

Origins of the Medieval Theory That Sensation Is an Immaterial Reception of a Form¹

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I

Ten years ago Sheldon M. Cohen² noticed a problem in Aquinas's theory of sense perception which had gone unremarked because of a misunderstanding as to what Aquinas meant by saying that the senses receive the form of the sense object without the matter.³ Aquinas, of course, had taken the phrase directly from Aristotle's *De anima* II, 12 (424a17–20), and I shall have something to say later about what Aristotle himself intended; for the moment, I want to concentrate on Aquinas. Cohen pointed out that many recent interpreters took Aquinas to mean that the sensible form comes to have an existence in the soul itself rather than in any sense organ and that the sensible form so existing is a mental image that has no physical existence.⁴

Cohen claimed this interpretation was refuted by Aquinas's own texts. Aquinas clearly held, Cohen argued, that the sensible form when received by the sense exists in the sense organ, not in the sensitive soul per se, even though it exists in that organ "spiritually" or "intentionally". The force of saying that the form has an "immaterial" existence in the organ is to distinguish its mode of existence there from its mode of existence in some material thing that possesses the sensible quality in question. When the sensible form of whiteness exists immaterially in the eye or pupil it does not make

that bit of anatomy white, but rather exists there somehow without qualitatively changing the eye. Cohen suggested that Aquinas may have thought of this mode of existence as like that of mirror images. What is in the pupil is a reflection of the color of some external object.⁵ When a white image is in a mirror the mirror is not itself white.

Cohen went on at the end of his paper to note that if his is the correct interpretation of Aquinas's account, then Aquinas left unanswered the question of why a reflection in the eye turns out to be a case of seeing while the reflection off a mirror, or, to use Cohen's example, a bald pate, does not. According to Cohen, Aquinas "never addresses this question directly,"⁶ but we can speculate on what he might have said. Cohen's own guess was that Aquinas would have cited the fact that the reflection in the eye causes desire or aversion for what is reflected whereas the one on the pate would not.

Let me begin my own discussion of Aquinas by saying that it seems to me that Cohen adequately proved that it was a mistake to view the sensible form as existing in the soul rather than the organ, and that Aquinas is not denying to the sensible form as received by the sensor a place in the physical world, or indeed physical existence, when he says it exists immaterially or spiritually. I have nothing to add to the evidence Cohen cited for his thesis. It seems to me to put the question beyond doubt.

As to just what this "spiritual" mode of existence amounts to, Aquinas is understandably not very specific. Negatively, he says that the "material disposition" of the sense organ when it has received the sensible form is unlike that of the external agent.⁷ Positively, he refers to the sense organ's being in a "mean" state or balance between opposite sensible qualities when it is not sensing. Presumably the effect of the external object is to upset this balance in one direction or the other and perhaps this temporary movement is the spiritual existence of the form we are looking for. Cohen's suggestion that it is a reflection seems to apply only to vision whereas Aquinas, following Aristotle, was trying to say something generally applicable to all the senses. Even in the case of vision, there is no text from Aquinas that clearly supports such a notion.

Where I think Cohen's account most needs some modification is in his claim that Aquinas never addressed the question of what makes an immaterial reception of a form a sensation. It is a widely held view among scholars of Aquinas that the immateriality itself constitutes what makes what is going on here a mental event and not just a physiological happening. Aquinas speaks of the form existing in the organ intentionally, and it has been thought that the sense of 'intentional' here is not unrelated to its modern philosophical usage as marking what is distinctive of the mental. Further, it is good Aristotelian doctrine that *intellectual* apprehension just is an essence of something existing entirely apart from matter. When an intelligible form exists apart from matter what one has is the activity of an intellect. Perhaps

sense is analogous: when a sensible form exists apart from matter what one has is an activity of a sense faculty.

Furthermore, there are places in the *Summa theologiae* where Aquinas seems to assert quite explicitly the equation of cognition with the immaterial existence of a form. Although these texts are fairly well known, it is perhaps worth quoting them here so the reader can easily make his or her own estimate of their import. In question 14, article 1, *responsio*, we find the following:

Therefore, it is clear that the immateriality of a thing is the reason why it is cognitive, and that according to the mode of immateriality is the mode of cognition. Hence it is said in *De Anima* ii. that plants do not know, because of their materiality. But sense is cognitive because it can receive species free from matter; and the intellect is still further cognitive, because it is more separated from matter and unmixed, as is said in *De Anima* iii. (Pegis trans.)

In question 78, article 3, during a discussion of the difference between natural and spiritual immutation, Aquinas put forth the following:

Natural immutation takes place when the form of that which causes the immutation is received, according to its natural being, into the thing immuted, as heat is received into the thing heated. But spiritual immutation takes place when the form of what causes the immutation is received, according to a spiritual mode of being, into the thing immuted, as when the form of color is received into the pupil which does not thereby become colored. Now, for the operation of the senses, a spiritual immutation is required, whereby an intention of the sensible form is effected in the the sensile organ. Otherwise, if a natural immutation alone sufficed for the sense's action, all natural bodies would have sensation when they undergo alteration. (Pegis trans.)

