

Avicenna's Long Commentary on Book II of the *De anima* of Aristotle *

Texts on Light and Color (sections 66 - 75)

66. *The object of sight is the visible, and what is visible is (a) color and (b) a certain kind of object which can be described in words but which has no single name; what we mean by (b) will be abundantly clear as we proceed. Whatever is visible is color and color is what lies upon what is in its own nature visible; 'in its own nature' here does not mean that visibility is involved in the definition of what thus underlies color, but that that substratum contains in itself the cause of visibility.*†

Having terminated his general discussion about sensibles, Aristotle now returns to discussing the particular senses, and first discusses vision. And he states: *The object of sight is the visible*, etc. That is, it is manifest per se that the sensible which is properly attributed to sight is the visible. And the visible is color, and that which is similar to this among the things which seen in darkness; these two things together do not have a name in regards to color, nor do they have in themselves a name that describes that which is for them a kind of genus, but they can only be explained via a composite treatment; e. g. that we may state that there exist things which are seen in the dark and which are not seen in the light, like shells. Next he states: *what we mean by (b) will be abundantly clear*, etc. That is, we will also discuss after the second section, which states that color and these [things seen in the dark] are the visible, i.e. whether this can be stated equivocally or according to prior and posterior. Next he states: *The object of sight is the visible*, etc. That is, that which is visible in the truth of the thing is color; but color is that which is visible per se. But we say *per se* not in regards to the first intention of the intentions concerning that which it is said to be essentially (and this is the mode in which it is predicated in the substance of the subject), but according to the second intention (and that is [the mode] in which the subject is in the definition of the predicate). For color is the cause of a thing being visible. And when he states: *but that that substratum contains in itself the cause of visibility*, he means: insofar as color is a cause, or else that the cause occurs in it, such that something is visible.

67. *Every color has in it the power to set in movement what is actually transparent; that power constitutes its very nature. That is why it is not visible except with the help of light; it is only in light that the color of a thing is seen. Hence our first task is to explain what light is. Now there clearly is something which is transparent.*

And the substance of color, and its essence, according to which it is visible, is that which moves the transparent [to be] in act. Next, he states: *that power constitutes its very nature*, etc. That is, this description also reveals its nature and substance, insofar as it is visible. And the sign that color is that which moves the transparent to be in act, and not transparent in potency, is that it will not be visible without light, through which the transparent in potency becomes transparent in act. And this either demonstrates that Aristotle himself supposes that colors exist in darkness in act, and if light is necessary so that color is seen, this is only insofar as it makes that which is transparent in potency be transparent in act; or else that he is supposing that light is necessary for seeing insofar as colors exist in darkness in potency, and insofar as the transparent also needs it in receiving color so that it become translucent in act. And Avempace challenged this description of the transparent, and said that it is not necessary that the transparent, insofar as it is moved by color, be translucent in act. Since its transparency in act is its illumination, and its illumination is some color; for color is nothing except an admixture of a lucid body with a transparent body, as is stated

* This translation is based on the Latin text contained in *Averrois Cordubensis : commentarium magnum in Aristotelis de Anima libros* (Mediaeval Academy of America, Cambridge [Mass.], 1953). This translation is not a critically revised version; hence, it should not be cited for the purposes of academic publications.

† The translation of the Aristotelian texts here is taken from the public domain text of "On the Soul", translated by J. A. Smith. Where the Latin text differs significantly, I will note this in the footnotes.

