

ARISTOTLE ON FEELINGS OF BODILY CHANGES¹

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For Aristotle, cognition is embodied. His psychology is based on the assumption that the affective aspects of embodiment, ranging from emotions and moods to bodily states such as thirst and hunger, play a meaning-generating role. This chapter enquires into how he thinks feelings of bodily changes enter and inform cognitive processes. Section 1 draws mainly on Aristotle's zoological works and illustrates the influence that the material make-up of an animal's body has on its affective responses. Section 2 turns to his theory of animal movement and examines the importance of thermal alterations, with their corresponding pleasant and painful sensations, in exciting desire. Section 3 discusses the homeostatic role of perceived affects and the relational nature of the connection that Aristotle envisages between what an animal perceives as pleasant and what is conducive to its preservation and flourishing. As a biologist, Aristotle believes strongly in continuity.² Therefore he believes that the basic psychological mechanisms of sentience, motivation, and movement to which this chapter refers are shared by all animals, including humans.

5.1 Embodiment

The philosophical investigation of animals and a careful description of their attributes and habits are one of the enduring legacies of Aristotle's biological enterprise.³ In the *History of Animals* Aristotle's study is organized around four kinds of animals' differences, including their parts, characteristic activities, ways of life, and characters. Book I of the *Parts of Animals* outlines the method for the study of animals and establishes the priority of teleological explanations appealing to what Aristotle calls 'form' or 'soul' (that is not something immaterial and separable from the 'matter' or 'body', but the capacity of living beings to be active in various ways). The three books that follow provide an account of the internal organs and the external parts of blooded and bloodless animals, whose features are explained with reference to their different functional needs. Here too Aristotle discusses animals' characters and dispositions. Let us consider the following descriptions of different forms of fear-related behaviour in different animals:

when they [the dung beetles] are frightened they become motionless, and their body becomes hard.

Part. an. 682b25; trans. Lennox

when it [the cuttlefish] is frightened and terrified, it darkens and 'inks' the water.

Part an. 679a6; trans. Lennox

if it [the nautilus] is frightened it sinks under water after filling the shell.

Hist. an. 622b14–15; trans. Balme

it [the bison] defends itself by kicking and by voiding dung at them [its assailants], throwing it up to four rods from itself; it uses this easily and frequently, and it scorches the hounds' coats so that they rub off. Now it is when the bison is distressed and frightened that its dung does this, but when it is free it does not scorch.

Hist. an. 630b9–13; trans. Balme

Fear, we learn, excites different reactions: when scared, the dung beetle freezes, the cuttlefish hides by discharging ink, the nautilus flees by sinking under water, and the bison defends itself by fighting back. Why is it so? Aristotle believes it is because emotional reactions and behaviour depend on character and dispositions, and these, in turn, depend on the constitution of one's body. More specifically, Aristotle thinks that whether a scared animal reacts by freezing or fighting back depends on factors such as the size of its heart and the quality of its blood. In embodied terms, he believes that emotions come about as alterations of the temperature of the body. Fear, for example, causes cooling: because water is solidified by the cold, animals whose blood is watery are especially inclined to fear and, when scared, tend to freeze. Conversely, since more fibrous blood is easily heated and heat is the effect of spirit (*thumos*, sometimes also translated 'anger'), animals with this blend of blood typically react to danger by becoming aggressive.

The animals that are excessively watery are more timid. This is because fear cools; accordingly, those having such a blend in the heart are predisposed to this affection, since water is solidified by the cold. This is also why the other bloodless animals are, generally speaking, more timid than the blooded, and when afraid become immobile, discharge residues, and in some cases change their colours. However, those with excessively fibrous, thick blood are more earthen in nature, and both spirited in character and excitable because of their spirit. For spirit is productive of heat, and solids that have been heated give off more heat than liquids; and the fibres are solid and earthen, so that they become like sparks in the blood, and produce a boiling in the spirit. That is why bulls and boars are spirited and excitable; their blood is most fibrous, and indeed the blood of the bull solidifies more quickly of all.