Finally in question 84, article 2, the connection between immateriality and cognition is again pressed:

Therefore it is clear that knowledge is in inverse ratio to materiality. Consequently, things that are not receptive of forms, save materially, have no power of knowledge whatever—such as plants, as the Philosopher says. But the more immaterially a being receives the form of the thing known, the more perfect is its knowledge. Therefore the intellect, which abstracts the species not only from matter, but also from the individuating conditions of matter, knows more perfectly than the senses, which receive the form of the thing known, without matter indeed, but subject to material conditions. (Pegis trans.)

I think the natural reading of these passages is that the cognition of a form and the form's existing immaterially are really just the same thing. It may be that a clever interpreter can make a case that everything Aquinas said

here is compatible with a view which holds that immaterial existence is merely a necessary but not sufficient condition for cognition, but that interpretation seems very strained to me.

Nevertheless, once we have adopted Cohen's view of what the immateriality of a sensible form's existence in the sense amounts to, we see that if Aquinas does adopt the thesis these passages seem to maintain, namely the equation of cognition with the immateriality of a form's existence, a great difficulty immediately arises. Aquinas in his commentary on *De anima* explicitly allows that the sensible form has spiritual and intentional existence not just in the sense organ but in the medium as well. But the medium does not sense and has no mental life at all. Further, if a suggestion like Cohen's regarding reflections is anything like correct, the problem is indeed very acute. Bald pates and mirrors do not see.

Some may say that all this is an excellent reason to take seriously the view that Aquinas never meant to maintain the equation of cognition and immateriality, only the necessity of the latter for the former. And indeed it is. But if in the texts I cited from the *Summa* Aquinas meant only that, it is really quite amazing that somewhere or other he does not allude to what else besides the immaterial existence of the form is required for cognition. Frankly, I think we must face the fact that the Angelic Doctor has taken a position in the *Summa* which is incompatible with what he said in his commentary on *De anima*. Also I think it is unlikely that the contradiction arises because Aquinas changed his mind on this subject between the time he wrote the commentary and the time he worked on the *Summa*, since the commentary was written quite late in his life, around 1267.

Aquinas has then, without realizing it, committed himself to incompatible views. How did this come about? The rest of my paper consists in showing how on this subject Aquinas was the victim of the long tradition of peripatetic interpretation of Aristotle which had never really understood what their Prince had been up to in the first place.

II

The passage from *De anima* which seems to have generated so much confusion reads as follows:

Generally as regards all sensation, we have to realize that a sense is what is receptive of sensible forms without the matter, in the way in which wax receives the insignia of the ring without the iron or the gold. . . . (424a17–20)

Now this passage might be thought to say no more than that the material substrate of the sensible form in an object external to the senses is not received

into the sense organ when that form is received. But this rather straightforward interpretation was not the received one among the peripatetics, both Greek and Latin. Instead the main figures in this tradition all think that something is being said about the way the form exists in the sense organ or the sense faculty, that the form is not enmattered there, at least not in the way it is in the external object.⁸ In what follows I shall survey the course of peripatetic theorizing about sensation, working backward in time from Aquinas and ending with Aristotle himself. My aim will be to show how, because this tradition missed a key element in Aristotle's own theory, it was never able to form a genuinely coherent theory of sensation.

Aquinas's own teacher, Albert the Great, had two extensive treatments of sensation, an earlier one found in the section of his *Summa de creaturis* called *De homine* and a later one found in his questions on Aristotle's *De anima*. Since these treatises have already been deftly examined and expounded by Prof. Lawrence Dewan,⁹ I shall rely heavily on his work in noting those points of Albert's doctrine, as explained by Dewan, that particularly bear on our topic.

In his *De homine* Albert apparently held the view that although the sensible form is in the sense organ of any sense faculty as a species with "spiritual" as opposed to "natural" being, only color, the object of sight, has "spiritual" being in the medium as well. The term 'spiritual being' was drawn from Averroës and seems to be equivalent to the phrases 'existence as a species' or 'existence as an intention'. I doubt that Albert or any other scholastic was completely clear as to what this terminology was supposed to mean, but certainly mere spiritual being does not invest the sensible form with nearly as much in the way of physical causal powers as does natural being. In particular opposed forms (black and white, for example) do not tend to cancel each other when they have spiritual being in the same location. Nor are they enmattered, i.e., they do not give to some matter the quality they are the form of. Sound, on the other hand, does not have spiritual being in the medium for it seems to be something like a blast of air. The modern reader cannot help but see spiritual being as a distant precursor of the non-material physical entities beloved by modern physics, e.g., electromagnetic fields, and the spiritual mode of existence is akin to the way colors, sounds, and information generally are transmitted by perturbations in those fields. Being a good Aristotelian, Albert has no sympathy with the hypothesis of a void, i.e., space with no matter in it, and hence spiritual being is never entirely divorced from matter, the way fields are. But the idea of dematerialized physical entities is clearly there in a nascent form.

