptually. The immediately preceding lines, *On Perception* 437a10–12, can be taken to confirm this suggestion: Aristotle argues that hearing informs us both of differences in sound (*psophos*) and of differences in voice (*phonē*). The differences in articulated voice are the kind of differences one needs to grasp in order to be able to discriminate speech and symbols perceptually. On this interpretation, the difference between perceptual discrimination of signals and perceptual discrimination of symbols is relatively small. In order to perceive some sound as a symbol and not merely as a signal, the hearer must possess not only good memory and perhaps experience, but also *logos* and thought.

If this is right, names and symbols are “incidental perceptibles” like signals. At *DA* 418a7–25 and *DA* 428b18–29, Aristotle distinguishes between proper (*idia*) perceptibles like colours, sounds and flavours; common (*koina*) perceptibles like motion, rest, number, shape and size; and incidental (*kata sumbebēkos*) perceptibles like “Diores’ son”. Symbols and speech are not the only incidental perceptibles which can be grasped by rational animals alone: grasping other incidental perceptibles, including the paradigmatic “son of Diores” at *DA* 418a21, may require the perceiver to be a thinker.

One may object that these cases of incidental perception do not show that humans have a broader perceptual range than non-human animals. All they show is that humans can draw inferences from perceptual experience. On this view, when we hear a name or a symbol, we intellectually infer from perceptual evidence that it is a name or a symbol.⁹ Even if Aristotle tells us

⁷κατὰ συμβεβηκός δὲ πρὸς φρόνησιν ἢ ἀκοή πλεῖστον συμβάλλεται μέρος. ὁ γὰρ λόγος αἰτιός ἐστι τῆς μαθήσεως ἀκουστός ὢν, οὐ καθ’ αὐτὸν ἀλλὰ κατὰ συμβεβηκός. ἐξ ὀνομάτων γὰρ σύγκειται, τῶν δ’ ὀνομάτων ἕκαστον σύμβολόν ἐστιν. *On Perception* 437a12–15. Translations of *On Perception* are loosely based on Beare and Ross, *De Sensu et Sensibilibus*. In this context, the preferred translation of *logos* seems to be speech, given that Aristotle’s point is that *logos* is audible.

⁸Much more would need to be said, of course, on the relevant difference between symbols and signals. The difference that matters to me here is that only the former require *logos* in order to be grasped.

⁹See e.g. Kahn, ‘Aristotle on Thinking’, pp. 367–8.

disappointingly little on these matters, there is a persuasive response against this objection. It would be hard to see why Aristotle counted these cases as cases of incidental *perception* if what they in fact involve is drawing inferences from perceptual experience. Stipulating that incidental perception is such precisely because it involves inferences from perceptual experience would not work either, because incidental perception is available to animals who cannot draw inferences.¹⁰

Furthermore, the idea that thought and reason expand our non-rational discriminative range is not limited to incidental perception, but extends to common perception. When we see the sun as a foot wide (*podiaios*), we are perceiving a common perceptible: size (*megethos*).¹¹ As in *Theaetetus* 147d, here the foot is a technical measure unit, and technical measure units can hardly be grasped by non-rational animals. The same applies to the common perceptible number (*arithmos*). Perhaps, for Aristotle, animals can discriminate between few and many. It is however unlikely that he believed that discrete numbers feature in the content of their perceptions. Hence, the possession of thought renders humans capable of discriminating perceptually properties that the other animals cannot discriminate.

This analysis of the peculiarity of human perception can shed light on other faculties or capacities we share with the other animals, including non-rational desires (*epithumia* and *thumos*) and perceptual *phantasia*. Human non-rational desires are peculiar for the same reasons human perception is peculiar. In virtue of the expanded cognitive range peculiar to humans, human non-rational desires can be for objects that go beyond the perceptual range of non-rational animals.¹² For example, humans can have non-rational appetites for a specific kind of wine, or a specific type of seasoning in food. Aristotle discusses appetites of this kind at *NE* 1118b8. He suggests that they are different in different people and depend on the specific kinds of bodily pleasures they indulge in. These desires lie below the threshold of rationality, but they are peculiar to the human soul.

Similarly, it is plausible to think that human *phantasia* has a wider cognitive range as a result of its cohabitation with reason and thought. Since *phantasia* derives from our perceptual activities and *phantasmata* are perceptual remnants, a peculiarly wide perceptual range is likely to produce a peculiarly wide “phantastic” range.¹³

¹⁰See further Cashdollar, ‘Aristotle’s Account of Incidental Perception’, pp 158 ff.

¹¹See *DA* 418a17 for size as a common perceptible. See *DA* 428b3–4 and *Insomn.* 458b28–9 for the perceptual appearance of the sun as a foot wide.

¹²See also Whiting, ‘Locomotive Soul: The Parts of Soul in Aristotle’s Scientific Works’, pp. 188 ff. and Pearson, *Aristotle on Desire*, ch. 7.

