Abstract: I explain what Aristotle means when, after puzzling about the matter of motion in incomplete animals (those without sight, smell, hearing), he suggests in *De Anima* III 11.433b31–434a5 that just as incomplete animals are moved indeterminately, desire and *phantasia* are present in those animals, but present indeterminately. I argue that self-motion and its directing faculties in incomplete animals differ in degree but not in kind from those of complete animals. I examine how an object of desire differs for an incomplete animal. Using a comparison with Aristotle’s account of recollection, especially in unfavorable circumstances, I describe indeterminate self-motion. Finally, I discuss implications for our understanding of Aristotle’s accounts of the faculties of the soul and incomplete animals.

Keywords: Aristotle’s *De Anima*, Aristotle’s biology, self-motion, incomplete animals, soul

Introduction

Aristotle’s remarks on animal self-motion are almost exclusively focused on animals possessing hearing, sight, smell, touch, and taste.¹ That includes most

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¹ Understandably, that is also the focus of the literature on Aristotle’s account of self-motion: see Berryman (2002), Coope (2015), Coren (2019a), Coren (2019b), Corcilius (2008), Corcilius and Gregoric (2013), Freeland (1994), Furley (1978), Gill (1994), Meyer (1994), Labarrière (1984), Labarrière (1990), Morel (2013a), Morel (2013b), Morison (2004), Primavesi and Corcilius (2018), and Waterlow (1982). There is as yet no literature devoted to the question I address here, namely, Aristotle’s account of self-motion and its directing faculties in animals with only touch and taste. Often it is assumed that lower-level animals have no capacity for self-motion, on Aristotle’s account; for example, Freeland (1994: 50) writes, “Since the lower-level animals possess only primitive sensory capacities and have no capacity for self-motion...” Guremen (2015) interprets Aristotle’s view of the status of some of these animals. Guremen takes as his central focus *PA* II 10.655b37–656a8, where Aristotle seems to identify a group of animals that are “merely living” or “living only”, that is, animals that have only touch and taste, lacking all other sensory capacities. Guremen argues that the loose-textured sea sponge and the fixed (immobile) and hard kind of sea anemone are the animals Aristotle means by “merely living”.

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animals. But we might well wonder what Aristotle would say about those animals which have only the basic senses, touch and taste – Aristotle argues that taste is also a kind of touch (see, for example, *DA* III 12.434b18).\(^2\) These include sea sponges, sea anemone, mussels, clams, scallops, starfish, solens (razor shells), holothurians, sea lungs, ascidians, sea urchins, and oysters. Incomplete animals are described throughout the biological works. In some cases they’re described as moving from one place to another not because they are pushed or pulled but seemingly by their own impetus:

Another species of the sea anemone roams freely abroad [καὶ ἀπολύεται δὲ γένος τι αὐτῶν]. The sea anemone appears to be devoid altogether of excretion, and in this respect it resembles a plant. ... Of the sea-anemone there are two species; and of these one species lives in hollows and never loosens its hold upon the rocks, and the other lives on smooth flat reefs, free and detached, and shifts its position from time to time. Limpets also detach themselves, and shift from place to place (*HA* 531b7–b9, 548a24–27).\(^3\)

Though we are both interested in incomplete animals, my focus is very different. In addition, Corcilius (2008) contains a helpful discussion of *DA* III 11.433b31–434a5, my central passage of interest. However, this rich discussion is merely a small part of a much broader focus and a much more ambitious project: Corcilius aims to show that, for Aristotle (based on readings of *De motu*, *DA* III 9–11, and other salient texts), animal action is essentially the same as human action except the latter has improvements such as reason proper. Thus Corcilius and I have markedly different (though not to say inconsistent) aims and theses.

\(^2\) I will use the following abbreviations for the treatises discussed:

- *De Anima* = *DA* (Greek text is taken from the OCT, Ross (1956). English translations of *DA* are generally taken from Shields (2016), with some of my own minor modifications)
- *Historia Animalium* = *HA* (English translations from D’Arcy Wenworth Thompson in the Barnes)
- *De Partibus Animalium* = *PA* (Translations from W. Ogle in the Barnes)
- *De Motu Animalium* = *De Motu* (Translations from Nussbaum (1978))
- *De Sensu et Sensibilibus* = *De Sensu* (Translations J. I. Beare in the Barnes)
- *De Memoriam et Reminiscencia* = *De Memoria* (Translations from J. I. Beare in the Barnes)
- *De Incessu Animalium* = *De Incessu* (Translations from A.S.L. Farquharson in the Barnes)
- *Physics* = *Phys.* (Translations from R.P. Hardie and R.K. Gaye in the Barnes)

\(^3\) Other examples:

Some testaceans also are capable of motion, like the scallop, and indeed some aver that scallops can actually fly, owing to the circumstance that they often jump right out of the apparatus by means of which they are caught (*HA* IV 4.527a30–32).

All the spiral-shaped testaceans can move and creep, and even the limpet relaxes its hold to go in quest of food. ...Limpets also detach themselves, and shift from place to place (*HA* IV 5.528a35–b1, V 16.548a26–27).
Aristotle doesn’t ascribe any sense of sight, hearing or smell to the sea anemone. But he reports that the sea anemone has sensation. When touched by a human hand, the creature seizes and clings onto that hand. In addition, it has a mouth by which it feeds. Without the ability to sense by touch and taste, the sea anemone would be unable to discriminate between food (such as scallops) and non-food such as jagged rocks. For us, a rock is distinguished from food primarily by the rock’s visual appearance. But visual appearances are not available to the anemone. Instead, then, the anemone must sense features such as texture, solidity, and shape. Such characteristics must be sensed through some means, and at the most basic level they must be sensed by touch (but I’ll say much more about this in Section “Objects of Desire in Incomplete Animals”). So these creatures “appear [φαίνεται] to have [ἐνοῦσα] pain [λύπη] and pleasure [καὶ ἡδονη] in them” (DA III 11.434a2). One species of sea anemone roams freely abroad, casting itself loose (ἀπολύεται) (531b8). How does it do so, seemingly in search of food? After all, Aristotle says that this creature resembles a plant. Other examples include scallops, limpets, sea urchins, and molluscs. All of these creatures seem to lack hearing, sight, and smell. Like all animals, they have at least some capacity for sensation, e.g., “The sponge actually appears to be endowed with a certain sensibility: as a sign of which it is alleged that the difficulty in detaching it is increased if the movement is not covertly applied” (HA 487b9–11, cf. HA 548b10–12).

Why do sea anemone, sea urchins, limpets, molluscs, and other incomplete creatures move themselves from one place to another? True, sea urchins use their spines as feet when they move themselves. But that’s just the material explanation. Why, in the first place, does a sea urchin bother to move without hearing or seeing or smelling an object of pleasure or pain? I moved from one end of my kitchen to the other end because I saw my cup of tea at the other end. My dog moved from the couch to the kitchen because she heard the word “treat” and, no doubt, because she smelled the treats. When my partner asked who left the dog treats without the lid on, I moved into the bedroom so as to avoid (minor) confrontation. Most animals move toward or away from things we see, hear, and, in some cases, smell. It is not easy to imagine reasons for movement without any reasons in any way related to data from the distance senses. There

The urchin uses its spines as feet; for it rests its weight on these, and then by moving them shifts from place to place (HA IV 5.531a5–6).

4 Animals that remain stationary their whole lives and, in most cases, lack the distance senses are described in Aristotle’s biological works; see, for example, DA II 2.413b2–4, III 9.432b19–21, HA I 1.487b6–7, 14–15, PA IV 7.683b5–10. He’s interested in mobile incomplete animals in our target passage here, though, rather than stationary incomplete animals.
is only one passage in which Aristotle explicitly addresses these questions, and this will be the central passage of interest in this paper:

[1] It is also necessary to consider what initiates motion [τὸ κινοῖν] in imperfectly developed animals [τῶν ἁτελῶν], those whose sensation is limited to touch and taste [ἀφῇ]; whether or not it is possible for them to have phantasia and appetite [ἐπιθυμίαν]. [2] For they appear to have pleasure and pain in them; but if they have these, then it is necessary that they have appetite as well. But how could they have phantasia in them? [3] Or rather, just as they are moved indeterminately [κινεῖται ἀορίστως], these things are present in them, but present indeterminately [ἀορίστως δ’ ἔνεστιν] (DA III 11.433b31–434a5).

In [1], Aristotle seems to be posing the following puzzle: (a) there are some animals which lack hearing, sight, and smell, possessing only touch and taste (creatures including the mobile sea anemone described in his biological works); (b) some of the animals in (a) move themselves rather than exclusively being moved by something else; (c) it’s been established (just prior to this passage, in DA III 9–10) that the directing faculties in the soul with regard to self-motion in complete animals are desire and phantasia (the latter is an internal image-forming capacity, often translated “imagination” but also sometimes just transliterated due to difficulties in finding an appropriate English fit); so, implicitly, (d) the motion of incomplete animals is also directed by phantasia and desire; therefore (e) we should determine whether or not incomplete animals possess phantasia and desire or, whether, given the comparative simplicity of such creatures, the initiation of motion in them is directed by some other more basic faculties or means.

