

## ARISTOTLE'S PERCEPTUAL REALISM

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### I. Preliminary

Aristotle speaks as an unabashed realist about objects of sense. He never questions the existence of what later came to be called the "external" world: a cosmos of physical substances there independently of our knowledge and perception. And he never doubts that the objects composing that world really are as they present themselves to us in sense experience: pungent, fragrant, warm and cold, soft and hard, full of sounds and colors, just as we perceive them to be. This view is a curiosity, although in a way, of course, it is stiflingly familiar, since it hits off our actual experience of the world. Taken as a generalization of our unstudied descriptions of physical things, it is innocent like those descriptions, and utterly uncontroversial. But as a philosophical position it can only strike us as outlandish, at least if held as by Aristotle. He does not, for instance, embrace it in the spirit of some sophisticated philosophical romantic (say, an ordinary language philosopher) who deliberately sets on one side, as irrelevant or artificial, the various scientific and philosophical grounds for abandoning naive realism. Nor does his position depend on any sort of operationalist reluctance to read scientific theories as statements of how things really are, rather than sets of rules for predicting phenomena or arranging our thoughts about them in patterns that appeal to the intellect. On the contrary: Aristotle, as well as being a perceptual realist, is a scientific realist too. He thinks that the scientific picture of things (according to his notions of science) represents things as they are independently of our knowledge of them. Yet he also thinks that how things independently are includes their being, in many cases, colored, noisy, sweet-smelling, etc., just as we experience them. Consequently, he takes these qualities to be thus independently instantiated *in the physical world as understood by science* (his science). This

combination of realisms, perceptual and scientific, is for us the curiosity, and one worth exploring not only for historical interest but also, and more, for the contrasting light it can be used to shed on our own fundamental assumptions. Aristotle's theory of perception rests on two doctrines: one about the causality of sensibilia, the other about a restriction on their effects. In examining these I shall be concerned with the implications for Aristotle's place, if any, in ongoing discussions of perception by philosophers today.<sup>1</sup>

## II. The Causality of Sensibilia

Perception, according to Aristotle, is the effect of perceived thing on perceiver.<sup>2</sup> When I see red apples or smell ammonia, it is the apples or ammonia that cause me to experience them as I do. However, they act on me not as apples or ammonia, but as red or pungent things. Their color and smell are theirs—in or belonging to them—as securely as their weight is theirs, or their spatial location. It is *because* things have sensible qualities that they are able to get themselves sensed as having them; and when an alert perceiver is within range, and conditions are otherwise suitable, the sensible qualities give rise to the actual perceiving of them.<sup>3</sup> “Red,” on this view, does not denote a mere power in the object—a power with who knows what “categorical” basis?—to cause a suitably placed perceiver to perceive it as red. Rather, the word denotes the very basis itself of any such power. And that basis is nothing other than the object's familiar red color itself. The red thing causes me to perceive it as such by acting upon me as a *red thing*, and not as anything else that might be truly said of it.<sup>4</sup>

At *EN* 1141a22-24 Aristotle says that *healthy* and *good* are different for men and for fishes, but *white* and *straight* are always the same. Fishes, in other words, normally perceive as white what we normally perceive as white. They are visually affected by the same qualities as affect us, and the effect on them is essentially the same. And nowhere, I believe, in the extant corpus does Aristotle suggest *in propria persona* that animals of different species might have radically different sense experiences in connection with the same sorts of objects. This is what we should expect if the sensible qualities are all held to be as we perceive them and to belong to the objects perceived in terms of them. Kinds of animals may differ in the range and

accuracy of perception under the same sense modality, but *what* they perceive (on the view we are considering) must be otherwise the same for all.

The object perceived—say, a colored thing seen—is of course a physical being. So, for Aristotle, is the perceiving subject. For although he thinks of perception as a sort of cognition—animals are aware of things through perception—he is not inclined to identify the perceiving subject with the soul or the mind and say that the soul perceives by means of the body or the sense organs (*DA* 408b11-18). That which perceives is nothing short of the organism—the animal. Hence that which perceives is a physical thing, a corporeal substance, since an animal is at least that. On this view, then, the object perceived is literally (i.e. spatially) external to the perceiver. (But on this view there is no “external world,” since the world is the totality of physical things and therefore includes the perceiving animal.) Moreover, when the perceiver perceives, i.e. is affected perceptively by the external object, it is affected as a physical thing: not as a mere physical thing (whatever that would be), but as one of the sort that it is, namely an animal capable of that kind of perception.<sup>5</sup> Thus Aristotle has plenty to say about the physical conditions of perception.

These include conditions pertaining to the medium, which is the third physical factor necessary for perception. The medium is a body of water or air or some other substance which stands between perceiver and object and is such that the object can appear through it, whether visually, aurally or by any other mode of sense. Just as perception necessarily implies (i) an object which sensorily *appears*, and (ii) a subject *appeared to*, so for Aristotle it necessarily also implies (iii) a medium *appeared through*. The medium must be suitably undisturbed and unobstructed, just as the subject must have its sense organs in the right condition. Now these requirements, described in some detail by Aristotle for all five senses, are in the nature of standing conditions, being generally necessary for any perception whatever under a given sense modality. But what is not so clear is whether Aristotle also holds that particular acts of perception involve distinct and various particular changes in the body of the animal. By “distinct” I mean that such changes (if he recognizes them) would be somehow other than the acts of perception themselves; and by “various” that they would differ from each other as acts of perception

differ, e.g. by relating to different colors or different sounds, etc. Aristotle, it was said above, thinks of perception as the effect of one physical thing upon another. This, however, does not logically commit him to holding that the effect which is perception requires a distinct physical change (or set of such changes) in the physical substance affected. Thus on the basis of what has appeared so far, it may or may not be Aristotle's belief that the perceptible object cannot give rise to the effect which mainly interests us, namely the perception of itself, except by means of some other, intermediate, effect identifiable as a physical change within the organism.

