



BIROn - Birkbeck Institutional Research Online

Connell, Sophia (2024) Aristotle on memory and emotions in human and non-human animals. In: Kazantzidis, G. and Spatharas, D. (eds.) *Memory and Emotions in Antiquity. Trends in Classics - Supplementary Volumes 158*. Berlin, Germany: De Gruyter, pp. 129-152. ISBN 9783111344805.

Downloaded from: <https://eprints.bbk.ac.uk/id/eprint/52617/>

Usage Guidelines:

Please refer to usage guidelines at <https://eprints.bbk.ac.uk/policies.html>
contact lib-eprints@bbk.ac.uk.

or alternatively

Aristotle on Memory and Emotions in Human and Non-human Animals¹

Sophia M. Connell

Aristotle's zoological texts offer the most detailed account of animal behaviour before the modern era. In these works, a significant link is made between an animal's social emotions and a certain cognitive sophistication, including the capacity to remember.

Τὰ μὲν οὖν ἀπλῶς, ὡσπερ φυτά, κατὰ τὰς ὥρας ἀποτελεῖ τὴν οἰκείαν γένεσιν· τὰ δὲ καὶ περὶ τὰς τροφὰς ἐκπονεῖται τῶν τέκνων, ὅταν δ' ἀποτελέσῃ, χωρίζονται καὶ κοινωνίαν οὐδεμίαν ἔτι ποιοῦντα τὰ δὲ συνετώτερα καὶ κοιωνοῦντα μνήμης ἐπὶ πλεόν καὶ πολιτικώτερον χρῶνται τοῖς ἀπογόνους.

Some [animals] complete the reproduction proper to them simply like plants, according to the season. Others make an effort to nourish the young, but once that is completed, separate and no longer do anything in common with them. Those [animals] that have more understanding and memory continue the commonalities

¹ I am delighted to be able to thank George Kazantzidis and Dimos Spartharas for their excellent conference on Memory and Emotions in Antiquity at the University of Crete in 2019 and for their editorial skills. I am grateful to audiences at University College and Birkbeck London and the University of Warwick for their questions and comments, especially Alex Grzankowski, Robert Northcott, Sue James, Quassim Cassam and Naomi Eilan. Thanks are also due to Catharine Edwards for our many conversations about ancient emotions, Jamie Dow for helping me to understand Aristotle's views in the *Rhetoric* and Ali Boyle for insights concerning modern philosophy of animal cognition.

and have a more social relationship with their offspring (*Historia Animalium* VII.1, 588b30-9a2).²

τοῖς δὲ δὴ μάλιστα κοινωνοῦσι φρονήσεως καὶ πρὸς τελειωθέντα γίνονται συνήθεια καὶ φιλία, καθάπερ τοῖς τε ἀνθρώποις καὶ τῶν τετραπόδων ἐνίοις

Those [animals] with the most share of intelligence, become intimate and friendly toward [their young] after they have fully matured, as happens in the human kind and some tetrapods (*On the Generation of Animals* (GA) III.2, 753a11-14).

In this chapter, I will look to Aristotle's study of animals in order to highlight his account of the role of memory in the emotion of love or affection.³ While all emotions require a degree of memory, its manifestation in loving social relationships is the most cognitively sophisticated. Although, for Aristotle, non-human animals do not have belief (*doxa*) or reason (*logos*), their abilities to remember, feel and respond in a sophisticated manner to their environment and to other animals, show a degree of 'thought'. This thinking is tightly connected to felt bodily experience, particularly when it comes to feelings of affection and love and how memories of past encounters are required to sustain these feelings.

This understanding of the emotion of love illuminates Aristotle's account of cognition in non-human animals. It also provides a window into the deep biological roots of human social ties and their connections to memory and recognition.

² Translations are mine unless otherwise indicated. See also: *HA* VIII(IX).4, 611a10-14 on horses; VI.12, 566b2-23 on dolphins.

³ That love (*philia*) may be the odd one out of the emotions in *Rhetoric* II will be tackled in Section 2.

For Aristotle the ability to recognise others as individuals to whom one ought to act in a loving manner forms the basis of all animal communities. In human communities the effect is stronger because of our much more sustained capacities to remember intergenerationally and through literary devices. Thus we find that memory is not just what is required to reach intellectual perfection for an individual thinker in Aristotle (*A. Po.* II.19) but an integral part of living as humans in communities. Unlike the abstract intellectual achievements of humankind, human emotional attachments, strengthened by collective and cultivated memory, are aspects of bodily lived experience.⁴

The chapter will begin by justifying the attribution of emotions to animals on an Aristotelian picture. It will then consider what memory consists in before focusing on love as an emotion that most often ties together memory and emotions in non-human animals. The chapter ends with some suggestions about how these discoveries might impact our understanding of the connection between memory and emotions in human beings.

1. Aristotle on animal emotions

For Aristotle, emotional responses are a type of *pathê*, which can be translated ‘affections’. Emotional *pathê* include: anger, mildness, fear, pity, courage, joy, loving and hating (*DA* I.1, 403a17-18).⁵ Aristotle gives a definition of emotional *pathê* in the *Rhetoric* (*Rh.*)

⁴ For Aristotle, *nous*, the thinking capacity, is the only operation of the soul that does not have any realisation in the body (*DA* III.4, 429a26-7; *GA* II.3, 736b28-29). What this amounts to is contested. See Connell 2021b and Roreitner 2021 for different perspectives.

⁵ *Nicomachean Ethics* (*EN*) (II.5, 1105b21-3): fear, confidence, envy, joy, hatred, longing, emulation and pity; *Eudemian Ethics* (II.2, 1220b12-13): anger, fear, shame and appetite.

ἔστι δὲ τὰ πάθη δι' ὅσα μεταβάλλοντες διαφέρουσι πρὸς τὰς κρίσεις οἷς ἔπεται λύπη καὶ ἡδονή, οἷον ὀργή ἔλεος φόβος καὶ ὅσα ἄλλα τοιαῦτα, καὶ τὰ τούτοις ἐναντία

The emotions are all those which cause people to change their opinions in regard to their judgements⁶, and are accompanied by pleasure and pain, such as anger, pity, fear, and all similar emotions and their contraries (*Rh.* II.1, 1378a19-22).

In philosophical circles, Aristotle's *Rhetoric* has become important for establishing a rationalistic view of emotions as judgements. This account aligns with later Stoic views and with the revival of interest in the 'evaluative' strain in the study of the emotions in contemporary philosophy.⁷ Evidence from a broader stretch of Aristotelian writings gives much less straightforward evidence for the emotion-as-judgement analysis.⁸ In his ethics, Aristotle is clear that emotions can be irrational which is why one can be afraid of something

⁶ Sihvola urges that κρίσις need not be translated 'judgement' in the strictly rational sense. For Aristotle, any discriminatory capacity counts as a κρίσις, including perception (Sivhola 1996: 109, 142).

⁷ This starts in the analytical tradition with Kenny 1963. Slightly later, Madga B. Arnold and Richard Lazarus think of Aristotle as the originator of their 'appraisal' theory (Lazarus 2001: 40). The idea that emotions are judgements is also found in the influential work of Martha Nussbaum, who interprets Aristotle as part of this viewpoint (1994, 2001).

⁸ I reject Fortenbaugh's (1975) view that the ethics and zoology have entirely different frameworks. In this I broadly follow Leunissen 2017: xx: "There are no indications in the text suggesting that Aristotle perceives of his account of emotion as involving a sharp distinction between human and animal emotions."

that is not really threatening to one, such as walking onto a glass bridge over a canyon.⁹ When it comes to non-human animals, in order to make the judgment view stick, the whole of Aristotle's discussions in his zoological works, and parts of ethics, which ascribe emotional states to animals. The affective tendencies, both emotions and less complicated feelings, in non-human animals are given their most comprehensive treatment by Aristotle in his *Historia Animalium* where he sets out to gather information about four types of difference between animals –parts (*moria*), activities (*praxeis*), ways of life (*bioi*) and character (*êthê*) (*HA* I.1, 487a11-15). Books VII(VIII) and VIII(IX)¹⁰ focus on 'character' (*êthos*) which includes animals' emotions. Book VII introduces the theme, providing scales of affective tendencies and corresponding behaviours.