In his questions on the *De anima* Albert adopted a different theory that assigns a spiritual being for the sensible in the medium in the case of all the five senses. Sound, for example, is no longer a blast of air but can use water as its medium as well as air. In the case of taste and touch the medium is a

part of the sensor's anatomy mediating between the surface of the body and an internally situated sense organ.

On both theories a very definite problem would have arisen had Albert thought that having spiritual being was tantamount to being known, i.e., had he adopted the equation of immateriality and cognition we found in Aquinas. Albert, however, did not fall into this trap. In *De homine* he claimed that the eye traps the species in a way the air does not. By the time he wrote on *De anima* he had developed a much more elaborate theory which allowed that sensing requires in addition to the passive reception of a species in the external sense organ of one of the "proper" senses, an active "judging" which takes place internally in the organ of the "common" sense situated in the brain. The "proper" senses, i.e., sight, hearing, smell, taste, and touch, are, Albert said, "like streams flowing from a common font," the font being the common sense.¹⁰ For this "font" to judge about the sensible as received in the "proper" sense that sensible must be produced in the common sense's organ in a more spiritual way. To facilitate this the organ contains a particularly "clear spirit" which does for sensibles in the external organs what light does for colors.¹¹ (The "spirit" here is not immaterial but rather some very peculiar fluid.) In the end Albert adopted a very non-Aristotelian theory in which the common sense with its active as well as receptive roles functions for sensation much as the intellect does on Aristotle's theory for intellection.

Albert's theory seems to claim that what is needed for sensation, over and above the "spiritual" reception of the form in the external sense organ, is an even more "spiritual" reception in the internal organ of common sense, a reception which cannot occur without the active intervention of the common sense in producing the more spiritual sensible. In effect, Albert has moved the seat of sensation inward from the eyes, ears, etc., to a portion of the brain. If we had asked Albert why the sensible existing intentionally in that part of the anatomy is any more a sensation than is its existing in the external sense organ, it appears his answer would have been that there it exists more spiritually because of the "clear spirit" peculiar to the internal organ.

Albert frequently cited Averroës' doctrines on sense perception with approval, but in fact they were quite different from his own. Averroës viewed intentions as existing only in the soul. The form has its spiritual or intentional existence only in the immaterial sense faculty itself; in the external object it has a purely corporeal existence, and in both the medium and sense organ it has some sort of existence intermediate between corporeal and spiritual.¹² Since the dematerialized, intentional existence now occurs in the soul rather than the organ, Averroës was free to equate such existence with cognition, and this seems to have been his view. In the *Great Commentary on De Anima* he proffered this interpretation of Aristotle's claim that the sentient is potentially like its object:

Then he [Aristotle] says: "And the sentient is potentially like the sensed objects in its completion." I.e., it is clear, then, from what we said that the sentient unqualifiedly is what is in potential to an intention which we explained belongs to the power through the intention of the sensible thing in its completion, i.e. it is what is naturally suited to being completed by the intentions of sensible things, not by the sensible things themselves. If this were not so, color would have the same being in the faculty of sight as it does in a body; and *if that were the case, its being in sight would not be a case of apprehension.* (my emphasis)¹³

Admittedly, the form of the words I have emphasized would be compatible with asserting merely that intentional existence is a necessary condition of cognition, but in the absence of any interest on Averroës' part in specifying what additional factors are required in order to have a necessary *and sufficient* condition, I think it is very probable that Averroës meant to equate intentional existence and cognition. We can now see that what landed Aquinas into difficulties was combining this Averroist thesis that intentional existence equals cognition with the view of his teacher Albert that intentional existence is possible in the body. But let us continue to trace back the ancestry of these ill-wedded notions.

I have found no doctrine of immaterial existence of sensible forms in Avicenna. Turning to the Greek commentators of late antiquity, we find that Simplicius took an approach which is radically different from anyone else's, and from Aristotle's, for that matter. He claimed to find in *De anima* two notions of soul, one of which consists of the features in virtue of which a body is alive, and the other of which is a substance on its own which moves and uses the body. He drew this distinction as follows:

Since the soul is incorporeal, i.e. incorporeal as a substance, he [Aristotle] distinguishes by what has been said the soul which is characteristic of the living body and in virtue of which the living being exists and exhibits vital motions from the soul which is a cause of motion and uses the living being as a tool.¹⁴

Perception occurs only when the latter soul, stimulated by the effects on a sense organ of the external object, throws forth out of itself the *logoi* of the sense objects.