In [2], Aristotle gives an importantly distinct reason for thinking that desire and phantasia are present in incomplete animals (thus lending further support to (d)): sea urchins, scallops, limpets, sea anemone, and other incomplete creatures clearly feel some kind of pain and pleasure, and if they have pain and pleasure in them then they ought to have phantasia and appetite (and thus desire). This argument is deeply rooted in the account of the soul Aristotle has been developing. Earlier on in his discussion of the soul’s capacities, Aristotle argues that if there is the sensitive faculty in a living creature then there must also be the faculty of desire present in that creature (ἵ δὲ το αἰσθητικόν, καὶ τὸ ὀρεκτικόν) (DA II 3.414a31). Appetite (ἐπιθυμία) is one of the types of desire (ὁρεξίς), along with anger (θύμος), and will (βούλησις). All human and

5 It is widely known that ‘imagination’ is the conventional English translation of Aristotle’s Greek, φαντασία. It is also widely known that this is not an ideal translation. But it is difficult to translate phantasia more accurately in English. I’ll leave φαντασία transliterated but not translated, as is done, for example, in Caston (1996), Moss (2012), and Scheiter (2012).

6 In Aristotle, ἐπιθυμία is “usually translated ‘appetite’, but ‘desire’, ‘bodily desire’ and ‘wanting’ have also been used or suggested” (Pearson 2012: 5) – see ‘desire’ in Bostock (2000: 34),
non-human animals (τὰ ζῷα) have the sense of touch (ἡ ἀφή). All animals have some sense as to what is the pleasant (τὸ ἡδύ) as opposed to the painful (τὸ λυπηρόν). So all animals have desire and appetite for what is pleasant and aversion to what is painful or unpleasant (DA II 3.414a32–34).

Aristotle argues that, whereas sensation is like (αἰσθάνεσθαι ὅμοιον) the mere (μόνον) act of saying something (φάνοι) or understanding something (νοεῖν), whenever (ὅταν) the animal senses an object taken to be pleasant or painful the animal avoids (φεύγει) the painful object or pursues (διώκει) the pleasant object as a kind of affirmation or negation (οἶνον καταφάσα ἢ ἀποφάσα) of the mere utterance provided by sensation (DA III 7.431a7–10). There is, then, a tight connection between sensation and desire in an animal’s soul; in an important sense, they are not distinct (οὐ χέτερον). Similarly, in an important sense the desiring faculty is not distinct from the faculty of avoidance (τὸ φευκτικὸν) – even though they differ with respect to their being or essence (ἄλλα τὸ εἶναι ἄλλα) (III 7.431a11–14). Aristotle seems to mean that sensation and desire, like desire and avoidance, are indeed distinct but so closely linked in their functions and objects that they might appear to be the same faculties.7

There is also, for Aristotle, a tight connection between phantasia and desire. Aristotle immediately goes on to discuss the relation between the function of desire and the products of phantasia, namely, images or imaginative phantasms

7 ‘bodily desire’ in Crisp (2000), and ‘wanting’ in Hamlyn (1993). ἐπιθυμία is one of the three main types of ὀρεξίς (usually translated “desire”), along with θύμος (“spirit” or “anger” or “temper” or “impulses of temper” or “passion” or “emotion” or “retaliatory desire”) and βούλησις (“wish” or “volition” or “rational wish” or “good-based desire”); see DA II 3.414b1–6, cf. II 2.413b21–24, III 9.432b3–7, III 10.433a25–26, DMA 6.700b22, EE 2.7.1223a26–27. It seems to me that Aristotle uses ἐπιθυμία in our target DA passage to emphasize that incomplete animals are capable of only the most basic kind of desire. Having said that, we should bear in mind that Aristotle does not really put to use Plato’s tripartition of orexis in his own psychology (especially thumos as a power of the soul). So, we should probably not take Aristotle’s use of ἐπιθυμία to rule out the possibility of his having in mind other (perhaps broader) senses of orexis.7

But presumably Aristotle would say that the faculties of sensation and desire couldn’t ever have the same object at one and the same time. For an animal must sense an object before it desires to pursue or flee. It’s not clear that this carries over to avoidance and desire. On the one hand, it might seem that an animal cannot both desire to flee and desire one and the same object at one and same time – at best, it might desire to flee at t1 and desire to pursue at t2. But on the other hand, some animals (such as human beings and perhaps other large-brained animals) do seem to sometimes want to flee from, and pursue, one and the same object at one and the same time. In any case, all that’s relevant for my point in the main text is that sensation and desire are tightly linked, for Aristotle, though they can indeed be distinguished. See Lorenz (2006: Ch. 11–12) for a helpful discussion of the connections between Aristotle’s accounts of desire and phantasia – as I note later on, Lorenz’s discussion is consistent with, and in some parts complemented by, my study and results in the sections to follow.
He argues that the soul cannot understand anything without the use of images (DA III 7.431a16–17). This is because “the images [τὰ φαντάσματα] are sense-objects [οἷον αἰσθήματα ὑπάρχει] to the thinking soul [τῇ διανοητικῇ ψυχῇ]”, and whenever (ὅταν) it affirms one of those sense-objects as good it pursues it; whenever it denies one (so it sees that sense-object as bad) it avoids it (DA III 7.431a15–17). Moreover, just before III 11’s discussion, Aristotle argues that when it comes to the capacity for voluntary self-locomotion, the functioning of desire or appetite and the functioning of basic forms of cognition including phantasia are entangled, such that a self-moving animal “is not capable of desire without phantasia [ὅρεικτικόν δὲ οὐκ ἄνευ φαντασίας]” (DA III 10.433b27). The idea seems to be that even if an animal has all five senses functioning properly, it is not clear why the animal would ever form a desire to move toward or away from anything if it cannot turn data from the senses into a corresponding image available to the animal internally. When I move toward a hot cup of tea that I see at the other end of the kitchen, I move because I desire to move. And I desire to move not just because of the raw sense data (the smell of the tea, the sight of the familiar and welcoming mug) but also because I have a faculty that puts together those individual, raw data to form a unified image of the hot cup of tea. I could not desire (or fear or dislike) the cup of tea if I were incapable of unifying my raw sensory data into a coherent image available to my other faculties such as desire.  

My aim in this paper is to explain what Aristotle means when he suggests in [3] that just as incomplete animals are moved indeterminately (κινεῖται ἀορίστως), desire and phantasia are present in them, but present indeterminately (ἀορίστως δὲ ἔνεστιν). Commentators are unsure of how to understand Aristotle’s suggestion, and there is as yet no focused, in-depth study of this specific problem.  

I’ll first explain that and why Aristotle is interested here in voluntary self-locomotion in animals rather than other kinds of changes (Section “Focused On Voluntary Self-Locomotion”). I’ll argue that Aristotle’s specific view must fit under the following general description: self-motion and its directing faculties (desire and phantasia) in incomplete animals differ in degree

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8 This is not to say that the conditions described above are necessarily collectively sufficient for my moving toward the tea; rather, I mean that they are individually necessary. There are other necessary conditions such as my retaining an impression of the pleasure of drinking tea.

but not in kind from those of complete animals (Section “A Difference In Degree”). I examine how, exactly, an object of desire differs for an animal without any sensations or phantasms involving sight, smell, and hearing. Inspired by Peter Strawson’s “purely auditory universe” (1959: 68), I use Aristotle’s account of touch and taste to construct a purely tactile and gustatory world (Section “Objects of Desire in Incomplete Animals”). Using my results from previous sections, together with a comparison with De Memoria’s account of recollection under unfavorable circumstances, I’ll describe indeterminate self-motion (Section “Indeterminate Self-Motion”) before exploring some implications of my discussion for our understanding of Aristotle’s accounts of the faculties of the soul and incomplete animals (Section “Conclusion”).

**Focused on Voluntary Self-locomotion**

Aristotle is in this context exclusively interested in a very specific kind of change: voluntary self-locomotion. Aristotle is not interested in the source of change by growth and decrease; change by coming to be or ceasing to be; or in change by gaining or losing a quality (alteration). For Aristotle specifies at the outset of DA III 9, when he begins his investigation into the source of the capacity for self-motion in animals, that he is interested in change ‘κατὰ τόπον’, that is, change in place. For Aristotle’s DA III 9 begins by recapitulating the thesis – already stated in DA III 3.427a17–20, partially established earlier on in DA especially in II 1 through 5, and apparently taken as a reasonable way in which others have proceeded – that soul (ψῡχη), the thing that gives plants and animals their capacities, has been defined (ὡρισται) by two capacities (δυνάμεις): first, by the faculty of cognition (κριτική), which is the work (ἔργον) of thought (διάνοια) and perception (αἴσθησις); and, second, the capacity to move from one place to another (κατὰ τόπον κίνησιν), that is, by its initiating locomotion voluntarily (DA III 9.432a15–17).11 Aristotle says that the former has

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10 It is widely known that ‘voluntary’ is not a perfect translation of Aristotle’s ‘hekousios’. But ‘voluntary’ in English (‘volontaire’ in French, and ‘willkürlich’ in German, and so on for Latin, Arabic, Hebrew, etc.) is the standard and not unreasonable translation from which I’ll not depart here (and for a meticulous analysis of these and other problems of translation with Aristotle’s theory of animal self-motion, including discussions of an updated manuscript of De motu, see the text, translation and discussions in Primavesi and Corcilius (2018)).