Part. an. 650b27–651a4; trans. Lennox

Following the same line of reasoning and taking a broader look across species, Aristotle claims that 'hotter' males are more courageous than 'colder' females⁴ and the 'colder' elderly are less spirited than the 'hotter' young. In humans, too, thermal differences of this kind lead to significant variations in emotional dispositions. In the *Rhetoric*, for example, when discussing the various types of human character, the young are described as confident and courageous because they are *diathermoi*, warmed up by nature as with excess of wine (*Rh.* 1389a18–19; trans. Roberts),⁵ whereas the elderly are 'always anticipating danger; unlike that of the young, who are warm-blooded, their temperament is chilly; old age has paved the way for cowardice; fear is, in fact, a form of chill' (*Rh.* 1389b29–32; trans. Roberts). One consequence of this thermal variation is, for example, that even if both the young and the old are inclined to feeling pity,

they do so for very different reasons: the former 'out of kindness; old men out of weakness, imagining that anything that befalls anyone else might easily happen to them, which as we saw,⁶ is a thought that excites pity' (*Rh.* 1390a19–21; trans. Roberts).

It is apparent, therefore, that the bodily constitution of living beings does not only underpin the way they act out of emotion: it also determines their dispositions, that is, whether they are more inclined to feel emotions of one kind or another (e.g., fear or courage, mildness or aggressiveness, etc.). In *Parts of Animals* II.2, Aristotle summarizes the relation between the quality of an animal's blood and its cognitive and affective dispositions as follows:

Thicker and hotter blood is more productive of strength, while thinner and cooler blood is more perceptive and intelligent. And the same difference obtains among the attributes analogous to blood. This is why both bees and other such animals are more discerning in their nature than many blooded animals, and why among blooded animals those having cold and thin blood are more discerning than their opposites. But those with hot, thin, and pure blood are best; for such animals are at once in a good state relative to both courage and discernment.

Part. an. 648a2–11; trans. Lennox

Because the temperature of the blood is so important in determining the animal's character, the size of its heart also matters. Animals with a large heart, for example, are dispositionally fearful. 'The affection resulting from being afraid is already present' in them because, relative to the size of their heart, the amount of heat in their blood is too little:

The differences of the heart with respect to largeness and smallness, and hardness and softness, extend somehow even to the characters of animals. For the imperceptive animals have a heart that is hard and solid, while the perceptive ones have a softer heart; and those with larger hearts are timid, while those with smaller or medium-sized hearts are more bold. For the affection resulting from being afraid is already present in these animals, because the heat in their heart is not in balance (being small in quantity, it is weakened in large animals), and because the blood is colder. The hare, deer, mouse, hyena, ass, leopard, and marten have large hearts, as do virtually all the others that are evidently timid or devious on account of fear.

Part. an. 667a10–21; trans. Lennox

In this regard, it is important to remember that, in human beings, Aristotle draws a distinction between natural inclinations, that are biologically determined, and ethical dispositions, that emerge from the former thanks to some connection with reason (e.g., *Eth. Nic.* 1144b1–16). Aristotle acknowledges the embodied nature of character traits, but he is not a biological determinist. For him, the virtuous and vicious dispositions that one acquires by training and education also count as nature and this is the case because they rely on corporeal sensations as much as natural inclinations do: virtuous and vicious dispositions are the product of the habituation to feel pleasure and pain for the right things, in the case of virtues, and for the wrong ones, in the case of vices (e.g., *Eth. Nic.* 1152b4–6 and 1172a20–26).⁷

Importantly, besides conditioning behaviour and dispositions, different physical characteristics correlate with differences in the entire suite of an organism's life activities that Aristotle calls *bios*.⁸ They therefore contribute significantly to the way specific living beings experience their environment. What counts as food, for example, depends on the material constitution of an animal: 'their food differs chiefly according to the matter out of which they are constituted'

(*Hist. an.* 589a5–7; trans. Balme). Different ways of feeding correlate in turn with different habits and dispositions:

of beasts, some are gregarious, others are solitary; they live in the way which is best adapted to sustain them, accordingly as they are carnivorous or herbivorous or omnivorous: and their habits are determined for them by nature with regard to their ease and choice of food. But the same things are not naturally pleasant to all of them; and therefore the lives of carnivorous or herbivorous animals further differ among themselves.

