

Aristotle's Theory of Sense Perception

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For over ten years, Martha C. Nussbaum and Hilary Putnam have engaged with M. F. Burnyeat in a dialectic battle over issues surrounding Aristotle's theory of perception. Putnam and Nussbaum argue for "a defense of the Aristotelian form-matter view as a happy alternative to material reductionism on the one hand, Cartesian dualism on the other—an alternative that has certain similarities with contemporary functionalism."¹ Burnyeat argues that the Putnam/Nussbaum conclusions are false because they fail to realize that the Aristotelian side of body/soul dualism is not compatible with modern functionalism.² Burnyeat also proposes, as an alternative to the Putnam/Nussbaum argument, a rival interpretation, which he suggests is held by John Philoponus, Thomas Aquinas and Franz Brentano.³ Putnam and Nussbaum respond by suggesting "how even the greatest Christian interpreter of Aristotle, St Thomas Aquinas, was led by philosophy and theodicy together to reject Burnyeat's 'Christian interpretation' and to adopt one that is very close to ours."⁴

Two Fundamental Questions

Within this discussion, two major questions must be asked:

- 1) What does Aristotle mean when he says that in perception, the sense-organ becomes like the thing perceived, is potentially such as the thing perceived is already, and receives the form of the thing without matter?
- 2) On the Burnyeat and Putnam/Nussbaum interpretations how is the *esse naturale* linked with the *esse intentionale*?

This is important in determining which view is correct,

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because an adequate interpretation must be compatible with the well known Thomistic axiom borrowed from Aristotle, *sensus in actu est sensibilis in actu*; i.e., the sense-faculty in operation is identical with the sense-object in action. Burnyeat argues that Aristotle's concept of the *esse naturale* is false and outdated; therefore Aristotle must be "junked." Putnam and Nussbaum argue that there need be no intentionality in *esse intentionale* and that there can still be an identity between matter and form. In this paper, I will present the arguments of Putnam and Nussbaum, together with Burnyeat's response.⁵ In conclusion, I suggest that neither the Burnyeat interpretation, nor the Putnam/Nussbaum account is correct. We must opt for a "middle ground" between the two analyses.

Burnyeat's Analysis

Burnyeat states that Putnam and Nussbaum claim that because Aristotle "explains the relation of soul to body as a special case of the relation of form or function to the matter in which it is realized," he is a functionalist.⁶ Based on this functionalist framework, Putnam argues that humans are probabilistic automatons.⁷ What Putnam and Nussbaum claim is that for perception to take place, it is not necessary that there be a *particular* set of physical and psychological limitations, although there must be *some* sort. In order to demonstrate this, Putnam and Nussbaum utilize an account of Aristotle's theory of perception proposed by Richard Sorabji. The Sorabji account addresses question number one: What does Aristotle mean when he says that the sense organ becomes like the thing perceived?

Sorabji's interpretation of Aristotle's "taking on form without matter" is that "the organ of sense quite literally takes on the color or smell perceived."⁸ Sorabji's interpretation allows perception to occur *without* any particular physical set-up. He believes that what Aristotle means by perception is that when the eye sees something red, the "eye jelly" actually turns red; when you smell something, your nose turns "smelly."

Burnyeat's second response to this interpretation is his strongest.⁹ He points out that Aristotle goes to great lengths to tell us that during perception the following occur:

- 1) The being *is* affected by the sensible object;

- 2) This change is a very special one; and
- 3) It is not a *substantial change* (in other words, it is a *change in accidental form*).¹⁰

These changes, Aristotle claims, are "actualization of a potentiality"; perception, on the other hand, is not like this. To illustrate what this change is, Aristotle provides the following example. Consider these three cases:

- 1) A man who has the capacity to learn grammar but has not yet done so;
- 2) A man who has learned grammar; and
- 3) A man who has learned grammar and is currently using it.

A green apple becoming red, is going from (1) to (2); a potentiality becomes actual. This is a *qualitative* change, the type of change Sorabji claims Aristotle refers to. The change involved in perception however, is like the transition from (2) to (3); this is a *quantitative* change. This is Burnyeat's claim. We already possess the capacity to perceive. Actually perceiving is our ability to use that capacity. The sense organ is not changed, it is realized.