11 As Moss (2012: 3–4) notes, we can understand what Aristotle means by the discerning faculty (κριτική) as cognition, including (1) imagination, (2) perception, and (3) intellect or thought. On Aristotle’s account, only human and non-human animals have cognition, though non-human
been examined already (in DA II 5–12, III 1–2, and III 4–6). In III 9–11, he turns his attention to the second capacity.

Nor is Aristotle interested in the changes that occur by inhaling and exhaling, or in those that occur by sleeping and waking – those are discussed in the *Parva Naturalia*. Again, those sorts of changes do not require that the animal as a whole move from one place to another. Rather, such changes merely require that a part of the animal move. Moreover, even if it might seem fairly obvious in this context, it should be made clear that Aristotle is not interested in cases in which an animal is moved by force against its volition.  

Nor is he focused in this context on rectilinear motion, circular motion of revolution around a center, or any combination of such kinds of motions (on these, see for instance *Phys.* 261b28–29 and *De Caelo* 268b17–24).

animals lack (3); plants have souls but plants do not have any of (1)-(3). Points out that *De Anima*'s first statement of this thesis, in III 3.427a17–20, has an apodosis that groups together τὸ νοεῖν (‘the thinking’), τὸ φρονεῖν (‘the understanding’ or ‘the exercising of practical wisdom’), and τὸ αἰσθάνεσθαι (‘the perceiving’ or ‘the sensing’) as forming one of the two things by which the soul is usually defined. Aristotle’s *Nicomachean Ethics* VI 3–7 provide a more careful treatment of the different kinds of knowledge than anything found in *De Anima*. Plants don’t have either capacity: neither discernment nor voluntary self-locomotion. But most animals have both capacities to at least some degree. So, we might baldly conclude that Aristotle has in mind here the souls of animals in particular, rather than also the souls of plants. This inference needs some qualification, though: throughout *DA*, Aristotle aims to give an account of the soul with respect to all of its faculties and functions – starting, of course, with the nutritive soul in plants – without focusing only on human souls or animal souls and unduly discriminating against the study of other living things (plants). His discussion of the faculties of the soul in *DA* begins with a discussion of the nutritive faculty, and *DA* often discusses plants’ reproduction, growth, and metabolism. For more on Aristotle’s discussions of growth, reproduction, and metabolism in plants, see Coren (2019b). Coren considers (but eventually rejects) the claim that growth, reproduction, and metabolism in plants are, for Aristotle, autonomous enough to count as self-change rather than merely natural change.

12 For plausible analyses of Aristotle’s *De motu* 11, a text deeply important for understanding Aristotle’s account of involuntary motions, see for instance Morel argues that, despite Aristotle’s obvious enthusiasm for the study of non-human animals, Aristotle does not always escape “à tout anthropomorphisme dans le domaine de la psychologie animale”.

13 I say that, in this context, “he isn’t focused on rectilinearity or circular motion” rather than “he isn’t interested in such motions” because Aristotle does make two interesting references to circular motion in *De Anima*’s account of animal self-motion: (1) at 433b20–26 he compares desire – or, rather, the object of desire – to the fixed center of a moving wheel or other object in circular motion, which must remain fixed in order for circular motion to occur, and (2) at 434a14, shortly after our target passage in *DA* III 11, he compares one desire overpowering another desire to one sphere overcoming another sphere. Though (2) is opaque, it is given a nicely focused and plausible treatment in Hutchinson (1990).
Also, Aristotle is not interested in locomotion that merely seems self-originated but is not in fact voluntary; that is, he’s interested in the self-motion of which most animals are capable and which most animals do very often, as opposed to the natural upward motion of fire and air and the natural downward motion of earth and water. *Phys.* VIII 4.254b12–256a3 contains perhaps the clearest distinction between (a) the natural motion of the elements or simple bodies and (b) genuine, voluntary self-locomotion. Aristotle argues that whereas, for example, animals are capable of stopping their self-motion, water cannot stop itself from moving continuously downwards unless impeded by some obstacle. Nor can fire (or air) stop itself from moving upward. Nor can earth stop itself from moving downward.\(^{14}\) I do not break with the standard reading in this respect, then: “Aristotle’s topic in his discussions of animal motivation in *DA* III 9–11 and in *De Motu* is ... the production of animal locomotion” (Lorenz 2006: 128).

Finally, I should note that the characteristic Platonic and Aristotelian expressions for self-motion are absent from this passage. Plato and Aristotle express self-motion with either (a) an active verb with an object and a reflexive pronoun (i.e. “to move itself by itself”) such as in Aristotle’s saying at *Physics* VIII 4.255a10–13 that it is unreasonable to think that something self-moving would exhibit one motion only or that something continuous could move itself by itself (ἀλογον δὲ καὶ τὸ μίαν κίνησιν κινεῖσθαι μόνην ύφ’ αὐτῶν, ἐξε αὐτὰ ἑαυτὰ κινοῦσιν), or (b) a passive verb with an agent (i.e. “to be moved by itself”) such as in Plato’s *Phaedrus* 245c-246. But we can still understand self-motion to

\(^{14}\) It is neither anachronistic nor anti-Aristotelian to use the term ‘voluntary’ in ‘voluntary self-locomotion’ to pick out what, precisely, Aristotle is interested in throughout *De Anima* III 9–10. For in Aristotle’s account of the voluntary and involuntary in his *Nicomachean Ethics* III 1–5, the involuntary is what something does by force (βίᾳ) or through ignorance (δι’ ἄγνοιαν), as opposed to having the principle or source or origin (ἀρχή) of the action in the agent, whether that agent is a human or non-human animal (1109b35–1110a1). For much more comprehensive accounts of Aristotle’s account of the voluntary, see McGinley (1980), Meyer (1992), Muller (2015), Nielsen (2007), and Sakezles (2007). Aristotle also distinguishes between the voluntary and the non-voluntary; this distinction is applied in a more pertinent context, in his work on the motion of animals: ‘We have now explained how animals move with voluntary [ἐκουσίους] motions, and for what reasons. But they also display involuntary [ἀκουσίους] movements in some of their parts, and more often non-voluntary [οὐχ ἐκουσίους] movements. By involuntary I mean such movements as those of the heart and the penis; for often these are moved when something appears, but without the command of thought. By non-voluntary, movements such as sleep and waking and respiration, and all the others of this kind; for neither phantasia nor desire is, strictly speaking, in control of any of these’ (*De Motu* 11 703b2–10). Corcilius (2008) argues that for Aristotle involuntary motion does not involve desire at all.
be implied by even a cursory examination of the context: Aristotle is continuing
the discussion from DA III 9–10 of the soul-faculty responsible for voluntary self-
locomotion in animals. The absence of these expressions is not surprising. We
do not say, “That dog is self-moving away from its owner!” Rather, we say, “That
dog is running away from its owner”. But we mean that the dog is moving itself.
When the characteristic Platonic or Aristotelian expressions for self-motion are
used, we can of course assume that self-motion is intended. But often those
expressions are absent from Aristotle’s writings (here but also much more
frequently in his biological works) when the context shows that self-motion is
implied.

A Difference in Degree

As we’ve seen, Aristotle is rather vague and evasive on the subject of motion in
incomplete animals, merely suggesting that, “rather, just as incomplete animals
are moved indeterminately [κινεῖται ἀδορίστως], desire and phantasia are present
in them, but present indeterminately [ἀδορίστως δ’ ἔνεστιν]” (DA III 11.434a4–5).
So are incomplete creatures capable of self-motion, or not, on Aristotle’s
account? And do such creatures possess phantasia and desire, or not?

I think that Aristotle would answer those questions (in his typically qualified
fashion) as follows: (1) incomplete animals such as sea urchins, limpets, and sea
anemone are capable of self-motion; (2) they do possess the faculties that direct
self-motion, namely desire and phantasia; but (3) their self-motion is less auton-
omous than that of complete animals; and (4) the desire and phantasia they
possess has been given by nature to fit their comparatively basic needs, and is
much more basic than is the desire and phantasia possessed by complete
animals. On the whole, then, incomplete animals are capable of self-motion
that differs notably in degree but not in kind from the self-motion of which
complete animals are capable. That is, they are capable of self-motion (so, it’s
broadly the same kind of motion as the self-motion of which complete animals
are capable), but it is much more basic than the self-motion of complete animals
(so, it differs in degree). This is consistent with, and indeed complements,
Lorenz’s (2006: Ch. 11) view that, for Aristotle, perception and phantasia are
purposive but non-rational. I say it is consistent with Lorenz’s view because
purposiveness comes in degrees: it seems clear that I often survey more options
for my next course of action than does a grub, but it also seems that grubs move
in purposive ways. And I say it complements Lorenz’s view because Lorenz does
not discuss the following objection to his view: if phantasia and perception are
purposive as Lorenz suggests, since Aristotle links the capacity for desire with *phantasia* (DA III 10–11.433b27–434a5), and if Aristotle does not wish to ascribe any *phantasia* to grubs (as other readings of DA III 11 may suggest) then Lorenz cannot account for the fact that grubs are locomotive and purposive. If I am correct then this objection is no longer troublesome for Lorenz’s view: grubs are locomotive and purposive in a rudimentary way because nature has given grubs sensation and *phantasia* (and desire) but in more basic forms than those in which nature has given those faculties to other animals.