αἱ δὲ πράξεις καὶ οἱ βίοι κατὰ τὰ ἦθη καὶ τὰς τροφὰς διαφέρουσιν. Ἐνεστί γὰρ ἐν τοῖς πλείστοις καὶ τῶν ἄλλων ζώων ἴχνη τῶν περὶ τὴν ψυχὴν τρόπων, ἅπερ ἐπὶ τῶν ἀνθρώπων ἔχει φανερωτέρας τὰς διαφοράς· καὶ γὰρ ἡμερότης καὶ ἀγριότης, καὶ πραότης καὶ χαλεπότης, καὶ ἀνδρία καὶ δειλία, καὶ φόβοι καὶ θάρρη, καὶ θυμοὶ καὶ πανουργίαι καὶ τῆς περὶ τὴν διάνοιαν

Their activities and lives differ according to their characters and nutrition.

For most of the other animals possess traces of the characteristics to do with the soul, which present differences more obviously in humans. For tameness and wildness, gentleness and roughness, courage and cowardice, fears and boldnesses, temper and mischievousness [are present in many of them] as well as resemblances of intelligent understanding (*dianoia*) (*HA* VII.1, 588a17-23)

⁹ Sihvola 1996: 115. On 'recalcitrant' emotions in modern philosophy of mind see D'Arms and Jacobson 2003.

¹⁰ I use the pre-Gaza numbering with the post-Gaza one in brackets. See David Balme's arguments for this ordering in Aristotle 1991, Introduction.

Opponents to the view that animals have emotions for Aristotle posit that these ascriptions are merely metaphorical. That idea is based on a passage in the *Nicomachean Ethics* (1149b31-4) where Aristotle uses ‘metaphor’ to describe temperance and intemperance in non-human animals.¹¹ This position is unattractive and pulls against the idea prominent in the ethics that animals have the thumetic part of the soul, and that this part can lead them in an opposing direction to their appetitive inclinations. There are many instances of this, for example in Aristotle’s description of the courage-like behaviour of wounded animals.¹²

While taking the *Rhetoric* into account is very important, Aristotle’s descriptions of emotional states there are ultimately for the sake of persuading audiences and not in order to provide a general account of emotions.¹³ This is why these descriptions focus on beliefs

¹¹ ‘We do not call beasts either temperate or intemperate except by transference of name (τὰ θηρία οὔτε σώφρονα οὔτ’ ἀκόλαστα λέγομεν ἀλλ’ ἢ κατὰ μεταφορὰν, trans. Irwin). Fortenbaugh 1971 thinks this means that animals “cannot have emotions”, but the passage concerns virtues and vices and not emotions. Non-human animals cannot have full virtue but can have ‘natural’ virtues (Lennox 1999). Any evidence of animal emotion is said by Fortenbaugh to be due to Platonic influence and not genuinely Aristotelian. Sorabji (1993: 56) does not wish to dismiss the evidence but instead concludes that Aristotle had problematically conflicting views about animal emotions in his works.

¹² *EN* III.8, 1116b22-7a9; Sihvola 1996: 128-9.

¹³ “Aristotle’s aims are confined to what is required for a treatise on rhetoric” (Dow 2012: 146); “the art [of rhetoric] does not have to consider animals and distinctions needed to understand their psychology” (Sihvola 1996: 138). “Aristotle did not intend this as a rigorous or exhaustive account of the nature of the pathos. Clearly, it is designed to serve his present purpose, which is to instruct the orator” (Konstan 2003: 100). See also Knuuttila 2004: 37; Labarrière 2005: 104.

and judgements which can be unhooked or swayed. There is no doubt that in people beliefs are closely tied to emotions, in many cases underlying or justifying them.¹⁴ When considering the descriptions of various emotions in the *Rhetoric* it is possible, however, to adapt these to the sorts of emotions that non-human animals are capable of as well.

Let's take anger. In the *de Anima*, Aristotle makes clear that anger has as physiological component. Different approaches to emotions yield different types of definition: doctors define anger as "a boiling of blood around the heart", while philosophers think of it as "desire for revenge" (I.1, 403a31-b1). For Aristotle, both are important. To be angry is not only the bodily response but also a stance toward the object of that feeling; one must interpret the situation in order to feel 'real' emotion. This can be contrasted with simple mental agitation, such as automatically jumping at a loud noise.¹⁵ Anger involves a perceived slight to oneself or one's loved ones accompanied by a desire for revenge (*Rh.* II.2, 1378a32-b2). In animals, anger is more broadly a response to a perceived 'slight' (ὀλιγωρία),¹⁶ meaning invasion of territory, competition for mates, or threat to those the animal is caring for, such as young, combined with 'desire for revenge' meaning a motivation to lash out at the perpetrator.¹⁷ Animal anger is not 'a judgement' but

¹⁴ While it is certainly true that for people "emotions have an intimate relationship to belief" and "can be modified by a modification of belief" this does not entail that beliefs are a "constitutive part of what the emotion is" (Nussbaum 1994: 80, 88).

¹⁵ Some argue that this is a contrast between the rational (human) ability and irrational responses that animals have which are not real emotions (Nussbaum 1994: 83-97). For a persuasive counterargument see Sihlova 1996: 119-134.

¹⁶ See note 22 above.

¹⁷ Some of this behaviour in relation to mating is described at *HA* VI.18, 571b11-572a5. There are certain animals that war against each other and the reason is competition for food or territory (*HA*

it has an element which resembles a judgement, a seeing X as a threat or something that is trying to take away what is theirs. Anger in the non-human case is not a desire for revenge but it has an element that is similar, something like a desire to put the situation back to the equilibrium that existed before, when there wasn't any threat to territory or loved ones.

Aristotle present us with an affective scale from anger/aggression to mildness/affection (*HA* VIII(IX).44, 629b6-8); love is closely associated with mildness, the opposite of aggression. This scale is also evident in *Rhetoric* II.2, 1380a4: “And since becoming angry is the opposite of becoming mild, and anger of mildness, we must determine the state of mind which makes men mild”.¹⁸ Aristotle even brings in an animal example to illustrate this scale. The behaviour of dogs proves that anger ceases towards those who humble themselves, for ‘they do not bite those who sit down’ (*Rh.* II.3, 1380a25-6). Thus, this animal becomes angry at a perceived ‘slight’ (ὀλιγωρία) which can then be calmed by its removal.¹⁹

The angry feelings that motivate animals can be seen as cognitive responses. The complicated and ongoing behaviours that result are not like jumping at a loud noise. The theory of emotion that suits animal responses is that these are intentional states, a seeing the world in a particular way.²⁰ An emotion is an evaluation that contains motivational

VIII(IX).1, 608b19f.). For example, “the lion and the jackal are at war with each other, for being carnivorous they live off the same things” (610a14).

¹⁸ Cf. *DA* I.1, 403a18

¹⁹ Sihlova proposes that the term ‘slight’ (ὀλιγωρία) can be broadened to include animal attitudes (1996: 130). He emphasises an animal’s ‘self-assertion’ and not its concern for others. See also Dow 2012: 226 and Pearson 2012: 134n.40: “If we take ‘slight’ ... broadly we could think of such cases as involving the animals perceiving a slight”.

²⁰ Calhoun 1984: 339.

elements.²¹ On a certain convincing way to understand Aristotle's own account of emotions, these are centred in feelings of pleasure and pain which redirect agents' attention in a particular manner.²² This 'seeing as' for non-human animals will not have the same rich discursive backing as our does, but may be in essence quite similar to human responses, in that animals will see the object of the emotion in a particular manner which requires their attention.²³ The key disagreement in relation to whether animals really have emotions for scholars of Aristotle is whether his is a belief (*doxa*) or appearance (*phantasia*) view. The belief view, which is that *doxa* is constitutive of emotions, excludes non-human animals.²⁴ The appearance view is open to their inclusion.²⁵ The capacity called *phantasia*, which belongs to most animals and which is part of the perceptive soul, can be the basis of various emotions.²⁶ This second approach need not reduce Aristotelian

²¹ 'The emotional evaluative thought makes one see oneself (or others in relation to oneself) in a specific way, and their awareness is qualified as pleasant or unpleasant' (Knuutilla 2004: 38).