Pol. 1256a23–29; trans. Jowett

Finally, if differences in the physical make-up account for variations of character and behaviour between different kinds of animal, individual changes are accounted for by the alteration of the animal's bodily states. At the level of basic cognition this means, for example, that the same animal perceives the same smell as pleasant, when hungry, and as unpleasant, when sated.⁹ But more complex processes such as evaluation and appraisal are also embodied, that is, they are neither separable nor abstractable from bodily states:¹⁰

Sometimes when faced with strong and manifest stimuli there is no indication of excitement or fear, but on other occasions people are moved by weak and dim stimuli, that is when the body is aroused (*ὀργᾶν*) and is in the condition it is in when angry. Here is an even clearer case: in the absence of anything fearful people find themselves experiencing what someone who is afraid does.

De an. 403a19–24

What Aristotle is telling us here is that bodily feelings guide our value orientation by lowering or raising our thresholds for emotional reactions, so that we accentuate or downplay the salience of eliciting conditions on the basis of our own internal states. On the other hand, emotions, once aroused, involve the body in the same way, so that they influence perceptions and evaluations of all sorts. Indeed, not only are we 'easily deceived with respect to our perceptions when we are in emotional states' (*Insomn.* 460b3–4),¹¹ but emotions underpin judgements as well:

When people are feeling friendly and placable, they think one sort of thing; when they are feeling angry or hostile, they think either something totally different or the same thing with a different intensity.

Rh. 1377b31–1378a1; trans. Roberts

5.2 Feelings of bodily changes

We have seen that the material make-up of the body has a deep influence on affective responses, underpinning the way one acts out of emotion and what emotions one is inclined to experience. Furthermore, because affectivity is embodied, physical constitution plays an important role in determining what needs and interests an animal might have: e.g., at the level of basic cognition, what counts as food and what does not and whether one needs food or not; at the level of more complex activities, what perceptual predictions one makes and what expectations one has, how one appraises objects, people, events, and so on.

But how does Aristotle think that this actually works? The answer lies in the biological function that emotions and, more generally, affective states perform. They motivate animals to move towards what they desire and away from what they dislike. Emotions perform a motivating function precisely because, as we have seen, they come about as thermal alterations. Thermal alterations, Aristotle thinks, are subjectively experienced as feelings of pleasure (heating) or pain (chilling) and what an animal perceives (imagines or thinks about) as pleasant, it pursues and what it perceives (imagines or thinks about) as painful, it avoids:

of necessity the thought and *phantasia* of this [sc. the object of pursuit or avoidance] are accompanied by chilling and heating. For the painful is avoided and the pleasant pursued, and <the thought and *phantasia* of> the painful and the pleasant are nearly always accompanied by chilling and heating.

De motu an. 701b34–702a1; trans. Nussbaum

Therefore, on one side, embodiment determines what is perceived as pleasant or painful by the animal and the way it emotionally reacts to these perceptions; on the other, it is by virtue of the bodily feeling of thermal changes, that is, by virtue of pleasant or painful sensations, that desire is excited and the animal moves¹². In modern terms, then, we could say that emotions perform their motivating function by virtue of their element of valence. Indeed, Aristotle is very clear about the fact that emotions are ways of experiencing pleasure and pain. In the *Nicomachean Ethics* he defines them as follows:

By affections I mean appetite, anger, fear, boldness, grudging ill will, joy, friendly feeling, hatred, longing, envy, pity – generally, feelings attended by pleasure or pain.