Here’s why I think this would be Aristotle’s answer. On the one hand, without the range of defensive capacities and/or natural camouflage afforded to stationary animals, without desire, without any inward-image-forming capacity, without any ability to move itself based on its desires, and having only touch and taste and the ability to feel pain and pleasure, an incomplete animal would be unable to respond adequately to pain and pleasure stimuli. Plants are, of course, stationary, but plants cannot feel pleasure or pain, on Aristotle’s account. Plants have only the nutritive and reproductive capacities of the soul. So, nature need not provide plants with the ability to respond to pain and pleasure stimuli – that would be pointless. Nor does nature need to provide plants with the ability to move themselves from one place to another. In contrast, a sea urchin would feel pain, for example, but it would be unable to form an internal image (through *phantasia*) of what is causing its pain, and it would be unable to form a desire to move to a place where the pain will stop. Thus, given Aristotle’s pronounced teleological commitments, if nature arranged matters such that animals lacking the distance senses but possessing touch, taste, and the ability to feel pain and pleasure were without desire or *phantasia* or self-motion, nature would not provide such animals with the means to

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15 I do not mean to carelessly assume that *phantasia* is universally necessary for the subjective representation of a goal of animal self-motion, for Aristotle. More precisely, I do not mean to assume that there does not exist a single passage in the entire Corpus in which Aristotle appears to deny – or at least fails to clearly affirm – that *phantasia* is universally necessary as a faculty to form something like the subjective representation of goals of animal self-motion. In one well-known passage in *De motu*, for example, Aristotle seems to imply that imagination is sufficient but not necessary for that subjective representation: “I want to drink, says appetite; this is drink, says sense or *phantasia* or thought” (700b32–33). Nor do I require such a strong view for my conclusion to go through: whatever Aristotle’s necessary and sufficient conditions are for that subjective representation, my analysis makes it plausible that desire and [insert here the disjunction consisting in all individually sufficient and jointly necessary faculties for self-motion] are present but in an interestingly indeterminate way in sea urchins and other mobile animals lacking the distance senses.

16 Coren (2019b) argues that growth and metabolism in plants is, for Aristotle, more autonomous than the natural motion of the elements but less autonomous than self-motion in animals.
survive, let alone the means to flourish. Nature would not arrange matters in such an obviously pointless way.\textsuperscript{17}

If the reasoning above is correct then isn’t the pain, pleasure, and awareness of incomplete but sessile (non-moving and certainly not self-moving) animals pointless? Consider immobile species of sea anemone or sea squirts (τήθυα, ascidians), animals Aristotle carefully observes (HA IV 6.531a8–29). If an immobile sea anemone or sea squirt can feel pain when a predator attacks it but does not have the ability to try to move away from the source of the pain then hasn’t nature done something pointless? I think not, and I have three reasons for thinking so. The first is that, in order to really get clear on the nature of the worry posed here, we would have to consider the nuances of Aristotle’s discussions and observations of incomplete and non-self-moving animals. For example, Aristotle reports that he cannot find any means of sensation in a sea squirt (HA IV 6.531a26–28). If they lack sensation then I do not see how they could feel pain or pleasure. The second and much more important point is that, granting that all animals do have sensation and the ability to feel pain and

\textsuperscript{17} One might, however, point out that there is a puzzling passage in which Aristotle seems to say that some animals lack \textit{phantasia}:

Further, sensation is always present in animals, though \textit{phantasia} is not always present [φαντασία δ’ οὐ]. If sensation and \textit{phantasia} were the same in actuality, it would be possible for \textit{phantasia} to belong to all beasts; but this does not seem to be the case. For instance, it belongs to the ant or the bee, but not to the grub [δοκεῖ δ’ οὖ, οἶνον μύρμηκι ἢ μελίττη, σκώληκι δ’ οὖ]” (DA III 3.428a8–12).

Doesn’t this passage undermine the claim that on Aristotle’s view, if an animal has sensation then it must also have \textit{phantasia} (and desire)? Contra Freudenthal (1863: 8), I am skeptical of this reading. Instead, I concur with Caston (1996) in not taking this passage as a counter-example to Aristotle’s holding that there is co-extension between the capacity of \textit{phantasia} and the capacity of \textit{sensation}. First, this exception-clause is within the scope of δοκεῖ, “this seems to be the case”. So, Aristotle isn’t stating what he necessarily takes to be the case. Rather, Aristotle is being quite tentative here (Caston 1996: 23). Second, this is the only passage in the entire corpus where Aristotle seems to suggest that animals might have sensation or perception without \textit{phantasia} or representation, whereas there are many passages both in and outside \textit{De Anima} where Aristotle claims that every creature that has sensation must also have \textit{phantasia}. He writes, for example, that plants are the only mortal creatures that can exist without \textit{phantasia} (DA II 3.415a8–11). Outside \textit{De Anima}, he writes that in general what is capable of \textit{phantasia} and of sensation are the same, even though these two abilities differ in essence (De insomn. 1.459a15–17). One promising alternative, helpfully suggested by an anonymous reviewer, is that \textit{phantasia} in this passage is shorthand for determinate \textit{phantasia}. If we take this view then Aristotle is (or might be) simply saying that grubs and other such animals have indeterminate rather than determinate \textit{phantasia}, which is of course consistent with the view that all animals have at least some form of \textit{phantasia}.  

12 Daniel Coren
pleasure on Aristotle’s account, Aristotle also observes that even the most basic animals are afforded some kind of protection or means of evasion from predators. I mentioned camouflage above. Even sea squirts are reported to have a body “completely hidden inside the shell” (HA IV 6.531a9–10). I suspect that Aristotle would say that nature has given sea squirts shells to protect their bodies from the elements and predators; in this sense, the animals have been given the necessary means to survive. Third, if incomplete animals were to lack ability to feel pain, then, with a stomach and a mouth and other parts that animals have in order to take in and process food, such animals would be unable to tell when they are taking in the wrong kind of food or too much food. In fact, it’s not clear how such animals would sense when to take in food at all. The animal could not feel or become aware of the pain of hunger if the animal has no awareness or ability to feel pain.\textsuperscript{18}

On the other hand, if nature were to provide incomplete animals with desire, phantasia, and self-moving capacities as sophisticated as those possessed by complete animals, nature would do something in vain. For a mobile sea anemone does not need to form images that incorporate sense data gained from sounds, sights, and smells. All such an animal requires is the most basic desire and capacity to move itself in search of pleasure and the relief from pain. That pain might be hunger caused by inadequate nutrition where it currently exists in its current state. Or it might be a predator currently attacking it, or an environment that’s become inhospitable due to some collection of naturally (or unnaturally) occurring events. Mobile incomplete animals need self-motion, phantasia, and desire. But they do not need those capacities and faculties to the same degree of sophistication as do animals possessing sight, hearing, and smell. Nature gives the more advanced versions of those capacities to animals which need to move more often and in much more diverse ways, and to those which need to respond to more complex stimuli.

In the next section, I will say much more about how, on Aristotle’s account, we ought to understand desire, and objects of desire, in incomplete animals such as sea urchins. But let me say a little here about what, exactly, Aristotle means to exclude from determinacy by using indeterminate (ἀορίστως) a descriptor for the phantasia and desire present in incomplete animals. The boundary or limit (ὅρος) being negated in ἀορίστως refers, in my view, to collections of internal images obtained through sensory data from hearing, seeing, and perhaps also smelling things. More specifically, a sea urchin lacks the ability to form many internal images (and therefore also lacks the ability to

\textsuperscript{18} I am grateful to an anonymous reviewer for Apeiron for prompting me to make this (and related points) more explicit.
call forth those images) that do not conform to the internal image to which the animal’s faculty of desire directs the animal. A dog with sensory capacities functioning properly has a much clearer boundary or limit through a much more comprehensive collection of images concerning what it is not looking for when it looks and sniffs in search of food.