in the *De Sensu et Sensato*; and everything that receives something only receives it in the manner in which it is lacking that [which it receives]. And this confines him to expound this text in a manner different from that which the [major] commentators do, and he says: and it should be said that color moves the transparent to be in act, i.e. that it moves the transparent from potency to act, not that it moves the transparent qua transparent; but light is necessary for seeing that colors in darkness are in potency, and [light] itself makes them to be in act so that they move the transparent insofar as the transparent lacks light, or by that which comes about by light, i.e. by color. And this interpretation is very difficult, in regards to what his words express. But Alexander gives the explanation that the transparent in act is moved by the color insofar as it appears. For air frequently appears to be colored by a color which we see via the air, as walls and the ground are colored with the color of plants when clouds pass over them. Therefore, if the air was not colored by the color of those plants, the walls and earth would not be colored. And it is clear that color, although it comes about due to a luminous body, nevertheless differs from it in definition and essence; for color, as has been said, is the limit of a bounded transparent [body]; but light is the complement of a non-bounded transparent [body]. Therefore it is clear that that which is moved by color need not be non-luminous, but it is necessary that it be non-colored. For nothing receives itself, or is the cause of another's receiving itself. And this is a proposition which is per se manifest, and Aristotle uses it frequently; and it is indifferent as to whether the movement and reception are spiritual, as air receives color, or material, as when a body composed of a luminous [part] and a translucent [part] receives color. And given that it is possible that the transparent in act be moved by color, it is necessary that it be thus affected either essentially or accidentally, i.e. either insofar as it is transparent in act, or else insofar as it is just transparent, although it happens that it is not moved by colors unless it is being transparent in act; for this is insofar as it is transparent. And this is the opinion of Avempace. But it is manifest per se that light is necessary for colors being visible; and this either [means] that it gives colors the form and actuality by which they act upon the transparent, or else that it gives the transparent the form by which it receives motion from colors, or both. And it is manifest that, when we conserve what Aristotle stated at the beginning of this text (and he himself posits it as a position which is practically manifest per se), then it will be necessary that light not be necessary for colors being movers of the transparent, except insofar as it gives the transparent a certain form by which it receives motion from colors, i.e. illumination. For Aristotle posited the principle that color is visible per se, and that it is similar to say that a color is a visible [being] and that a man is a laughing [being], i.e. [this is] of the genus of essential proposition in which the subject is the cause of the predicate, and the predicate is not the cause of the subject, as when it is stated: man is rational. And this is what he meant when he said: *that the substratum contains in itself the cause of visibility*, as we have already explained. And having conceded this, it is clear that it is impossible to say that light is that which grants to color the actuality and form by which it becomes visible. Because, if it were thus, then the relation of vision to color would be accidental and secondary, not primary, i.e. via this actuality. For it is clear that vision is something posterior to the visible, and that its relationship to color is not like the relationship of rationality to man. Therefore it is clear that its relationship is like that of risibility to man; and thus color, qua color, is not visible via another form which affects it [externally]. And since this is so, light is not necessary for color being a mover in act, except insofar as it gives a motion to its proper subject. And it appears that Aristotle did not posit what he posited except in order to resolve this question. And therefore his statement that color moves the thing visible in potency in darkness, must be understood in this way; for light is that which make these things to be movers in act; therefore, he compares light to the agent intellect, and colors to universals. For that which he derives by example and at length is similar to that which he derives by demonstration; but that which is derived from an example is [a thing's] manifestness, not its demonstration. And one cannot say that color does not

come about in act unless light is present. For color is the limit of a bounded transparent [body]; but light is not the limit of a bounded transparent body, and therefore it is not necessary in order that there be color, but [in order that color] be visible, as we have stated. Therefore, let us go back and say that, having declared that color, insofar as it is visible, moves the transparent to be in act, and that this is by its nature, because it is visible per se, and that it is impossible that there be vision without light, we must return to stating that which must be first understood concerning these things. And he states: *it is only in light that the color of a thing is seen*, etc. I.e. but [in order to state] that no color is visible except in light, it is necessary first to explain light; for light is one of those things which go to make up vision. Next, he states: *Now there clearly is something which is transparent*. I.e. a complete explanation requires that we first state what the transparent is.

68. *By 'transparent' I mean what is visible, and yet not visible in itself, but rather owing its visibility to the color of something else; of this character are air, water, and many solid¹ bodies. For neither air nor water is transparent because it is air or water; they are transparent because each of them has contained in it a certain substance² which is the same in both and is also found in the eternal body which constitutes the uppermost shell of the physical Cosmos.* Having stated that it is first necessary to consider the nature of the translucent, he begins here to describe it. And he states: *By 'transparent' I mean what is visible*, etc. I.e. the transparent is that which is not visible per se, i.e. by the natural color existing in it, but rather is that which is visible accidentally, i.e. by an external color. And that which he said is manifest. And thus it innately receives color, since it has no proper color in itself. Next he states: *Neither air nor water is transparent because it is air or water*, etc. I.e. in order that transparency not only exist in water nor only in air, but also in the celestial bodies, it is necessary that transparency not exist in any of these in virtue of its being that which it is, e. g. insofar as water is water or the heavenly body the heavenly body, but insofar as a common nature exists in all of these, even though it has no name. And that which he has stated is manifest.