²² Dow 2012: ch. 9.

²³ Emotions are "evaluative reactions shared by us and animals" (Ierodiakonou 2020: 94).

²⁴ Clearly articulated in Fortenbaugh 1971 and largely followed by Sorabji 1992.

²⁵ Sihlova 1996, Knuuntilla 2004, Dow 2012. For an overview of the debate about on animal emotions in Aristotle see Ierodiakonou 2020: 96-100. The growing consensus in modern science is that animals have emotions. The Cambridge Declaration of Consciousness, 2012 <http://fcmconference.org/img/CambridgeDeclarationOnConsciousness.pdf> proclaims: "Evidence that human and non-human animal emotional feelings arise from homologous shared primal affective qualia". See also Bekoff 2007 and De Waal 2019.

²⁶ Animals have neither belief (*doxa*) nor conviction (*pistis*) (*DA* III.3, 428a19-b9, III.10, 433b27-30; *MA* 7, 701a34-6; 8, 701b18-19), but do have *phantasia*, which is said to be a 'sort of thinking' (*DA* III.10, 433a10-13). The translation of *phantasia* as 'imagination' is very misleading; in the Greek there isn't any indication of images or creativity (Caston 2021). I leave the term untranslated.

emotions to irrational impulses; instead, it allows for an expansion of the perceptive capacity.²⁷ The cognition involved in an emotional response for any sentient being includes something like what we would now call intentionality and has a representational character.²⁸ Animal emotions do not require full blown belief or conviction; instead, they are a way that the animal actively represents to itself the situations around it. Indeed, such a capacity is required, Aristotle thinks, in order for animals to voluntarily move their limbs and bodies in response to interpreting conditions in the external environment (Corcilius 2021).

Many non-human animals have a complex cognitive basis for their various ‘intelligent’ behaviours by which they can respond to their changing situations and use a certain degree of ‘forethought’ (*EN* VI.1, 1141a26-8) to plan their way toward natural goals of self-preservation, reproduction and living well.²⁹ Non-human animals lack reason (*logos*) and belief (*doxa*), but can respond to their environment in terms of representation. In the case of filial love, this cognitive response is bodily and connected to memory. Thus, considering the interconnections between memory and emotions in non-human animals illustrates how the experience of emotions for all living beings includes a bodily component.

By talking in terms of ‘emotions’ one admits a degree of anachronism into the discussion. Added to that difficulty, what modern philosophers and psychologists disagree

²⁷ On this expansion see especially Sorabji 1993: ch. 2 and Gregoric 2007: ch. 4.

²⁸ “The pain and pleasure involved in having an emotion is pain/pleasure that is intentional and representational: it is pain/pleasure at the emotion’s object or ‘target’ and involves that target being represented in ways that give ‘grounds’ for the particular emotion experience” (Dow 2012: 146).

²⁹ *EN* VI.1141a26-8. On animal intelligence in Aristotle see especially Labarrière 1990, 2005, ch. 4; Connell 2021a.

about the ontology of the emotions and the scope of the term (Scarantion and de Sousa 2021: §2). Aristotle includes filial ‘love’ (*philia*) while we generally do not. I will use the term ‘emotions’ to cover a slightly broader ambit than the modern term covers, but not so broad as to indicate all ‘affections’ (*pathê*) since these include pure pleasure and pain. The rationale will become clear in what follows, but one reason to concentrate on filial emotions is to see how when it comes to emotional thinking, particulars rather than universals take precedence. While it may be that non-human animals cannot ‘grasp the universal’ and that this counts as a sort of intellectual shortcoming, it does not damage their ability to form affectionate bonds, which are, indeed, focused on one’s ability to recognise and respond appropriate to a particular other. Aristotle’s interest in these abilities, and the way in which humans share them with other animals, can be contrasted to Plato and the Stoics who attempt to extend affectionate ties to entire cities or communities in ways that are unrealistic and which seem to try to deny that human nature has certain limitations. Creating community bonds can be done through memory and stories but cannot be manufactured through universalising feelings that are tied to particularity and recognition. In the following, I provide a way to accommodate the intentional and representational abilities of animals in Aristotelian epistemology.

2. Aristotle on Memory

The capacity to remember is required for anything which counts as a proper emotion rather than a mere physical response to stimuli. Anger, for example, is sustained by memory; the one who threatens territory or loved ones by one act remains the object of anger for some time, and often on different occasions if they are seen or sensed again.³⁰ In the *Rhetoric*,

³⁰ ‘Bitter’ people have the particular vice of holding a grudge for too long; this requires a good memory (*EN* IV.5, 1126a20-27).

the agent's desire to retaliate is associated with an appearance (φαντασία) which induces the feelings of pleasure, a pleasure similar to that experienced in dreams (*Rh.* II.2, 1378b7-9). The angry person brings to mind the image of the one who slighted them, always a particular individual (ἀεὶ τῶν καθ' ἑκάστων τι, II.2, 1378a33). The motivations and actions associated with anger also show that there must be a sense of time and consequence and a degree of planning. The sense of time passing is connected to the capacity to remember by Aristotle (*Mem.* 1, 450a9-11) and the ability to plan is available to many animals which are said to be *phronimos*.³¹

The role that memory plays in animal cognition for Aristotle is at first difficult to discern. An account can be pieced together from his treatise *On Memory and Recollection* combined with general epistemological statements and offers a way to understand their emotional responses in terms of representation. One of the latter mentions occurs at the beginning of the *Metaphysics*.

Φύσει μὲν οὖν αἴσθησιν ἔχοντα γίνονται τὰ ζῶα, ἐκ δὲ ταύτης τοῖς μὲν αὐτῶν οὐκ ἐγγίγνεται μνήμη, τοῖς δ' ἐγγίγνεται. καὶ διὰ τοῦτο ταῦτα φρονιμώτερα καὶ μαθητικώτερα τῶν μὴ δυναμένων μνημονεύειν ἐστί, τὰ μὲν οὖν ἄλλα ταῖς φαντασίαις ζῆ καὶ ταῖς μνήμαις, ἐμπειρίας δὲ μετέχει μικρόν· τὸ δὲ τῶν ἀνθρώπων γένος καὶ τέχνη καὶ λογισμοῖς, γίνονται δ' ἐκ τῆς μνήμης ἐμπειρία τοῖς ἀνθρώποις αἱ γὰρ πολλὰ μνήμαι τοῦ αὐτοῦ πράγματος μιᾶς ἐμπειρίας δύναμιν ἀποτελοῦσιν.

By nature animals are born with the faculty of sensation, and from sensation memory is produced in some of them, though not in others. And therefore the former are more intelligent and apt at learning than those which cannot remember.... The animals

³¹ Labarriere 1990, Connell 2021a. In his commentary on *De Anima*, John Philoponus discusses the case of a lion who, remembering a past injury, fears and avoids the same flock (Philoponus *In De An.* 3, 579,39-581, 19; Sorabji 2004: xxii-xxiv).

other than humans live by appearances and memories, and have but little of connected experience; but the human kind lives also by craft and reasoning. And from memory experience is produced in humans; for many memories of the same thing produce finally the capacity for a single experience (*Metaph.* I.1, 980a27-981a1 trans. after Ross).

The passage tells us that certain non-human animals have memory.³² When the zoological works are consulted, this turns out to be a good many of them, certainly all of the blooded kind and also many lower animals. Bloodless animals such as bees are known to be both intelligent and social (*Metaph.* I.1, 980b22; *PA* II.2, 648a6-8, II.4, 650b25-7; *HA* I.1, 488a7-10).