One might think that there is a more immediately apparent reason for Aristotle’s hesitating to ascribe phantasia to incomplete animals: it is not obvious what extra function phantasia would add to an animal that lacks all the distance senses but already possesses basic perception through touch and taste. For, as Scheiter (2012) helpfully emphasizes, “the essential difference between perception and phantasia lies in their immediate cause” (260). That is, “phantasia does not require the immediate presence of the physical object, whereas perception always does” (260). In an animal such as a sea anemone or a limpet or a sea urchin, then, what does phantasia do that perception does not? After all, if an animal can sense things only by touch and taste, and since touch and taste always require contact the immediate presence of the physical object, it would seem to follow that a faculty (phantasia) that does not require the immediate presence of the physical object is redundant in such an animal. But on Scheiter’s view, phantasia not only creates images but also allows a creature to call them forth. Perception does not do that. I find her view plausible. It is one thing to be capable of sensing things. It is another thing to be capable of turning that raw sensory data into a coherent internal representation or image toward which faculties such as desire can be directed. It is yet another thing to be capable of calling forth those internal representations. All three of those capacities, it seems, are parts of the impetus for animal self-motion, even if the animal is as basic as a sea urchin. If a sea urchin has the first two capacities but not the third, then it is not clear how the animal could call forth an internal representation of a pleasurable or pain-free sensation as a contrasting goal when it experiences a painful experience such as hunger or an attack from a predator. Without the ability to call forth images, and having only the ability to sense and gather sensory data into a coherent internal image, it seems that the animal could not call forth a contrasting image as an object of desire. Below I say more about objects of desire (especially in animals without the distance senses) in Aristotle’s account of animal locomotion.

**Objects of Desire in Incomplete Animals**

The answer given in the previous section is, I think, true, but it is also general and abstract: mobile, incomplete animals such as sea urchins can self-move and
possess self-motion’s directing faculties, but to a lesser degree than in cases of complete animals. What exactly does this answer amount to? First of all, what does an object of desire look like in an animal without the ability to hear, smell, or see? A further distinction is in order here. There is (a) to orekton, the object of desire, which is the end or goal (telos) of the action, and there is (b) a spatially located physical body that is in the spatial location towards which the motion is directed. When it comes to self-motion, Aristotle means (a), not (b). For Aristotle, the origin of self-motion in animals is “the object of pursuit or avoidance in the sphere of action” (De motu 8.701b32–33). That object of desire taken as attainable by the animal is the first mover: “the first mover is the object of desire and also of thought; not, however, every object of thought, but the end in the sphere of things that can be done. So it is a good of this sort that imparts movement, not everything noble” (De motu 6.700b23–25). The object of desire is the limit of all self-movements: “For all animals both impart movement and are moved for the sake of something, so that this is the limit to all their movement: the thing for-the-sake-of-which” (De motu 6.700b14–16). This is the apparent good.\(^{19}\) The faculty of desire targets an object as one of pleasure or one of pain. Then it acts accordingly: it pursues the object if it’s taken to be one of pleasure, and avoids the object if it’s taken to be one of pain: “For the painful is avoided and the pleasant pursued” (De motu 8.701b35–36). Animals are impelled to move, then, by desire: “the proximate reason for movement is desire, and this comes to be either through sense-perception or through phantasia or thought” (De motu 7.701a35–37).

The general account on which locomotion is caused by the object of desire that moves the desire does not require moving towards something (spatially directed activity) but simply goal-directed activity. Goal-directed activity need not be location-directed motion. Goal-directed locomotion need not be location-directed motion. A purpose need not be getting to a location. For example, I can walk for the sake of my health, without aiming to walk anywhere in particular. A sea urchin can move so as to avoid the sharp sensation that it takes to be causing its current pain, forming an internal image of an object that has properties such as smoothness and bluntness (as I’ll discuss in more detail momentarily), without aiming to be anywhere in particular. So, even without the distance senses and thus without the ability to sense anything from a distance, an incomplete animal can still move itself toward an object of desire.

We might say that walking for the sake of my health still involves determinate self-motion in a way that a sea urchin’s motion does not. For every step of my health-inspired walk, we may say, I choose determinate locations. Those

\(^{19}\) For a much richer study of Aristotle’s account of the apparent good and its role in, for example, voluntary animal self-locomotion, see Moss (2012).
determinate locations need not be determined by the ultimate goal (health). We might infer, then, that total unawareness of the environment at a distance is required for motion to be truly indeterminate; therefore, only mobile animals lacking all of the distance senses (can) engage in truly indeterminate motion. So, most animals, that is, animals with some or all of the distance senses, move in ways that are both goal-directed and spatially directed. But none of this undermines the point that motion can be goal-directed without being also spatially directed. Even if most human beings, birds, fish, and other animals move themselves in goal-directed and spatially directed ways, and even if (all and) only mobile animals without any of the distance senses move themselves in goal-directed but not spatially directed ways, both groups might very well be said to move themselves. Both groups of animals move in goal-directed ways, driven by the faculty of desire and not merely by the presence or absence of external impediments to the natural motion of their bodies, unlike floating seaweed or a fallen tree-branch.

Returning to our question, then: what is an object of desire in a sea urchin, sea anemone, or limpet? Such creatures have no internal images (phantasms, internal images courtesy of phantasias) or sensory information of any kind from sight, hearing, or smell. As such, we can borrow a technique from Strawson (1959). Strawson constructs a “purely auditory universe” (68) so as to answer the question, “Could a being whose experience was purely auditory have a conceptual scheme which provided for objective particulars?” (66) Our question is rather different, namely, “For an animal whose experience was purely tactile (whatever is collected from the sense of touch) and gustatory (whatever is collected from the sense of taste), what is an object of desire, or, what is the goal of their seemingly self-directed motion?” But I suggest that a useful way of answering our question is to do something analogous to what Strawson does: construct a purely gustatory and tactile world.

We will fill this purely gustatory and tactile world, first of all, with Aristotle’s account of what can be gleaned from touch and taste, respectively. Aristotle says that with taste a creature can have experiences of “the sweet and the bitter, the succulent and the saline, between these come the pungent, the harsh, the astringent and the acid; these pretty well exhaust the varieties of flavor” (DA II 10.422b11–13). Having

20 Aristotle sees taste as a kind of touch, and sees both touch and taste as (1) the senses without which no animal can exist, (2) the senses with which a creature must be an animal, and (3) the senses that are required for hearing, smell, and sight, but which can exist without hearing, sense, and sight (DA III 12. 434b16–17, 23–24, and DA III 13.435a13–15, 4–6; see also (DA 413b3–5, 414b3, 434b24, 435b5–7; De Sensu 436b13; and HA 478a17). Aristotle connects touch with sleeping, aging, dying, disease, and health (DA 435b4–5, DA 435b4–5, and PA 648b2–10). There are some puzzles concerning Aristotle’s account of touch, some of which Aristotle discusses (e.g. in DA II 11). Two that have received some helpful discussion in the
touch, a creature can also have experiences of “hot, cold, dry, moist, hard, soft, and so on” (DA II 11.422b25–26). Aristotle argues that all and only animals have sensation. All animals must at the very least possess touch and taste. For “it is by touch and taste that one distinguishes in food the pleasant from the unpleasant, so as to flee from the latter and pursue the former” (De Sensu 1.436b15–16). More specifically, Aristotle argues, “heat or cold is the direct cause of growth or decay” and “all organisms are nourished by the sweet, either by itself or in combination with other savors” (De Sensu 4.441b30, 442a1–2). Magnitude and figure, roughness and smoothness, sharpness and bluntness found in solid bodies are percepts common to all the senses, or at least to touch (De Sensu 4.442b5–6). Common sensibles also include unity, number, movement, and rest (DA III.1.425a16). Intermediate flavors come from contraries such as the sweet and the bitter. Savors are infinite in number (De Sensu 4.442b22).

Using Aristotle’s account, then, we have filled our purely gustatory and tactile world with sensibles including unity, number, movement, rest, magnitude, figure, roughness and smoothness, sharpness and bluntness, hot and cold, dry and moist, hard and soft, the pungent and the harsh, the astringent and the acid, the succulent and the saline, and the sweet and the bitter. In addition, of course, Aristotle notes that such creatures can feel pleasure and pain. There are no colors, sounds, or odors in this world. We must now introduce a further modification to Strawson’s strategy: we add to this world sea urchins, anemone, limpets, and other incomplete and mobile animals that generate Aristotle’s puzzle in our central passage of interest (DA III 11.433b31–434a5). Like all non-human animals, such creatures are distinguished from animals such as human beings (according to Aristotle) by, for one thing, lacking reason (nous) proper. But this does not entail that there is no way to form a coherent object of desire in a sea urchin’s world. Aristotle’s suggestion, on my reading, is that such animals possess phantasia and desire more basic than those capacities possessed by complete animals. With phantasia, such creatures can not only sense the hot and cold, sweet and bitter, dry and moist, and so on, at one

literature include what Matthews (2011) calls (1) the “Counting Perplexity”, that is, we speak of a single sense of touch, and it seems that this ought to be the case, yet unlike sounds, colors, tastes, and smells, objects of touch do not fall into a “natural named group” (as Freeland (1994: 228) nicely describes), and (2) the “Organ Perplexity”, that is, whether flesh or what is analogous to flesh the organ of touch, since in the case of the other senses the matters seems much more straightforward – for smelling it’s clear that the nose is the main organ, for seeing the eyes, for hearing the ears, and for taste the tongue. Other helpful discussions are found in Bynum (1987), Johansen (1998), Modrak (1987), Polansky (2007), Ross (1956), Slakey (1961), and Sorabji (1971). For a rather different kind of treatment of Aristotle’s account of touch, one that aims at tying together the whole of De Anima, see Golluber (2001).