69. *But light is its act, i.e. of the transparent, insofar as it is transparent, but in potency it is that in which it is [present] along with darkness. And light is like a color of the transparent, when it is transparent according to actuality by fire and the light, and the superior body, for in it this same [transparency] also exists. Therefore, it has now been stated what the transparent is, and what light is, and that it is neither fire, nor body absolutely, nor something accompanying body absolutely, since, were it so, then any body would be in this way. But there is the presence of fire, or else something similar, in the transparent. For it is impossible that two bodies be in the same place.*

Having stated the nature of the transparent, which is from light similarly to how matter is from form, he begins to define what light is. And he states: *But light is its act, i.e. of the transparent*, etc. That is, the substance of light is the perfection of the transparent qua transparent, or the perfection of this nature which is common to bodies. And when he states: *but in potency it is that in which it is [present] along with darkness*, i.e. The transparent in potency is that in which this common nature occurs along with darkness. Next he states: *And light is like a color of the transparent*, etc. I.e. light in the non-bounded transparent is like color in the bounded transparent, since the transparent is transparent in act due to a naturally luminous body, like fire, and similar [statements can be made] of the highest luminous bodies. Next he states: *for in it this same [transparency] also exists*, etc. That is, the nature of transparency existing in the celestial body is always related to that which causes this disposition in act; and therefore never occurs that the heaven is transparent in potency,

1 Here, the Latin translation of Aristotle has the term "celestial" in place of "solid".

2 The Latin has "nature" in place of "substance".

like those [natures] which are inferior, since there are sometimes luminous bodies present and sometimes not; but the nature of the heaven is always illuminated. And on this basis he also declares that colors do not acquire their actuality from light; for light does not exist unless there exists the actuality of a transparent body ...

70. The opposite of light is darkness; and darkness is the absence from what is transparent of the corresponding positive state above characterized; clearly therefore, light is just the presence of that [intention]³. Empedocles (and with him all others who used the same forms of expression) was wrong in speaking of light as ‘traveling’ or being at a given moment between the earth and its envelope, its movement being unobservable by us; that view is contrary both to the clear evidence of argument and to the observed facts; if the distance traversed were short, the movement might have been unobservable, but where the distance is from extreme East to extreme West, the draught upon our powers of belief is too great.

Having explained that light is the perfection of a transparent body qua transparent, he now begins to explain the manner by which it is demonstrated that light is not a body, but is rather a disposition and actuality in a transparent body. And he states: *The opposite of light is darkness*, etc. That is, it also seems that light is the opposite of darkness in regards to privation and actuality. Next he states: *clearly therefore, light is just the presence of that [Tr. vetus: intention]*. That is, concerning this issue, i.e. that darkness is the privation of light in the transparent, it is stated that light is not a body, but is the presence of an intention in the transparent—whose absence is said to be darkness—in the presence of a luminous body. And what he states is manifest, since the subject of darkness and light is a body, and is transparent; but light is the form and actuality of this body, and if [light] were a body, then a body would be penetrating another body. Next he states: *And Empedocles was wrong*, etc. That is, that Empedocles said nothing [true] when he stated that light is a body, and that it is first transferred and travels between the Earth and the circumference, and then is transferred to the Earth, but the senses do not perceive it because of the velocity of the motion. Next he states: *that view is contrary both to the clear evidence of argument and to the observed facts*, etc. That is, this statement, i.e. that of Empedocles, is contrary to reason. For it is possible that this [travel of light] would not be sensed over short distances, but over a maximal distance, i.e. that from west to east, this [theory] maximally departs from reasonableness.

71. What is capable of taking on color is what in itself is colorless, as what can take on sound is what is soundless; what is colorless includes (a) what is transparent and (b) what is invisible or scarcely visible, i.e. what is ‘dark’. The latter (b) is the same as what is transparent, when it is potentially, not of course when it is actually transparent; it is the same substance which is now [perhaps]⁴ darkness, now [perhaps] light.

