

Mean Sensibles and Hearing Loss:
Change and Perception in Aristotle

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Abstract

This paper explores certain peculiarities of Aristotle's notion of proper sensibles conceived as ranges between contraries. I use this as a new avenue from which to weigh in on the Burnyeat-Sorabji debate. I argue that this new literalist interpretation is truer to the text and the spirit of Aristotle's treatment of sensation, and among other mysteries, it better explains change in perception as a 'different kind of change'.

1 Introduction

Of all the controversies surrounding Aristotle's theory of perception, the thorniest concerns the nature of the change ($\acute{\alpha}\lambda\lambda\omicron\omicron\upsilon\sigma\theta\alpha\iota$) that happens in an organ upon sensing some object.

Indeed, proponents of rival views are giants in the field, and any new take on Aristotle's theory is borne in relation to these positions. This debate is of no small consequence, for what is at stake is no less than what constitutes perception for Aristotle. The interpretive chasm runs between those maintaining that the change in perception is at least in part a real physiological change in the organ, and those who think that this change is purely intentional. In what follows, a peculiarity found in Aristotle's treatment of sensibles will be used to support a reading of perception as involving a real change in the organ. However, it will become evident that neither interpretation accounts adequately for the kind of change involved in perception. A further investigation of the nature of organs and sensibles allows us to settle the matter of this debate.

2 Sensation as a Mean

Book II of the *de Anima* principally consists of Aristotle's treatment of sense-perception; he deals with the five special senses individually and these chapters are book-ended by two discussions of sense-perception in general (chapters 5 and 12). The goal of Aristotle's account is to describe the processes in which properties of objects become properties of subjects, or perceivers. As he states repeatedly, "what has the power of sensation is potentially like what the perceived object is actually" (418a3). The question he tries to answer, that is, is how the body, or more specifically its sense-organs, can come to take on the forms of things perceived. What we get for an answer are separate but similar treatments of each of the special senses;

similar insofar as each sense works through a medium, has a proper object, and an organ; separate because the workings of each organ and medium require different explanations.

Each sense works through a medium: the transparent for sight, air for smell and hearing, water or saliva for taste, and flesh for touch. Each sense also has a proper object or sensible: that which it alone can discriminate.¹ The proper objects of a given sense are those that fall in the range of things to which it is sensitive, and they act on the sense in virtue of what they are. This range lies between pairs of contraries such as hot/cold, white/black, bitter/sweet. The organ must be constituted of matter capable of taking on the properties of the sensibles in its range: the eye is transparent, e.g., because colour's effect is to change the transparent; the ear is built with a tympanic membrane because the effect of sound is to affect air. Aristotle gives individual accounts of how each sense works. That is, how proper sensibles come to be cognized by a perceiver. Although each sense has a unique medium and its own proper sensibles, the story of each is how sensible forms come to be acquired by the organ.

The organs of sense as constituted on a range between contraries is what enables animals to sense; it is what separates all things with sensitive soul from things that enjoy merely the faculties or capacities of the nutritive soul. In *de Anima* II.12, Aristotle states plainly that, although affected by things such as heat, plants do not perceive because “they have no mean, and so no principle in them capable of taking on the forms of sensible objects” (424b). Having a mean is necessary for being sentient. An organ is capable of perceiving the forms of its proper sensible only because it is so constituted as to be able to change into any quality that falls in its range, be it hot/cold, white/black, sweet/bitter, etc. Having a mean then, is the crucial element in being sensible.

3 Change on the Range

Sensation is a process of change in a subject. Specifically, this change is related to the requisite organ; if one senses colour, then the eye is affected; if sound, then the ear is the locus of affection, and so on. As Aristotle states, sensation depends upon “a process of movement or

¹Touch is a special case in that it has several proper sensibles — hot/cold, rough/soft, wet/dry — and thus Aristotle concludes in *DA* II.11 that there must be more than one organ of touch, and this lies under the skin. Although this strays from the other senses in that touch may be several senses, depending on how we demarcate senses, Aristotle's treatment is nonetheless parallel in spirit; all senses *work* the same way.

affection from without, for it is held to be some sort of change or quality” (417a). The nature of this change lies at the heart of our big debate. It is clear from the text that this is not a garden variety or everyday kind of change. Aristotle states that it is a “different kind of alteration” (417b6-7) (ἕτερον γένος ἀλλοιωσέως). The principal interpretive issue in this debate, which we shall call the Burnyeat-Sorabji debate after its chief antagonists, has to do with the nature of the change involved here, or, on how the organ becomes *like* the object perceived. Interpretations diverge on whether the change involved in sensory cognition is real, natural, physiological or else an intentional kind of change.

