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Robert Grosseteste: Optics and Perception

John Shannon Hendrix

In *De Luce seu de inchoatione formarum*, the treatise on light written between 1225 and 1228, Grosseteste explains that light is the first corporeal form, the origin of matter. A point of light autodiffuses itself instantaneously into the form of a sphere of any size, the sphere being the geometrical form which encapsulates all structure of matter, from classical philosophy. Some scholars reported that Anaximander conceived the sphere as the form from which matter was generated, beginning with heat and cold; a sphere of flame surrounded the air which surrounds the earth with its water, incorporating the four elements. According to Pseudo-Plutarch in his *Stromata*, Anaximander “said that at the beginning of the world there separated itself out from the external a something capable of producing heat and cold. It took the form of a flame, surrounding the air that surrounds the earth....This sphere became broken into parts, each of which was a different circle; which is how the sun, moon and stars were generated.”¹

Anaximander was also seen to believe that the earth maintained a position at the exact center of the sphere, with all the radii connecting the earth to the surface of the sphere of equal length, as they would be between the point of light and the surface of the sphere of light of Grosseteste. According to Hippolytus in his *Refutatio*, Anaximander “held that the earth is a body suspended in the sky, not resting on anything else but keeping its position because it is the same distance away from all extremities.”² The earth is at the exact center of the cosmic sphere, and the earth keeps its position because it occupies the center; since all space and distance around it are equal, there is no force to move it. According to Aristotle, “a thing established in the middle, with a similar relationship to the extremes, has no reason to move up rather than down or laterally; but since it cannot proceed in opposite directions at the same time, it will necessarily remain where it is.”³ According to Socrates in the *Phaedo* 108, “an equilibrated thing set in the midst of something of the same kind will have no reason to incline in one direction more than in another.”⁴

In the *De Luce* of Grosseteste, light is the first corporeal form because it is without dimension and is the closest “to the forms that exist apart from matter,” meaning the “intelligences” or intelligible forms. By “multiplying

itself and diffusing itself instantaneously in every direction,” light introduces “dimension in every direction into matter.” Matter, the substrate of material form, from Aristotle, has no dimension, no measure or organization. It is that element of sensible reality which cannot be quantified, which is unparticipant in human reason. Reason introduces dimension into the sensible world. Matter or the material substrate is that element of sensible reality which is exterior to reason.

According to Grosseteste, the infinitely simple is multiplied infinitely in order to produce the finite quantities that define the sensible world, as conceived by human intellect. Grosseteste’s reasoning is that only a finite quantity can infinitely exceed an infinitely simple quantity. The finiteness of the quantifiable world and the extents of human reason are proposed as the necessary, even ideal, by-products of the infinite. The concepts of human intellect, the products of discursive reason, constitute a finite participation in the infinite, a corporeal participation in the incorporeal. Thus it is only when the infinite can participate in the finite, the incorporeal can participate in the corporeal, or light can participate in matter, within human reason, that human reason can understand its relation as finite to the infinite. In the *De anima*, Aristotle described that which mind thinks as “in it just as characters may be said to be on a writing-tablet on which as yet nothing actually stands written...” (3.4.429b30–430a10).⁵ Intelligible thoughts are eternally and infinitely present, and intellectual development is defined by the extent to which the material intellect in its finite capacity can acquire knowledge and understanding of the intelligibles of active intellect. Human thinking is contained within a cosmic intellect, at the point at which the infinite multiplication of the infinite produces the finite; the cosmic intellect is infinite in scope in relation to human intellect and contains all of its possibilities.

The infinite multiplication of light extends finite dimensions into matter in the sequence of point to line, line to surface, and surface to solid, forming an atomic substructure of material forms in the form of geometrical solids, following the classical definition in the *Timaeus* 54–55, where the atoms of the four elements are defined as geometrical solids: the cube for earth, the pyramid for fire, the octahedron for air, and the icosahedron for water, each formed from the multiplication of surfaces from lines and points. The infinite multiplication of the infinite produces a finite series of dimensions in geometrical solids, which Plato defines as varieties of a genus rather than as species or forms, whose “combinations with themselves and with each other give rise to endless complexities...” (57).⁶

In the *De Luce* of Grosseteste, while there are an infinite number of points in a line, the finite multiplication of the point does not extend the line, while as there are an infinite number of angles “of contingence” (the angle between the circumference of a sphere and its tangent) in a right angle, the finite multiplication of the angle of contingence does extend the right angle. The infinite multiplication of the infinite is required for a point to become a line, for light to become form, but then the finite multiplication of the infinite is required for the line to become a surface and the surface to become a solid, the result of which is the infinite, in the endless complexities of the combinations of genus of Plato.