Burnyeat takes the above Aristotelian grammatical explanation to reject the Sorabji view.¹¹ For Aristotle, the "causal agent" of the special change is the actual color or smell which is being perceived, not the perceiver.¹² On that note, I too believe we can dismiss the Sorabji interpretation. I do not claim that Burnyeat is correct; however I think his analysis has demonstrated clearly that what Aristotle meant by "taking on form without matter" is not that the "eye jelly" turns red.

The question now changes for Burnyeat; if what produces the perception of red or of middle C is red or middle C, how do we have an awareness of it?¹³ What Aristotle says here is that the sense organ must be *natured*; i.e., it must be "ready to take on" the sensible object, like the object of perception must be actual. Aristotle argues that the organ of touch, the hand or foot, must be in a mean state in respect to sensible opposites like hot and cold.¹⁴ In contrast, Putnam and Nussbaum argue that being "natured" is not enough; there must be some physical change, such as

Sorabji's "the eye becoming red." They stress that the *esse intentionale* is not as important as previously suggested, but rather, the *esse naturale* is. They claim that an identity between the object and the perceiver's concept is possible without intentionality.¹⁵ This is what the functionalist position allows, and this is why it is needed for their argument to hold philosophically. Without functionalism, the *esse naturale* will not provide the sufficient justification it needs to for their claims: therefore, the *esse intentionale* will be invaluable. This principle is not compatible with their argument.

According to Burnyeat, what Aristotle argues is that the hand must be of a certain hardness or softness in order to perceive something. If your hand were as hard as the surface it was feeling, you would not notice that it was hard. This problem does not exist for other sense capacities; for example, the eye is "colorless" and the ears are "soundless." Therefore, we have a neutral medium to receive visual and auditory signals. The hand cannot be "feel-less" or absent of temperature, nor to some degree hard or soft. Therefore, we might not have any contrast between the perceiver and the object. Here, Burnyeat points out that the Sorabji interpretation must distinguish between the hand and the internal organ of touch, which Aristotle, in these texts, does not appear to do.¹⁶

According to Burnyeat, we are therefore forced to conclude that the organ actually becoming like the object is not a literal change (e.g., the hand becoming warm), but noticing or realizing, or becoming aware of the warmth. What Aristotle suggests here appears similar to what Aquinas calls a "spiritual change," a becoming aware of a sensible quality in the world.¹⁷ In other words, it is not an *actual change*, rather, an *intentional* one.

The Putnam/Nussbaum Response

Before discussing that issue, I must first entertain the objections to Burnyeat's conclusions proposed by Putnam and Nussbaum. The first point they raise is that Burnyeat's analysis rests on evidence obtained from *De Anima* alone, and while this is a major text, it is not sufficient to consider as the central text.¹⁸

Putnam and Nussbaum next discuss perception and the relationship between perceiving and desiring which results in

animal movement. This is key for the functional interpretation of Aristotle. They start their analysis in chapter seven of *De Moto* by stating several questions and answers that Aristotle ponders in attempting to reach a conclusion about perception. Aristotle is interested in why, when an animal knows or realizes an object, the realization is followed by a bodily movement. He answers his own question by referring to desire, which sometimes, to be fulfilled by an animal, requires movement. The question that follows for Aristotle, is how can a mental process actually set a physical process in motion? Aristotle again answers his own question in that these processes are, in themselves, functions of the body. It is only natural for these processes to cause bodily movements. Putnam and Nussbaum contend that such changes permanently conjoin perception and other forms of cognition, including desire.¹⁹ However, this is not evidence yet for a complete material change, which Putnam and Nussbaum must demonstrate if their thesis is to hold. It is, however, foreshadowing the path they will take to accomplish this. This complements their overall intentions because it demonstrates that, according to Aristotle, animal movement and perception denote a type of function.²⁰

Putnam and Nussbaum conclude, "*De Moto* provides very powerful evidence that Aristotle conceives of both perceiving and desiring as thoroughly enmattered. Their activity is accompanied, of necessity, by a transition in matter."²¹ This, they say, indiscriminately shows that there is a *necessary* material change in perception but not necessarily a *particular* change. Therefore, the artifact model holds.