Eth. Nic. 1105b21–23; trans. Rowe

In the *Rhetoric*, Aristotle says that emotions ‘so change men as to affect their judgements, and [...] are attended by pain or pleasure’ (*Rh.* 1378a19–21; trans. Roberts) and qualifies the individual emotions he discusses with reference to their valence. For example, anger is both painful (*qua* the feeling of having been offended) and pleasant (*qua* expectation of revenge; *Rh.* 1370b9–12, 29–31, 1378a30–1378b9); fear is ‘a pain or disturbance due to imagining some destructive or painful evil in the future’ (*Rh.* 1382a21–22; trans. Roberts); pity is a feeling of pain at an evil which befalls somebody who does not deserve it (*Rh.* 1385b13–16); indignation is pain at somebody else’s unmerited good fortune (*Rh.* 1386b8–11), and so on. Affective valence, that is, the pleasure and the pain arising from heating and chilling processes in the body, amounts to sensations that the animal *feels*. Indeed, emotions are usually in themselves accompanied by sensory (*aisthētikos*) pleasure or pain (*Eth. Eud.* 1220b12–14): ‘all painful things are felt’ (*Rh.* 1382a10), pleasure is a perceptible movement of the soul that restores a natural condition (*Rh.* 1369b33–34), and feeling pleasure and pain means to be active with one’s perceptual mean (*De an.* 431a10–11).¹³ It is therefore by virtue of pleasure and pain *qua* feelings of bodily changes that the animal is motivated to movement and to action.

Aristotle’s explanation of the way an animal gets from perceiving something as pleasant or unpleasant to moving towards or away from it is offered in *De motu animalium*.¹⁴ While species-specific ways of moving are investigated in the *History of Animals* and the *Progression of Animals*, it is in *De motu animalium* that Aristotle enquires into the general reason why animals move and provides an illustration of the mechanics and the psychology of animal movement.¹⁵ The model proposed here is teleological: animal movement has a goal, a ‘thing for-the-sake-of-which’ that belongs to the sphere of what can be done, is the object of a cognitive and a conative act

and is perceived as pleasant, and therefore as good, by the animal (*De motu an.* 700b15–29). Movement through space, Aristotle says, is ‘the last of the movements’, that is, it happens as a consequence of other movements (*De motu an.* 701a2–5). These are the qualitative changes associated with cognitive and conative activities: we have seen that when the animal perceives (imagines or thinks about) something as pleasant (or painful) and thus desires (or dislikes) it, the affective valence of sense perception (imagination, or thought) produces thermal alterations.¹⁶ These bring about hardenings and softenings, expansions and contractions that, in turn, lead to pushing and pulling, that is, to the movement of the animal’s limbs (*De motu an.* 701b13–19).¹⁷ This is consistent with Aristotle’s teleological explanation of the structure of the living body: inner regions are fashioned as they are for the sake of changing from soft to hard, solid to liquid, and so on (*De motu an.* 702a7–10).

To sum up: on the physical level, the affective dimension of cognition amounts to heating and chilling processes, thereby exciting desire. On the phenomenal level, it feels in a certain way, as also shown by Aristotle’s mention of bodily symptoms like shudders and other ‘variations’ of the body such as blushing, pallor, trembling, and their opposites (*De motu an.* 701b22, 30–32) in relation to the alteration of bodily parts becoming larger or smaller ‘under the influence of heat or cold or some other similar affection’ (*De motu an.* 701b28–30). In other words, while chilling and heating as bodily changes explain the mechanics of animal locomotion, their affective dimension, that is, the feeling of the bodily changes they bring about, explains the psychology of movement and desire.

5.3 The pleasure of homeostasis

In *De sensu et sensibilibus*, a short treatise devoted to some specific issues related to perception and included in the *Parva naturalia*, we read that the senses ‘to all that possess them [...] are a means of preservation in order that, guided by antecedent perception, they may both pursue their food, and shun things that are bad or destructive’ (*Sens.* 436b19–21, trans. Beare). For living beings endowed with the capacity of sense perception, survival itself depends on the psychomotor process by virtue of which, feeling the pleasant or painful sensations that arise from changes occurring in their body, they perceive something as good or bad and move accordingly.¹⁸ Ultimately, feelings of pleasure and pain signal whether an external stimulus, a state of affairs, or an activity promotes or disturbs homeostasis, that is, in Aristotle’s parlance, the preservation or the restoration of the natural (*kata physin*) state of the organism:

Let us suppose, then, that pleasure is a kind of movement of the soul and a restoration to the existing nature [of the organism] that is total and perceptible; and that pain is the opposite. If this is what pleasure is, it is clear that the pleasant is what tends to produce this condition, while that which tends to destroy it, or to cause the soul to be brought into the opposite state, is painful. It must therefore be pleasant for the most part to move towards a natural state of being.