Richard Sorabji (et al.) think that a real or literal change occurs in the organ.² For Sorabji and other literalists, the change in the organ is a physiological change which is both necessary and sufficient for the cognition of sensible forms. The organ, on this view, takes on the relevant property of the object in a literal way. When I hear a shrill noise, for instance, my ear actually becomes shrill and noisy; when I taste a fresh strawberry my tongue literally becomes sweet; when I see the tartan of a clansman’s kilt, my eyes literally become plaid. The coloration of the eye (e.g.) is real in that it ought to be perceptible to other perceivers as such. Sorabji writes:

[Aristotle] goes on to remind us that the organ is coloured during the perceptual process (425b22-25), and presumably we will be aware of its coloration. This coloration is a physiological process, which could in principle, even if not in practice, be seen by the other observers, using ordinary sense-perception.³

For Sorabji, the organ becomes *like* the object in a very strong and straightforward sense. Literally, the organ takes on the exact quality that is being perceived. On this view, perception is a process of reproducing or replicating sensible forms in the organ. Literalists find support for this reading in the many passages where Aristotle insists that the sense-organ is “potentially what the object is actually”.⁴ Each organ of sense is materially constituted to take on the qualities of proper sensibles that fall within its range. My *κόρη*, or eye-jelly (e.g.) is such that it can come to be any colour in the range between white and black. Similarly, the tongue is such that it can literally take on any flavour that falls on the range between the

²For the articulation of Sorabji’s view, see his 1974 and 1995.

³Sorabji 1974, 49-50.

⁴We see this in many places in the *de Anima*. Cf. 418a3-4, 422a7, 422a33-b3, 423b30-424a2.

sweet and the bitter.

Myles Burnyeat, on the other hand, follows a tradition that will have none of this.⁵ He rejects this view of change in favour of what Aquinas called a ‘spiritual change’ (*immutatio spiritualis*).⁶ There is no real or physiological change on this reading. Rather, when I hear a shrill noise I perceive it because I am simply aware of it somehow. There is no reproduction of forms in the organs. The change is a change in cognition alone; no bodily change occurs in sense-perception. To borrow Brentano’s idiom, this is an ‘intentional awareness’ of the form.⁷ The only way in which there is a change is that I now cognize the form or forms of the thing before me. Proponents of this view think that it makes better sense of perception as a different kind of change, for this intentional change is unlike any other kind of change. Indeed, if change is real or literal, then it is not clear how this is different than any other kind of change.

At first glance, the intentional reading does seem to make better sense of this different kind of change. I will argue, however, that both views expressed thus far have failed to account for sensibles as ranges between contraries, and when we consider the implication of this for the change in the organ we see that this change is real, but it is indeed still a different kind of change.

Change in the organ is a real physiological change. I will argue that Aristotle does not distinguish between the physical and the intentional⁸ in his account of sense-perception. His treatment then, is both.

One reason for this lack of distinction follows from a peculiarity of sensibles conceived as means between contraries. Take hearing, for instance. Its proper sensible is sound and the qualities of sound range from low to high. This range, I argue, should not be taken as a span between the *qualities* of high and low sound conceived as without a material component. For Aristotle, there is no clear distinction between the cognitional — what we would say is the quality or the phenomenal ‘sound’ — and what we can describe as the physiological aspect.

⁵He claims to be following in the footsteps of Philoponus, Aquinas, and Brentano, among others (1995a, 18).

⁶For his full interpretation, see Aquinas’ *In de Anima* 18-75, §§551-4.