That this is an open question at all (even if only for the time being in this discussion) says something about the distance between Aristotle's thinking and ours. Since the seventeenth century, anyone trying to construct a scientifically realist theory of sense perception has been bound to assume, even in advance of specific evidence of occurrences in brain and nervous system, that perception depends on physiological processes. The assumption is necessary *a priori* because, according to the now preferred scientific account, physical objects are to be understood in terms of primary qualities alone. Colors, sounds, and smells, excluded as they are from that elite band, appear to belong to physical objects, but in fact have no status at all in the real physical world, i.e. in the world as science now depicts it. So when I experience an external object as red, this cannot be principally because *it*, that thing, is red, since according to the modern realist theory it is of no color (nor yet transparent, since this too is not a primary quality). Even so, the perceiver experiences the object as red because the object produces that effect. Since this cannot be on account of the object's being red itself, it must be on account of its primary qualities or the primary qualities of its constituents at some level. But now if we think of the object as affecting the percipient organism in virtue of the former's primary qualities, and if we suppose this transaction to be scientifically intelligible, we are bound to think that the external object gives rise to the perception of color by giving rise to primary quality changes in the organism (*via* the medium). The effect of perceiving the object as colored is necessarily mediated by a physiological process conceived as somehow distinct from the color perception itself. At the minimum, it is descriptively distinct, since it cannot mediate as theoretically required except insofar as it is describable in primary

quality terms; but the sensory awareness of (say) red as such is not to be described in such terms. We may decide to identify the awareness of color with the physiological process, saying merely that the same event is describable in both ways. Or we may wish to treat the physiological process as the "matter" in which the perceptual awareness is realized on this occasion. Or we may wish to claim that the awareness results from the physiological process as an ontologically separate item. On all three views, the explanatory relation<sup>6</sup> between the awareness as such and the external object is mediated by an item whose explanatory role depends on its being described not as an awareness, nor as colored, but in terms of primary qualities alone. And the argument shows how (A) postulating such a mediator becomes inevitable if one (B) is a scientific realist, (C) holds that perception involves a physical transaction between perceiver and external object, and at the same time (D) insists that physical transactions are to be understood in purely primary quality terms. Now B and C apply to Aristotle; but since D does not, he has no reason (or none so far given) to endorse A.

Aristotle, then, has no reason, so far as the present argument goes, to hold that an act of perception requires *any* sort of occurrence apart from itself so-described—given, of course, that a perceptible object is within range and that the medium and sense organ are in suitable standing conditions. Even so, most recent interpreters have assumed that Aristotle thinks of perceptual awareness as mediated by physical changes in the relevant sense organ. It is not easy to give a non-question-begging sense of "physical" in this context, but at least it implies "publicly observable." An act of perceptual awareness is not, as such, physical in that sense. But according to many scholars, Aristotle thinks of the awareness as realized in or through certain physical changes in the organism which therefore stand to the awareness as matter to form. On this interpretation, Aristotle can be welcomed into the debates of contemporary philosophers of mind as holding a view essentially the same as one of the currently seriously discussed alternatives: namely, non-reductive materialism. A number of Aristotelians, hopeful of finding contemporary relevance in his theory of the soul, take it that the main difference between him and his presumed modern soul mates in this area has to do with empirical detail concerning brain and nervous system. Aristotle's picture, obviously false in major respects and colossally over-simple on every front, is nonetheless seen as holding the ring for

eventual replacement by our own sophisticated physiology of perception.

However, one scholar, M.F. Burnyeat, has drawn attention to the fact that the evidence supporting the above interpretation is surprisingly thin.<sup>7</sup> Indeed, it is not clear that careful unprejudiced reading can identify a single passage where Aristotle unambiguously declares or implies that acts of perception materially consist in physical changes in the body—say, in the sense organs. Burnyeat goes so far as to conclude that on Aristotle's theory there are no physiological processes functioning as the material bases of particular passages of perception. According to Burnyeat, "when Aristotle sees red or hears middle C," nothing is supposed to *happen* to the organism except just that. Except for that, everything is exactly as it would have been if the animal had seen yellow or heard the C two octaves up. When the object is within range, when the general conditions are right, then, as an immediate result, it is simply the case that the perceiver perceives the object through the medium. *How* this can be is not a question that disturbs Aristotle. But that's not because he (of all people!) thinks it happens by magic. Rather, he treats perception, in beings capable of it, as no more needing to be explained by a mechanism linking perceiver to object than the billiard ball's motion on contact with the cue needs to be similarly explained. A story about the application of force in a given direction is enough, we feel, to make us understand that change. Although we might anticipate findings that might further explain it in terms of the microstructure of rigid surfaces, we do not look upon the transaction as a total mystery unless a microstructural mechanism is postulated. So to that extent it is self-explanatory. This may give us a sense of the way in which, on Burnyeat's account, Aristotle views the perception-causing action of the object on the perceiver. But while the example may show what it is like to feel at home with such a theory of perception, it cannot make *us* feel at home with it. Even to call it a theory (which implies that it is at least entertainable scientifically) is ludicrous from our post-seventeenth-century standpoint. So if Aristotle's position is indeed as Burnyeat claims, Aristotle is perhaps best ignored in contemporary discussions about the philosophy of mind.