Rh. 1369b33–1370a4; trans. Roberts, modified¹⁹

Feelings of bodily changes, therefore, have the function of tracking what is conducive to one’s health and flourishing, motivating one by means of pleasant sensations to pursue it, while alerting one to dangerous or destructive interactions with one’s environment by means of painful sensations.²⁰

Importantly, the connection between pleasure and the good is not objective, but relational.²¹ As we have seen, whether something promotes or disturbs homeostasis depends on

the bodily make-up of an organism (that is, on what kind of animal one is)²² as well as on its current bodily states. As for pleasures depending on an animal's bodily states, Aristotle calls them 'incidental' and explains them in the framework of a replenishment model that resonates with the one discussed by Plato in the *Philebus*.²³ In this respect, not only what counts as food, that is, what is good for the sake of nutrition, is different for, say, carnivorous and herbivorous animals; also, the pleasure itself that one takes in eating – and therefore how good the food is for one – depends on one's previous painful sensation of lack in relation to nutrition.

All this holds true not only for the pleasures related to basic life activities (nutrition, reproduction, etc.), but also for those related to more complex forms of interaction with the environment and with others, such as habits and dispositions. In fact, 'excellence and badness of character have to do with pains and pleasures' (*Eth. Nic.* 1152b4–6) and 'taking pleasure in the things one should, and hating the things one should, are most important in relation to excellence of character' (*Eth. Nic.* 1172a21–23; trans. Rowe). The acquisition of virtuous or vicious dispositions takes place through habituation: by virtue of the repeated performance of appropriate behaviours one experiences corresponding alterations of the sensitive part of one's soul and this eventually results in marked tendencies and settled traits of character²⁴. As a consequence of this, what a bad and vicious man perceives as pleasant, and therefore as good, is not necessarily *truly* pleasant, and therefore it is not necessarily *truly* good.²⁵

that they [sc. pleasures] are pleasant for those in a bad condition does not mean that we should think them to *be* pleasant, except for this sort of person, any more than than we should think things healthy or sweet or bitter that are so to people who are ill, or again think things to be white that appear so to those suffering from eye-disease.

Eth. Nic. 1173b21–25; trans. Rowe²⁶

To conclude: when all is well, perceived affects have a homeostatic role. But since the organism's physical constitution is so important in both determining what is good or bad for it and in signalling it to the organism itself by means of its feelings of bodily changes, if one is not in a good state things might go wrong and one might perceive as pleasant what is in fact destructive of one's natural state. The norm, Aristotle says, is physical and moral health:

the same things delight some while giving pain to others, and are painful and objects of loathing for the one group while being pleasant and things to love for the other. This happens with sweet things too; the same things don't seem sweet to the person with a fever and the one in good health, nor warm to those who are frail and those who are physically fit. This happens with other things too in the same way. However, in all such cases it is thought to be what appears so to the good person that *is* so. And if this is the right thing to say, as it seems to be, and it is excellence and the good person, in so far as he is such, that is the measure for each sort of thing, then so too with pleasures: the ones that appear so to *him* will be pleasures, and the things *he* delights in will be pleasant. If the things that disgust him appear pleasant to a given person, there is nothing surprising in that, since there are many forms of corruption and damage to which human beings are subject; pleasant the things in question are not, thought they are for these types, and for people in this condition.

Eth. Nic. 1176a10–22; trans. Rowe²⁷

5.4 Conclusions

Aristotle conceives of living beings capable of sense perception as autonomous organisms that, in the pursuit of their typical way of life (*bios*), determine what is good or bad for their survival and flourishing and regulate themselves accordingly. The formal and the material structure of perceivers, that is, their specific *bios* and its bodily actualization, condition the way they experience their environment and what counts as adaptive or maladaptive for them. To an important extent, perceivers are also self-building systems: by means of habituation they can produce permanent changes in the way they appraise their environment, therefore contributing to the determination of what is good or bad for them.²⁸ Discussing, if only in broad strokes, Aristotle's views concerning the way cognition is embodied and inherently affective, I have tried to show that the autonomous sense-making activities of living beings endowed with sense perception are grounded in their capacity to feel their own bodily changes by means of pleasant and painful sensations.