⁷Brentano takes as the mark of the mental “those phenomena which contain an object intentionally within themselves” (Brentano 1973, 88-89). Like all other mental phenomena, the contents of all perceptions enjoy ‘intentional inexistence’. Burnyeat has this in mind when claiming that the cognition of forms is an immediate ‘awareness’ not grounded in anything bodily (Burnyeat 1995a, 18).

⁸I will use the term ‘physiological’ to depict physical change in the organ, and ‘cognitional’ to cover change as an intentional or spiritual phenomenon.

The physiological here is to be taken as the amount of matter associated with a given quality.

I will adduce two points for this claim. First, Aristotle states outright that there are no qualities in themselves or *simpliciter*. While describing divisibility in the range of sensibles in *de Sensu* 6, he claims that “it is impossible to see a thing which is white but not of a certain magnitude (μέγεθος)” (445b10). This is reminiscent of the *Categories* where it is explicit that qualities (and all other non-substances) can exist only in a subject. That is, each non-substance is in something, not as a part, and cannot exist separately from what it is in (1a25). Just as knowledge is always going to be found in a soul, colour (e.g.) is always found in bodies.

Further support for this is found in *de Sensu* 4, where in mentioning the senses of odor and savour he states that “both of which are almost the same physical affection, although they each have their being in different things” (440b28-29). Now by ‘the same physical affection’ Aristotle cannot mean that the two senses effect the same kind of change on their respective organs, for this is clearly not the case. Indeed, the contraries of both are the same — the sweet and the bitter/pungent, but a nose becoming pungent is a different material realization than a tongue becoming bitter, for they are simply different organs; they have different material constitutions. The point is that the difference between these closely related sense modes is not so much cognitional but due to the physiology of the respective organs which they affect.

The main reason for the lack of a distinction between the cognitional and the physiological is that it is the only way that we can explain how organs can come to be damaged by sensing extremes. The phenomena of organ damage is noted in several places. At *de Anima* II.12 he notes “excesses in the objects of sense destroy the organs of sense; if the movement set up by an object is too strong for the organ, the form which is its sensory power is destroyed” (424a28-31). An excess of sensation then, generally tends to harm the organ. We also get descriptions of instances specific to individual senses:

“The excesses of either the sharp or the flat destroys the hearing. (So also in the case of savours excess destroys the sense of taste, and in the case of colours excessive brightness or darkness destroys the sight, and in the case of smell excess of strength whether in the direction of sweetness or bitterness is destructive)”. (426a30-b3)⁹

⁹For more instances where Aristotle mentions destruction of the organs due to excess of sense, see 422a20-31,

If Aristotle conceives of forms as purely cognitional entities then it is an excessive quality that causes damage to the organ. How can we make sense of an excessive quality causing organ damage? Excess would have to be relative to the mean or the norm in which the organ tends to be. The word ‘norm’ is apt here for when the organ deviates from the unsensed middle between contraries it strives to go back. The norm is thus the mid-point between contraries to which homeostatic organs strive to return after the process of sensation makes them deviate from it.¹⁰ Excess of quality must then be parsed out in terms of being excessive relative the norm, which is the ‘unsensed’ or standard quality. The problem is that there is no reason why these qualities should be taken to be excessive relative the norm as opposed to simply being different from the norm. Furthermore, even if we *can* make sense of the notion of an excessive quality, we have yet to explain how damage is incurred.

The question I ask is this: if sensible forms are to be understood in purely cognitional or intentional terms, then how can we account for cases of excess resulting in damage to the organ? The answer is simple: we cannot. Perception is a change in the organ and this cannot be meant as a change of quality in itself if it is to be this change — or the organ becoming like what the object is actually — that is responsible for damage when faced with an excessive sensation. The change in the organ cannot merely be cognitional. There must be a physiological element to account for cases of organ damage.