Is Aristotle a Functionalist?

Like Burnyeat, I see serious problems with this conclusion. The functionalist claims that there is no necessary connection between a psychological state and its material realization. While there might be a change, it is not a particular change. I suggest that if we refer to Aristotle's concept of sight, touch, taste and smell, the functionalist position seems unlikely. As Aristotle argues, there must be a medium in order for perception to occur. For sight, the eye must be "clear" and the space between the object and the knower unobstructed; for hearing, there must be

air "walled" up in the ear; for taste, the taste buds must be "clear"; and for touch, the hand must be in a "medium state of temperature." How can one claim that these are not particular necessary conditions; they certainly are! The functionalist interpretation holds that perception can occur in any state. Aristotle plainly argues that this is not true. Rather, there are very specific conditions for the eye to see, the ear to hear, and so on.²² On that note, it is necessary to discuss:

- 1) Burnyeat's alternative theory of perception, that held primarily by John Philoponus, Thomas Aquinas, and Franz Brentano; and
- 2) The objections raised by Putnam and Nussbaum to this position.²³

According to Burnyeat, Philoponus, Aquinas, and Brentano believe that during perception, the eye merely becomes "aware" of the color, rather than the eye literally becoming red. If the Sorabji position holds, then the being affected is the nose, which turns "smelly," or the eye, which turns red. If the Thomistic theory of intentionality is true, then the being affected is already in a cognate state: it is aware of the color, or smell, it is "natured." What, then, is the point to asking what more there is to perceiving; it is nothing more than becoming aware of a sensible quality.²⁴

In order to illustrate why the alternative theory holds and the Putnam/Nussbaum/Sorabji one does not, Burnyeat turns to *De Anima* (2.12). Here he seeks to answer the question of why Aristotle's biggest statement about his theory of perception is illustrated by using Plato's model of the wax block. In doing this, Aristotle objects to Plato and suggests that perception is awareness, "articulated awareness, from the start."²⁵ In other words, Plato thought that cognitive life could only be explained in terms of a thinking soul; Aristotle, on the other hand, holds that all that is necessary is five separate senses. By using the wax model, Aristotle also substantiates the two claims that Burnyeat makes.

The first claim is that the "reception of sensible forms is to be understood in terms of becoming aware of colors, sounds, smells, and other sensible qualities, not just a physiological

change in the quality of the organ."²⁶ For example, if I mark some wax with a circular ring, the wax does not become circular; rather it takes on and displays a circle. The circle is not displayed *of* the wax but rather *in* it. The second claim is that "no physiological change is needed for the eye or the organ of touch to become aware of the appropriate perceptual objects."²⁷ This means the effect on the perceiver is the awareness, nothing else.²⁸ It is this claim that seems to be in opposition to the Putnam/Nussbaum thesis because it means that in one sense, an animal's capacity to perceive does not require any explanation.²⁹

A Second Putnam/Nussbaum Response

Putnam and Nussbaum now responded to Burnyeat's claims.³⁰ They begin by referring to *De Anima* (2.1, 412b 4-25), where they make the following point: Because the soul is the first actuality of the body, it is *not* appropriate to ask whether or not the body and the soul are one. To illustrate this, Aristotle refers to the wax model, where he claims it is also not appropriate to inquire whether the wax and the shape are one.

According to Burnyeat's reading, the relationship between the body and the soul is *not* one like that of the wax and its shape. Matter is the necessary causal condition for perception to occur; matter, therefore, merely supplies the means, but is *not* the end.³¹ Putnam and Nussbaum however, state that the wax model is "apt." Aristotle's objection to asking whether the body and soul are one, is justified. "The soul is not a thing merely housed in the body; its doings are the doings of body...the only thing there is, is one natural thing."³² What this all means in response to Burnyeat is the following:

- 1) Perception and desire are mentioned by Aristotle, in *De Sensu* I, to be activities of the soul that are known or perceived in some type of material set-up.
- 2) Whatever this material set-up may be, it is not completely independent. Furthermore, while this may be explored, as Aristotle himself does in *De Moto* and the *Parva Naturalia*, one must make sure not to slip into conclusions of total reductionism for a complete explanation.
- 3) What Putnam and Nussbaum suggest is that even the

greatest Christian interpreter of Aristotle, St. Thomas Aquinas, was actually led to dismiss the view that Burnyeat thinks compatible with Aristotle. Aquinas opted for a position more like theirs.³³

To demonstrate this, Putnam and Nussbaum offer several propositions that Aquinas, and any other Christian, philosophically must hold by the fact that they are Christians. If the Burnyeat position is true, then they cannot consciously contend that these conditions are possible. The committed Christian philosophically must accept the following propositions:

- 1) The soul has such power to allow for a prosperous afterlife.
- 2) If the body's capabilities are not wholly suited to fit with the functions of the soul, why did God not make humans less arbitrary and more organic?
- 3) The resurrection of the body must be possible philosophically.

If the soul is removed from the body, which it must be in the resurrection, and there are not necessary material conditions for this activity to occur, then this long awaited event will be at worst a "divine blunder." In fact, Putnam and Nussbaum point out that while Aquinas did (in his Commentary on *De Anima*), claim that the reception of form without matter was as Burnyeat described, he also held that for perception to occur, there are necessary material conditions; these changes are alterations in the sense organ.³⁴ It is difficult to determine exactly where Aquinas' position fits in. If there are necessary material conditions that result in the organ's changing, what are they? He is obviously not compatible with Burnyeat. Nonetheless, the Sorabji position is not a Thomistic one. We are left to ponder this question and I suggest that Putnam and Nussbaum do not offer any analysis of this set of issues.

In the *Summa Theologiae*, (I, 75, 3), Aquinas writes,

Aristotle insists that...sensing and the related operations of the sensitive soul evidently happen to-

gether with some change of the body...and so it is evident that the sensitive soul has no operation that is proper to itself; but all the operation of the sensitive soul is the operation of the compound...sensing is not an operation of the soul by itself.³⁵

Putnam and Nussbaum point out that for Aquinas, human perception has necessary material conditions; furthermore, thinking needs phantasms, and phantasms themselves are realized by some matter. Therefore, both thinking and perceiving are forms of the human body, and perception is "the act of an activity embodied or realized in a corporeal organ": thinking, on the other hand, is not.³⁶ Putnam and Nussbaum suggest that, to this point, they have not succeeded in disproving the alternative Thomistic position; they have simply shown why it is not their position.

An Analysis of the Putnam/Nussbaum Position

I think it is appropriate to point out that the Putnam/Nussbaum objections to Burnyeat's rival interpretation are futile and contain little punch. While Aquinas is certainly a Christian and a theologian, there is no such indication of his religion in his theory of perception. If we treat Aquinas as a philosopher when he writes on philosophical issues, we must refute his philosophical arguments with philosophical analysis, not theological ones.

The issues are now all on the philosophical table. What are we to do with this? I submit the following conclusions:

- 1) The Sorabji position seems unlikely.
- 2) The rival interpretation suggested by Burnyeat will not hold.
- 3) The proposed attempt to make Aristotle into a functionalist has not been sufficiently demonstrated.
- 4) Putnam and Nussbaum have not refuted Burnyeat, and he has not been able to do so to them.
- 5) None of the interpretations considered in this analysis correctly link up the *esse naturale* and the *esse intentionale*: this appears to be a necessary condition for any solution.

Are we therefore forced to accept Burnyeat's conclusion and "junk" Aristotle? I do not think that position follows. Burnyeat's interpretation, I submit, pays too much attention to the *esse naturale*; he goes so far that the Aristotelian position we had when we began our analysis is removed. Putnam and Nussbaum, on the other hand, devote their time to the *esse intentionale*; yet they modify it beyond Aristotle to the point where it seems that the possibility of intentionality is removed from the knower's capacity. Sorabji is just plain wrong.