Related topics

Bodily self-reference; Bodily awareness without the body; Not a sailor in his ship: Descartes on bodily awareness; Interoception and the mentalization of bodily states; Pain, the body, and awareness

Notes

- 1 I am very grateful to the two anonymous referees for their helpful comments.
- 2 The idea of continuity between organisms emerges from, e.g., *Part. an.* 681a12–15 ('In fact nature passes continuously from soulless things into animals by way of those things that are alive yet not animals, so that by their proximity the one seems to differ very little from the other'; trans. Lennox) and *Hist. an.* 588b4–589a9 ('Nature proceeds from the inanimate to the animals by such small steps that, because of the continuity, we fail to see to which side the boundary and the middle between them belongs. For first after the inanimate kind of things is the plant kind, and among these one differs from another in seeming to have more share of life; but the whole kind in comparison with the other bodies appears more or less as animate, while in comparison with the animal kind it appears inanimate. The change from them to the animals is continuous, as we said before'; trans. Balme). (In this article I use the abbreviations listed for ancient authors and works in the fourth edition of the *Oxford Classical Dictionary*, where these exist. For the few cases in which the *OCD* provides no abbreviations, I abbreviate on their principles.)
- 3 For a useful and accessible introduction to Aristotle's biology see Lennox (2019).
- 4 E.g., *Hist. an.* 608a33.
- 5 'Their hot tempers and hopeful dispositions make them more courageous than older men are, the hot temper prevents fear, and the hopeful disposition creates confidence; we cannot feel fear so long as we are feeling angry' (*Rh.* 1389a 25–27; trans. Roberts).
- 6 The back reference is to *Rh.* 1386a27–29 where Aristotle discusses the relation between pity and fear: 'what we fear for ourselves excites our pity when it happens to others' (trans. Roberts).
- 7 On the biological roots of moral virtue in Aristotle see Lennox (2015). For a detailed analysis of Aristotle's psychophysical account of moral character see Leunissen (2017). On affective habituation and the acquisition of settled states of character in Aristotle see Campeggiani [forthcoming (a)].
- 8 But it is the notion of *bios* to be explanatorily fundamental: animals' parts and features are the way they are due to the animal's way of life (see Lennox, 2010).
- 9 E.g., *Sens.* 443b21–24: 'owing to the fact that savours are qualities of nutrient matter, the odours connected with these are agreeable as long as animals have an appetite for the food, but they are not agreeable to them when sated and no longer in want of it; nor are they agreeable, either, to those animals that do not like the food itself which yields the odours' (trans. Beare). For a discussion of the affective features of sense perception in Aristotle see Campeggiani (2020).

10 See Charles (2008, 2021).

11 The full passage reads as follows: 'we are easily deceived with respect to our perceptions when we are in emotional states. And different people according to different states, e.g., the coward in a state of fright, the amorous man in one of amorous passion. Thus, from a slight resemblance the former judges that he sees his enemies, but the latter that he sees his loved one. The more emotional his state, the slighter the resemblance that can give rise to these appearances' (*Insomn.* 460b3–8; trans. Gallop).

12 Also see *De an.* 431a10–11: 'whenever there is something pleasant or painful, it [*sc.* the soul] by, so to speak, affirming or denying, pursues or avoids' (trans. Shields) and *Rh.* 1370b13–14: 'some pleasant feeling is associated with most of our appetites' (trans. Roberts). On the intimate connection between perceiving something as pleasant (or painful), being pleasantly (or painfully) affected by it, and desiring (or being repelled by) it see Charles's discussion in Charles (2006).

13 Cf. also *Eth. Nic.* 1152b13 ('all pleasure is a perceived process'), 1173b8–9 ('these affections [*sc.* pleasure and pain] are bodily'), and *Rh.* 1370a26–27 ('feeling pleasure consists in the perception of a certain affection'). The association of pain (*lypē*) with disturbance (*tarachē*) is also telling in this respect and indicates bodily arousal (e.g., *Rh.* 1382a21, 1383b13, 1386b18).