One point needs to be made clear. One may object by saying that I have been assuming that excessive stimuli damages the organ when what Aristotle says is that it is the sense that is damaged. There is some ambiguity stemming from the word *αἰσθησις* which is used sometimes as the sense faculty, sometimes as the precept, and sometimes as the organ of sense. I argue, however, that the disruption in the ability to sense due to an excessive stimulus stems from some physiological or material harm incurred by the organ. My reason for this goes as follows: Aristotle states plainly that excess of thought does not destroy or damage the organ of thought, and the reason for this is that this organ, unlike the special organs of sense, is immaterial (429a30-b5). The change in the organ of thought is different from that of the organs of sense; it is not physiological because the organ is immaterial. An excess of thought

426b3-7, and 429b14-16.

¹⁰For organs as homeostats, see especially *DA* II.12 (424a30ff).

does not incapacitate the mind as excessive sense damages the organs of sense, and the straightforward reason for this is that sensation is body-dependent and thinking is not.

When change in the organ strays too far from the norm, damage occurs. Take the sensible range of colour, for instance. In cognitional terms we can say that it spans between white and black, but we can also say that it ranges between darkness and brilliance, which better represents the physical element. Indeed, Aristotle talks about the proper sensible of light in both these terms in two subsequent paragraphs of *de Sensu* III.¹¹ Thus when the eye is damaged in the act of seeing it stems from an excess of light, which is too brilliant for the eye, or in other words, too much ‘white’. This is paralleled in the case of hearing. A shrill, or excessively sharp noise damages the ear insofar as the nature of shrillness is to be loud. Shrillness is not only extreme in quality, i.e. extreme compared to the norm (Middle C?), but it is an excess of sound as well. Damage to the ear results from an excess of sensation, which must be both physiological and cognitional in nature.

It is not exactly clear how this is realized in the other senses. Aristotle notes that the nose is ill affected by excessive sweetness or bitterness, but we don’t have the parallel language to account for these in physical terms as we do with light and sound. How much is too much bitterness, for instance: it doesn’t make sense given our language of sensibles. Similarly with taste and touch. Although, we can see the range between hot and cold in touch as going both from hot to cold in terms of temperature, and from heat to cold in intentional terms. The lack of parallelism means that there is some interpretive work still to be done. But, these wrinkles notwithstanding, given what is required to account for organ damage, sensible ranges cannot be simply cognitional.

On any literalist interpretation, psychological change is always grounded in physiological change. Given our discussion thus far, sensation clearly involves a real change in the organ, simply because sensible ranges are both physical and intentional. Unlike previous literalist accounts, however, we are now much better equipped to make sense of this change *qua* different kind of change.¹² If sensibles are on a range, then the change in the organ is going to

¹¹Cf. 439b16 for the range as light and darkness, and 439b20 as white and black.

¹²There are many versions of literalism to which I cannot go into detail here. A significant point of debate is whether the form is *reproduced* in the organ, or whether there is some sort of encoding that occurs in the process of sensation from object to organ. Although I favour the former line, it is outside the scope of this paper to defend

be a change from the norm to some quality *X*. The question we should ask then, is what kind of change is involved in moving from the norm to the quality sensed? We already know that this change is both physiological and cognitional, but what is it about this change that makes it a different *kind* of change?

The answer is found if we look at an important difference between plants and animals. Aristotle notes that unlike animals, plants do not sense heat, although they do become hot. Throughout his physiological investigations we find Aristotle very much concerned to understand the mechanisms of temperature regulation in sensitive creatures. It seems that this homeostasis is the crucial difference between plants and animals when it comes to temperature; it is thus very tempting to think that it underlies the fact that animals sense heat where plants do not.¹³

The nature of this different kind of change becomes apparent if we admit that the the nature of an organ is to be functionally homeostatic. The mean between contraries is the norm; it is where the organ strives to be. Upon perceiving some sensible form the organ changes in order to be *like* that form, but does not become that form. The organ takes on the relevant properties of the object, but does so temporarily. The organ is potentially like what the object is actually, and when the organ changes from potentiality to actuality the change in the organ is fleeting for the form reproduced will soon fade and return to the norm. This is unlike typical kinds of change in that other kinds of change are permanent, but not in the sense that when something is changed it can no longer be affected or undergo change. Rather, when things unlike organs change and move from potency to actuality, they remain that way until destroyed or until they undergo this process anew. For organs this is not the case, for in returning to the norm there is no new move from potentiality to actuality. Rather, it is more like going from an actuality of form perceived back to the state of potentiality that is the norm.