The zoology finds Aristotle explicitly referring to animal's capacity to remember in relation to their ability to learn:

Φαίνονται γὰρ ἔχοντά τινα δύναμιν περὶ ἕκαστον τῶν τῆς ψυχῆς
παθημάτων φυσικὴν, περὶ τε φρόνησιν καὶ εὐθήθειαν καὶ ἀνδρείαν καὶ
δειλίαν, περὶ τε πραότητα καὶ χαλεπότητα καὶ τὰς ἄλλας τὰς τοιαύτας
ἕξεις. Ἐνια δὲ κοινωνεῖ τινὸς ἅμα καὶ μαθήσεως καὶ διδασκαλίας, τὰ μὲν
παρ' ἀλλήλων, τὰ δὲ καὶ παρὰ τῶν ἀνθρώπων

[The animals we see more easily] appear to possess a natural capacity with respect to each of the soul's affections - to practical intelligence and stupidity, courage and cowardice, and to mildness and ferocity, and other

³² Aristotelian zoology requires gathering together the widest class of animals that possess a given feature before dividing according to differences. This allows for causal explanations of these features both in general and with relation to each peculiarity (*PA* I.1, 639a15-b5, I.4, 644b1-7). See Gotthelf 2012; Lennox 2001. Emotions and memory are explicitly put forward as attributes that occur in many different animals and which are "common to body and soul" (*koina*, *Sens.* 1, 436a7-8).

characteristics of this sort. Certain of them at the same time are able to learn and be taught, some by one another, others by humans (*HA VIII(IX).1*, 608a13-19, after Balme trans.)³³

Many animals teach or train their own young who must be able to remember, such as swallows (*HA VIII(IX).7*, 612b29-31), nightingales (*IV.9*, 536b17-19), deer (*VIII(IX).5*, 611a19-21) and seals (*VI.12*, 567a5-7).

The process that starts with perception and ends with knowledge, including the stages of memory and experience, is given another treatment in one of Aristotle's most famous and contested epistemological texts:

Ἐκ μὲν οὖν αἰσθήσεως γίνεται μνήμη, ὡςπερ λέγομεν, ἐκ δὲ μνήμης πολλάκις τοῦ αὐτοῦ γινομένης ἐμπειρία· αἱ γὰρ πολλαὶ μνήμαι τῷ ἀριθμῷ ἐμπειρία μία ἐστίν. ἐκ δ' ἐμπειρίας ἢ ἐκ παντὸς ἡρεμήσαντος τοῦ καθόλου ἐν τῇ ψυχῇ, τοῦ ἐνὸς παρὰ τὰ πολλά, ὃ ἂν ἐν ἅπασιν ἔν ἐνῆ ἐκείνοις τὸ αὐτό, τέχνης ἀρχὴ καὶ ἐπιστήμης, ἐὰν μὲν περὶ γένεσιν, τέχνης, ἐὰν δὲ περὶ τὸ ὄν, ἐπιστήμης.

From perception there comes memory, as we call it, and from memory (when it occurs in connection with the same item), experience; for memories which are many in number form a single experience. And from experience, or from all the universal which has come to rest in the soul (the one apart from the many), there

³³ *HA I.1*, 488b25: “Many animals have the power of memory and can be trained (διδασχῆς).” One example is the elephant. “The tamest and gentlest of all the wild animals is the elephant, for there are many things that it both learns and understands (καὶ παιδεύεται καὶ ζυνήσιν): they are even taught to kneel before the king” (*HA VIII(IX).46*, 630b18-21, trans. Balme). See also *HA 8(9).1.610a19-34* on training elephants in war and in hunting tasks.

comes a starting point of craft or scientific knowledge. (A. *Po.* II.19, 100a3-9, after Barnes trans.)

The stage of cognition which non-human animals can reach ends with ‘experience’, here again said to be a ‘single’ experience that results from a number of memories. From this point, only humans can develop toward craft and scientific explanations, i.e. the eventual grasp of the universal (A. *Po.* I.13).³⁴ Aristotle does not tell us how many memories result in knowledge of what something is; and the role of experience is somewhat obscure.³⁵

In order to find out what animals remember, it is crucial to discover what the ‘single experience’ is which memories produce. For surely a collection of these must be available to the mind to match up with current experiences. We start with how animal memory operate, detailed in the first book of Aristotle’s short work *On Memory and Recollection* (*Mem.* 1, 449b15). Memory has physiological and phenomenal sides. Physiologically, sense impressions (*aisthêmata*) which are produced by the senses through interaction with the external world result in secondary sense products, the so-called *phantasmata*.³⁶ These reside in the body.³⁷

³⁴ Cf. *EN* VII.3, 1147b3-5.

³⁵ Experience is like practical doctor who does not know why her cures work; she can give no explanatory account of them. Interestingly, certain animals, according to Aristotle, can cure themselves (e.g. *HA* VIII(IX).5, 611a18, 611b24-26, 6, 612a7-13).

³⁶ I will leave *phantasmata* untranslated as the idea of ‘images’ is unlike Aristotle’s view. See especially Caston 2021.

³⁷ *Phantasmata* are most likely impressed into the blood (*Insomn.* 3, 461b1-462a8, *Mem.* 2, 453a14-31). For a fuller account see Gregoric 2007: 42-50; Bubb 2019: 282-3.

The lasting state we call memory is as a kind of picture; for the stimulus produced impresses a sort of likeness of the percept, just as when people seal wax with signet rings (450b1). The picture is matched to a current experience.

τὸ ἐν ἡμῖν φάντασμα δεῖ ὑπολαβεῖν καὶ αὐτό τι καθ' αὐτὸ εἶναι καὶ ἄλλου
[φάντασμα].

We must take the phantasma within us both as a thing in itself and as a phantasma of something else (*Mem.* 1, 450b24-5).

Phenomenologically, memory involves becoming aware and experiencing *phantasmata* which are then compared with current perceptions. Aristotle uses the example of comparing an actual person, Coriscus, with a portrait of that person (450b31).³⁸ When remembering, the agent “says in their soul that they have heard, or felt, or thought this before” (449b23-4).

The process here described requires some unpacking. The first difficulty is that sensory percepts (*aisthēmata*) and the subsequent impressions from these (*phantasmata*) which are matched to them are discrete special sensibles –colours, sounds, tastes, etc. Memories, however, would seem to involve something more complex: the example is Coriscus. Remembering Coriscus, an individual, is one kind of memory but this ability must also relate to types which a perceiver encounters again and again. The lion remembers an ox; the deer the road (*HA* VIII(IX).5, 611a15-23); the crane recalls cloud formations in judging whether to migrate (*HA* VIII(IX).10); the crocodile must recognise the sort of bird that cleans its teeth (*HA* VIII(IX).6, 612a20-24).³⁹ The process by which memory operates requires an

³⁸ In describing this as like a verbal account and then a picture, Aristotle is influenced by Plato, particularly the account of the role of memory in the emotions at *Philebus* 39a1-40a1.

³⁹ “Take the example of a crocodile opening his jaws and letting a particular kind of bird clean his teeth instead of closing the jaws and devouring the bird. I presume that the crocodile, in order to

assemblage of sense impressions and related *phantasmata*.⁴⁰ Once such items are in memory, they can build toward a ‘single experience’, a type of primitive knowledge-state with respect to these memories. In that way, memory can form the basis of eventual understanding of concepts or universals, as described in the *A. Po.* II.19 passage.

Although non-human animals cannot achieve a human level of understanding, there is space within the Aristotelian theories of memory for the cognition required for complex emotional responses. Non-humans cannot grasp universals but they can re-identify or understand types of thing. Animals only have the faculty of ‘perception’, it is not possible to perceive a universal (*A. Po.* II.19, 100a19); Aristotle makes clear that we perceive particulars and know universals through another faculty (meaning *nous*, which only humans possess, *DA* II.5, 417b19-25, III.4, 429b12). Gasser-Wingate (2019) argues, however, that there is a way in which to perceive the universal. This is not to conceptualise something as a universal but to perceive universal aspects of it, which explains how animals are able to re-identify the same sorts of objects in their environments. They are, accordingly “naturally constituted so as to be perceptually responsive to the effects of certain universal forms” (Gasser-Wingate 2019: 19). Gregorić and Grgić (2006) provide further support for this hypothesis. In discussing the operations of the sensory capacity to ‘experience’, they posit that this consists

behave in this way, must not only perceive a certain object in the environment, but also recognize it as a bird of a certain kind, have a memory of birds of this kind having previously flown into his open jaws and feeding on the leftovers (or a memory of seeing other crocodiles’ teeth having been cleaned by such birds), must represent that situation as something good, and so on” (Gregoric 2007: 95).