On the other hand, having come this far it seems wasteful not to try to determine precisely why the position just sketched

is, as has been said, "incredible." Respondents to Burnyeat so far have mostly neglected this philosophical issue, since their main interest has been in deciding whether the position is really Aristotle's. Most have argued vigorously that it is not: that Aristotle thinks of acts of perception as realized in physiological processes.<sup>8</sup> While some are perhaps mainly concerned with the historical record, there are those who additionally see their arguments as a defense of Aristotle's contemporary credibility as a philosopher of mind. Apparently it is assumed that his credibility stands or falls with a positive answer to the question: "Does Aristotle recognize physiological processes as the material bases of acts of perception?" But this should not be assumed. If we could see more clearly what it is that renders incredible the position associated with a negative answer, we might also find that a positive answer, however strong the evidence for it, fails to cancel the absurdity.

The absurdity might seem to lie in the fact that we know so much, and consequently have good reason to suspect so much more, about the detail of what goes on in brains and nervous systems when animals are subjected to sensory stimuli. An account that fails even to gesture in the direction of all that we now realize takes place behind the scenes in perception is empirically too jejune to be entertained seriously. But this objection stays on the surface, since the physiological events in question are not of kinds that thrust themselves on our attention willy nilly. They were located and identified because mechanisms were systematically looked for, and mechanisms were looked for because in advance of most evidence it was assumed that they were there. Why have we found this *a priori* assumption so compelling?

Let us define the question more closely. It is assumed that sensory awareness necessarily depends on physiological processes. But are these required in order to make sense of the connection with the external object, or for some other reason? For example, someone might hold the following theory: (i) a sensory response is not awareness—it is not cognitive—if it is totally devoid of memory. Sensory information can hardly make the kind of difference to an animal that leads us to call it "information" unless it is somehow held, even if only momentarily, long enough to issue in some relevant motor response. And (ii) this holding requires a physical process which differs according to the type of perception. Different perceptions, to count

as such, require the creation of different physical traces. Suppose we knew that this was Aristotle's theory. Would we find it credible by modern standards? Surely not if we also knew that he recognized no other role for physiological processes than the one described. This supposed Aristotle holds, and sees no difficulty in holding, that perception amounts to no more than an animal's being acted on perceivably by the sensible object appearing to it through the medium, and that this is essentially all that there is to know about perception *considered as a transaction with something external*. But that is what we cannot accept.

The point is not merely that we cannot accept it in the context of modern assumptions about what is to count as a scientifically respectable description of a transaction between physical things. Rather, we are categorically unable to accept it because, for better or worse, we are in thrall to those assumptions. Aristotle, however, is under no such compulsion to postulate physiological processes in order to explain sensory input from the environment. This is not because he is less scientifically minded than we, but because physical properties, from *his* scientific perspective, are not limited to the primary qualities. But more than that: since he thinks of the so called secondary qualities as literally qualifying the physical objects perceived in terms of them, and since he thinks of the objects *qua* thus qualified as causing the corresponding perceptions, he should positively avoid any theory that seeks to bridge some presumed gap between awareness and the external stimulus by means of a series of micro-changes in respect of primary qualities. For this would damage his causal account of perception, not only because it involves the strange notion that, say, a colored object as such gives rise to primary quality events, but also because it threatens to make the color causally redundant. If the perception of color can be directly caused by those primary quality changes, then why suppose that the color is what indirectly causes the former rather than anything else that can trigger the latter? For if a color can do this, having so little affinity with its immediate effect, there is no limit to what else might be able to, just as normally and naturally. We can neaten the situation theoretically by supposing that the mediating changes are caused not by the color as such, nor by just any other quality happening to have those effects, but by the primary quality configuration of the

object's surface. But now the color itself does no work at all, and it is absurd to continue to believe that colors, etc., are genuine qualities of objects. This is absurd because it ascribes colors, etc., to physical things while at the same time implying that the colors are incapable of making themselves known to percipients—percipients who are meanwhile experiencing colors as a result of quite other causes! A color that is real but incapable of being seen is more repugnant to the intellect than a color (considered as an external quality) that gets itself seen without mediation by special physiological events.

The present discussion bears indirectly on the current debate about the correct interpretation of Aristotle's texts. While I am sympathetic to the view that his stated account includes no mention of physiological events in the role of mediators between perception itself and the external world, I have not argued in support of that interpretation. In the absence of conclusive textual evidence, this particular question may remain unsolved. But perhaps we can get a clearer sense of what is at issue, and for whom. Up to now, the exegetical controversy has been fueled by presumptions, and responses to presumptions, concerning Aristotle's relevance to present-day philosophy of mind. However, this problem raises a number of questions which we could not resolve merely by pointing to a textually established inventory of the items and events which Aristotle's theory recognizes. Here are the two which I have so far tried to address in this examination of Aristotle's perceptual realism. (i) Regardless of his actual position on the physiology of perception, why should a theory that omits the barest mention of particular physiological processes seem outlandish to us? And (ii) has he the same reasons as we for finding such a theory outlandish? A "No" to the second question of course does not entail that Aristotle would be inconsistent if he held acts of perceptual awareness to be realized in or through physiological processes. But, again, his consistency on that point would not entail that an Aristotelian theory which recognized such processes might not be just as outlandish from our perspective as one that omitted them completely. The next section will suggest that in fact it would be.