Since on the one hand the organ which is a body that has sensitive life has affective activity, and on the other hand the user functions without being affected, it throws forth from within itself in proportion to the affective activity of the organ, the formulae (*logous*) of the sense objects, in virtue of which, as we said, it knows and functions discriminatively. Accordingly it is said to be receptive of the forms and to be affected by what has color or flavor or sound in virtue of requiring its organ to be affected by them, an organ that has received some appearance (*emphasis*) of the forms in them.¹⁵

In the sense organ itself, Simplicius noted in the passage above, an “appearance” (*emphasis*) of the external form comes to exist. The organ does not, however, literally take on the form perceived. That much Simplicius’s view has in common with Aquinas’s, Albert’s, and Averroës’. But the rest of the theory owes more to the Platonic tradition of emphasizing the inward sources of knowledge than to the Aristotelian passive reception theory. This concept of an *emphasis*, which we will find used as early as Alexander, is very likely the Greek origin of the Latin scholastic “species”.

Simplicius’s Christian contemporary, John Philoponus, was, I find, even less clear about the way the sensible form is received by the senses. He claims that the sense (does this mean the sense organ or the soul?) is affected by the sensible object and assimilated to the form but only cognitively (*gnostikos*):

Now he [Aristotle] says that somehow the sense is affected by the sensible objects and becomes like them. For thus he says it comes to be the sensible object itself, not that it becomes white or sweet, but that it receives the form of the sensible object without the matter, i.e. is imprinted cognitively with their pure formulae.¹⁶

Philoponus claimed that while bodies when affected by a sensible object (i.e., one of Aristotle’s primary sensibles) are affected by both the form and matter of the object and receive the affect as both form and matter, the sense faculty itself is affected only by the form and receives only as form.

Thus inanimate things, and generally all bodies inasmuch as they are bodies, are affected by sensible qualities, and in these cases the agent acts in virtue of both its form and matter, and the affected is affected in virtue of both its form and matter. A sense on the other hand, is not affected by both the form and matter but rather by the form alone, just as also the wax is affected by the insignia and not in virtue of both the form and matter (for it is not the case that the sense organ is tainted or becomes sweet-smelling), but rather in virtue of the form alone (I mean here the sensitive faculty itself).¹⁷

In this passage it looks for a moment as though Philoponus was ready to say the sense organ, as well as the sense itself, is affected only by the form. But he took this back in the ensuing lines.

Since the body is affected by heat, the tactile sense is also affected, but it is not the same affection. Rather the sense has been affected cognitively by just the form of the hot thing, while the sense organ or flesh is like matter which in virtue of both form and matter becomes the subject for the heat itself and is affected by the whole thing that heats it as a whole. It is no wonder if sense is affected by the sensible objects in a different way than is the sense organ and bodies generally, for the being of the colors, flavors, sounds, heats, colds themselves is different from

the being of the sensible objects. For this reason colors, flavors, sounds and the rest exist even when sense does not, but sensible objects do not exist if sense does not lay hold of them.¹⁸

According to Philoponus the sense organ in order to function as such has to maintain some proportion or mean among its constituents. Sensible objects can upset this and thus render the organ non-functional.

After having shown that the sense organs, on account of being sense organs, exist in some formula or proportion (for on account of this they have the sensitive faculty, which is their formula and form, and on account of it the sense organ has being), he [Aristotle] says that from this it is evident what is the reason the excesses of the sensible objects destroy the sense organs. For if it is in virtue of the fact that they are sense organs that exist in a proportion or mean, as he said already (for when it is mixed in the right way the sense organ becomes able to serve as the receptacle of the sense), and further the perception of the sensible objects comes into existence when the sense organs are moved by the sensible objects, in all probability it follows that an inordinate motion of the sense organ brought on by the sensible objects destroys the proportion of the sense organs. Once the proportion is destroyed, it becomes unable to serve as the sustainer of the sensitive faculty.

For the sense organ is affected by two affections, one as a mere body, the other as a sense organ. As a body, then, it is affected by a body while as a sense organ it is affected by the activity of the sensible objects. For example the eye as a sense organ undergoes congealing and separating by the actions of colors on it, while as a body it undergoes, perhaps, heating by the action of fire.¹⁹

From the above it appears that Philoponus held that the sensible object as a form transmits an “activity” (*energeia*), i.e., some sort of motion²⁰ to the organ,²¹ which motion then somehow causes the form to exist as a *logos* in the non-corporeal sense faculty itself. I think it is fair to infer here that this existence of the form immaterially in the sense is equated with sensation. There seems to be no tendency on Philoponus’s part to see the sense organ itself assimilated to the sense object. It merely receives the “activity” of the object, whatever that means.