¹³For *phantasia* and *phantasmata* as perceptual remnants, see *DA* 428b11–16, *DA* 428b30–

The peculiarity of human *phantasia* is not limited to its expanded range. *De Anima* also suggests that the cohabitation between *phantasia*, reason and thought characteristic of humans gives rise to a special kind of *phantasia*. Aristotle briefly describes it at *DA* 433b29–30 and *DA* 434a6–13, he calls it either calculative (*logistikē*) or deliberative (*bouleutikē*) *phantasia* and he argues that only humans have a share in it:

As we said, perceptual *phantasia* is found in the other animals, but deliberative *phantasia* in the reasoning animals, for to decide whether to do this or that is already the task of reasoning. And it is necessary to measure by a single standard, inasmuch as one pursues what is greater and can, consequently, make one out of many *phantasmata*. And this is the reason why [*phantasia*] does not seem to imply belief, it is because [*phantasia*] does not imply a belief that result from syllogism, but belief implies *phantasia*.¹⁴

Clearly, deliberative *phantasia* is peculiarly human: non-rational animals do not have it because they do not engage in deliberative calculations; divinities lack *phantasia* in general and, *a fortiori*, deliberative *phantasia* because *phantasia* requires perception and a body (*DA* 403a8–10).

It is harder to establish, however, whether or not deliberative *phantasia* is capable of reasoning on its own. If we take the implicit subject at *DA* 434a11 to be *phantasia*, in this passage *phantasia* does not imply belief. This chimes well with the thesis that *phantasia* is non-rational, for belief is a mark of rationality (*DA* 427b7–27). However, here deliberative *phantasia* is also related to the ability to combine or synthesise many *phantasmata* into a single one, which may be taken to be an ability to engage in rational calculation.

A closer look at the role of *phantasia* in deliberation suggests that deliberative *phantasia* does not engage in autonomous rational calculation.¹⁵ Especially in *De Anima* iii. 7, Aristotle writes that *phantasia* functions similarly to perception in deliberation:

430a9, *Rhet.* 1370a27–30.

¹⁴ ἡ μὲν οὖν αἰσθητικὴ φαντασία, ὡς περ εἴρηται, καὶ ἐν τοῖς ἄλλοις ζώοις ὑπάρχει, ἡ δὲ βουλευτικὴ ἐν τοῖς λογιστικοῖς πότερον γὰρ πράξει τόδε ἢ τόδε, λογισμοῦ ἤδη ἐστὶν ἔργον· καὶ ἀνάγκη ἐνὶ μετρεῖν· τὸ μείζον γὰρ διώκει· ὥστε δύναται ἐν ἐκ πλειόνων φαντασμάτων ποιεῖν· καὶ αἴτιον τοῦτο τοῦ δόξαν μὴ δοκεῖν ἔχειν, ὅτι τὴν ἐκ συλλογισμοῦ οὐκ ἔχει, αὕτη δὲ ἐκείνη· *DA* 434a5–11. The text and its interpretation are difficult. Line a10 is corrupted, I retain αὕτη δὲ ἐκείνη *contra* Cornford who has αὕτη δὲ κινεῖ. *Contra* Hicks, *Aristotle De Anima*, p. 567, I follow Polansky, *Aristotle's De Anima*, p. 531 who takes the subject of ἔχειν at a11 to be φαντασία and not τὰ ἄλλα ζῶα. For this reason, I do not follow Rodier in taking a7 to a9 as a parenthetical remark.

¹⁵ See Moss, *Aristotle on the Apparent Good*, pp. 144–151 on the very same point and Lorenz, *The Brute Within*, p. 127.

Phantasmata are similar to perceptions for the thinking soul, and whenever one affirms or denies that something is good or bad, one pursues or avoids¹⁶

The thinking part thinks some forms in *phantasmata*, and just as in the context of perception (*en ekeinois*) what is to be pursued and avoided is defined by it, so even outside perception, whenever it is set over *phantasmata*, it is moved. ... Sometimes, on the basis of *phantasmata* and thoughts in the soul, just as if seeing them, it calculates and plans future things with reference to the things that are present.¹⁷

In these passages, the role of *phantasia* in deliberation is analogous to the role of perception in deliberation. *Phantasmata* are similar to perceptions and, like perceptions, they help thinkers to define what to pursue and what to avoid. The thinker's deliberative faculties are set over (*epi*) *phantasmata* and employ *phantasmata* to deliberate. *Phantasia* is employed in deliberation and calculation, but it does not engage in independent calculation, deliberation and reasoning. Hence, assuming that these passages describe deliberative *phantasia*, deliberative *phantasia* is not an autonomous rational calculative capacity. This account can be sustained by Aristotle's remark that *phantasia* comes about either through perception (*dia aisthēseōs*) or through thought (*dia noēseōs*) at *De Motu* 702a19–20. If *De Motu* can be used to elucidate the difference between perceptual *phantasia* and deliberative or calculative *phantasia*, it implies that the two differ in origin, but not necessarily in their reasoning capacities.¹⁸

Even if deliberative *phantasia* does not reason on its own, we can reconstruct some of its peculiarities from Aristotle's succinct remarks on its cooperation with thought. The first peculiar aspect of deliberative *phantasia* is its connection with the ability to “make one out of many *phantasmata*”. Even if we assume that this ability is not the same as our ability to engage in rational calculation, it is hard to establish whether it pertains to *phantasia* or

¹⁶τῆ δὲ διανοητικῆ ψυχῆ τὰ φαντάσματα οἷον αἰσθήματα ὑπάρχει, ὅταν δὲ ἀγαθὸν ἢ κακὸν φήσῃ ἢ ἀποφήσῃ, φεύγει ἢ διώκει. *DA* 431a14–16