Aristotle argues in De Sensu 7.449a20–30 that every sensible object must be a magnitude.
discrete moment followed by another discrete moment; rather, with *phantasia*, they can connect those otherwise discrete sensations to form a unified, internal image. And they can identify that internal image as an object of pleasure; with desire, they can have the impulse to move toward or consume something conforming to that internal image representing an object of pleasure, an object of desire (*telos*). With desire and *phantasia*, they can also have the impulse to move away from something diametrically opposed to that internal image representing their object of desire, that is, to flee from something taken to be a painful object. As noted earlier, this reading complements Lorenz’s (2006) more general view that, for Aristotle, perception and *phantasia* are purposive: my reading answers an objection left unaddressed by Lorenz, namely, some animals such as grubs seem to be both purposive and locomotive. In addition, my view is consistent with Lorenz’s suggestion that, for Aristotle, sensation does not merely have particulars as its objects but also “patterns or configurations of appropriate sensory characteristics” (Lorenz 2006: 137). The quantity and quality of the given animal’s sensory modalities, as well as its requirements (what it prefers to eat, for example) will help determine which patterns or configurations of sensory characteristics the animal deems desirable. My study, unlike Lorenz’s study, focuses on the lower end of the range of that sensory quality and quantity.

So, an animal such as a sea urchin can, for Aristotle, sense not only that it is currently in pain, but also form an internal image suggesting that there is, for example, a fairly large, sharp, slowly moving, hard, and rough object causing that pain – what we would call a predator attacking the urchin. With some basic form of *phantasia* and desire, the urchin could form the desire to move toward something conforming to the appropriate internal image. It’ll do so through a process of trial and error – what looks to us like the sea urchin’s bumping into things in a somewhat purposive but clumsy way. The urchin moves in a way that is more purposive than the way seaweed moves but less obviously purposive than the way in which nearby fish swim around. The fish neatly avoid predators, rocks, and so forth. The urchin’s motion is not so precise. The urchin’s internal image is of an object with the absence of those properties the animal perceives to be the cause of its pain and, in particular, an object with the contrary properties of the painful object. That is, the urchin can form the impulse to move toward an object that is blunt, smooth, and soft – what we would call “sand”. Such an internal image of an object of desire would not have any particular smell or color or sound. In that sense, that object of desire is indefinite or indeterminate (**ἀορίστως**). 22 Or, sensing a sharp, lingering, and unmoving pain

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22 I do not mean to imply or assume that only an image filled with sounds, smells, and colors can serve as a determinate object of desire. If pressed, I would say that my reconstruction of Aristotle’s...
inside itself (what we would call “hunger”), a sea urchin might well form the desire to move toward something conforming to an internal image that is sweet, soft, fairly small, blunt, slowly moving if moving at all, and succulent. It would not desire food that is loud or quiet, colorful or plain, odorous or fragrant. These objects of desire are indeterminate, in comparison with those of complete creatures possessing all five senses. But their objects of desire have enough determinacy to guide the animal with a reasonably high success rate away from things that would harm it, and toward things that will help ensure its survival.\(^{23}\)

Using the motion of floating seaweed and the motion of fish, then, we can set up contrast cases:

<table>
<thead>
<tr>
<th>Dislodged seaweed’s motion (or the motion of any thing without sensation, <em>phantasia</em>, desire)</th>
<th>Sea urchin’s motion (or the motion of any locomotive animal with touch and taste, desire, <em>phantasia</em>)</th>
<th>Fish’s motion (or the motion of any animal with the distance senses, determinate <em>phantasia</em> and desire)</th>
</tr>
</thead>
<tbody>
<tr>
<td>–Not goal–directed at all</td>
<td>–Goal–directed but in an indeterminate way</td>
<td>–Goal–directed in a determinate way</td>
</tr>
<tr>
<td>–Directed exclusively by the water, any natural tendency to move upward or downward, and objects that collide with it</td>
<td>–Spatially directed only in very basic and indeterminate ways, such as continuing to move onto a surface that continues to lead to pleasure, and not continuing to move onto a surface that produces pain</td>
<td>–Spatially directed in clear and determinate ways, such as swimming in unison with a large school of fish, not bumping into other fish yet remaining nearby, and avoiding predators</td>
</tr>
<tr>
<td>–Has no internal image, indeterminate or otherwise, and feels no pain or pleasure</td>
<td>–Directed by the water, objects that collide with it, and its own indeterminate, limited faculties of <em>phantasia</em>, sensation, and desire</td>
<td>–Directed by the water, objects that collide with it, and <em>phantasia</em>, sensation, and desire</td>
</tr>
<tr>
<td>–No more goal–directed than the water’s motion (water has a nature, an internal principle of motion and rest, but not a goal, for Aristotle — see for instance <em>Physics</em> II 1 and VIII 4)</td>
<td>–Feels pain, pleasure, and senses all tactile and gustatory sensibles, forms indeterminate internal image based on tactile and gustatory sensibles, together with retained impressions, pleasures, and pains</td>
<td>–Feels pain and pleasure, and senses through all touch, taste, sight, and smell (perhaps in some cases also a kind of hearing or at least sensitivity to sounds), forms determine internal image based on those extensive sensibles, together with retained impressions, pleasures, and pains</td>
</tr>
</tbody>
</table>

Account involves, rather, a scale of determinacy for objects of desire where, all else equal (that is, holding equal factors such as how many and how detailed the sights are), an image with data from all five senses will be more determinate than an image with data from fewer than five.

\(^{23}\) Note that in the first case, the object of desire is formed as it is because the urchin desires something that has roughly the contrary qualities of the object that the urchin senses to be
This account is plausible, I think, not just conceptually, given Aristotle’s account of the process of voluntary animal self-locomotion, but also philologically. For, recall that in our target passage in *DA III 11*, Aristotle says that the motion and directing faculties in incomplete animals (those possessing only touch and taste) are indeterminate (ἀορίστως). This description of the indeterminate object of desire fits well with Aristotle’s use of the term ἀορίστως elsewhere. For example, it fits well with what Aristotle has to say elsewhere about privative terms and their connection with indeterminacy, such as in *Phys. III 2*. He says that all the principles in the second list (by which he means the second column of the Pythagorean list of opposites, which just contains the absences of the given extreme or contrary property in the first list) are indeterminate (ἀορίστως) “because they are privative” (201b26). Darkness just is the privation of light, for example, and crookedness just is the privation of straightness. I suspect Aristotle would say that an object of desire for a sea urchin or other incomplete, mobile animal is indeterminate in a similar way: what the urchin desires is, for instance, the absence of pain and, in particular, the absence of sensations such as sharpness. It cannot fill in its internal picture of its object of desire in the same way that a complete animal (one with all five senses) can. These privations would presumably come from what is present to the incomplete animal rather than also what came beforehand. For (a) Aristotle seems to hold that remembering is an activity involving appearances or images (and *phantasia*) but not all activities involving appearances or images (the activities of *phantasia*) require memory (see King (2018) for a helpful discussion of the details of this distinction), and (b) there does not seem to be any clear evidence that Aristotle wishes to ascribe memory to incomplete animals.

I do not mean to suggest that, on my reconstruction of Aristotle’s account, a sea urchin has anything like a clearly defined awareness of a distinction between the urchin and its environment. Compared with the awareness of a separation between environment and self for a leopard or some other animal with five (relatively keen and properly functioning) senses, a sea urchin has considerable...
difficulty separating objects outside itself from itself. For example, a leopard
presumably has a clearly defined awareness of the differences between the pain
caused by hunger and the pain caused by a thorn on a tree-branch on which it
has for a moment supported some of its weight. An urchin will have more
difficulty making out a distinction between the causes of those sensations.
For, unlike the leopard, the urchin cannot see the thorn that causes its pain;
rather, the urchin can only feel the sharpness, pressure, and resulting pain. But
by having some form of *phantasia* and therefore at least some ability to piece
together and call forth images of pleasurable or painful experiences gained
through touching (and perhaps tasting) what an external observer sees as
obviously different objects, the urchin should be able to form at least some
distinction between itself and its environment. Just because an urchin has some
difficulty making out the differences between importantly different causes of
painful sensations such as pain from hunger and pain from an attacking pred-
ator does not entail or suggest that the urchin could not have some under-
standing of differences between the painful experiences themselves. Moreover,
no matter how fuzzy and superficial the urchin’s understanding is of distinctions
between painful hunger and painful attacks, motion in both cases is often
beneficial: staying in the same place will probably provide neither food nor
defense. Just as the animal has an indeterminate but importantly present inter-
nal image that its faculty of desire targets as the pleasant (τὸ ἠδύ), the sea
urchin may also have an indeterminate but importantly present internal image
that its faculty of avoidance targets as the painful (τὸ λυπηρόν) (DA II 3.414a32–34).
The urchin’s faculty of avoidance (τὸ φευκτικόν), however fuzzy, is no less
important than its faculty of desire; after all, for Aristotle the faculties of
avoidance and desire are not distinct (οὐχ ἔτερον) in a leopard and in a sea urchin
(DA III 7.431a11–14).