Having explained that color is a mover of the transparent insofar as it is transparent in act, he here begins to give the cause of this. And he states: *What is capable of taking on color is what in itself is colorless*, etc. That is, that color is a mover of the transparent, because the recipient of color must lack color. And that which lacks color is a per-se non-visible transparent [body], but if it is said to be visible, that will be like saying that darkness is visible, i.e. that it is inherently visible, since the transparent will be dark when light is not present. And this is what he meant when he said: *what is colorless includes ... what is invisible or scarcely visible, i.e. what is ‘dark’*. that is, [what is invisible] or what is visible insofar as it is said that darkness is visible. Next he states: *The*

3 The Latin inserts the term “intention” here.

4 The Latin inserts the term “perhaps” (forte) here.

latter is the same as what is transparent, etc. That is, the transparent which is not visible per se is not the transparent which is actualized by light, but the transparent which is illuminated in potency. Next he states: *it is the same substance*, etc. That is, the transparent is found to exist according to these two dispositions, because the nature which receives transparency in certain things receives both of them; for sometimes it is found to exist as dark and sometimes as transparent. And he says *perhaps* because this does not occur equally in this nature, but just in generable and corruptible transparent bodies. The nature of the celestial bodies, however, never receives darkness, except that which is attributed to the Moon in eclipse, and due to the diversity of its positions with respect to the sun (if we concede that the nature of the moon is among the transparent natures, and not among the luminous natures; and perhaps the moon is composed of these two natures).

72. Not everything that is visible depends upon light for its visibility. This is only true of the 'proper' color of things. Some objects of sight which in light are invisible, in darkness stimulate the sense; that is things that appear fiery or shining. This class of objects has no simple common name, but instances of it are fungi, flesh, heads, scales, and eyes of fish. In none of these is what is seen their own proper' color. Why we see these at all is another question.

Having already stated that color is one of the things which are visible, and another is non-color (and that is something which has no common name), and that it is a property of color that it not be seen except in light, he begins here to explain the disposition of those other visibles which are contrary to color, i.e. which are seen in the dark and not in the light. And he states: *Not everything that is visible depends upon light for its visibility*, etc. That is, that not all visible things are seen in light, but only this is true, that the proper color of any given visible thing is seen in light, and it is indifferent whether that visible thing will be visible or not in the dark. Next he states: *Some objects of sight which in light are invisible*, etc. That is, we say that it is not necessary that every visible thing be seen in light, because there also exist certain things which are seen in darkness but not in light, like many animals, shells, horns, and other things. And these do not all have the same name. Next he states: *In none of these is what is seen their own proper color*, etc. That is, even if a thing is seen in the dark, nevertheless its proper color will not be seen then, but only in the presence of light; and therefore someone cannot say that any color is seen in the dark. Next he states: *Why we see these at all*, etc. That is, the cause by which these things are seen in the dark and not in the light must be explained in another place. And it seems that these things are seen at night and not in the day because there is in them little of a luminous nature; for the incoming light is not seen because of its weakness, just as happens [in the coincidence] of weak lights with strong ones (and for this reason the stars do not appear during the day). And the nature of color is distinct from that of light and the luminous; for light is visible per se, but color is visible via light.

73. At present what is obvious is that what is seen in light is always color. That is why without the help of light color remains invisible. Its being color at all means precisely its having in it the power to set in movement what is already actually transparent, and, as we have seen, the actuality of what is transparent is just light. The following experiment makes the necessity of a medium clear. If what has color is placed in immediate contact with the eye, it cannot be seen. color sets in movement not the sense organ but what is transparent, e.g. the air, and that, extending continuously from the object to the organ, sets the latter in movement.