⁴⁰ This is an entirely involuntary and unconscious process. Lorenz (2006: 156) and Bubb (2019: 307-11) suggest that it might take place during sleep, based on their interpretations of *Insomn.* 3, 461b11-19. In contrast, the control that humans can exercise over memory is not available to animals (*HA* I.1, 488b25-6; *Mem.* 2, 453a8-14).

in an animal's being able to organise memories ('facts') around a certain object. In these ways scholars have found Aristotle to be consistent in curtailing the cognitive abilities of non-human animals while allowing for them to identify objects in their surroundings. Given these interpretations of Aristotelian epistemology, there is no very good reason to deny that animals can think about things 'as' a type of object, particularly when we consider their behavioural responses. According to Aristotle, then, animals can make certain generalisations which are not at the level of the discernment of universal concepts.⁴¹ These generalisations amount to an ability to classify and thus know about which individuals fit into which types.⁴² Indeed, in terms of food acquisition and avoiding predation, which forms a significant part of ways of living (*HA* VII(VIII).1, 589a2-5), an animal must be able to negotiate and identify types of object very regularly.⁴³ And yet these cases are not as interesting and important as those at issue in this chapter: cases of social interaction and cohesion over extended time periods. In these settings, animals are constantly categorising individuals and responding to them in ways that alter and transform their attitudes. It is only by concentrating on what animals do and experience that a fuller picture of this becomes available. Thus, any account of Aristotle on animal capacities needs to take seriously his zoology as well as all the many places he talks of human abilities and attempts to distinguish these from animal abilities.

⁴¹ This view requires an intricate analysis of *Metaphysics* A.1, 987a5-13. The one who knows universally in the strict sense knows the scientific basis and knows the whole "in the sense of the form" (*A. Po.* 74a30-1). Hasper and Yurdin 2014: 132.

⁴² For a similar view of animal cognition in modern theories see Bermúdez 2003 and Andrews 2015.

⁴³ Pigeons recognise different kinds of hawks, i.e. those that kill in air or from the ground (*HA* VIII(IX).36, 620a29-33)

3. Connection between memory and emotions

The connection between memory and the emotions is explicitly discussed by Plato in his *Philebus*. In contrast, other than a few comments about anticipation (*EN IX.4*, 1166a24-6; *IX.7*, 1168a14), there is very little in the Aristotle corpus on this. What we can find comes from two perspectives. The first is that memories can elicit emotions; this includes memories of feeling emotional. The second is that the capacity to remember is a prerequisite for the emotions. The two perspectives are plausibly intertwined in the case of familial love insofar as once affection is established on the basis of being able to re-identify the object of love in the appropriate manner, the animal comes to feel this emotion when its memory is active toward the object, i.e. when it remembers the other animal and its past experiences with it.⁴⁴ Although I will concentrate on the second, I want to briefly mention the first connection.

In the *Poetics*, Aristotle illustrates how memory can initiate emotional responses; this is one of the ways in which discovery is brought about in plays.

ἡ τρίτη διὰ μνήμης, τῷ αἰσθέσθαι τι ἰδόντα, ὥσπερ ἡ ἐν Κυπρίοις τοῖς
Δικαιογένους, ἰδὼν γὰρ τὴν γραφὴν ἔκλαυσεν, καὶ ἡ ἐν Ἀλκίνου ἀπολόγῳ, ἀκούων
γὰρ τοῦ κιθαριστοῦ καὶ μνησθεὶς ἐδάκρυσεν, ὅθεν ἀνεγνωρίσθησαν.

Another kind [of discovery] is through memory, from a person's consciousness being awakened by something seen. Thus in *The Cyprioe* of Dicaeogenes, the sight of the picture makes the man burst into tears; and in the *Tale of Alcinous*, hearing the harper

⁴⁴ "People who are great friends and especially care for each other – are especially apt to perceive and recognise each other at a distance" (*Div. Somn.* 2, 464a27-9).

Ulysses is reminded of the past and weeps, the discovery of them being the result (*Poet.* 16, 1454b36-1455a4).⁴⁵

The overt bodily reaction to emotion in each case results in the giveaway.⁴⁶

The other passage which references memory of an emotion comes from Aristotle's general work on animal locomotion, *de Motu Animalium*.⁴⁷

[T]his happens around the small parts without the subject noticing, and, roughly speaking, painful and pleasant things are all accompanied by some cooling and warming. This is clear from affections. For feelings of boldness and fear and sexual arousal (τῶν παθημάτων. θάρρη γὰρ καὶ φόβοι καὶ ἀφροδισιασμοί) and the other painful and pleasant bodily things occur sometimes in some particular part accompanied by warming and chilling, and sometimes in the whole body. But memories and anticipations, using such things as images (εἰδώλοισι χρώμεναι τοῖς τοιούτοις), are causes of them, sometimes to a lesser extent and sometimes to a greater (*MA* 8, 701b36-702a6, trans. Morrison).

In this case, the memory has the same effect on the body as the original feeling. The reaction is bodily, as with the *Poetics* case, but also closely linked to the animal's motivations and eventual actions. Thus, when Aristotle's account of memory in terms of being a cause of affections, including emotional responses, also provides clues about his representational theory, which explains motivations and behaviours.

⁴⁵ Translations of the *Rhetoric* after Bywater in Aristotle 1984.

⁴⁶ These reactions have a physiological basis; other effects of memory include yawning when others do (*Prob.* VII.2, 6) and a propensity to sexual incontinence (*HA* IX(VII).1, 581b21-2).

⁴⁷ For the significance of this work to understanding animal agency, see Corcilius 2021.

Animals move their bodies due to mechanisms of heating and cooling in their sinews which are normally brought about by states of desire. The way in which animals respond to sensory stimuli⁴⁸ are complex and specific to type. Due to their natures, animals are set up to be responsive to what they must pursue and avoid; thus the lion sees the ox *as* something to be eaten (*EN* III.10, 1118a18), the ox sees the lion *as* something to avoid.⁴⁹ Memories of anger, fear, and sexual feelings can produce the same physiological response as when they initially occur –which prepares the body for action.⁵⁰ A merely appetitive response is when the lion remembering how tasty the last few oxen were is more inclined to pursue this one here. But the ox can have a more emotional reaction in remembering how terrifying it was to be chased by a lion many times before and be immediately motivated to flee. In the case of the deer, she “gives birth alongside the roads” because she knows that wild animals who threaten her young do not come near roads. This shows that deer have a conceptualisation of what a road is, tailored to their own concerns and become motivated by fear to act as they do (*HA* VIII(IX).5, 611a15-23). In another instance, quails and partridges come to know the usual actions of hunters and lure them away from the nest until the young can flee (VIII(IX).8, 613b13-21). Again, their response of fear is intentional, and incorporates forethought.

⁴⁸ Including *phantasmata*. Corcilius describes *phantasmata* in the context of *De Motu* as “stored impressions... kinetic residues of episodes of sense-perception that remain in the body of the animal and preserve both the causal efficacy of these episodes and their perceptual content” (Corcilius 2020).

⁴⁹ See Corcilius and Gregoric 2013: 63.

⁵⁰ This can help to explain how there are physiological propensities to certain emotional states, e.g. the sick and thirsty are prone to anger (*Rh.* II.2, 1379a16-29). Physiological conditions also affect our ability to remember according to Aristotle (*Mem.* 2.453a14-453b10). Humans can think about what is pleasant or fearful without acting on this (*DA* III.9, 432b29-433a1), because they have the ability to use reason.