### III. The Restricted Efficacy of Sensibilia

In Aristotle's view, the sensible qualities are causal, but,

with one class of exceptions, causal of only a single type of effect: the perception of them by animals. Colors, smells, sounds, tastes are true qualities of the objects they seem to qualify, but the only difference they (or the objects *qua* qualified) can make to anything else is that of their being perceived (DA 424b3ff.). In the absence of suitable perceivers, these qualities are in a sense no better than potentialities. This not to say that a red thing *is not* red—is not what it appears to be like when it appears red to someone seeing it under normal conditions—except insofar as it is being so perceived. If the actual color were to exist only in being perceived, it could not do its work of acting upon percipients so as to produce that very perception. The point is rather that aside from such work the colored thing, or the sounding or smelly thing, has no more effect on anything around it than if it were entirely without color, sound, or smell. Again, in the absence of suitable perceivers, though things would still *be* red or white or blue, what is red might just as well be blue or black or any color for all the distinctive impact it would have upon anything beyond itself. And so, in the main, for other ranges of sensible qualities. Hence these qualities are fairly characterized as sensibles (*aisthêta*), since although they are there independently of perception (being after all *encountered* in perception), away from perceivers they are idle and as if dead.<sup>9</sup>

The exception is the tangibles. This class, a mixed bag, breaks down into two basic ranges: hot/cold and dry/moist. These qualities are responsible for all chemical changes in Aristotle's universe, and for all that we would term "physical" except locomotion.<sup>10</sup> There have to be some qualities which are both perceptible themselves and give rise to non-perceptual effects. Certainly if there were not, we should not be able to produce such effects except by accident; since we should not be able to identify the means by which to produce them.

Or so one might reason. But this homely argument might not be effective against a critic disturbed by the anomaly of Aristotle's tangibles. How can there be qualities which are fundamentally and characteristically sensible (for Aristotle always classes them as such), yet equally characteristically capable of producing non-perceptual effects? And if this is not a problem for hot and dry, etc., why should we trust the intuition that the non-tangible sensibles make no non-perceptual differences? In fact, that is anyway plainly false. As Aristotle himself points

out, a smelly object can transmit its smell to the surrounding atmosphere. This is a case of being affected by a smell as such, but it is certainly not a case of smell perception (DA 424b18). In the same way, sounds produce echoes and colored things cause their own reflections. However, Aristotle seizes on the fact that, here, what was not perceptible in a given way—something odorless or colorless, etc.—is made to become so. When we say that the air near the over-ripe Brie is cheesy, we mean that it has acquired the *smell* of cheese, not that it has become nourishing or indigestible. The intuition may survive if reformulated as follows: the effects of sensible qualities (apart from the tangibles) cannot be described without reference to perception. For either the effects are perceptions or they are primarily alterations in the ways in which things would appear to a perceiver. Colors and smells and sounds as such cannot kill or damage anything; they cannot make anything grow or flourish; they cannot heal or poison; they cannot cause anything to ripen or ferment or decay. Such effects may be signaled by changes in sensible qualities, but that is not what they essentially are. (Thus the same color can spell rottenness in one type of substance and new growth in another.)

This leaves us with the awkward tangibles. According to Aristotle, hot and cold, dry and moist are essentially involved in the causation of the sorts of effects just mentioned; but they are also essentially causes of corresponding sensations. One cannot help wondering whether it occurred to Aristotle to make his classification more systematic by distinguishing two sets of qualities ambiguously lumped together by language. Thus there would be sensible heat and cold (which never killed or ripened anything), and heat and cold considered as agents of non-perceptual change. We call them by the same names because the former are generally experienced along with the effects of the latter. (This is convenient in practice, even though it fosters theoretical confusion, because it means that we can learn to control the non-perceptual effects. We cannot directly perceive the qualities by means of which they can be produced, but we can locate these through their concomitant signs. This answers the homely argument given earlier.)

However, I think Aristotle would have had reason to reject this account even if he considered it. He is seeking to establish an elegant physics in which a vast array of different sorts of non-perceptual change is explained by reference to a very small

set of principles: the ranges hot/cold and moist/dry. But why should he suppose that all the phenomena allegedly caused by, say, heat have in fact a single type of cause? In particular, why should he suppose this when the explananda vary greatly among themselves, if he is unwilling to identify that allegedly single cause with the one factor which experience tells us runs through all these cases: namely, the quality of sensible heat? Aristotle does not have a thermometer; sense perception is his only way of telling that some one quality is present throughout. Any reason he has to doubt whether sensible heat is that one quality is reason to doubt a single cause at all.

Let us return to the straightforwardly sensible qualities, the ones which in the end would make no difference to their surroundings if there were no perceivers to whom they or their reflections or echoes appeared. This is a strange theory. There is no logical inconsistency in holding *both* (A) that sensible qualities belong to external objects independently of being perceived to belong, *and* (B) that without perceivers these qualities, though actual, would be irrelevant: would do nothing and stand in no connection with anything. But for us there is a tension, and consequently a tension between the two doctrines composing Aristotle's perceptual realism: the Causality Of Sensibilia (which entails A) and Restricted Efficacy (identical with B). It is tempting to try to make sense of B by interpreting the external qualities to which it refers not as colors, etc., in objects, but as distinct powers (based on quite other qualities) to cause the illusion of external color. Accordingly we abandon A, and start down the modern path to skepticism.

Let us see what assumptions help steer us in this direction. At least two can be identified; or perhaps at heart they are a single assumption, since one slogan captures both: "The Priority of Inanimates." But there are two varieties: in one, the priority is *chronological*; in the other, *paradigmatic*.