When we go back still further to Themistius, we find a view which does both attribute an immaterial existence to the sensible form when it is received in the organ and equates this with sensation. His view, as expressed in the passage below, was that sensation occurs without the matter of the sensible object affecting the organ nor the organ serving as matter for the received form:

In general it should be clear regarding all the senses that sense is what is receptive of forms without the matter; for example, the wax for a signet ring takes on the gold or bronze pattern but not

as gold or bronze. Thus also sight takes on the color of what has color, hearing takes on the sound, and nothing less happens in the case of taste and smell even if they do not seem to operate that way. For the qualities reach even into them, but the matter and subject remain outside. While, therefore, the senses are said to be affected by the sensible objects, the matter itself remaining outside and just the form putting the sense organ in motion, things that are cut, crushed or burned are affected by being brought into contact with the matter of the agent. For it is not the sharpness that cuts, but the sword, i.e. sharpness along with iron. Likewise, fire burns, not the form or formula of fire. For this reason it is in these cases that we find affections in the primary sense. For [the affection] reaches its completion in a turning or change, and what is in the proper sense affected becomes the matter for the agent; for example, what is burned becomes the matter for what burns, what is crushed for what crushes, what is cut for what cuts. But the senses do not come to be the materials of the sense objects, for the sense does not whiten or blacken or get heavy or get sharp.²²

Themistius ran together the two theses that the sense receives only the form of the sense object, not its matter, and that the sense itself does not serve as material for the received form. It seems he thought of the form of the sense organ as receiving the sensible form without the sense organ's matter in any way receiving it. This immaterial reception of form by form is equated with cognition. The passage quoted above continues as follows:

Rather, as we have frequently said and will continue to say, it received only the form or the formula. It is for this reason that they [the senses] come to completion in a discernment (*krisin*) or grasping (*antilepsin*), for no matter is capable of discerning the form engendered in it, for matter is without understanding, without discernment, and without grasping. Certainly it is formula that discerns both other things as well as formula, and it is form that grasps form, and the sense is the form and formula of the primary sense organ, for its power is also a form.²³

The sense was thought of by Themistius as a proportion, harmony, or mean in the sense organ, and hence something that could be destroyed by excessive effects of the sensible objects.²⁴ His view, then, was different from Philoponus's who thought the proportion was merely a necessary requirement for the organ's being able to serve as the "receptacle" of the sense faculty. It seems Themistius comes closer to the flawed Thomistic combination of views than any of the other thinkers surveyed here. The sensible form had for him an existence in the sense organ but not at all as belonging to the matter of that organ, just to its form, and this mode of existence is just what constitutes cognition.

Going still further back in time we find Alexander of Aphrodisias accounting for sensation by the assimilation of the sense to the external object:

. . . It is a faculty of the soul in virtue of which it is possible for what has it, when it is assimilated to the sense objects it receives through some alteration, to discriminate (*krinein*) those objects in respect of their actuality.²⁵

Sense perception exists on account of an assimilation that has come to be through alteration. For the form of the sense object which has come to be apart from the matter in the sensitive thing is sense perception as an actuality.²⁶

As the second passage above indicates, the assimilation occurs in the sense organ although the matter of that organ does not itself take on the sensible form. In the case of sight he said that “sight does not *as matter* receive the affections [*pathe*]”; rather the colors exist in it in the way they do in mirrors or water.

But even if a black person and a white person saw each other, that would not prevent the air between them simultaneously serving for motion brought about by them which does not involve being affected nor the air’s becoming matter for them. Nor do the colors that appear in mirrors or in water cause those things to be such as they themselves are. Thus the motion that comes from the sense object and arises in those things is halted in each of them whenever the sense object is no longer present.²⁷

Alexander believed that the smoothness of the eye accounts for its being able to receive the appearance (*emphasin*) of the object.²⁸ Just because the color exists in the eye without actually characterizing its matter, it disappears as soon as the causal influence of the object ceases.

Although at times Alexander’s words seem almost to imply that this assimilation of the organ is to be equated with sensation, I think he held that it is sensation only in something with a sensitive soul. Without that soul no cognition occurs. Hence mirrors do not see. But I have not found any passage which spells out exactly how the soul is affected by the appearance in the organ.

We can see that everyone surveyed above viewed sensation as involving some sort of immaterial reception of the sensible form, but there was disagreement on what exactly serves as the subject for this reception. Philoponus, Simplicius, and Averroës declared it to be the non-corporeal sensitive soul itself. For Alexander it was the external sense organ which, like a mirror, is able to hold a species or appearance of the sensible object without actually taking on the sensible quality. Themistius seems to have taken an intermediate position in which it is the form of the sense organ, some proportion characterizing it, which receives the sensible form. Albert moved the seat of the reception to the internal organ of common sense and hypothesized a special “spirit” located there to perform this function.

But not everyone equated immaterial reception of form with sensation

and cognition, the way Aquinas did. Those who saw the reception taking place in the soul rather than in the organ had no problem with the equation, but Albert and Alexander, who allowed that the external organ received the form, seem to have steered clear of the equation since, of course, they recognized that such reception was not limited to animate subjects. Themistius, on the other hand, seems to have agreed with the equation, but he could have claimed that only living sense organs have the ratio or proportion that allows for genuine immaterial reception.