I propose instead that we must look further for a proper analysis and interpretation. The resolution we seek must contain many parts, which, while present in *parts* in the above interpretations, are never united under *one* roof. A proper and through solution to Aristotle's theory of perception must contain the following propositions:

- 1) Aristotle's "taking on form without matter" must be interpreted somewhere between Burnyeat and Putnam/Nussbaum/Sorabji. It cannot be a total physical transition like Sorabji, nor can there be no transition like Burnyeat. Furthermore, we cannot pay too much attention to the psychological transition in the capacity like Putnam and Nussbaum's analysis. We need a middle ground between the totally physical and totally mental, which appears to be Aristotle's position. The solution must be balanced between the two.
- 2) The *esse naturale* is equally united with the *esse intentionale*. This means that the object in nature is *exactly the same* as the perceived awareness; there must exist an "identity."

"The doctrine of intentionality should not be treated as a doctrine of the similarity of forms, but as a doctrine of the *identity* of forms."³⁷ In order for this to be possible, equal weight must be given to both the physical object in the world and the knowing capacities in the human body. The material aspects must be considered, along with the physiological and psychological. As Anthony Kenny once wrote:

When I think of redness, what makes my thought to be a thought of redness is the form of redness. When I think of a horse, similarly, it is the form of horse which makes the thought be a thought of a horse and not of a cow In the one case it has *esse naturale*, existence in nature; in the mind it has a different kind of existence, *esse intentionale*.³⁸

If we find a solution that contains these two main "middle ground" aspects, then I believe we will have found the right analysis. Recent attempts to manipulate Aristotelian concepts to fit into contemporary philosophy of mind discussions fail. As Aristotle himself once noted, one mistake in the beginning of an analysis leads to many more in the future. Aristotle is Aristotle, and we must not forget that. He was writing in a time very unlike ours, and his concepts and theories must be analyzed in terms of philosophical realism. He is not a modern philosopher and his philosophic positions must be treated as such. To find a solution we must first look back at what Aristotle was really discussing, how he was talking about it, and most of all, why he was talking about it. If we can answer these seemingly easy questions, we will be one step further in discovering how one "takes on form without matter."

Notes

¹ Nussbaum, Martha C, and Hilary Putnam "Changing Aristotle's Mind." In *Essays on Aristotle's De Anima*, Martha Nussbaum and Amelie Oksenberg Rorty, eds. New York: Oxford University Press, 1992, 27.

² Burnyeat, M.F. "Is an Aristotelian Philosophy of Mind Still Credible?" In: Nussbaum and Rorty, 1992, 16.

³ *Ibid*, 17.

⁴ Putnam & Nussbaum, 52.

⁵ A little history will help set the stage. In 1978, Howard Robinson's essay, "Mind and Body in Aristotle," (*Classical Quarterly*, 28, 105-24) criticized philosophers like Putnam who attempted to assimilate Aristotle into certain modern philosophies of mind by rendering Aristotle a functionalist. Independently, both Putnam and Nussbaum responded to Robinson in their essays titled "Aristotelian Dualism: Reply to Howard

Robinson" (In *Oxford Studies in Ancient Philosophy*, J. Annas, ed., 2, 197-207) and "Philosophy and Our Mental Life" (*Mind, Language, and Reality: Philosophical papers*, 11, 291-303. Cambridge: Cambridge University Press). Both suggested a similar view concluding that Aristotle was indeed a type of functionalist. In the mid 1980s, Burnyeat discovered that the Putnam and Nussbaum papers had expressed the same view and responded and objected to them in his now published essay "Is an Aristotelian Philosophy of Mind Still Credible?" From that, Putnam and Nussbaum "took up arms together in response to an attack." They offer a counteract to the objections raised by Burnyeat. This paper will focus on Burnyeat's 1992 paper and the Putnam and Nussbaum response to him.

⁶ Burnyeat, 16.

⁷ The Putnam/Nussbaum thesis is coined, "Turing machine functionalism." This uses as its model a special theoretical mechanical device. This machine (a) receives input, (b) carries out the instructions of the input program, (c) changes its internal state, and (d) produces an appropriate output based on the input and instructions. For example, a soda machine shows all of these features insofar as it has instructions on several inputs (the buttons for Mountain Dew, Coke, Pepsi, Slice, 7-Up) with corresponding behavioral outputs (the machine releasing the drink you requested). Functionalism, therefore, holds that perception is a function, rather than, as Burnyeat claims, an actualization. (*Internet Encyclopedia of Philosophy* <<http://www.utm.edu/research/iep/function.html>> 2/21/99 7:46 PM)

⁸ Sorabji, Richard. "Intentionality and Physiological Processes: Aristotle's Theory of Sense-Perception." In Nussbaum and Rorty, 1992, 213.