We are not in the slightest doubt that life as we know it on this planet appeared quite late in the history of the universe. We think of life as having arisen within this universe even if the universe itself has always existed in some form. And the creatures capable of perception came even later. So science teaches, being supported on this by the first chapter of Genesis, albeit with a rather different time scale! We also hold, as Aristotle does, that the behavior and interactions of inanimate things are to be explained in terms that do not refer to

colors, smells, sounds as heard, and so on. So if the perceptual realist is right, how was it with the universe before sentient beings appeared? There was a great deal going on; and there were also, presumably, a great many features which played no part in anything. There were the actions and reactions of inanimate things upon each other in the respects in which these can occur, and on whatever physical level; but the inanimate things were also fully arrayed with sensible qualities, actual and distinguishable, which for eons made not the slightest difference since there was nothing that could respond to them. Was it inevitable that sentient beings would arise? And if not—if that depended on physical conditions that might (in some stronger than purely logical sense) have been different—then the colors and smells and sounds would have been there throughout the history of the universe to no effect. Or did God or Nature place them there from the beginning in anticipation of the arrival of animals? But there is a more economical way for him or her to do things: design creatures, or let them evolve, to be equipped with a physical apparatus that translates (somehow) physical stimuli into sensory experiences.

For a modern scientific realist, perceptual realism is embarrassing, given the temporal priority of inanimates. But for Aristotle, not only the world but all the species we find in it are eternal. There was never a time when, if sensible qualities really belonged to objects, they might just as well not have belonged though they did. There were always animals affected, and geared to be affected even when not currently moved, by the sensible qualities of things. And since animals are not come-latelies to the scene, there is less reason to think of their existence (in general) as contingent or as a superficial addition to an essentially already complete physical world. To Aristotle, the presence of sentient life forms is not merely an original fact of the cosmos, but a fundamental one. It is reasonable of him to treat as likewise fundamental the qualities which sentience discriminates.

Our assumption that inanimates are temporally prior encourages us to invest them with another sort of priority, which I am labeling "paradigmatic." We treat the interactions of inanimate things as paradigmatic of what we are prepared to call "physical." It is obvious from experience that living creatures, or their bodies, can be affected in many of the same ways as

inanimate substances (even though the interactions may have consequences for the living or the sentient that do not arise for inanimates). It also seems obvious to us that sense perception results from a process whose initial stages at least can be explained by principles governing the behavior of inanimate things. Thus we think that such principles prevail at the interface between the organism and its environment, and consequently at the stage at which the external perceptual stimulus first affects the body of the organism. We assume this without necessarily supposing that the process at every stage could be explained on the same principles. We may postulate something "central," whether literally or metaphorically, which is necessary for perception and which cannot be explained in that way. But however that may be, we are confident that, at the input end at least, the process links the animal's body, or some part of it, to the external stimulus along regular physical lines. This confidence seems to rest on the double thought that perception is essentially an embodied activity (depending on sense organs, issuing in local motion, and having as its natural purpose the preservation of the organism), and that whether or not an organism is merely a body, to the extent that it is one at all, it must be a physical system like other physical systems.

Given these presuppositions, what status should we assign the sensible qualities? If we naively ascribe them to the external perceptual stimuli, we deprive the qualities of any causal role. For if they are external, they should affect the percipient by initiating a causal chain of events that works from the outside in through the body. But these are physical events—which according to our understanding of "physical" entails their being explicable by principles governing inanimate nature. But we no more than Aristotle believe that sensible qualities can cause changes in inanimate things. Hence we cannot believe that the sensible qualities can cause in an organism changes of a sort that could have come about in an inanimate context. Perception, then, cannot be the indirect effect of external sensible qualities. But once they are denied a causal role in perception, there can be no reason to postulate them.

Since Aristotle, by contrast, is a realist about sensible qualities, he faces a choice, given that he holds (i) that the qualities cause the corresponding perceptions, and (ii) that they are not otherwise efficacious. The alternatives differ according to different interpretations of (ii). It may be taken to mean (ia) that

the sensible qualities (or objects in virtue of them) do nothing but cause relevant perceptions. On this interpretation, Aristotle will hold that perception is unmediated by events of any other sort—which is to say: unmediated. The colored object *qua* colored does not, for example, set up vibrations in the medium and in the visual organ which somehow bridge a causal gap between object and visual perception. All that happens to the organ is that it is now true of it that it is functioning as the animal's channel for perceiving that object; and all that happens to the medium is that the object visually appears through it to the animal. There is nothing to bridge a causal gap because there is no gap. This is how Burnyeat interprets Aristotle.<sup>11</sup>

One can, however, allow for mediating events while retaining the spirit of (ii). One can, at least in an Aristotelian climate, understand (ii) as meaning (iib) that corresponding perceptions are, in a logical sense, the principal or primary effects of the sensible qualities. The recovery of the sick is the principal effect of medical skill, or of a physician operating as such. But operating as such he necessarily also produces other effects such as warming or cooling which are needed for the cure. More immediately, he also wields instruments and other medical paraphernalia in order to do his main work. These changes and movements are such as could come about in an inanimate and non-medical context. What makes it true, though, that the physician *as such* brings them about is the fact that he brings them about because they are necessary to effect the cure. This fact implies that even though such events could occur in inanimate contexts, it would have to be through other sorts of cause. The *physician* would not be causing them there.