¹⁷τὰ μὲν οὖν εἶδη τὸ νοητικὸν ἐν τοῖς φαντάσμασι νοεῖ, καὶ ὡς ἐν ἐκείνοις ὄριστα αὐτῶ τὸ διωκτὸν καὶ φευκτὸν, καὶ ἐκτὸς τῆς αἰσθήσεως, ὅταν ἐπὶ τῶν φαντασμάτων ἦ, κινεῖται. ... ὅτε δὲ τοῖς ἐν τῇ ψυχῆ φαντάσμασιν ἢ νοήμασιν, ὥσπερ ὀρῶν, λογίζεται καὶ βουλευεται τὰ μέλλοντα πρὸς τὰ παρόντα. *DA* 431b2–8. I keep the same subject throughout and I take *to noētikon* to be a synecdoche for the thinker (see Hamlyn, *Aristotle's De Anima*, p. 148, cf. however Shields, *De Anima*, p. 64). This explains why Aristotle says that the thinking part is moved: the thinking part is moved because the thinker is moved.

¹⁸See further Wedin, *Mind and Imagination in Aristotle*, pp. 143–5.

to thought. The passage suggests that making one out of many *phantasmata* is the result of instrumental reasoning, because it is a consequence of our ability to take the best course of action after having measured by a single standard. On this view, the many *phantasmata* represent different means to an end, and “making one out of them” amounts to picking a preferred *phantasma*, thus choosing the best course of action among the available ones.¹⁹ If this is all there is to this ability, it is a peculiar feature of deliberative thought and not of deliberative *phantasia*.

The ability to make one out of many *phantasmata* may however be peculiar to *phantasia* in other ways. Consider the ability to combine different perceptual representations into a single complex representation. An ability of this kind does not in itself involve deliberative reasoning, though it might be natural to employ it while we deliberate. For example, we employ it when we picture to ourselves in progressively more specific detail a course of action we are about to engage in. This activity may follow a rational deliberation which employs a single criterion to determine the best course of action. Imagine a deliberator who decides to visit her friend having deliberated that it is the best way to fulfil her goal to benefit a friend. If she has decided to walk to her friend’s house, she might combine different particular *phantasmata* or appearances (of herself travelling, of herself moving by foot, of herself moving on land) into the unified appearance of herself travelling on land by foot. This unified appearance encompasses all the practical details of the means she has chosen to employ in order to achieve the goal of benefiting her friend. If the capacity to make one out of many *phantasmata* is the capacity to put together unified complex appearances, then it accompanies deliberation, but it is not itself a kind of rational calculus.²⁰

A second peculiar aspect of deliberative *phantasia* is that it is voluntary. Since we generally engage in deliberation at will, deliberative *phantasia* is the kind of *phantasia* we can exercise whenever we want to (*hotan boulōmetha*, *DA* 427b15–24). Aristotle’s account of voluntary action in the ethical works sheds light on voluntary mental acts like deliberation, recollection or *phantasia*. For example, at *EE* 1225a30–2 some thoughts (*dianoiai*) are involuntary (or not up to us) in the same way as actions are involuntary, which suggests that other thoughts are voluntary (or up to us) in the same way as actions are voluntary.²¹ Voluntary actions are, by definition, actions whose origin is in

¹⁹This option is discussed in Polansky, *Aristotle’s De Anima*, pp. 529–530.

²⁰For this interpretation of the ability to make many *phantasmata* into one, see Philoponus’ commentary on Aristotle’s *De Anima* 592. 10–20 and 593. 1–4. On different possible interpretations this unifying ability of *phantasia* see Moss, *Aristotle on the Apparent Good*, pp. 147–9 and Lorenz, *The Brute Within*, p. 127.

²¹Corcilius, ‘How Are Episodes of Thought Initiated According to Aristotle?’ analyses

an agent who is not ignorant about the particular circumstances in which she is acting (*EN* 1111a22–4). Similarly, there are voluntary mental acts like recollection of which we are aware and whose origin is in us. In this case, the relevant contrast is with perception, whose origin appears to be in external objects.²²

This account of voluntary mental acts suggests that both human and animals can exercise *phantasia* voluntarily. Unlike perception, *phantasia* does not require external objects, because *phantasmata* are perceptual remnants that our perceptual organs somehow retain (*DA* 429a5). Often, non-human animal *phantasia* has an external cause and is therefore involuntary. It may arise as a response to external perceptual stimuli which stir up and an ordered series of *phantasmata*. For example, *NE* 1118a23 explains that lions only appear to enjoy the sound of oxen, because what they really enjoy is eating oxen. A plausible interpretation of this passage is that hearing oxen gives rise to an associated *phantasia* of eating oxen which is then connected to pleasure.²³ The source of this leonine *phantasia* is external and the *phantasia* is therefore involuntary.²⁴ In other circumstances, however, non-human *phantasia* has internal sources, for example when its active exercise is embedded in an animal's voluntary and purposive behaviour. A thirsty animal may envisage the route to the closest water pool even if no external stimulus has given rise to the series of appearances associated with drinking.²⁵ More controversially, an animal confronted with a practical problem or obstacle may voluntarily envisage a way to overcome it.

However, there is something distinctive about the voluntary exercise of *phantasia* involved in peculiarly human recollection and deliberation.²⁶ When we deliberate about something or try to recollect something, we do not merely act for a purpose, but we set ourselves a particular kind of goal which in itself

voluntary thoughts as embedded in voluntary actions, for an independent analysis of the voluntariness and autonomy of human thought see Wedin, 'Aristotle on the Mechanics of Thought'.