**Indeterminate Self-motion**

How, exactly, does an animal without the ability to hear, smell or see move itself
toward its object of desire, navigating through a purely gustatory and tactile
world? How does it move toward an object conforming to its internal image of
something that is, for example, fairly small, slowly moving if moving at all,
smooth, succulent, blunt, and soft? I’ll give a general description of what that
indeterminate self-motion would look like to an external observer (such as one
of us) with the help of a comparison with Aristotle’s account of what it is to
recollect (ἀναμμηνήσκεθαι), especially in unfavorable circumstances. This is not
to suggest, of course, that I think Aristotle necessarily intended such a comparison. Nor do I mean to suggest that the comparison admits of no exceptions. Rather, as I’ll show, this comparison seems to be a conveniently Aristotelian way of shedding light on the process of indeterminate self-motion, that is, how an animal with basic capacities for desire, *phantasia*, and self-motion tries to navigate through a purely tactile and gustatory world.

In *De Memoria*, Aristotle distinguishes recollection (ἀνάμνησις) from memory (μνήμη) and remembering (μνημονεύειν): memory or remembering is “the having of an image, related as a likeness to that of which it is an image” (*De Memoria* 1.451a16–17). Memory or remembering is “a function of the primary faculty of sense-perception, i.e. of that faculty whereby we perceive time” (451a18–19). Recollection “is not the recovery or acquisition of memory” (2.451a19–20); instead, Aristotle argues that “it is obviously possible, without any present act of recollection, to remember as a continued consequence of the original perception or other experience” (451a32). The act counts as recollection if and only if, “one recovers some knowledge which he had before, or some perception, or some other experience, the state of which we above declared to be memory; and, memory follows on recollection” (451b2–5). Unlike learning the same thing twice, or twice discovering the same fact, “recollecting must imply in those who recollect the presence of some source over and above that from which they originally learn” (451b8–10). When someone recollects, this is “due to the fact that one movement has by nature another that succeeds it” (451b11–12). So, when we recollect, “we are experiencing one of the antecedent movements until finally we experience the one after which customarily comes that which we seek” (451b17–18). This is why, when we recollect, Aristotle says, “we hunt up the series, having started in thought from the present or some other” (451b18). People recollect, Aristotle notes, sometimes “even without seeking to do so” (451b23). And it often happens that, “though a person cannot recollect at the moment, yet by seeking he can do so, and discovers what he seeks” (452a7–8). Recollecting is intentional or self-driven, Aristotle notes, only if the person can “move solely by his own effort to the term next after the starting point” without being guided by external assistance (452a6–8). Like self-motion, then, recollection is a self-driven and self-guided process.

But in particular, Aristotle’s account of recollection, especially in unfavorable circumstances, bears some striking similarities to the way in which a creature with only touch and taste would move itself in search of pleasure and the relief from pain. In describing recollection, Aristotle has us imagine a series A B C D E F G H I (452a19–20). He says that “if the person recollecting does not remember at I, he remembers at E; because from E movement in either direction is possible, to D or F. But, if it is not for one of these that he is searching, he will
remember by going to G, and so in all cases” (452a27–29). This will be much more difficult to do, Aristotle notes, when there are “badly arranged subjects” as opposed to “things arranged in a fixed order, like the successive demonstrations in geometry” (451b33–452a2), especially when the object of the search is considerably “indeterminate” (ἀορίστως) (450a7). This is why, Aristotle argues, “things wanting in exactitude are with difficulty remembered” (452a4–5). Similarly, an animal without any of the distance senses and guided solely by an internal image with its comparatively indeterminate (ἀορίστως) object of desire along with whatever it is currently sensing will have a difficult time finding the object of its search. It must first try one object near to it, then another, and so on, without any guarantee that the next object will conform more to its internal image portraying the goal of its search, its object of desire. Like a sea urchin feeling a sharp pain from hunger or a large, forceful, sharp object from a predator outside itself, in someone trying to recollect “the mind receives an impulse to move sometimes in the required direction, and at other times otherwise” (452b3–4). The latter will presumably occur more frequently when recollection occurs with poorly arranged objects. Recollection, especially in unfavorable circumstances is by no means a neat or necessarily linear process; often “something else somehow deflects the mind from the right direction and attracts it to itself” (452b4).

Consider a sea urchin searching for what we would call plant or animal matter such as dead fish, mussels, sponges, or barnacles, and/or algae on coral and rocks. The urchin might well have an internal image, an object of desire that is relatively smooth and blunt, not painful, and perhaps somewhat succulent (if a dead fish tastes that way to an urchin). I suggest that, like a person trying to recollect something that is as yet, as Aristotle says in De Memoria, indeterminate (ἀορίστως) or wanting in exactitude in some crucial respects (450a7, 452a4–5), and where the relevant objects are poorly arranged, an urchin is searching for something that is indeterminate (ἀορίστως) and wanting in exactitude. Also, like the person recollecting under poor circumstances, there is nothing like a guarantee that the urchin will go in the right direction. Nor is there anything like a guarantee that the urchin will get progressively closer to the goal of its search. In fact, there is no reason at all to suppose that the urchin will go in the right direction at any one moment, since it is just operating by trial and error, much like a person recollecting in unfavorable circumstances.

For example, a person trying to recollect an actor’s name, based on what she recalls about the actor’s face (not a clear recollection of the face) and the actor’s work (sketchy at best), might just start saying names out loud. That series of names might appear to take the person recollecting even further away from remembering the actor’s name, such as the following series while trying to recall
the name “Benedict Cumberbatch”: “Bryan Sunderland ... No ... Benjamin Corrigan ... No ... Oh he always plays smart and interesting characters ... Bob Custard ... No ... Am I thinking of Jeff Goldblum ... No ... ” Similarly, an urchin with a fuzzy internal image of something (a) relatively smooth and blunt, (b) not painful, and (c) perhaps somewhat succulent (that is, something to eat) might at first sense what we understand as a plastic wrapper discarded in the sea. The plastic wrapper might at first appear to satisfy (a) and (b), but turns out not to satisfy (c) at all. The urchin might then move away from the plastic wrapper and onto a starfish. And so on. The urchin, like the person trying to recollect Benedict Cumberbatch without a clear internal picture of Cumberbatch’s face or body of work, operates in a goal-directed but indeterminate way.

A person recollecting under unfavorable circumstances will, Aristotle says, be unable to recollect at the moment, but by seeking for a while he can often and solely by his own effort come to the term next to his search. Such a person will, Aristotle notes, “set up many movements, until finally he excites one of a kind which will have for its sequel the fact he wishes to recollect. For to remember is the existence of a movement capable of stimulating the mind to the desired movement, and this, as has been said, in such a way that the person should be moved from within himself, i.e. in consequence of movements wholly contained within himself” (452a5–9). The person might wonder off course in the process of recollecting because “from the same starting-point a movement can be made in several directions, as, for instance, from C to B or to D” (452a24–25). Wandering off course will generally happen more often if the object of recollection is wanting in exactitude or indeterminate. Returning to the Cumberbatch example above: if you don’t remember any of the specific titles of shows or movies in which Cumberbatch has appeared, you’ll wander off course more easily while trying to recollect Cumberbatch’s name. While not necessarily moving toward the object of her recollection while she tries to recollect (for in fact she might often move further away from the object of her recollection), she does appear to always be searching for the object of her recollection. For example, the person trying to recollect Cumberbatch knows that Jeff Goldblum isn’t the right name when Goldblum’s name is said aloud. The process is goal directed. An urchin might have to move itself over a great many coral and rocks, requiring many movements, until finally it alights upon a coral or rock that has an object (such as a dead fish) that the creature senses as having the softness, smoothness, succulence, magnitude (and whatever other basic properties from its solely gustatory and tactile world) that conform to the internal image of its object of desire.

To an external observer, in many cases the urchin would not appear to move toward a rock with a dead fish on it. Thus the urchin would probably not appear
to be moving toward its object of desire. In fact, like the person trying to recollect under unfavorable conditions, the urchin would often appear to move further away from its object of desire. But the urchin is still searching for its object of desire. To the urchin, the internal image it possesses, forming its object of desire, has properties such as softness, coldness, and other sensibles conforming to what an external observer would call a dead fish. The goal in both cases (indeterminate self-motion in incomplete creatures, and recollection in unfavorable circumstances) is at least partially indeterminate, and the process in both cases is likely to be decidedly non-linear. For Aristotle, the motion and the goal are, in both processes, indeterminate (ἀορίστως) and wanting in exactitude.

To an external observer gifted with other senses such as sight, an incomplete animal might well appear to be meandering aimlessly. Similarly, to someone who completely understands what another person is trying to recollect (such as Benedict Cumberbatch’s name) in unfavorable circumstances (such as not remembering Cumberbatch’s name or face or body of work with much clarity), the person recollecting might well appear to be taking a route that is unnecessarily circuitous and error-prone. But both the person recollecting and the hungry urchin are, nonetheless, engaging in a self-guided and goal-directed – if comparatively indeterminate – search for something.