Thus the sensible qualities might cause perceptions by means of some series of other sorts of change in the media and the sense organs. And these changes might be of kinds that enter into the workings of inanimate and living but non-sentient nature: heating, cooling, vaporizing, melting, solidifying, splitting, shaking, and so on. Perceptible objects would cause such changes in virtue of their sensible qualities, because, on this view, they would not give rise to them except as and when it is necessary to produce perceptions. So if, as several interpreters think, Aristotle holds that perception depends on a physical change in which the sense organ literally becomes like the sensible object (the eye-jelly reddens, the ears literally ring), Aristotle's theory is just as incredible to us as the theory which



Burnyeat finds in him. For Aristotle can accommodate those mediating changes which his modern defenders are eager to ascribe only if he assumes that the same cause could not produce the same effect on the same sort of matter (mainly water in the case of the eye, and air in the case of the ear) unless that matter is composing similar sense organs. What the same cause in, say, an inanimate context cannot produce (since *ex hypothesi* it acts only in virtue of its *sensible* quality) is not merely: reddening of eye-jelly-like matter in a manner that either gives rise to or constitutes the perceiving of red. It is: *reddening of eye-jelly-like matter*. The point can be even more keenly felt if we think about the medium. Suppose that Aristotle holds that colors give rise to the perception of them by causing various vibrations in the medium which then affect the sense organ. If Aristotle is consistent, he should hold that the transparent material (air or water) of which such a medium consists can only be made to vibrate to colors when there is an animal there to perceive them.

At any rate, these are the consequences if Aristotle believes in mediating events and also believes that the sensible qualities are effective only in producing perceptions. But earlier we saw him allowing an exception to this last proposition. He recognizes that a strong-smelling substance can make the air round it smell the same, and he says that the substance has this effect *by virtue of its smell* even though smell perception does not result. Unfortunately Aristotle deals with this very cursorily. Perhaps, though, he would have taken the same line over colored things casting reflections and sounding things causing echoes. This seems to provide the basis for a more congenial (to us) theory of perception than the ones outlined above. Aristotle could have thought that the sensible object gives rise to the perception by first giving rise to reflections of itself in the medium and in the sense organ (which is supposed to be of similar material to the medium). The reflections causally pave the way to the act of perception, even though none of them is identical with it.<sup>12</sup> This gives a straightforward interpretation to the passages where Aristotle says that in perception the organ becomes like the object.<sup>13</sup> The theory does not require that the object act otherwise than as a sensible thing. But it nonetheless connects the object with the perception by a chain of items which the object could have produced in suitable inanimate vehicles of reflection if such had been present instead of

the percipient. This is in the modern spirit, since we cannot understand perception except as dependent on mediating events at least some of which would have occurred in inanimate subjects.

But this interpretation does not take account of the fact that what Aristotle says about the air which becomes smelly is simply that it becomes *perceptible* in a certain way (DA 424b18). That is all. The becoming thus perceptible does not entail that the air has acquired further new causal powers. (And if it had acquired any, this would not have been through the action of the strong-smelling stuff *qua* smelly.) But the power which it acquires in becoming perceptible, itself, to the sense of smell is a power to act on those capable of such perception so that they perceive *it*. Its power to be perceived is not a power to make anything else happen; thus it is not a power to bring it about that something else is perceived, or to make it more likely that something else is perceived. How, then, could the occurrence of reflections and the like in medium and sense organ help to bring it about that something else, the original object, gets perceived? What is more, when the organ takes on the reflection, it acquires the power to be perceived by external observers, not by the animal using that organ to perceive something else. But it is impossible to understand how the organ's becoming perceptible to one set of perceivers could help to bring it about not merely that something else gets perceived, but that it gets perceived by another perceiver, the possessor of the organ. The mediating-reflection theory turns out to be more objectionable than either of the options discussed above.

If it initially seemed more plausible, this, I think, was because our own conception of such repetition-phenomena is charged with the assumption of a primary quality infrastructure. We know that the air does not simply become smelly in the presence of the ripe cheese, but does so because it has picked up particles of it. We know that colored patches appear in reflective surfaces not merely because colored things are present, but because the surfaces in turn reflect light waves, of whatever wavelengths, already reflected by the original objects. Such explanations draw upon a network of theoretical beliefs so well established that we take it for granted that the phenomena are rooted in some non-phenomenal infrastructure or other. Since we can easily imagine what it would be like to be in conscious ignorance of a given infrastructure, or to postulate

one which gets rejected by later science, we can easily imagine Aristotle believing that sense perception is made physically possible by events such as the putative reflective reddening of the eye-jelly; for in fact we are imagining him grounding perception on an assumed non-phenomenal dimension of such events. But the assumption is ours, not his. Once we realize that, far from sharing our sense that there must be a non-phenomenal dimension to repetition-phenomena, he speaks quite casually as if there is none, the suggestion that he adduces them to render sense perception intelligible loses its appeal insofar as its appeal lay in seeming to make Aristotle more like one of us.<sup>14</sup> If anything, he emerges as more remote than ever, though at least consistently so. That an otherwise imperceptible object should under certain conditions *just become* visible, smelly, or sounding because of the presence of an ordinary visible thing, probably seems no less incredible to us, if meant as a serious scientific account, than the proposition that perception just occurs when under suitable conditions perceptible objects are present. Still, it may cease to be so incredible that a great philosopher should believe the latter, once we find that he has no trouble in believing the former.