⁹ His first objection is that Aristotle's view is rather that the "physiological process of taking on the color red, constitutes seeing red, as a piece of bronze constitutes a statue." In his favor, Sorabji recalls the last sentence of *De Anima* 2.12: "What then is smelling apart from being affected? Or is smelling just awareness?" (18). Here I question Sorabji; isn't he making a big jump from something smelly one is trying to perceive and one's nose actually becoming smelly? Burnyeat certainly thinks so, and he refutes Sorabji's position by mentioning that in this text there is a separation of the physiological process and the awareness. This awareness is not just the simple relationship between the physical or causal interaction and the object of perception. Therefore, it follows that the Sorabji position seems unlikely.

¹⁰ Burnyeat, 19.

¹¹ The Sorabji view of the eye becoming red is more like the move from (1) to (2), which is not what Aristotle described. If it was from (2) to

(3) as Aristotle suggests, then the eye could not take on smell like the man took on grammar but rather that he *learned* his capacity that he already had.

¹² This is in opposition to the Putnam and Nussbaum thesis, which depends on Sorabji's account to make the functionalist position possible.

¹³ This is where the discussion of *esse intentionale* and *esse naturale* becomes important. Whichever interpretation we accept to be true must show that the *esse naturale*, the smell of the goat, the red of the apple, the sweet sugar, is exactly the same as the *esse intentionale*, the human perceived concept of the "smelly-ness," the "redness," and the "sweetness."

¹⁴ Burnyeat, 20.

¹⁵ Anthony Kenny would claim that this is impossible. There can be no "identity" without the *esse intentionale* and *esse naturale*. Kenny, Anthony, "Aquinas: Intentionality," in *The Legacy of Wittgenstein*, Anthony Kenny, ed. Oxford, 1984.

¹⁶ Sorabji later tries to remedy this dilemma by claiming that the heart "hardens" in place of the hand when it touches something solid, say a rock. As we noted earlier, this is a far different explanation for sense perception than we have been discussing in this paper, and the alien explanation demonstrates that Sorabji is not consistent in this section of his interpretation. In his article "Intentionality and Physiological Processes: Aristotle's Theory of Sense-Perception" Sorabji again attempts to defend and strengthen his position that Burnyeat criticizes. He writes that "The organ of touch cannot be freed from the qualities of heat, cold, fluidity, and dryness, for these, as explained in *On Generation and Corruption*, are the defining characteristics of the four sublunary elements" (204). Following from this, he says, we must conclude that the human being has a particular blind spot for that particular temperature, *diho tou homoios thermou kai psuchrou e sklerou kai malokou ouk aisthanometha*, (*De Anima*, 424a2-2). Therefore, in the case of touch it must be not hot, not cold, not soft, nor dry, but rather, both, presumably in potentiality (*De Anima*, 424a7-10, Sorabji 204). These facts, Sorabji claims, can be used to support his claim that Burnyeat objects to. First, he says, we must come up with a reason why Aristotle, in the middle of the *De Anima*, makes reference to *On Generation and Corruption*. Secondly, and most crucially of all, the *diho* (that is why) at 424a2 appears to become unintelligible on other interpretations, *diho* offers to explain why there is a barrier to perceiving certain temperatures (215). Lastly, we must ask the question of why Aristotle says that the human who is going to perceive two binary opposites such as hot and cold, white and black, must be potentially both. Whether or not

these claims refute Burnyeat is questionable. Sorabji later proposes why this is a "mid-point" in the analysis of Aristotelian perception, but it is certainly not the mid-point we are looking for here. While they seem to raise important issues, in terms of perception and touch, the issue has obviously not been fully solved. Sorabji must still demonstrate how the heart "hardens."

¹⁷ Burnyeat, 21.