In the same way that light is the first corporeal substance for Grosseteste in the universe, light is also the first instrument of the soul, the *anima rationalis* or the mind, in its effect on the body through the senses. Light exists in the soul as unmixed and pure, as *lumen spiritualis* or spiritual light in the *irradiatio spiritualis* or spiritual irradiation in the *oculus mentis* or eye of the ind, but then “it is diffused through the eyes, and flashes out in rays to catch sight of visible things,”⁷ as Grosseteste explains the extramission element of perception in the *Hexaameron* (II.X.1). The extramitted light then appears to mix with what appear to be the four elements, pure air, “dark and cloudy air” (corresponding to fire?), “the more gross liquid,” and “the thickness of earth,” which produces the four additional senses of hearing, smell, taste and touch, in addition to the sense of sight, in which the light remains pure and unmixed.

In the *Hexaameron*, the commentary on the early chapters of *Genesis* written around 1237, pure light is the purest beauty and the purest harmony, because it is completely united with itself, and completely proportioned to itself harmoniously by its homogeneity, though it has no proportion. Beauty results from harmony in proportion, which is “most pleasing to the sight” (II.X.4). Light is beautiful when seen because it corresponds to the pure light in the soul, and harmonious proportions are beautiful when seen because they correspond to the proportions of the senses and the body. Grosseteste defines sense as “a power of receiving and grasping sensible likenesses without matter” (VII, XIV, 1), the reception of the *species* or form of matter, as separated from the material body. The soul, in that it receives the form in sense, is not subject to the actions of the human body. When the body is acted on, though, the soul turns its attention towards its passivity, its ability to be effected, and sense occurs. The soul is more attentive to the passivity of the body if the passivity is at odds with the workings of the soul in the body;

for example, something hurts more if it disrupts the harmonious functioning of the body as dictated by the soul. When “the passion of the body fits with the working of the soul,” the result is a pleasant bodily sensation.

The “species of sensible forms that are generated in the senses” (VIII, IV, 7), as in the *species sensibilis* or sensible form, constitute “the union of the bodily with the non-bodily,” the corporeal and incorporeal, body and soul, matter and light. Soul is connected to body in “the inclination of the mind that connects the species that is begotten in the sense with the begetting form that is outside the sense.” For example, in sight, in which the union of corporeal and incorporeal is most complete, “the color of the colored thing begets from itself a species that is like it in the eye of the seer,” and “the inclination of the soul of the seer connects the species of color that is begotten in the eye with the begetting color outside it.” The thing and the perceived form of the thing are different entities. What is perceived, the imprint of the form of the thing in the *imaginatio* or imagination in the mind’s eye, the sensible form, is a representation of the thing and not the thing itself. In the process of perception, the material body is united with the form of it which is perceived by the senses, as “the apprehension of sight does not distinguish between the begotten species and the begetting color.”

In the *Hexaemeron* of Grosseteste, “the species that is begotten in the particular sense [sight] begets from itself a species that is like to it in the common sense [*sensus communis*],” and the soul “connects and unites this begotten species with the begetting species in one act of imaging.” (VIII, IV, 8). Perception depends on *phantasia*, imagination, in the formation of the sensible form in the mind’s eye, from the *species apprehensibilis*, intelligible form, and the matching on the part of the soul of the sensible form and the perceived object. The mnemonic residue is a product of the formation of the form in the imagination, as “the species begotten in the fantasy of the common sense begets of itself a species that is like it in the memory” (VIII, IX, 9), and the soul connects “the begotten with the begetting” in imagination and memory.

When memory receives the mnemonic residue of the sensible form, a connection is not always made with a previous mnemonic residue or an intelligible form, but when the connection is made, when memory “passes from not actually remembering to actually remembering” (VIII, IV, 12) in intellection, “it begets and expresses from itself the actual intellection or understanding that is in every way like to itself,” in the understanding of the relation between the sense object, the sensible form, the mnemonic residue, and the intel-

ligible form, which are connected in intellection in the *virtus intellectiva* (noetic thinking, *nous poietikos*, the intellectual of Plotinus) through learned intellection in the process of perception, a kind of *intellectus in habitu* (intellection, exercise, as in the thought of George Berkeley), and the illumination of *intelligentia* (divine intellect, cosmic intellect) in the spiritual irradiation, illuminating the intelligible form in the mind's eye, just as the sensible form is illuminated by the sun. When that happens, "the begetting memory and the understanding that is begotten reflect on each other a mutual and connecting love," reflecting a desire in intellect, which can be seen as an illustration of the Trinity, based on the *De trinitate* of Augustine.