#### Appendix

The following passage has sometimes been taken as evidence that Aristotle denies the externality of sensible qualities (see Hamlyn, pp. 108, 124-125; Modrak, pp. 29-30, 46-48; Irwin, pp. 313-314, 591-592 (nn. 29 and 30):

The activity (*ἐνέργεια*) of the sensible and the sense is one and the same, but their being is not the same; for example, sound as active (*ὁ κατ' ἐνέργειαν ψόφος*) and hearing as active. For it is possible to have hearing and not hear, and that which has sound is not always sounding (*οὐκ ἀεὶ ψοφεῖ*). But whenever that which can hear is actively hearing and that which can sound is sounding, then hearing as active and sound as active occur together . . . The activity of what can make sound is sound or sounding (*ψόφος ἢ ψόφῃσις*), and that of what can hear is hearing or hearkening. For hearing and sound are both twofold. The same account holds of the other senses and sensibles . . . Since the activity of the sensible and the percipient is the same although their being is different, hearing and sound as said in this way [i.e. as active] must cease or exist together. So also for flavor and tasting, and similarly for the others. But this need not be so for hearing, etc., in the sense of potential. The earlier natural philosophers had an erroneous theory about this, for they thought that nothing is either white or black in the absence of sight, and

that there is no flavor in the absence of tasting. In one way what they said was right, but in another way not. For sense and sensible objects are spoken of in two ways, as potential and as active. Their point holds of the active but not of the potential. They, however, gave a single account about things which are not spoken of in just a single way. (DA 425b26-426a26)

I follow most scholars (Themistius, Philoponus, Simplicius, Trendelenburg, Rodier, Hicks, Ross, Kosman, Burnyeat [1]) in taking *ὁ κατ' ἐνέργειαν ψόφος* to be the auditory appearance (or appearing) of sound to a hearer, rather than the actual sound itself which appears, but which also might not have been heard. Thus here the contrasting references to "potential sound" are to actual sounds unheard. Aristotle seems to acknowledge the awkwardness of this way of speaking when at 426a6-8 he says that either *ψόφος* or *ψόφῃσις* may count as active sound. (Which it is, depends on the context.) Still, it is fair to ask why, for the rest of the above passage, he pointedly speaks of *ψόφῃσις* (e.g.) as *the ἐνέργεια* of the sensible, as if there were only one actuality (or one level of actuality), viz. the auditory etc. appearances. For this does suggest that he here denies any distinction between actual sensible qualities and their appearances in perception. However, one is not obliged to follow the suggestion. He probably calls the appearance *the ἐνέργεια* because (i) it is at the highest metaphysical level, i.e. is the *ἐνέργεια par excellence*, and also because of (ii) his doctrine that sensible qualities only affect perceivers (see Rodier ad loc. and the third section of this paper). Though the breakers actually sound unheard on the shore, they make no more difference, in the absence of suitable perceivers, than would be made by a calm and only potentially sounding sea. But if this is right, why does Aristotle remark that earlier thinkers (Democritus, Protagoras?) were correct in saying that (what he himself calls) *sound, etc., as active* exists only when perceived (22-25)? For if sound as active is the appearance of sound to a perceiver, he attributes to them a truism, not the controversial doctrine for which they were noteworthy. This difficulty leads Irwin to the conclusion that "sound, etc., as active" refers to sound (i.e., *what* appears, as distinct from the appearing of it). However, the passage can be read as (a) ascribing the controversial doctrine to the earlier thinkers, while (b) making the point that the sounds, etc., covered by the doctrine fall on the side of what is potential according to Aristotle's present use of the actual/potential distinction. Thus he rejects the doctrine,

having rephrased it in his own terms. He adds that what those philosophers *said* (the verbal statement) is correct if interpreted as a proposition about the corresponding actualities. He may be hinting that the truistic character of this could have made the controversial thesis seem plausible, since both can be expressed in the same terms.

At *Meta.* IV, 1010b30-1011a2, Aristotle touches on the same topic (see Granger's discussion, this volume pp. 165-166):

And in general, if there is only what is perceived (τὸ αἰσθητὸν), there would not be anything if living things did not exist. For there would not be perception. Well, no doubt it is true that there would be neither what is perceived (τὰ αἰσθητὰ) nor perceptions (for they are effects on the perceiver). But that the subjects (τὰ ὑποκείμενα) which cause perceiving should not exist even without perception—this is impossible. For perception is not its own object. On the contrary, there is something besides the perception, which must be prior to it. For the mover is naturally prior to the moved. This is not the less so even if they are spoken of in relation to each other.

One can understand τὸ αἰσθητὸν in b30 (cf. b32) as referring to the gamut of qualities which Aristotle generally classifies as αἰσθητὰ, i.e. colors, sounds, etc. In that case, τὰ ὑποκείμενα which cause perceiving are either (a) the physical objects which "have" the colors, etc., or (b) unperceived and presumably non-perceptible qualities which underlie τὰ αἰσθητὰ and cause perception of them. On this reading, the colors, etc., would not exist in the absence of sentient life. In the light of this, one might be inclined to translate τὰ ὑποκείμενα as "the bases" or "the grounds" (terms with causal meaning) even though it is not clear that this is a legitimate translation. If one balks at that, it would be preferable (on this interpretation) to translate the phrase neutrally, as "the presupposed things." But even so, one would be thinking of the items thus referred to as causes, not merely of the perceptions and perceiving, but of the αἰσθητὰ. However, Aristotle does stop short of saying that τὰ αἰσθητὰ are also caused. And it is just as plausible, I believe (independently of wider considerations), to take the passage as follows: if nothing exists except items truly labeled (whenever they exist) "τὰ αἰσθητὰ (the perceived or perceivable things)," then nothing would exist in the absence of sentient life . . . But while it is true that, in the absence of sentience, nothing would exist that could be truly called "τὰ αἰσθητὰ," there would still have to be the *subjects* to which, in actual

fact, that phrase truly applies, since they are prior, etc. On this reading, the subjects are the colors, etc., which we normally call "τὰ αἰσθητὰ." It may seem to be a point against this that "αἰσθητὸν" and "αἰσθητὰ" at 1010b30 and b32 are not predicates but elements in grammatical subject-expressions. However, I think that Aristotle words his argument in this awkward way because (a) at 30 he addresses the opposing view in the form in which its proponents stated it, while (b) at 32 he wants to concede a point to them (N.B. ἴσως), again in the form in which they would state it. (They would accept that in the absence of sentience there would be no αἰσθητὰ—this is not a *reductio ad absurdum* of their theory. They differ from Aristotle in holding that without αἰσθητὰ there would be nothing.) As in the *DA* passage examined above, what Aristotle concedes is a truism—the same truism, in fact. As before, the dialectical implication may be that the truism explains their error.