14 A comprehensive interpretation of Aristotle's account of animals' self-motion is provided by Corcilius and Gregoric (2013). For a study of the mechanics of movement, from thermic alterations in the heart to motions of the limbs, cf. Gregoric and Kuhar (2014).

15 For Aristotle, one thing that all animals *qua* animals have in common is that they undergo changes of different kinds in response to what they perceive in their environment. The most important of these changes is movement through space. But Aristotle accounts for other kinds of movement as well. Some sea animals, for example, are stationary, e.g., sponges. Still, even sponges respond to touch by holding more tightly to the external object they adhere to (e.g., *Hist. an.* 548b11–548b15).

16 On the sensorimotor dimension and experiential character of the cognitive power of *phantasia* see Campeggiani [forthcoming (b)].

17 For an accurate analysis see Gregoric (2020).

18 Corcilius and Gregoric (2013) illustrate the connection between sense perception, feelings of pleasure and pain, and desire as follows: 'By feeling pleasure in perceiving some things and feeling pain in perceiving others, the animal distinguishes between things which are good for it and things which are bad for it, i.e. things which are conducive and things which are detrimental to the bodily state in accordance with the animal's nature. Simultaneously, the animal is drawn to the things which are good for it and repelled by those which are bad for it' (pp. 61–62).

19 Also cf. *Rh.* 1371b12 ('what is natural is pleasant'), *Hist. an.* 589a8–9 ('That which is in accordance with nature is pleasant. And all animals pursue pleasure which is in accordance with nature'; trans. Balme), *Eth. Nic.* 1152b13 ('all pleasure is a perceived process of coming to be in the natural state'; qualified at 1153a15), 1152b34–35 ('the processes restoring one to the natural state are pleasant'; trans. Rowe).

20 A good discussion of the homeostatic role of perceptual affects is provided by Corcilius and Gregoric (2013).

21 On this see Corcilius (2011), who convincingly takes Aristotle's claim that 'to feel pleasure and pain is to act with the perceptual mean in relation to what is good or bad insofar as they are such' at *De an.* 431a10–11 to mean that 'the things that are good or bad are not the things that are always either good or bad, but precisely those things that can be both *either* good or bad for the animal (variable goods)' (p. 132). Corcilius rightly observes that 'to be *in some respect* good for the animal's bodily state (rather than being indifferent for it) is sufficient for sensory pleasure. Given this aspectuality of sensory pleasure there is no contradiction that in some cases these goods might conflict with what is really (i.e., rationally or ethically) good for the animal, or even with what is good for it according to other of its bodily needs' (p. 139).

22 E.g., *Eth. Nic.* 1176a3–8: 'Each kind of creature seems to have its own kind of pleasure [...] a horse's pleasure, a dog's, and a man's are different, and as Heraclitus says, donkeys will choose sweepings to gold; something to eat is more pleasant than gold, for donkeys' (trans. Rowe).

23 E.g., *Eth. Nic.* 1154b17–19. In Books VII and X of the *Nicomachean Ethics* Aristotle clarifies that, besides the incidental pleasures that can be explained on the basis of the replenishment model, there are pleasures that 'are activities, and an end' and that 'occur because capacities are put to use' (*Eth. Nic.* 1153a10–11; trans. Rowe). These pleasures do not result from the restoration of a natural state, but complete or perfect good activity (*Eth. Nic.* 1174b14–1175a21).

- 24 Habituation consists in repeatedly undergoing specific changes so as to become capable of acting in the corresponding way. For an excellent analysis of the psychophysical process of habituation see Leunissen (2017, esp. ch. 5).
- 25 On the relation between the pleasant and the apparent good see Moss (2012).
- 26 Also cf. *Eth. Nic.* 1154a32–34: ‘some pleasures are actions stemming from a bad nature (bad either from being born so, as with a brute animal, or because of habituation, as e.g. with the pleasures of bad human beings’ (trans. Rowe).
- 27 Also cf. *Metaph.* 1062b35–1063b6.
- 28 Aristotle’s notion of the ‘form’ or ‘soul’ of living beings as the coordination of parts into a whole self-organizing system and his intuitions concerning the coupling of perception and agency and the way it contributes to the self-maintenance of the organism point in the same direction as contemporary enactivist projects.

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