From all this I think we can form a likely hypothesis as to how Aquinas arrived at his unsatisfactory position. From his teacher Albert he has taken the view that in sensation a species occurs in the external sense organ, which amounts to the immaterial or spiritual existence of the sensible form. But he chose to ignore Albert's non-Aristotelian theory of an active common sense. From Averroës he has drawn the idea that this spiritual existence could be equated with sensation itself. From Themistius, whom he read in Moerbeke's translation about the time he was writing his commentary on *De anima*,²⁹ he could have been encouraged to think the above two views were compatible.

III

To conclude this study I want to point out how this whole tradition of peripatetic theorizing about sensation arose from a misreading of Aristotle on the topic. The key text, as I noted earlier, is the one that occurs right at the beginning of *De anima* II, 12 (424a17–25):

Generally, as regards all sensation we have to realize that a sense is what is receptive of sensible forms without the matter, in the way in which wax receives the insignia of the ring without the iron or the gold and grasps the insignia of gold or bronze but not as gold or bronze; likewise the sense of each [sensible object] is affected by what possesses color or flavor or sound, but not as each of these is meant but as a such and in virtue of the formula.

In my opinion, we must see the phrase 'without the matter', as well as the later 'along with the matter' (424b3) that occurs when he speaks of the way plants receive heat and cold, as referring to the matter which is the external substrate for the sensible quality, not the matter of the sense organ. What Aristotle was trying to account for was the responsiveness of the sense organ to just one aspect of objects in its vicinity. This is, I believe, the import of his saying that "each sense is affected by what has color or flavor or sound but not in as much as each of these is meant but as a such, . . ." ³⁰ i.e., it is not the whole particular reality of the thing bearing the sensible quality that affects the sense but just the sensible quality itself "in virtue of the formula," i.e., as a repeatable item.

It is Aristotle's view that to be responsive just to the sensible quality of something requires being something that is in itself in a mean state between opposites. The parts of plants are not in such a mean state as regards cold and heat and hence when they are affected by something cold or hot they are not just affected by those qualities but by lots else as well. Hence Aristotle says they are affected along with the matter. In other words, Aristotle's prime concern, so far as these passages are concerned, is to note something which at the level of sensation is an analogue to abstraction. Each sense selectively responds just to a certain range of qualities situated on a continuum of opposite extremes. It is far from being cognizant of the whole reality of the physical objects encountered.

On my interpretation *De anima* II, 12, says nothing about the way the *logos* of the quality exists in the sense organ, only that it is caused to exist there simply by the quality itself, not in any way by that quality's subject. It is a separate point that in fact the *logos* does have another mode of existence, viz., one in which it is exhibited somehow by a motion. Nevertheless, this is a point Aristotle did indeed make, and commentators like Alexander were right to note it, although wrong to think it was implied in *De anima* II, 12.

In *De anima* II, 7, Aristotle drew a distinction between something's being colored *kath hautō* and being colored on account of something else.³¹ The former is what "has in itself the cause of its being visible." Aristotle referred here to ordinary colored objects which we think retain their color relatively independently of the environment. Transparent things are colored in the second way; they do not have in themselves a cause of their own visibility but become visible, i.e., colored, by the action on them of objects colored in the first, *kath hautō*, sense. It is evident from a remark in *De sensu* that Aristotle did mean that transparent things show a color—air and sea, he said, do this but in such a way that not the same color is shown to one close by as to one far away.³² Now the crucial fact about the eye, Aristotle held, is that it contains water, i.e., a transparent medium.³³ In the process of sensation this becomes colored, but not in the *kath hautō* sense; hence we have here an instance of assimilation of the sense organ to the object sensed without supposing that the sense organ is colored in the same sense that the external object is.

Alexander was wrong to think that Aristotle imagined this process to be like mirroring. In *De sensu* Aristotle explicitly rejected the view he attributed to Democritus that the eye, because it is smooth, possesses an image of external things and this is what accounts for seeing.³⁴ How would Democritus explain why inanimate objects that mirror do not see, Aristotle asked, here having noticed the very point which causes difficulties for Alexander. Of course, one might ask the analogous question about Aristotle's own theory since it allows that both eyes and inanimate transparent things receive color without having in themselves a cause of their visibility. But more about that problem later.

If not mirroring, just exactly what was Aristotle proposing goes on in the eye during sensation, and further, what generally is going on in all the five senses? What Aristotle said on this point seems to me fairly schematic and an attempt to blend elements from quite disparate theories. Certainly Aristotle thinks of sensation as a physical motion in the sense organ.³⁵ It is a motion which somehow preserves the *logos* of the sensible quality. Aristotle treats each sensible quality as instantiating a ratio of opposites; this ratio is preserved in the motion of the sense organ, as well as in the motion of the medium which conveys the effect of the external sensible quality to the organ.³⁶ The organ itself must exhibit an intermediate or mean state, a sort of balance between the opposites in which they cancel each other out and leave the organ imperceptible to the sense it is the organ for.