²²On recollection originating from us or our soul and perception as originating from something external see *DA* 408b15–18. On thought being up to us because its objects are internal and perception not being up to us because its objects are external, see *DA* 417b23–5.

²³See further Pearson, *Aristotle on Desire*, pp. 41–7, Lorenz, *The Brute Within*, pp. 128–137 and Warren, *The Pleasures of Reason in Plato, Aristotle, and the Hellenistic Hedonists*, p. 15

²⁴Dreams, too, may be explained in a similar fashion. They arise from perceptual changes stored in the peripheral sense organs which travel to the heart and become active because of sleep. See *On Dreams* 3 and Lorenz, *The Brute Within*, pp. 154–7.

²⁵At *De Motu* 701a29–33 Aristotle describes a process of this sort, although it is not obvious that he has in mind a voluntary exercise of *phantasia*.

²⁶See *HA* 488b24–6 on deliberation and recollection as peculiarly human.

involves the exercise of *phantasia*. Deliberation has the purpose of figuring out and envisaging the most efficient means to our ends. Recollection has the purpose of calling to mind a *phantasia*, it is a kind of rational search for *phantasmata* stored in the soul.²⁷ This suggests that humans exercise *phantasia* for its own sake or for the sake of *phantasia*-involving thought. Peculiarly human voluntary *phantasiai* are not oriented to external purposes, they are not embedded in other kinds of purposive behaviour and they seem specific to activities that involve speculation and research.²⁸

This analysis of deliberative *phantasia* uncovers the peculiar voluntary exercises of human *phantasia*. It also shows that human *phantasia* has the distinctive ability to create a complex unified *phantasma* out of many distinct *phantasmata*. If the discussion so far is correct, then while human perception, desire and perceptual *phantasia* differ from their non-human counterparts in discriminative degree, human deliberative *phantasia* can engage in activities that are not accessible to non-human animals. A similar difference will arise in the discussion of the peculiarity of human rational cognition and desire. Human rational cognition is in a sense less sophisticated than divine cognition because it requires the cooperation of non-rational cognition. However, humans are capable of peculiar intellectual activities which have the specific purpose of directing their non-rational part of the soul.

Peculiarly Rational

For Aristotle, the most important rational faculty is thought (*nous*). Thought can take different forms, engage in different activities and be in different states. These include practical knowledge, scientific knowledge, false or true belief, reasoning and deliberating.²⁹ Humans and gods have thought, but non-human animals lack it.³⁰

Aristotle also thinks that, just like cognitive faculties, desiderative fac-

²⁷*Mem* 453a14–16 and the voluntarily constructed memory aids (*mnēmōnikoi*) at *DA* 427b15–24.

²⁸This kind of deliberate and voluntary mental activity may be the one that, according to Warren, *The Pleasures of Reason in Plato, Aristotle, and the Hellenistic Hedonists*, p. 17, is involved in peculiarly human expectation and recollection.

²⁹*DA* 427b6–14, Burnyeat, *Aristotle's Divine Intellect* argues that *nous* shouldn't be identified with ordinary thinking. However, at *DA* 427b6–14 thought and thinking (*nous* and *noein*) include high intellectual achievements and lower level reasoning. Burnyeat's argument may apply to Aristotle's account of active *nous* in *DA iii* 5, but it cannot apply to, e.g., *DA iii* 3 where *nous* includes false belief.

³⁰On animals lacking thought, see *inter alia* *DA* 427b11–14. On thinking being shared by humans and gods, see *inter alia* *NE* 1178b22–32.

ulties can be rational. He discusses at least two types of rational desires: decision (*prohairesis*) and wish (*boulēsis*).³¹ Decision is peculiar to humans: it is the result of deliberative thought oriented to action. Divinities neither deliberate about action nor engage in action. Their only activity is intellectual contemplation (*theōria*).³² The gods, however, might have a share in rational wish. After all, Aristotle says at *Met.* 1072b31–1073a3 that divine intellectual contemplation is the best activity. Divinities, presumably, are aware that contemplation is the best activity. This thought combined with the pleasure of contemplation (*NE* 1177a22–7) may be the source of a rational wish to continue to contemplate.³³

As this preliminary analysis already suggests, there are different ways to spot the differences between rational cognition and desire in humans and in divinities. First, human rational cognition and desires are often directed at something that is completely outside the concern of divine cognition: action. Hence, for Aristotle, only humans engage in practical thought. Second, human rational cognition is peculiar because it requires, at least most of the time, the cooperation of *phantasia*.³⁴ The cooperation between thought and non-rational cognition will be at the centre of this chapter’s focus. However, some aspects of this cooperation are relevant for practical cognition too.

Let us start from the idea that humans cannot think without the aid of *phantasia*. The thesis that thought requires *phantasia* is endorsed, first, for practical deliberative thought.³⁵ At *DA* 431a14–16, Aristotle argues that *phantasmata* necessarily accompany thought whenever a thinker is concerned with assessing, pursuing and avoiding good or bad things. At *DA* 432a7–14, the thesis is extended to theoretical thought. It applies more specifically to thoughts about mathematical and physical objects. Similarly, at *Mem.* 449b30–450a9, Aristotle argues that we need *phantasmata* in order to think

³¹On decision see *NE* 1113a1–15, on wish see *DA* 432b4–7, *Rhet.* 1369a3–4, *EE* 1225b25–6. Note, however, that at *Pol.* 1334b17–25, Aristotle attributes wish to the non-rational part of the soul.