Conclusion

I’ve sought to explain what Aristotle means when, after puzzling about the matter of motion in incomplete animals (those without sight, smell, hearing), he suggests in DA III 11.433b31–434a5 that just as incomplete animals are moved indeterminately (κινεῖται ἀορίστως), desire and phantasia are present in those animals, but present indeterminately (ἀορίστως δ’ ἔνεστιν). This is the first focused, in-depth study of this specific problem. After explaining that and why Aristotle is interested here in voluntary self-locomotion in animals, I argued that Aristotle’s specific view must fit under the following general description: self-motion and its directing faculties in incomplete animals differ in degree but not in kind from those of complete animals. I then examined how, exactly, an object of desire differs for an animal without any sensations or phantasms involving sight, smell, and hearing. Using Aristotle’s account of a goal or end (telos) of self-motion, as well as his account of the information that can be gleaned from touch and taste, I constructed a purely gustatory and tactile world. I then described how an animal such as a sea urchin might navigate through that world. Using a convenient comparison with Aristotle’s account of recollection
(especially in unfavorable circumstances) in De Memoria, I described the process of indeterminate self-motion.

My focus and discussion help us to understand some features of Aristotle’s account of the faculties of the soul. First, if I am right to argue that indeterminate phantasia and desire differ in degree but not in kind from phantasia and desire (proper) then we do not need to increase the number of faculties in Aristotle’s account of the soul. On what we may call the standard reading of DA, the six faculties of the soul include nutrition, sensation, reason, locomotion, desire, and phantasia. If Aristotle intends us to understand indeterminate phantasia, for instance, as a more or less distinct faculty of the soul (one that differs in kind and not merely in degree from the other faculties), there would be at least seven faculties of the soul. In fact, we might worry that there would be a great many other faculties. After all, Aristotle observes that the levels of sophistication in various capacities (such as sensory capacities) differ notably in one species compared to another. Should we, then, posit distinct faculties for each level of sophistication, hinting perhaps at infinitely many (ἄπειρα) faculties rather than merely (οὐ μόνον) the limited number we ought to posit (DA III 9.432a24)? Aristotle’s predecessors tended to recognize only the rational (λογιστικὸν) and the spirited (καὶ θυμικὸν) and the appetitive (καὶ ἐπιθυμητικὸν) faculties or, in other cases, simply the rational (τὸ λόγον) and the irrational (τὸ ἄλογον) (DA III 9.432a24–26). Aristotle seems to break with tradition, then, in recognizing not just two or three but, rather, six importantly different faculties of the soul. And, interestingly, my discussion shows that Aristotle’s account of the faculties of the soul includes levels of determinacy within each faculty (at least, in the case of desire and phantasia, though it also seems natural to include levels of determinacy for sensation and reason). What we seem to get, then, is a dynamic and realistic account of the faculties of the soul, which reflects (Aristotle’s deep understanding of) both the human tendency to categorize and the little-by-little progression of complexity in the natural world.

A second point concerns the status of the faculties themselves, as well as the bases for ascribing them to animals. Shields helpfully observes that in the positive books of DA, Aristotle “is more concerned with characterizing in detail the soul’s faculties or capacities, than articulating and defending soul-body hylomorphism in the abstract” (2016: xxix). But a faculty is not the same thing as a capacity. I have the capacity to whistle a tune from Gershwin’s “Rhapsody in Blue”. I do not think that I have a Gershwin-whistling-faculty. If I were to have such a faculty, then I would have thousands of faculties for whistling alone, one faculty for each of the tunes I can recall and roughly reproduce through whistling. That seems odd, by the standards of ordinary English. But it
does not sound odd to say that I have a capacity to whistle a Gershwin tune, a
capacity to whistle a tune from the Lion King, and so on. Johansen (2012),
Johnston (2011), Shields (2016), and other scholars are sensitive to the difficulties
in clarifying the status of nutrition, desire, sensation, and the other well-known
elements of Aristotle’s account of the soul.

Of course, we should not demand more precision than the subject allows: it
is surely correct that “we should not expect regimented consistency or even crisp
delineations” in the applications of subtly different English terms, as trans-
lations of the Greek, such as “powers”, “capacities”, “dispositions”, “potential-
ities”, and “faculties” (Shields 2016: xxix). At the same time, I think that my
focus sheds a little light on the status of (some of) nutrition, sensation, reason,
locomotion, desire, and phantasia. The puzzle Aristotle raises in DA III 11, on
which I’ve focused in this paper, arises because of what appears to be an
asymmetry between capacities and faculties: some unusually basic animals
such as mobile sea anemone plainly have the capacity for self-motion. These
animals move, albeit indeterminately (κινεῖται ἀορίστως), in a way that is self-
directed, whereas the movement of seaweed is not self-directed; but those same
animals seem to be poor candidates for the faculties that allow and drive self-
motion, namely, phantasia and desire (DA III 11.434a3–5). That mobile sea
anemone move themselves (indeterminately) does not seem to be controversial,
for Aristotle. The ascription of that important capacity is not seen as problem-
atic. But Aristotle does hesitate to ascribe to basic animals the soul-faculties,
such as phantasia, that explain self-motion (as he established in DA III 9–10):
“but how could they have phantasia in them [φαντασίᾳ δὲ πῶς ἂν ἐνεῖν]?” (DA
III 11.434a2–3).

Moreover, the ascription of the capacity to self-move is driven by empirical
observations, namely, sea urchins can move toward food and away from pred-
ators in seemingly self-driven ways unlike sea-plants, and other such observa-
tions. But Aristotle seems to think that those empirical observations are not
enough to definitively show that such animals have soul-faculties such as
phantasia. That is, the explanans (self-directed motion) seems to be given on
purely empirical grounds whereas the explananda (phantasia, desire) seem to
require more. We might take these data as suggestive of a reason to think that,
for Aristotle, the bases for ascribing capacities are generally more permissive

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24 Nothing I say here concerning implications for understanding Aristotle’s account of the soul
requires a commitment to taking the soul as a specially related set of capacities rather than a
first actuality; Johnston (2011) argues for the latter view. As Johnston observes, taking the soul
to be a first actuality is consistent with holding that, for Aristotle, talk of faculties or capacities
of the soul is a useful way of getting clear on the nature of the soul.
than the bases for ascribing faculties. Perhaps, more ambitiously, we may uncover another way in which Aristotle sees locomotion as distinct from nutrition, sensation, desire, phantasia, and reason.

Finally, I think that my discussion clarifies what it is to be some of the curiously basic animals that come to light in some sections of Aristotle’s biology. In the biological works, Aristotle describes the behavior and anatomy of these and many other animals. He tells us what animals do and what they look like. Often the detail and systematic nature of Aristotle’s extant biological works is impressive. But a reader interested in connections between the biology and other treatises in the Corpus might well ask questions such as the following. Since Aristotle is deeply interested in explaining what it is to be a living thing rather than merely what living things superficially appear to be and do (what in the first place causes an animal to move, for example, rather than merely how an animal moves, contrasting De incessu with De Motu and DA III 9–11), with which soul-faculties and in which ways would Aristotle explain the apparently self-directed motion of a sea anemone toward food or the movement of sea urchins away from a predator? The textual basis for the problem on which I’ve focused shows that Aristotle himself is interested in such questions. The solution I’ve offered, as a reconstruction of Aristotle’s account, suggests that incomplete animals interact with the world in ways that are (in a sense) similar to, and (in another sense) quite distinct from, the ways in which complete animals interact with the world. Like complete animals, incomplete animals use sensation, phantasia, and desire to form goals, objects of desire, toward which their self-directed motion is directed. Broadly the same soul-faculties through broadly the same mechanisms explain why a sea urchin, for instance, can move against the current whereas floating seaweed cannot; the latter has only the capacity for natural motion whereas the sea urchin can self-move. But a sea

25 A brief note about the possibility of further studies of this problem and related problems: I’ve not had space to address the mechanics of self-motion in incomplete animals. Corcilius and Gregoric (2013) give a plausible model as a reconstruction of Aristotle’s account of the mechanics of voluntary animal self-locomotion in complete animals for the most obvious cases, that is, cases in which the animal senses an external object that is really there at the moment of appearing to the animal. Their Centralized Incoming and Outgoing Model (CIOM) of animal voluntary self-locomotion says that (1) an object is sensed by the animal, (2) this sensation produces an alteration, (3) there is a corresponding thermic alteration (heating for pleasure, chilling for pain) in the animal, (4) there is a contraction and expansion of connate air (quantitative change)/pulling and pushing (mechanical impulse), (5) there is a consistency alteration (solidification-hardening and liquefaction-softening) in the flesh around the joints in the animal, and (6) the mechanical effect of local motion of the limbs of the animal, resulting in displacement of the animal. C&G do not apply the CIOM to more complex and sophisticated cases such as human self-motion based on less obvious motives. Nor do C&G apply the CIOM to more basic cases of self-motion in animals possessing only touch and taste. But it might be both
urchin, unlike a shark, moves in search of an object of desire that is absent the sharpness and context that allow determinate self-motion toward a specific object of desire.  

References


objectively interesting, and helpful for shedding further light on Aristotle’s account of self-motion to apply the CIOM to the latter.

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