But did Aristotle think that sensation just *was* this sort of assimilation of the sense organ to the sensible form? The answer to this I think is in a sense yes and in a sense no, and it was the failure of the peripatetic commentators to understand precisely Aristotle's doctrine on this matter that led to the confusion that culminates so many centuries later in Aquinas's incoherent theory.

The crucial point to understand is that Aristotle thought that sense perception is among those processes that should be defined by mentioning an extrinsic cause of either the efficient or final type.³⁷ What we have in the case of sense perception is a motion that belongs not to the soul, since the soul is motionless,³⁸ but to the composite of soul and sense organ, with the motion occurring in the organ but terminating with an effect in the soul. Let me cite two passages where this doctrine emerges. First *De anima* I, 4 (408b15–18), where Aristotle refers to various psychological *pathe*, sensation included:

What we mean is not that the movement is in the soul, but that sometimes it terminates in the soul and sometimes starts from it, sensation, for example, coming from without, and recollection starting from the soul and terminating with the movements or states of rest in sense organs.

Second, this passage from *De sensu* 2 (428b8–16) (in Hett's translation):

For the soul or the sense organ of the soul does not reside in the surface of the eye, but must evidently be within; consequently the part within the eye must be transparent and receptive of light. This is clear from what actually occurs; for it is a fact that when in war men have been struck on the temple so as to sever the channels from the eye, darkness has seemed to fall on them as if a lamp has failed, because the transparent substance, called the pupil, has been cut off, like a lamp screen.

Together the two passages reveal that unless the physiological process in the sense organ somehow has a causal effect on the soul situated within (probably in the heart) we do not have any conscious awareness of anything.

I have argued elsewhere³⁹ that the effect on the soul that Aristotle has in mind is a *krisis*, i.e., what is often translated as ‘judgment’ but which is perhaps better rendered by ‘cognition’. Like most of Aristotle’s psychological terms it admits of the first actuality/second actuality ambiguity, and in this case should definitely be viewed as a first actuality, i.e., as a sort of dispositional state. That the process in the sense organ terminates in this *krisis* is necessary and sufficient to make that sort of process a case of sensation. From the fact that for the most part all we find in the discussion of sensation in *De anima* is a characterization of the physiology of sensation, we should not in my opinion draw the conclusion that Aristotle thought sensation could be defined as simply this sort of physiological process. The extrinsic “final cause” of the process, i.e., its end result in the soul, has to be brought into the definition.

Perhaps this provides the clue to an understanding of the most enigmatic of all Aristotle’s remarks in *De anima* II, 12, the one which occurs right at the end. After tentatively allowing that air is affected by the smell of something so as to itself stink, Aristotle asked what is smelling (i.e., perceiving smell) besides such an affection, since obviously air does not smell, it only stinks. His reply is the apparently totally unhelpful final sentence of the book:

Perhaps smelling is perceiving while air, once affected quickly becomes perceptible.

Maybe what Aristotle means here is simply that smelling involves cognition, a *krisis*, i.e., the process has to touch the soul, and that there is no significant intrinsic difference in the physical processes themselves.

On my view Albert was not far from Aristotle’s intentions when he claimed that besides the spiritual existence of the sensible form in the external sense organ there is required a “judgment” on the part of the sensitive soul if we are to have genuine sensation. Certainly it is Aristotle’s view that a *krisis* must occur and that an internal common sense organ has something to do with this. If the *krisis* is a second actuality, it must occur in this organ, but ultimately, on my interpretation, the soul itself must as a result of the physiological motions acquire a first actuality *krisis* if all this physiological activity is to amount to genuine sensation.

So when we ask: Is sensing for Aristotle just the same as the assimilation of the organ to the sensible form, in a way the answer is yes, because the activities of sensing when it results in a *krisis* in a soul, and where such a process does occur with no such result (e.g., water in the sea looking gray) it is not a sensing. I do not think any of the commentators surveyed here grasped the full nature of Aristotle’s account.

This failure on the part of the peripatetic tradition of commentators meant that they never understood how Aristotle’s detailed discussions of the physiology of sensation fit into an overall theory of sense perception. It was

difficult to view those discussions as the whole of the theory since there is, on Aristotle's account, not much difference between what goes on in the sense organ and what goes on in some inanimate things. Is the assimilation doctrine, then, not about physiology at all but a theory as to what goes on in an incorporeal soul? But then why would Aristotle be so interested in physiology if it were not describing the basic process of sensation? A genuinely coherent account along Aristotelian lines eluded them all, because no one properly realized how Aristotle could see sensation as both a process in the sense organ as well as a process which acquires its status as a sensation from something that happens in the soul itself, not the organ.