³²*NE* 1178b8–25. See below for discussion and see Menn, ‘Aristotle’s Theology’ for an introduction to Aristotle’s theology and divinities.

³³A few lines before, at *Met.* 1072a26–30–, Aristotle argues that desires and wishes are consequent on thinking that something is good.

³⁴In the famously obscure *De Anima* iii 5, Aristotle discusses the divine agent intellect. It is disputed whether or not humans have a share to the agent intellect. If they do, presumably they can at least sometimes think without the aid of *phantasmata*. Precisely because the agent intellect is strictly speaking divine and humans can at most have a share in it, its study lies outside the scope of this chapter. See further Burnyeat, *Aristotle’s Divine Intellect*, Caston, ‘Aristotle’s Two Intellects: A Modest Proposal’ and Cohoe, ‘When and Why Understanding Needs Phantasmata’.

³⁵ At *DA* 403a8–10, the thesis that thought requires *phantasia* is suggested, but not endorsed.

about mathematical entities (quantities). He compares the use of *phantasmata* in thought to the use of diagrams in geometry. Just as geometers make use of only some of the relevant features of their diagrams, thinkers are concerned with only some aspects of the *phantasmata* they put before their eyes as they think. Nevertheless, both geometers and thinkers need diagrams and *phantasmata* as aids to their proofing and reasoning.

Interpreters disagree about the exact function of *phantasia* in practical and theoretical thinking: according to some, *phantasia* is necessary for all thinking;³⁶ according to others, it underlies only some exercises of our thinking faculties;³⁷ Even if the details of the collaboration between thought and *phantasia* are hard to establish, this collaboration points towards at least two peculiar aspects of human thought. First, human thought can be aided by *phantasia* in particular and also by non-rational cognition in general. This is already evident in the role assigned to *phantasia* in deliberation and mathematical proofs. In addition, it is evident from the role played by perception and *phantasia* in the ascent to the first principles of knowledge. Both in *Metaphysics i.* 1 and in *Posterior Analytics ii.* 19, knowledge comes about with the aid of non-rational perception, *phantasia* and memory.

The second peculiarly human effect of the collaboration between thought and *phantasia* is that human thought can be hindered by *phantasia*, by non-rational cognition and by certain bodily changes: at *DA* 408b18–28, the decay of thought sometimes connected with old age is associated with bodily changes brought about by disease and drunkenness; at *DA* 429a5–8 emotions, sleep and illnesses can “cover over” or “cloud” thought; at *Insomn.* 460b3–16, emotions like fear, love and anger prompt us to make mistakes in our rational judgements. Aristotle does not say explicitly that the connection between human thought and *phantasia* explains these impediments to thought. However, he repeatedly emphasises the close connection between *phantasia*, perception, bodily movements and affective reactions. *On Dreams iii.* (*inter alia*) clearly shows that bodily movements and affections can influence and impair the workings of *phantasia*. It is therefore plausible to believe that Aristotle would have appealed to the fact that thought requires *phantasia* in order to explain why it is hindered by non-rational psychophysical affections.³⁸

A second peculiar aspect of human thought in its cooperation with non-rational cognition is specific to the domain of practical thought. It concerns a

³⁶Caston, ‘Aristotle and the Problem of Intentionality’, Wedin, *Mind and Imagination in Aristotle*, pp. 140–1, Modrak, *Aristotle: The Power of Perception*, pp. 122–3 and pp. 130–1.

³⁷Cohoe, ‘When and Why Understanding Needs Phantasmata’.

³⁸Aquinas, for example, attributes to Aristotle precisely this view in his *Sententia Libri de Sensu et de Sensatu*, l. 2 n. 4 (cf. Cohoe, ‘When and Why Understanding Needs Phantasmata’, fn. 45).

peculiar activity of human rational cognition and not merely the necessary support rational cognition requires from non-rational cognition. Practical thought, for Aristotle, produces commands addressed to non-rational desires and non-rational cognition. The production of these commands and their effectiveness is important in the works on ethics and political science. At *Pol.* 1254b5–10, for example, the best possible condition of body and soul involves the thinking part ruling the non-rational emotional and desiderative part.³⁹ Elsewhere, the rational part persuades the non-rational part out of its bad desires and it also governs action:

The [sc. non-rational part] with appetites and in general desires shares [in reason] in a way, in so far as it both listens to it and obeys it. This is the way in which we are said to listen to reason from father and friends, as opposed to the way we [sc. give the reason] in mathematics. The non-rational part also [sc. obeys and] is persuaded in some way by reason, as is shown by admonition, and by every sort of reproof and exhortation.⁴⁰

In this passage, rational cognition engages with non-rational desires by means of admonitions (*nouthetēseis*), reproofs (*epitimēseis*) and encouragements (*paraklēseis*). By analysing these kinds of commands, we can understand better the peculiar strategies that enable the rational part to communicate with the non-rational part. Reproofs (*epitimēseis*) and exhortations (*paraklēseis*) are closely connected with the fine (*to kalon*) and the shameful (*to aischron*). At *NE* 1180a5–12, exhortations are contrasted with punishments and correctives. Unlike punishments, they give guidance to people who are already inclined toward the fine and who already take pleasure in acting well. Exhortations encourage these people to pursue the right things by characterising them as fine.