Focusing on the mean we have removed some of the appeal from what is typically adduced for intentional readings. This is not the sole boon for this view. A further *prima facie* anomaly with literalst interpretations is how to make sense of passages such as when Aristotle claims that the eye is ‘coloured *in a way*’ (425b22-23). The answer, I suggest, is similar to our

here. Note, however, that both views are consistent with my thesis.

¹³I am truly indebted to professor John Thorp for bringing this point of interest to my attention.

explication of organ change in perception. The eye does not become coloured in the same way as a canvas does when I apply red paint to it. The canvas becomes red in that it *is* red until it is destroyed or repainted. The eye, however, does indeed take on the colour of the object perceived, but it is the nature of the eye — and all other organs — to return to its imperceptible norm soon after becoming red. The coloration in the eye is real, but it is merely a fleeting or temporary coloration, unlike the painted canvas. Organs do change and do become coloured, noisy, sweet, etc., but the manner in which organs undergo such change differs from how things in general change.

The literalist interpretation expounded here accounts for the points typically raised against literalism. But what I have not yet mentioned is the business surrounding the claim that the organ “takes on the form without the matter” (442a19). This forms the basis of reading sensation as involving an *immaterial* or *spiritual* awareness. This reading, although adopted by giants like Aquinas and Brentano, is not true to the text, nor to the spirit of Aristotle’s treatment of sense-perception. Aristotle is explicit that the form is taken on without the matter, but it does not follow that the form is taken on *without matter*. This is an unfortunate result of reading commentators like Aquinas who read the Latin, not the Greek. The Greek reads ἀνευ τῆς ὕλης which translates literally as ‘without the matter’. Latin translations read *sine materia*, which because of the lack of definite article, translates literally as ‘without matter’. The definite article should not be ignored here, and instead of trying to make sense of this claim as some sort of slip into dualism on Aristotle’s part, we should simply look to what is being designated by the definite article.

What Aristotle means by this famous phrase is that the organ takes on the form of the object, not without matter, but without *the matter of the object*. Just as a signet ring impresses its form in the wax without imparting any of its matter — its metal — the organ becomes like the object without taking on any of the object’s matter. Organs are constituted such as to take on the form of, or become like, their sensibles. And the process in which this happens is the organ taking on qualities — but not merely cognitional qualities — which are found on the range between contraries.¹⁴

¹⁴There is much work to be done to apply my view to interpretive problems that arise in the *parva naturalia*. For instance, we can give an account of why mirrors do not perceive although they take on the form of what is reflected

4 Conclusion

The phenomena of organ damage should serve as a litmus test for any adequate interpretation of Aristotle's account of sense perception. The fact that he is aware of, and repeatedly raises the issue of organ damage, gives us reason to think that the range of sensibles should not be interpreted as purely cognitional. There is a material aspect to forms, or qualities, and you don't find one without the other. An organ can only suffer damage if it undergoes change in perception, and this must be a real change that we can cash out in both cognitional and physical terms. Indeed, this is a 'different kind of change', because the organ strives to go back to its norm. The organ does not become something else; it becomes *like* the object, but only temporarily. This change is not different in the sense of being purely intentional, for this is not true to the text and rests on a distinction that Aristotle does not make. A literalism that takes sensibles as means between contraries best accounts for organ change. If change in the organ is spiritual or intentional, then an explanation of how an excess of sensation causes damage is wanting. Aristotle did indeed have what we have called a literalist view of sensation, and if we do not ignore sensibles as means, and organs as homeostats, then the smoking guns for spiritual readings turn out to have shot nothing but blanks.

by them. Mirrors are not organs — like plants they have no means (424b). We now understand what Aristotle means by this. Things without means do not perceive simply because they cannot change in the manner peculiar to the homeostatic organs of sense; organs can be damaged by excess, plants and mirrors cannot.

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