NOTES

1. I would like to thank my colleague Richard Bosley for helpful comments on an earlier draft of this paper.
2. S. M. Cohen, "St. Thomas Aquinas on the Immaterial Reception of Sensible Forms," *The Philosophical Review* XCI(2)(1982): 193–209.
3. *In Aristotelis librum de anima commentarium*, lib.ii, lectio 24, 551.
4. Cohen, op. cit., 193–94.
5. *Ibid.*, 206–07.
6. *Ibid.*, 207.
7. *In Aristotelis librum de anima commentarium*, lib.ii, lectio 24, 553.
8. This emerges quite clearly from Richard Sorabji's discussion of how the peripatetic tradition from Alexander on "dematerialized" Aristotle's account of sensation. See "From Aristotle to Brentano: The Development of the Concept of Intentionality" in *Oxford Studies in Ancient Philosophy*, supplementary volume, 1991: *Aristotle and the Later Tradition*, H. Blumenthal and H. Robinson, eds., (Oxford: Clarendon Press, 1991), 227–59.
9. In his "St. Albert, the Sensibles, and Spiritual Being," in *Albertus Magnus and the Sciences, Commemorative Essays 1980*, 291–320, ed. James A. Weisheipl (Toronto: Pontifical Institute of Medieval Studies, 1980).
10. Albertus Magnus, *In Aristotelis librum de anima commentarium* (in *Opera omnia*, C. Stroik, ed., tom VII, p.i) II, iv, 8, 159.71–80.
11. Op. cit., II, iv, 12, 165.20–30.
12. *Epitome of the Parva Naturalia*, 31.45–32.49, in Shields and Blumberg. Cited by Sorabji, op. cit., 255.
13. *Averrois Cordubensis commentarium magnum in Aristotelis de anima libros*, ed. F. Stuart Crawford (Cambridge, Mass., Medieval Academy of America, 1953), 317, 1.20–32.
14. *Simplicii in libros Aristotelis de anima commentaria*, ed. M. Hayduck (Berlin: Reimer, 1882). See 56, 35–38.
15. *Ibid.*, 166, 13–19.
16. *Ioannis Philoponi in Aristotelis de anima libros commentaria*, ed. M. Hayduck (Berlin: Reimer, 1897), 437, 8–11.
17. *Ibid.*, 438, 4–10.
18. *Ibid.*, 438, 10–20.
19. *Ibid.*, 439, 5–20.

20. Aristotle himself admits that some *energiαι* are *kineiseis*. See *Met.* V, 15 1021a21; *De an.* II, 5, 417a15.
21. Sorabji, op. cit., cites texts which show that the “activity” is caused in the medium as well.
22. *Themistii in libros Aristotelis de anima paraphrasis*, ed. R. Heinz (Berlin: Reimer, 1890), 77, 28–78, 8.
23. *Ibid.*, 78, 8–14.
24. *Ibid.*
25. *Alexandri de anima liber cum mantissa*, ed. Ivo Bruns (Berlin: Reimer, 1887), 38, 21–39, 2.
26. *Ibid.*, 39, 12–14.
27. *Ibid.*, 62, 11–16.
28. *Ibid.*, 43, 18–44, 2.
29. See the analysis by G. Verbeke in *Themistius commentaire sur le traite de l'ame d'Aristote. Traduction de Guillame de Moerbeke* (Leiden: E. J. Brill, 1973), ix–xv.
30. J. K. Ward, in her “Perceptions and Λόγος in *De Anima* ii 12,” *Ancient Philosophy* 8: 217–33, takes the view that ‘ἐκαστον ἐκείνων’ refers to each of the kinds of sensible objects, i.e., color flavor, sound, etc., which have just been mentioned. The ‘ἢ τοιουδί’ she thinks, refers to some determinate form of these. Aristotle’s point, then, is that it is specific qualities, not their genera, that affect the senses.
 This I find far-fetched. We want a reading of these lines which connects with what immediately precedes them, viz., the wax and signet ring analogue. But surely that analogue has nothing to do with a distinction between generic and specific qualities.
 Ward says (n. 19) that Simplicius, Philoponus, and Sophonias all adopted the gloss she wants to put on this passage. But the texts she cites do not seem to me to make anything like her point. They only insist that in receiving the form, the sense organ does not itself become characterized by that form but rather receives it “cognitively”. Apparently, Ward wants to interpret the phrase ‘το εἶδος τοῦ αἰσθητοῦ’ as something like ‘specific case of a sensible object’, but that seems quite uncalled for in the context.
31. 418a28–b5.
32. 439b1–5.
33. 438a13–17.
34. 438a7–13.
35. It is described as a *kinesis* in many places, e.g., 408b4, 408b15–17, 424a31.
36. This side of Aristotle’s theory is well discussed by Deborah Modrak in her *Aristotle, the Power of Perception* (Chicago and London: University of Chicago Press, 1987), 56–62; and by Julie K. Ward in op cit.
37. See *Met.* VII, 17, 1041a24–30. Cf. W. W. Fortenbaugh, *Aristotle on Emotion* (London: Duckworth, 1975), 9–18.
38. I have discussed this feature of Aristotle’s soul in some detail in “Aristotle’s Motionless Soul,” *Dialogue* XXIX (1990): 123–32.
39. *Ibid.*, 124.