Epitimēseis, for Aristotle, can be of many different kinds. For example, at *Top.* 161b19 an *epitimēsis* is just an objection to a given argument. At *Rhet.* 1355a27 and *NE* 1114a21–9, *epitimēseis* are more like reproaches and reproofs of one's behaviour and dispositions. Unlike exhortations, reproofs are associated with shame. At *NE* 1116a19–30 Aristotle argues that civic bravery is often motivated by legal penalties (*epitimiai*) and reproaches (*oneideis*). Reproaches inspire avoidance because they are shameful and not because

³⁹At *Pol.* 1260a5–23 this idea is spelled out further. See also *EE* 1220a8–11 and *EE* 1220b5–6

⁴⁰τὸ δ' ἐπιθυμητικὸν καὶ ὅλως ὀρεκτικὸν μετέχει πως, ἢ κατήκοόν ἐστιν αὐτοῦ καὶ πειθαρχικόν· οὕτω δὲ καὶ τοῦ πατρὸς καὶ τῶν φίλων φαιμέν ἔχειν λόγον, καὶ οὐχ ὥσπερ τῶν μαθηματικῶν. ὅτι δὲ πείθεται πως ὑπὸ λόγου τὸ ἄλογον, μηνύει καὶ ἡ νοουθέντις καὶ πᾶσα ἐπιτίμησις τε καὶ παράκλησις. *NE* 1102b31–1103a3.

they are painful like punishments (*NE* 1116a29). Reproofs and reproaches, presumably, are shameful and not painful because they point out that one's moral faults are worthy of reprobation. Hence, reproofs are not only shameful in themselves, but they also discourage us from desiring certain things by characterising them as shameful.

Since they rely on the fine and the shameful, reproofs and exhortations are effective with well habituated non-rational desires. As Myles Burnyeat has argued,⁴¹ at *NE* 1128b15–20 shame is a semivirtue of learners. It prevents young people from acting on their feelings (*pathē*) even if they tend to live guided by feeling instead of reasoning. The recognition of shameful things brought about by reproofs has a preventative role similar to the role of shame. By characterising certain objects of desire as shameful, reproofs may lead one's non-rational part from being attracted to these pleasures to being disgusted by them. Similarly to reproofs, exhortations can generate correct non-rational desires because they encourage well habituated people to align their non-rational desires with their general pursuit of the fine.

The human rational part has the peculiar capacity to understand the fine and the shameful and to formulate effective commands on the basis of this understanding. These commands have a purchase on the non-rational part of the soul of an agent who has been trained to pursue the fine and to avoid the shameful. One may nonetheless think that these exhortations and reproofs are not the most suitable for the task. After all, non-rational desires and passions respond first and foremost to pleasure and pain (*NE* 1179b11–16). They require habituation in order to respond to the fine and the shameful. However, this objection loses force if we consider that the pleasures and the toils of a rational part are unlikely to have an effect on the non-rational part. The non-rational part, presumably, is unmoved by the prospect of the pleasure of intellectual contemplation or by the prospect of pleasure in virtuous action that gratifies the rational part.⁴²

Clearly, the rational part can also exercise its ruling by bringing the agent's attention to prospective pains and pleasures, such as future rewards and punishments. However, since these are external incentives, they are likely to compel one's action without diverting one's desires. As we learn from *NE* 1116b29–1117a3, military commanders employ these external incentives to compel recalcitrant soldiers to withstand the pains of the battlefield

⁴¹Burnyeat, 'Aristotle on Learning to Be Good'.

⁴²*NE* 1177a22–7, *NE* 1168b36–4 and *NE* 1169a11–13. See *NE* 1170a8–11 on the specific kind of rational pleasure that completes one's understanding and recognition of the fine. For discussion of rational pleasures of this sort, see Coope, 'Why Does Aristotle Think That Ethical Virtue is Required for Practical Wisdom?', pp. 155–160 and Warren, *The Pleasures of Reason in Plato, Aristotle, and the Hellenistic Hedonists*.

for the sake of avoiding the pains of punishments. Presumably, a soldier threatened by her commander still desires to flee. However, she does not act on her fear because of an even stronger aversion to punishment. For this reason, Aristotle might have thought exhortations and reproofs to be more appropriate persuasive measures for non-rational desires than external rewards and punishments.

Exhortations and reproofs persuade without arguing or explaining. However, we have reason to think that reasoning too plays a role in the interaction between parts of the soul. The persuasive role of reasoning emerges in Aristotle's account of the appropriate use of admonition, i.e. the third kind of command suitable for the non-rational part. At *Pol.* 1260b2–7, unlike other kinds of commands, admonitions require some kind of explanation, or some kind of conversational rational engagement (*logos*).⁴³ This passage suggests that the admonitions of the rational part of a wise person are more persuasive than mere commands because they are accompanied by arguments and explanations (*logoi*). A related point is made at *NE* 1150b22–5, where some people can control their non-rational affections (*pathē*) by awakening themselves and their rational calculation (*proegeirantes heatous kai ton logismon*). Aristotle does not tell us much about the nature of this awakening. However, we can suppose that it involves something like intellectual concentration and, perhaps, an appropriate narrow focus of our intellectual attention. By concentrating and by engaging in appropriate reasoning, we can prevent ourselves from boiling up in non-rational anger or from being blinded by appetitive desires. Aristotle's successors attributed a similar role to intellectual concentration. Simplicius, for example, discusses the ways in which awakening our attention helps us to control our emotions and desires.⁴⁴

If this is right, human rational cognition is peculiar because it can be aided and hindered by non-rational cognition and desires. In addition, it has the peculiar ability to govern non-rational desires by means of exhortations and attention-directing arguments.