When these emotions are combined with the memories that fuel them in particular cases, memory for animals very often produces an emotional response. While many philosophers have been inclined to view memory as cold, cognitive equipment, in its broadest biological manifestation, it often centres around recognition of other individual animals. Once individuals are recognised, they will be assigned a positive or negative emotional valance. It is not so much the individuality of that individual that will be brought to bear in the feelings of the agent, but what the individual represents to them, that is, whether they are ‘mate’, ‘child’, ‘enemy’. And tied to that categorisation is the normative element which entails what one ought to do about this fact: ought one to help out or chase away?

4. Love [*Philia*]

Returning to where this chapter began, love and affection (*philia*) will be considered as an emotion which is connected in a strong way to the capacity to remember in non-human and human animals. This is the basis of social interaction and sustaining relationships over time. While the sort of ‘love’, care and not lust, is not often considered among the modern canon of emotional states, Aristotle makes it one of the key *pathê* in the *Rhetoric* (“we must now speak of goodwill and friendship in our discussion of the emotions (*ta pathê*)”, *Rh.* II.1, 1378a18-19). Another good reason to look more closely at love is that it is an emotional response very broadly shared amongst animals.⁵¹

Many commentators on the *Rhetoric* regard ‘love’ (*philia*) as anomalous in Aristotle’s discussion. Taking their lead from the ethics, where *philia* is described as conscious mutual well-wishing (*EN* VIII.2, 1155b31-4), they dismiss it as a possible

⁵¹ Sihlova (1996: 121) takes fear to be the emotion overwhelmingly experienced by animals but love is just as ubiquitous in Aristotle’s zoological works.

pathos of an individual.⁵² In the *Rhetoric*, however, the concept is treated in the verbal form, *to philein*, as ‘loving’, and thus as an individual’s feeling toward another.⁵³ In the *Historia Animalium* and the *Rhetoric*, such feelings are on the other end of the affective scale from anger/aggression.⁵⁴

Aristotle’s definition of love comes in two parts.

1. Disinterested well wishing: “wishing for anyone the things which we believe to be good (ἃ οἴεται ἀγαθὰ), for his own sake but not for our own, and procuring them for him as far as lies in our power (τὸ κατὰ δύναμιν πρακτικὸν εἶναι τούτων)” (*Rh.* II.4, 1380b36-1381a1)
2. Cooperative activities: “those who desire the same things, provided it is possible for us to share them” (1381b17-18)

Memory is required for the effective operation of this emotional response for a number of reasons. First of all, in those animals that mate for an extended period, they must recognise and respond to each other as co-operating partners. An instance of (2) occurs in pigeons:

οὔτε γὰρ συνδυάζεσθαι θέλουσι πλείοσιν, οὔτε προαπολείπουσι τὴν κοινωνίαν, πλὴν ἐὰν χῆρος ἢ χήρα γένηται. Ἔτι δὲ περὶ τὴν ὠδίνα δεινὴ ἡ τοῦ ἄρρενος θεραπεία καὶ συναγανάκτησις.

⁵² Cooper 1993: 185-6; 1996: 243; Nussbaum 1994: 90; Konstan 2003: 11. Dow 2012: 153 also expresses some reservations.

⁵³ *To philein* is “the altruistic wish for the good of another”. Konstan 2006: 178. See his chapter 8 ‘Love’ for this interpretation.

⁵⁴ Both ends of the scale originate in a ‘spiritedness’. ‘*Thumos* is the quality of the soul which begets friendship and enables us to love (ἡ τῆς ψυχῆς δύναμις ἣ φιλοῦμεν),” *Pol.* VII.7, 1327b40-a1, trans. Kraut). See Connell 2021c: 16-17.

They are neither willing to pair with more than one, nor do they abandon their partnership prematurely except through becoming a widower or widow. Over the birth-pangs the male cares for her and shares her distress to an extraordinary degree (*HA VIII(IX).7, 612b32-5*).

These pigeons share the task of caring for their young, a mutual project. Within that context, Aristotle makes clear here that feeling the pain of loved ones plays a part in the filial emotion, which is tangentially dependent on remembering similar feelings.

In the project of raising young for an extended period (*HA VII(VIII).1, 588b28-589a4*), the practice of most blooded animals, (1) is prominent.⁵⁵ In its affection for offspring, a parent animal must think of what the young need and how they feel. Memory comes into this in a number of ways. In one example, parent swallows must remember which of the young they last fed:

Περί τε τὴν τροφήν τῶν τέκνων ἐκπονεῖται ἀμφοτέρω· δίδωσι δ' ἑκατέρω διατηροῦσ
ἀτινι συνηθεία τὸ προειληφός, ὅπως μὴ δις λάβῃ.

Over the feeding of the young both birds carry out the work; they give to each, watching habitually the one that has already had it, so that it should not get it twice (*HA VIII(IX).7, 612b27-9, trans. Balme*).

More important than tasks such as these is the need to recognise those one cares for. This cannot simply be 'kin recognition' for many animals adopt and raise young of other families

⁵⁵ Animals that raise their young are said to be their friends (*philoï*) at *EN VII.1, 1155a16-21*

and even of other kinds. Horses raise the young of those unrelated to them;⁵⁶ they also raise asses (*HA* VI.23, 577b15-18); *phrênê* birds raise eagles (*HA* VIII.34, 619b27-8).

Non-human animals who have been tamed will also recognise human beings; some will feel affection and love for these human others. In all these cases, animals need to recognise those they interact with in the context of love and do so over extended periods and retain this capacity during times of absence.⁵⁷ Some animals do this by sight, others through smell or hearing,⁵⁸ and most will use a combination of different senses, matching what they sense to memories of the same experiences. The most famous example in literature is probably Argos, Odysseus' dog:

ἄν δὲ κύων κεφαλὴν τε καὶ οὔατα κείμενος ἔσχεν,
Ἄργος, Ὀδυσσεύος ταλασίφρονος, ὃν ῥά ποτ' αὐτὸς
θρέψε μὲν, οὐδ' ἀπόνητο, πάρος δ' εἰς Ἴλιον ἱρὴν
ῥῆχετο. ...

δὴ τότε γ', ὡς ἐνόησεν Ὀδυσσεὶα ἐγγὺς ἐόντα,
οὐρῆ μὲν ῥ' ὃ γ' ἔσηνε καὶ οὔατα κάββαλεν ἄμφω,
ἄσσον δ' οὐκέτ' ἔπειτα δυνήσατο οἷο ἄνακτος
ἐλθέμεν. ...

⁵⁶ *HA* VII(IX).12, 611a10-12: “Among the horses, when one mare has died the mares that graze together rear each other’s foals. And in general the horse kind seems to have by nature a parental affections (φιλόστοργος).”

⁵⁷ Modern research reveals the extent of these abilities. For example, sheep are typically able to recognise about 50 other sheep by facial signs. Many can also identify both other sheep and favourite human beings in photographs (Kendrick et al. 2001). See also Lansade et. al. 2020.

⁵⁸ Such abilities are also present in cases of hate or aggression, for example at *HA* VII(VIII).24, 605a7-9: “Horses recognise even the voice of any horses (Γινώσκουσι δ' οἱ ἵπποι καὶ τὴν φωνὴν ἀκούοντες τῶν ἵππων) that they happen to have fought against”.

Ἄργον δ' αὖ κατὰ μοῖρ' ἔλαβεν μέλανος θανάτοιο,
αὐτίκ' ἰδόντ' Ὀδυσῆα ἔεικοστῷ ἔνιαυτῷ.

Now, as Eumaeus and Odysseus talked on, a dog that lay there

Lifted up his muzzle, pricked his ears.

It was Argos, long-enduing Odysseus' dog

He trained as a puppy once, but little joy he got

Since all too soon Odysseus shipped to sacred Troy....

But the moment Argos sensed (ἐνόησεν) Odysseus standing by

he thumped his tail, nuzzling low, and his ears dropped,

Though he had no strength to drag himself an inch

Towards his master...