Having explained what the visible is, i.e. color, and what the transparent is, and what light is, he here begins to summarize that which he has stated up to now. And he states: *At*

present what is obvious, etc. And what he states here is manifest, i.e. these two propositions, one of which [states] that all that which is seen in light is color, and the second, on the contrary, [states] that all color is seen in light. For it is clear that those things which appear in darkness are not seen according to their proper color. Next he states: *Its being color at all*, etc. That is, that what induces us to say this in thinking of a colored substance, insofar as it is visible, is that it is that which moves the transparent [to be] in act. And he means by this that this definition does not state the being of color except insofar as it appears to us, i.e. that it is impossible that color be seen without light, and that light enters the vision insofar as there is present in the transparent a preparation such that it is moved by color, not insofar as there is present the actuality of colors; and this was stated earlier. Next he states: *the actuality of what is transparent is just light*, etc. That is, that light is just the act of the transparent. And the sign of this is—that light does not exist without the transparent—is that, if something colored is placed directly on the eye, it will not be seen; for then there will not be light between the color and the vision, because there is nothing translucent there. When the transparent [medium] is removed, light is also removed; and where there is light, there is also a transparent [medium]. Next, he states: *Color sets in movement*, etc. That is, because of what we have said—i.e. that when a colored thing is placed directly on the eye, it is not seen—it is necessary that the vision of color not come about unless the color moves the transparent which is a medium between the color itself and the seeing [organ], and that the medium moves by its continuity with the seeing [organ]; such as air, because, when it is joined to the seeing [organ], it is moved by color when it is illuminated, and then [the air itself] moves the vision.

74. *Democritus misrepresents the facts when he expresses the opinion that if the interspace were empty one could distinctly see an ant on the vault of the sky; that is an impossibility. Seeing is due to an affection or change of what has the perceptive faculty, and it cannot be affected by the seen color itself; it remains that it must be affected by what comes between. Hence it is indispensable that there be something in between—if there were nothing, so far from seeing with greater distinctness, we should see nothing at all. We have now explained the cause why color cannot be seen otherwise than in light. Fire on the other hand is seen both in darkness and in light; this double possibility follows necessarily from our theory, for it is just fire that makes what is potentially transparent actually transparent.*

Having explained that the action of the vision is not perfected except by an intervening medium—a sign of which is that a colored thing placed directly on the eye is not seen, and also that vision is not perfected except by light, and light is not encountered except in a transparent medium—he here begins to criticize Democritus, who said that, if vision could exist in a vacuum, then it would be more accurate. And he states: *Democritus misrepresents*, etc. That is, since it has been stated that vision does not occur except in a medium, Democritus did not theorize correctly in saying that vision would be more accurate were it to occur via a vacuum. Next he states: *that is an impossibility*, etc. That is, his theory—that vision would be more accurate in a vacuum—is impossible. And a sign of this is what has already been stated, i.e. that vision, insofar as it is a sense power, is moved by and suffers by color, and color moves itself. And it is impossible that vision should suffer by or be moved by color, if the colored body were [postulated] as not directly connected to the vision, unless that colored thing first were to move the medium by touch, and the medium were to move the vision. And if there were a vacuum between vision and the visible thing, then [the visible thing] could not move the vision. For no actuality existing in a body acts except by touch. If, therefore, the last thing moved is not touched by the mover, it is necessary that there be a medium between them which transfers the passion, and that medium will be both touched and touching; the first [mover], however, will touch while not being

touched, and the thing moved last will be touched, but will not touch. Therefore it is necessary that vision suffer by a medium, and not by a vacuum, as Democritus thought. And this is a demonstration of the impossibility that vision come about in a vacuum, and not of the impossibility that vision could come about without a medium. For someone might object, saying that if the necessity of the existence of a medium were because the thing sensed is distinct from the thing sensing, then it will be necessary that if the thing sensed were to touch the vision, it would sense [the thing] itself; and this is not the case. And thus Aristotle did not intend to state here that vision necessarily needs a medium, but rather he wished to say that, if the things sensed were separated from the vision, it is impossible that [vision] occur via a vacuum, as Democritus thought. And it further follows from this that sense necessarily needs a medium, i.e. that the things sensed, if they were placed directly on the [sense organs], would not be sensed, and that vision also will not occur without light, and light does not reach [vision] except via a medium. Next he states: *We have now explained the cause*, etc. That is, since it has been explained that vision necessarily needs a medium, it has [also] thereby been stated what the cause is for color not being seen except in light, and it is that it is not seen except via a medium. And this demonstrates that Aristotle himself did not believe that the cause for light being [involved] in vision is that it causes colors to be in act, as some have stated. Next he states: *Fire on the other hand*, etc. That is, a fire built in darkness or in light is visible in both, i.e. it makes a transparent medium to be in act insofar as it is luminous, and it moves [the medium] insofar as it is color in a body.