⁴³Aristotle's view discussion of admonition is embedded in a discussion of the correct interaction between masters and slaves. While it is clearly unacceptable as an account of human relationships, it can be used as an instructive analogy for the interaction between parts of the soul. On the connection between admonition, teaching and reasoning see *inter alia* *Apology* 26a3, *Phaedo* 94d5. For a case in which admonishing is contrasted to reasoning, see however *Soph.* 229e4–230a3. The reference to admonitions (*nouthetēseis*) and the analogy between parents/masters and children/slaves are clearly reminiscent of the description of the communication between parts of the soul in the *Nicomachean Ethics*.

⁴⁴see Simplicius *Commentary on Epictetus' Handbook*, esp. 114.50 ff. in the Dübner edition (see also Brittain and Brennan, *Simplicius: On Epictetus Handbook 27-53*, p. 92, comm. on ch. 33, lemma xliii). Cf. Epictetus *On Attention (Peri Prosochēs)* in his *Discourses*, 4.12.

Conclusion

At *NE* 1102a14–24, Aristotle argues that ethicists, political scientists and anyone who seeks to learn about the human good and human happiness should know something about the human soul. This means that the student of ethics should have a certain degree of familiarity with psychology and cognitive theory. Naturally, the student of ethics is not required to be familiar with these sciences as wholes, but only with some relevant topics.⁴⁵

In order to determine which topics in psychology are relevant for ethics and political science, Aristotle employs a “peculiarity criterion”. At *NE* 1102a33–b12 the nutritive part of the soul is not interesting for ethicists and political scientists because it is not peculiarly human, but shared between humans, plants and non-human animals. Although it is required for the functioning of animal rational and non-rational cognition and desire, its operations are not in any way changed or affected by rational and non-rational cognition and desire (*DA* 414b28–415b8). According to some interpreters, the peculiarity criterion also suggests that the cognitive and desiderative faculties we share with non-human animals (e.g. perception) are not important for the study of ethics.⁴⁶ If this is right, however, our rational cognitive faculties (in particular theoretical thought) do not matter for ethics either. After all, they are shared between us and the gods.

On this view, the peculiarity criterion implies that neither rational cognition and desires nor non-rational cognition and desires are relevant for the study of ethics. This implication is, of course, implausible. Aristotle deals with perception and non-rational desires throughout the *Nicomachean Ethics*, for example in his account of *akrasia* and practical wisdom in book vi and vii. Similarly, he is concerned with an analysis of “divine” contemplation as the highest possible achievement for a human life at the very end of the *Nicomachean Ethics*. This suggests that we should either discard the peculiarity criterion, or show that human non-rational and rational cognition are peculiar in some sense.

In this chapter, I argued that humans are the only creatures in which the rational part of the soul and the non-rational part of the soul interact. By looking at this interaction, we can discover some peculiarities of the

⁴⁵*NE* 1102a26–31. While it seems clear that a study of psychology can help us to elucidate Aristotle’s ethics, it is hard to determine just how much psychology he expected a successful ethicist or political scientist to know. On this question, see e.g. Shields, ‘The Science of the Soul in Aristotle’s Ethics’ and Scott, *Levels of Argument*.

⁴⁶See further Fortenbaugh, *Aristotle on Emotion*, pp. 26–31 and Fortenbaugh, *Aristotle’s Practical Side*, p. 122 ff. My critique of this view follows Moss, *Aristotle on the Apparent Good*, pp. 72–4.

human cognitive and desiderative make-up. If my analysis is correct, these peculiarities include: an expanded perceptual, phantastic and “desiderative” range; voluntary and synthesising deliberative *phantasia*; the cooperation between thought and *phantasia*; the rational ability to control desires by means of exhortations, reproofs, pleasure, pain and intellectual concentration. Aristotle develops a peculiarly human psychology even if he thinks that many aspects of human cognition are shared between humans and other beings. This is why human perception, thought, *phantasia* and desire are distinctive enough to be relevant for the study of ethics.⁴⁷

References

- Beare, J.I. and G.R.T. Ross. *De Sensu et Sensibilibus*. Ed. by Jonathan Barnes. The Complete Works of Aristotle. Princeton University Press, 1991.
- Brittain, Charles and Tad Brennan. *Simplicius: On Epictetus Handbook 27-53*. Ancient Commentators on Aristotle. London: Duckworth, 2002.
- Burnyeat, Myles. ‘Aristotle on Learning to Be Good’. In: *Essays on Aristotle’s Ethics*. University of California Press, 1980, pp. 69–92.
- *Aristotle’s Divine Intellect. The Aquinas Lecture 2008*. Milwaukee: Marquette University Press, 2008.
- Cashdollar, Stanford. ‘Aristotle’s Account of Incidental Perception’. In: *Phronesis* 18.1 (1973), pp. 156–175.
- Caston, Victor. ‘Aristotle and the Problem of Intentionality’. In: *Philosophy and Phenomenological Research* 58.2 (1998), pp. 249–298.
- ‘Aristotle’s Two Intellects: A Modest Proposal’. In: *Phronesis* 44.3 (1999), pp. 199–227.
- ‘Why Aristotle Needs Imagination’. In: *Phronesis* 41.1 (1996), pp. 20–55.
- Cohoe, Caleb. ‘When and Why Understanding Needs Phantasmata. A Moderate Interpretation of Aristotle De Memoria and De Anima on the Role of Images in Intellectual Activities’. In: *Phronesis* 61.3 (2016), pp. 337–372.
- Coope, Ursula. ‘Why Does Aristotle Think That Ethical Virtue is Required for Practical Wisdom?’ In: *Phronesis* 57.2 (2012), pp. 142–163.