¹⁸ Putnam and Nussbaum, 27.

¹⁹ *Ibid.*, 38.

²⁰ First, I think it is appropriate to note that there does exist a difference in "function." Plato brushing his teeth before bed, which he does automatically at 9 PM every night, is one type of function, while a center fielder chasing after a fly ball is another. An animal running down prey is also a function but certainly none of these should be talked about and compared to the function in perception. The word "function" can be applied to many situations and it is ridiculous to use them all in the same context. Secondly, Putnam and Nussbaum then refer to *De Moto*, where the above position is stated (701b2-32). They refer to one of Aristotle's metaphors where he compares animals to automatic puppets and also to a toy cart. His main point is that even a small change in a central part of an automaton can bring about a large change in other parts. What this suggests, according to Putnam and Nussbaum, is that "the animal moves as it does because of the fact that its psychological processes are realized in physiological transitions that set up movements that culminate in fully-fledged local movement" (38). This, they claim, is why Aristotle is truly a functionalist. In this passage, Aristotle uses the word *alloiosis*, which they believe can be translated as "material transition." Therefore, this material transition is a necessary condition for perceiving, imagining, and even desire (40). They conclude from this that material change is intrinsic to what goes on when perceiving takes place, and this is necessary for a full explanation of animal movement. Burnyeat's analysis has problems here, although they are not fatal. He cannot deny that the *alloioseis* is a material transition without making the entire contents of chapters 7-10 ambiguous to the point of hopelessness; nor can he disagree that this interpretation is consistent with *De Anima* in that perception is an energy, and Aristotle's general non-reductionism in regard to animal motion. All Burnyeat can do here is to suggest that the material transition is not associated with all perceiving but only certain instances.

²¹ Putnam and Nussbaum, 1992, 41.

²² Burnyeat's interpretation can get around this problem because he claims that physiological necessary conditions are only states of recep-

tivity, not processes or alterations. As Marc Cohen writes "This clinches his case against the functionalist interpretation, Burnyeat thinks. For it shows that Aristotle would have to hold that an organism's perceptual capacities are fundamental, not supervenient." (Sorabji even agrees with this point, see 217.) I too believe that this clinches Burnyeat's argument against the functionalist; however, like Cohen, I am not claiming his rival interpretation is correct.

²³ Burnyeat, 18.

²⁴ *Ibid.*

²⁵ *Ibid.*

²⁶ *Ibid.*, 21-2

²⁷ *Ibid.*

²⁸ *Ibid.*

²⁹ For Aristotle, the existence of life is the explanation for why we have the physical make-up that we have, not vice versa. The secondary qualities (proper and common sensibles) are already present in the world; all that is needed to perceive them is the corresponding capacities to do so; i.e., the smell of a pig is already in the world; all we need is a nose to smell it. From this, he argues that we can derive conclusions about the organs we must have to do this; i.e. the eye must be clear and transparent, and the hand must have middle ground of hot and cold to perceive temperature. These are only the necessary conditions for perception to take place; they are not part of a more complex story to work up "from material terms to a set of sufficient conditions for the perception of colors and temperature" (Burnyeat, 22). According to Aristotle's view, via Burnyeat, there is no more story to be told, whereas the functionalist position asserts that there is one, but we are just not in a position to tell it.

³⁰ In summary, they are as follows:

- 1) For an animal to perceive something, the "reception of sensible forms is to be understood in terms of becoming aware of colors, sound, smells, and other sensible qualities, not just a physiological change in quality in the organ" (Burnyeat, 21-2)
- 2) No physiological change is needed for the eye or the organ of touch to become aware of the appropriate perceptual objects.
- 3) The Sorabji position is false, and what Aristotle really means by perception is the same as what Philoponus, Aquinas, and Brentano suggest. Rather than the eye literally becoming red, when trying to perceive it, the eye merely just becomes *aware* of the color.

³¹ *Ibid.*, 45.

³² *Ibid.*

³³ *Ibid.*, 52.

³⁴ *Ibid.*, 53.

³⁵ *Ibid.*

³⁶ *Ibid.*

³⁷ Kenny, 1984, 86.

³⁸ *Ibid.*, 82-3.

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