But the dark shadow of death closed down on Argos' eyes

The instance he saw Odysseus, twenty years away.⁵⁹

In order for love to sustain partnerships and communities, it requires a special kind of capacity to recognise individuals. The individual must be recognised but also seen or interpreted as falling into a particular category –as mate, offspring, friend or the animal I cooperate with.⁶⁰ Aristotle allows for such categorization of remembered particulars in his epistemology and this is a necessary driver for many emotions. For many animals, this

⁵⁹ Hom. *Od.* 17.291-95, 301-04, 326-27. R. Fagles trans. It is clear that Aristotle knew this passage well (*HA* VI.20, 574b29-575a1).

⁶⁰ Nussbaum's pronouncements on the content of 'love' apply equally to many animals: "The cognitive content of *philia's* emotions is made overwhelmingly clear, since Aristotle informs us in detail that people who love one another do so on the basis of a certain conception or description of the object" (1994: 90).

ability gives structure and sophistication to their way of living.⁶¹ Human beings, who are also animals, must do the same. This is arguably a prerequisite for the human way of life which is why the inability to recognise others and treat them as they ought to be treated is such a devastating pathology.⁶²

Conclusions

While emotions can align with beliefs and reasons, the most persuasive account of Aristotle's view is that he does not think that this is necessarily the case. Instead, the emotional states have to do with an attitude toward objects of the emotion without requiring assent or belief. Aristotle's stance then engages closely with "our nature as physically embodied, social species". His "biologically based" theory of emotions has its core in the phantastic capacity which we share with most other animals.⁶³

An emotional episode is a response to perceptual content which causes the formation of a certain representation of the state of affairs. This is then linked to a motivation or bodily action. In humans alone can these be resisted, since we possess the ability to consciously endorse or reject the emotional representation of states of affairs and the related response these emotions endorse.⁶⁴ Humans are able to do so because they can calculate plausible outcomes on the basis of further information, which is arguably what 'deliberation' entails. Only human beings can deliberate and make reasoned choices based on deliberation.⁶⁵ In one example, the human mother has to make a conscious decision to

⁶¹ See Lennox 2010 on *bios* ('way of life') and the unity of animals' natures.

⁶² Such as Oedipus' failure to recognise his own family members (Thumiger 2017: 111).

⁶³ See Braund and Most 2003: 14-17.

⁶⁴ Sihvola 1996: 123-6.

⁶⁵ *MA* 7, 701a34; *DA* III.10, 433a11-12; *HA* I.1, 488b24-6; *EN* III.2, 1111b8-10. Modern analysis has distinguished the ability to inhibit or control emotional responses from the ability to rationally

care for her child. Although there is a reason that aligns with the emotion of love which will come with evaluative stance of needing to provide care for the young, a human could have ‘higher’ reason to reject that imperative. For example, she may decide that another person can provide better care for this child under the circumstances (*EN VIII.8*, 1159a27-33). The animal mother has no such ability to resist natural feelings of this sort.⁶⁶ However, animals are constantly responding appropriately through their complex cognitive abilities to categorise individuals and this means that memory is closely tied to the emotional lives of animals. Living well for such animals requires appropriate and ongoing feelings towards these others, sustained by memory. Some tentative conclusions can be drawn about what this indicates concerning the biological basis for human sociality.⁶⁷ Much has been made of Aristotle’s idea that human beings think eternal thoughts of transcendent reality.⁶⁸ But the less celebrated broader animal ability to recall faces and place our loved ones into categories that demand our attention is also of great human importance.

Human communities differ from those of other animals through the capacity to expand these bonds. In both the *Politics* and the *Poetics* Aristotle gives an account of the development of human communities, grounded in political discourse⁶⁹ and in story-telling (*Pol.* I.2-3, *Poet.* 4). The *Politics* places much emphasis on affection for particular others

deliberate. Many non-human animals are capable of inhibitory control, although this varies from species to species. It would be interesting to consider whether Aristotle allows for any such distinction anywhere in his work. I thank Ali Boyle for this insight.

⁶⁶ *HA VIII(IX).4*, 611a10; Connell 2019: 183.

⁶⁷ Modern science also sees this as potentially informative. See Wiley 2013.

⁶⁸ A great number of studies focus on this aspect of Aristotle’s thought, such as Bretano 1867, Menn 1992, Burnyeat 2008, Miller 2012.

⁶⁹ Frank 2015.

(*idion*, *Pol.* II.1.1262b23), resisting the idea that human beings can love in a blank and universal manner, as Plato suggests in his *Republic*. By breeding at the same time, Socrates proclaims that the city will thereby feel the same feelings (*Rep.* V, 463c-464a). It is absurd to suppose, however, that “no matter whom he meets, he will feel that he is meeting a brother, a sister, a father, a mother, a son, a daughter” (463c3-5) because there will be no particular recognition at all in these encounters with strangers. The appreciation of the particular other is deep-seated and biologically grounded. The most complex of human communities, the aim of human development, the *polis*, needs more than the family; it needs a way to bring together memories over time and bind friendship through emotional ties. Political and mythological narratives fulfil this role.

For Aristotle only human beings have a complexity of language which allows them to discuss and deliberate together within a city and to create stories (*muthoi*).⁷⁰ By doing this, humans can generate emotional responses to archetypes. Animals must rely on actual experience to elicit the affections that hold together their communities. Human beings can identify types within shared narratives which means that memories are sustained across generations. Political narratives include stories of strong leaders, such as what might have been heard about Lycurgus (*Pol.* II.9). Literary examples abound; and perhaps even the story of Argos in the *Odyssey* can still give us pause in considering whether non-human animals ought to form some part of our community, due to similar emotional complexity. In both such cases, the memories that sustain social emotions in our very nature have been extended across a hundred generations, making us the most social of all animals (*Pol.* I.2, 1253a7-8).

⁷⁰ *Pol.* I.2, 1253a7, *Rh.* I.1, 1355b3.

Bibliography

- Andrews, Kristin 2015. *The Animal Mind: An Introduction to the Philosophy of Animal Cognition*. London: Routledge.
- Aristotle. 1984. *The Complete Works: The Revised Oxford Translation*. Edited by Jonathan Barnes. Princeton, NJ: Princeton University Press.
- Aristotle. 1991. *Historia Animalium*, Vol. 3, Books VII-X. Cambridge, MA: Harvard University Press.
- Aristotle. 1997. *Politics Books VII and VIII*. Translation and commentary by R. Kraut. Oxford: Clarendon Press.
- Aristotle. 2007. *On Memory and Recollection: Text, Translation, Interpretation, and Receptions in Western Scholasticism*. Edited with commentary by David Bloch. Leiden: Brill.
- Bekoff, Marc 2007. *The Emotional Lives of Animals*. San Francisco, CA: New World Books.
- Braund, Susanna and Glenn W. Most 2002. "Introduction." In *Ancient Anger: Perspectives from Homer to Galen*. New Haven, CN: Yale Classical Studies 32: 1-15.
- Bretano, F. 1867. *Die Psychologie des Aristoteles, insbesondere seine Lehre vom Nous Poietikos*. Mainz: von Franz Kirchheim.
- Bubb, Claire 2019. "The Physiology of *Phantasmata* in Aristotle: Between Sensation and Digestion". *Apeiron* 52: 273–315.
- Burnyeat, M. 2008. *Aristotle's Divine Intellect*. Milwaukee: Marquette University Press.
- Bermúdez, José Luis 2003. *Thinking Without Words*. Oxford: Oxford University Press.
- Calhoun, C. 1984. "Cognitive Emotions?" In *What is an Emotion? Classic Readings in Philosophical Psychology*, eds. C. Calhoun and R. C. Solomon. Oxford: Oxford University Press.
- Caston, V. 2021. "Aristotle and the Cartesian Theatre." In *Encounters with Aristotelian Philosophy of Mind*, eds. P. Gregorić and J. L. Fink, 169-220. London: Routledge.
- Connell, S.M. 2019. "Nurture and Parenting in Aristotelian Ethics", *Proceedings of the Aristotelian Society* 119/2: 179-200.
- Connell, S. M. 2021a. "Aristotle on Animal Cognition." In *The Cambridge Companion to Aristotle's Biology*, ed. S. M. Connell, 195-210. Cambridge: Cambridge University Press.
- Connell, S. M. 2021b. "Thinking Bodies: Aristotle on the Biological Aspects of Human Cognition." In *Encounters with Aristotelian Philosophy of Mind*, eds. P. Gregorić and J. L. Fink, 223-248. London: Routledge.
- Connell, S. M. 2021c. *Aristotle on Women: Physiology, Psychology and Politics*. Cambridge: Cambridge University Press.