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- Corcilius, Klaus. ‘How Are Episodes of Thought Initiated According to Aristotle?’ In: *Ancient Perspective on Aristotle de Anima*. Ed. by Gerd Van Riel and Pierre Destrée. Leuven University Press, 2009, pp. 1–17.
- Everson, Stephen. *Aristotle on Perception*. Oxford University Press, 1997.
- Fortenbaugh, William W. *Aristotle on Emotion. A Contribution to Philosophical Psychology, Rhetoric, Poetics, Politics, and Ethics*. London: Duckworth, 1975.
- *Aristotle’s Practical Side. On His Psychology, Ethics, Politics and Rhetoric*. Leiden: Brill, 2006.
- Frede, Dorothea. ‘The Cognitive Role of Phantasia in Aristotle’. In: *Essays on Aristotle’s de Anima*. Ed. by Martha C. Nussbaum and Amélie Oksenberg Rorty. Oxford: Clarendon Press, 1992, pp. 279–95.
- Hamlyn, David W. *Aristotle’s De Anima. Books II and III with Certain Passages from Book I*. Oxford University Press, 1968.
- Hicks, Robert Drew. *Aristotle De Anima*. Cambridge University Press, 1907.
- Johansen, Thomas Kjeller. *The Powers of Aristotle’s Soul*. Oxford University Press, 2012.
- Kahn, Charles H. ‘Aristotle on Thinking’. In: *Essays on Aristotle’s de Anima*. Ed. by Martha C. Nussbaum and Amélie Oksenberg Rorty. Oxford: Clarendon Press, 1992, pp. 359–80.
- Lorenz, Hendrik. *The Brute Within. Appetitive Desire in Plato and Aristotle*. Oxford University Press, 2006.
- Menn, Stephen. ‘Aristotle’s Theology’. In: *The Oxford Handbook of Aristotle*. Ed. by Christopher Shields. Oxford University Press, 2012, pp. 422–466.
- Modrak, Deborah K. W. *Aristotle: The Power of Perception*. University of Chicago Press, 1987.
- Moss, Jessica. *Aristotle on the Apparent Good*. Oxford University Press, 2012.
- ‘Aristotle’s Ethical Psychology’. In: *The Cambridge Companion to Ancient Ethics*. Ed. by Christopher Bobonich. Cambridge University Press, 2017.
- ‘Right Reason in Plato and Aristotle: On the Meaning of Logos’. In: *Phronesis* 59 (3 2014), pp. 181–230.
- Nussbaum, Martha Craven. *Aristotle’s De Motu Animalium*. Trans. by Martha Craven Nussbaum. Princeton University Press, 1978.
- Pearson, Giles. *Aristotle on Desire*. Cambridge University Press, 2012.
- Polansky, Ronald. *Aristotle’s De Anima*. Cambridge University Press, 2007.
- Scheiter, Krisanna M. ‘Images, Appearances, and Phantasia in Aristotle’. In: *Phronesis* 57.3 (2012), pp. 251–278.
- Schofield, Malcolm. ‘Aristotle on the Imagination’. In: *Essays on Aristotle’s de Anima*. Ed. by Martha Craven Nussbaum and Amélie Rorty. Oxford University Press, 1992, pp. 249–77.

- Scott, Dominic. *Levels of Argument. A Comparative Study of Plato's Republic and Aristotle's Nicomachean Ethics*. Oxford University Press, 2015.
- Shields, Christopher. *De Anima*. Oxford: Clarendon Press, 2016.
- 'The Science of the Soul in Aristotle's Ethics'. In: *Bridging the Gap between Aristotle's Science and Ethics*. Ed. by Devin Henry and Karen Margrethe Nielsen. Cambridge: Cambridge University Press, 2015, pp. 232–254.
- Sorabji, Richard. *Animal Minds and Human Morals. The Origins of the Western Debate*. Ithaca, NY: Cornell University Press, 1993.
- Thompson, D.A.W. *History of Animals*. Ed. by Jonathan Barnes. The Complete Works of Aristotle: the Revised Oxford Translation. Princeton University Press, 1984.
- Warren, James. *The Pleasures of Reason in Plato, Aristotle, and the Hellenistic Hedonists*. Cambridge University Press, 2014.
- Wedin, Michael V. 'Aristotle on the Mechanics of Thought'. In: *Ancient Philosophy* 9.1 (1989), pp. 67–86.
- *Mind and Imagination in Aristotle*. Yale University Press, 1988.
- Whiting, Jennifer. 'Locomotive Soul: The Parts of Soul in Aristotle's Scientific Works'. In: *Oxford Studies in Ancient Philosophy* 22 (2002), pp. 141–200.