#### NOTES

<sup>1</sup>I benefited from the opportunity to discuss this paper at the 1992 Spindel Conference. My thanks to all who took part in the discussion, and to Herbert Granger for his written reply (this volume, pp. 161-171).

<sup>2</sup>This discussion throughout is limited to proper sensibles.

<sup>3</sup>By "the sensible qualities give rise to the perceiving of them (i.e. themselves)" I mean the same as: "objects *qua* endowed with sensible qualities give rise to the perceiving of themselves as such."

<sup>4</sup>According to *DA* 416b32-417a20 and b19-28, perception is the effect of an external sensible on the perceiver; and according to e.g. 418a7-14, sensibilia are colors, sounds, etc. The position is summarized at 424a22-24. But see the appendix for discussion of 425b26ff. and *Meta.* 1010b30-37: passages which are sometimes taken to show that Aristotle does not (or does not consistently) regard colors, etc., as external and independent of the act of perception.

<sup>5</sup>The point is well made by Code and Moravcsik, pp. 138-141.

<sup>6</sup>Each view may be further subdivided: into a version claiming, and another denying, that the awareness can in principle be exhibited as a phenomenon explicable by the same laws and concepts as would (on some level) explain the physiological process. Again, opinions may differ on whether that sort of explanation of the awareness (feasible or not) is the only sort that should satisfy us as scientists or as philosophers. The present discussion leaves these questions open. It assumes no more than this: allowing a mediating role to physiological events is at least a necessary condition of a satisfactory explanation.

<sup>7</sup>See Burnyeat [2] and [3].

<sup>8</sup>E.g. Nussbaum and Putnam, Sorabji, Cohen.

<sup>9</sup>If in the absence of perceivers the sounding sea (*qua* sounding) makes no more difference to (no more affects) anything than a silent and merely potentially sounding sea, what is the difference? If none, does it not follow that sound (or, for that matter, silence) considered as a distinctive quality cannot exist

unperceived? We need not decide whether this follows, since there is a difference, although it does not consist in any actual effect on anything. When the waves crash unheard, it is the case that were a suitable perceiver present (and alert, etc.), he, she, or it would hear the sound. This counterfactual conditional is not true when the sea is calm.

<sup>10</sup>See especially *Meteor.* IV.

<sup>11</sup>Nussbaum and Putnam have countered by arguing not only (like other respondents to Burnyeat) that the interpretation fails to do justice to the detail of the texts, but also that it makes nonsense of Aristotle's vision of animals as hylomorphic unities. Burnyeat's Aristotle, they contend, is a sort of dualist for whom the perceptive soul is "merely housed in the body," since "matter merely supplies background conditions for [sc. cognitive] transitions that are not carried out in and by the matter." Thus Burnyeat's account, they hold, leaves out what is crucial to Aristotle's theory of the soul, namely that "its doings [sc. except perhaps for noetic activity] are doings of the body" (pp. 44-46). This interesting objection assumes, I think, that if in perception an organism interacts with its environment as a physical substance, it does so by (in a logical sense) first doing something physical that is other than (and, one is tempted to add, more straightforwardly physical than) perceiving the external object. But why must this be so? Presumably because what the organism is supposed physically to undergo that is other than the perceiving is an effect which the external object might cause in a mere body, i.e. an inanimate one. It is significant that Nussbaum and Putnam see Burnyeat as implicitly rejecting Aristotle's hylomorphic theory of animals, given that Burnyeat says nothing to cast doubt on what I should think is the usual understanding of Aristotle's reason for viewing the animal soul as the form of a body. Summarily, his reason is this: the life styles and vital activities characteristic of those forms which are animal-souls would be impossible or pointless (or both) in the absence of a bodily frame from which, by means of which, and for the sake of which to engage in them. This teleological approach certainly helps to explain Aristotle's lack of interest in distinct physiological "transitions" underlying perception, since even if he believes that they must occur, this is not the principal basis of his hylomorphism. Burnyeat's account takes the logically next step, which is to claim that for Aristotle the teleological considerations by themselves are sufficient grounds for adopting a hylomorphic theory of animals (by contrast with, say, Pythagorean dualism). Since Aristotle makes it perfectly clear that in his view perception is an activity of the embodied soul *qua* embodied, the disagreement between Burnyeat and Nussbaum-Putnam turns on this question: would that view of perception be sufficient in Aristotle's eyes to justify classifying perception as a bodily (or physical) activity of the perceiver? The answer is not obviously "No" unless we take it for granted that Aristotle, like us, would not count activities and states as "physical" if they are not of a sort that could occur in some inanimate context.

<sup>12</sup>*De Sensu* 438a5-11.

<sup>13</sup>E.g. *DA* 422a7, b1, 432b30, 425b23.

<sup>14</sup>There is in any case textual evidence against this interpretation. According to it, the air which is the medium of olfactory perception mediates by taking on the smell of the original object, as in Aristotle's example at 424b15-16. There, however, he says that the bodies which pick up sensible qualities in this way are indeterminate and unstable (ὀν μένεται). This suggests that air, etc., do *not* function as perceptual media by picking up smells, etc., in that way, for at 435a4-5, when explicitly discussing air as medium, he says that best results are given when the air is stable (ἐὼν μένεται).

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