- Cooper, John. 1993. "Rhetoric, Dialectic and the Passions." *Oxford Studies in Ancient Philosophy* 11: 175-198.
- Cooper, John. 1996. "An Aristotelian Theory of the Emotions." In *Essays on Aristotle's Rhetoric*, ed. A. Rorty, 338-57. Berkeley: University of California Press.
- Corcilius, Klaus 2020. "De Motu Animalium 6". In *Aristotle, De Motu Animalium*. Proceedings of the XIX. Symposium Aristotelicum, eds. Christof Rapp and Oliver Primavesi, 299-344. Oxford: Clarendon Press.
- Corcilius, Klaus 2021. "Aristotle's Theory of Animal Agency and the Problem of Self-motion." In *The Cambridge Companion to Aristotle's Biology*, ed. S. Connell, 176-94. Cambridge: Cambridge University Press.
- Corcilius, Klaus and Pavel Gregoric. 2013. "Aristotle's Model of Animal Motion". *Phronesis* 58: 52-97.
- De Waal, Frans 2019. *Mama's Last Hug: Animal Emotions and What They Tell Us About Ourselves*. London: Allen and Unwin.
- D'Arms, J. and Jacobson, D. 2003. "The Significance of Recalcitrant Emotion." In *Philosophy and the Emotions*, ed. A. Hatzimoysis, 127-145. Cambridge: Cambridge University Press.
- Dow, Jamie 2015. *Passions and Persuasion in Aristotle's Rhetoric*. Oxford Aristotle Studies. Oxford: Oxford University Press.
- Fortenbaugh, W. W. 1971. "Aristotle: Animals, Emotion and Moral Virtue." *Arethusa* 4: 137-65.
- Fortenbaugh, W. W. 1975. *Aristotle on Emotion*. London: Duckworth.
- Frank, Jill. "On Logos and Politics in Aristotle." In *Aristotle's Politics: A Critical Guide*, eds. Thornton Lockwood and Thanassis Samaras, 9-26. Cambridge: Cambridge University Press.
- Gasser-Wingate, Marc. 2019. "Aristotle on the Perception of Universals". *British Journal for the History of Philosophy* 27: 446-467.
- Gotthelf, A. 2012. "The Elephant's Nose: Further Reflections on the Axiomatic Structure of Biological Explanation in Aristotle." In *Teleology, First Principles and Scientific Method in Aristotle's Biology*, 186-96. Oxford: Oxford University Press.
- Gregoric, Pavel and Filip Grgic. 2006. "Aristotle's Notion of Experience." *Archiv für Geschichte der Philosophie* 88: 1-30.
- Gregoric, Pavel. 2007. *Aristotle on the Common Sense*. Oxford: Oxford University Press.
- Hasper, P. S. and J. Yurdin. 2014. "Between Perception and Scientific Knowledge: Aristotle's Account of Experience." *Oxford Studies in Ancient Philosophy* 60/12: 119-150.

- Ierodiakonou, Katerina 2020. "Theophrastus on Non-human Animals That Change Colour." In *Colour Psychology in the Graeco-Roman World*, ed. K. Ierodiakonou, 81-114. Geneva: Fondation Hardt.
- Kendrick, K. M., da Costa, A. P., Leigh, A. E., Hinton, M. R., & Peirce, J. W. 2001. "Sheep Don't Forget a Face." *Nature* 414(6860): 165-166.
- Kenny, Anthony. 1963. *Action, Emotion, and Will*. London: Routledge.
- Konstan, David. 2003. "Aristotle on Anger and the Emotions: The Strategies of Status." In *Ancient Anger: Perspectives from Homer to Galen*, eds. Susanna Braund and Glenn W. Most, New Haven, CN: Yale Classical Studies 32: 99-120.
- Konstan, David. 2006. *The Emotions of the Ancient Greeks: Studies in Aristotle and Classical Literature*. Toronto: University of Toronto Press.
- Knuuttila, Simo. 2004. *Emotions in Ancient and Medieval Thought*. Oxford: Oxford University Press.
- Labarrière, Jean-Louis 1990. "De la Phronesis Animale." In *Biologie, Logique et Métaphysique chez Aristote*, eds. D. Devereux and P. Pellegrin, 405-28. Paris: l'Éditions de Centre National de la Recherche Scientifique.
- Labarrière, Jean-Louis 2005. *La Condition Animale : Études sur Aristote et les Stoïciens*. Louvain-La-Neuve: Peeters.
- Lansdale, L. et. al. 2020. "Female Horses Spontaneously Identify a Photograph of Their Keeper, Last Seen Six Months Previously." *Scientific Reports: Nature Research*.
- Lennox, James G. 1999. "Aristotle on the Biological Roots of Virtue: The Natural History of Natural Virtue." In *Biology and the Foundation of Ethics*, eds. J. Maienschein and M. Ruse, 10-31. Cambridge : Cambridge University Press.
- Lennox, James G. 2001. "Divide and Explain: The *Posterior Analytics* in Practice." In *Aristotle's Philosophy of Biology: Studies in the Origins of Life Science*, 7-38. Cambridge: Cambridge University Press.
- Lennox, James G. 2010) "Bios, Praxis, and the Unity of Life." In *Was ist Leben?*, ed. S. Föllinger, 239-257. Stuttgart: Steiner.
- Leunissen. M. 2017. *From Natural Character to Moral Virtue in Aristotle*. Oxford: Oxford University Press.
- Lorenz, Hendrik 2006. *The Brute Within: Appetitive Desire in Plato and Aristotle*. Oxford: Oxford University Press.
- Menn, Stephen 1992. "Aristotle and Plato on God as Nous and as the Good", *Review of Metaphysics* 45: 543-73.
- Miller, F. 2012. "Aristotle on the Separability of Mind", in *The Oxford Handbook of Aristotle*, ed. C. Shields, 306-39. Oxford: Oxford University Press.
- Nussbaum, M. C. 1994. *The Therapy of Desire: Theory and Practice in Hellenistic Ethics*. Princeton, NJ: Princeton University Press.

- Nussbaum, M. C. 2001. *Upheavals of Thought: The Intelligence of Emotions*. Cambridge: Cambridge University Press.
- Pearson, Giles. 2012. *Aristotle on Desire*. Cambridge: Cambridge University Press.
- Rapp, C. and O. Primavasi (eds.) 2020. *Aristotle's De Motu Animalium: symposium Aristotelicum with a new critical edition of the Greek text by O. Primavasi and an English translation by B. Morison*. Oxford: Oxford University Press.
- Roreitner, R. 2021. "The Nous-Body Relationship in Aristotle's De Anima." In *Encounters with Aristotelian Philosophy of Mind*, ed. P. Gregorić and J. L. Fink, 249-80. London: Routledge.
- Scarantino, A. and R. de Sousa. 2021. "Emotion", in *The Stanford Encyclopedia of Philosophy* (Summer 2021 Edition), E.N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/sum2021/entries/emotion/>>.
- Sihvola, J. 1996. "Emotional Animals: Do Aristotelian Emotions Require Beliefs?" *Apeiron* 29/2: 105-144.
- Sorabji, R. 1993. *Animal Minds and Human Morals: The Origins of the Western Debate*. London: Duckworth.
- Sorabji, R. 2004. *Aristotle on Memory*, 2nd edition. London: Bloomsbury.
- Thumiger, Chiara. 2017. *A History of the Mind and Mental Health in Classical Greek Medical Thought*. Cambridge: Cambridge University Press.
- Wiley, R. H. 2013. "Specificity and Multiplicity in the Recognition of Individual: Implications for the Evolution of Social Behaviour." *Biological Review* 88: 179-195.