Grosseteste began his treatise *De lineis, angulis et figuris* (*On Lines, Angles and Figures, or the Refraction and Reflection of Rays*), completed before 1233 at Oxford, two years before he became Bishop of Lincoln, by stating that geometrical lines, angles and figures have effect in everything in the universe, in particular in rectilinear and circular motion, in both agency or cause and passivity or effect, and in regard to both material things or sensible objects, as in the sensible form, and the senses or perception, as in the intelligible form. Geometrical lines, angles and figures are important in understanding perception according to Grosseteste, in understanding the relation between the sensible object and the form of the sensible object (*eidos*), or how perception occurs. As the lines, angles and figures have an effect in both agency and passivity, in perception they would have an effect in both the intromission of rays of light to the eye and the extramission of rays of light from the eye, the combination of which is necessary for perception.

Lines, angles and figures are necessary in order to understand universal or prior causes of natural effects in both universal and particular actions, as for Proclus, for example, in the *Commentary on the First Book of Euclid's Elements*, geometrical and mathematical figures represent copies of eternal ideas of forms as actualized intelligibles. According to Proclus in the *Commentary*, the motion of understanding in mathematics and geometry is not a physical motion given by the senses, but a motion which "unfolds and traverses the immaterial cosmos of ideas, now moving from first principles to conclusions...referring its results back to the principles that are prior in knowledge" (18),⁸ the universal or prior causes of Grosseteste. Lines, angles and figures are used by Grosseteste to describe the extension of the *virtus* (force, power, agency) of a natural agent "into a passive object," either a material thing or a sense organ. The force is itself a form, which is an "imitation"⁹ or an idea, an abstraction of a natural occurrence. The force or form

given by an object does not vary in relation to how it is received, but it does vary once it is received according to the “diversity of the recipient,” the complexity of the receiving agent in terms of how it is equipped to receive the power in different varieties and different levels. The force or form of an object, although it is the same, is received differently by sense perception than it is by another object, because of the complexity and diversity of sense perception. Because the effects of the force are varied in sense perception, the received force is a “spiritual and more noble operation....”

If a force travels along a shorter line it is more active, because it is closer to the receiver. If the force is unmediated, then it will travel along a straight line, or a bent line, as in a refracted ray of light, but the force is stronger along a straight line, because of its evenness. The ray of light is weakened when it is reflected by a dense body, and the force is strongest when the line is allowed to pass by a rarefied body, less dense. Reflected light is weaker in the same way that reflected sound is weaker, as Aristotle says in *De anima*, because it is not traveling along a straight line. The force is strongest in reflection when the reflection is made from smooth or polished bodies, as in a mirror, and the force is weaker when the reflection is made from rough bodies. The smooth surface gives the strongest reflection because of its evenness and uniformity, as Averroes explained in his *De anima*. The uneven parts of a rough body cause the force or form to be fragmented and confused, and cause rays of light to be refracted at various angles.

The uniformity of the angle also ensures the highest force. Nevertheless, the force in a refracted line of light is stronger than in a reflected line of light, because of the smaller angle of diversion. Light which is doubly reflected or refracted is the weakest light, and is called “accidental light.” It is the most rarefied of light in terms of its force, and is the furthest from the source of light, which is the spiritual light, the original corporeity. The force is stronger in a reflection from a concave body than plane or convex bodies, because the rays of light reflected from a concave body converge in a point, as described by Euclid in the *Catoptrics*, and the force is condensed. In the *De natura locorum (On the Nature of Places)* of Grosseteste, a treatise written as a continuation of the *De lineis*, “when a concave mirror is turned toward the sun fire is kindled in it,” because “all rays reflected from the surface of a concave body concur in a point,” and in this instance “in and around that point is a combustive region....”¹⁰

As Grosseteste described in *De Luce* that the spiritual light autodiffuses itself instantaneously into the form of a sphere, so in *De lineis*, “every agent

projects its power [*virtus*] spherically, since it does so on all sides and along every diameter..." (Eastwood, p. 118). According to Averroes in his *De anima*, the sense organ, as in the eye in vision, can receive the force from the agent at any location, and at great distances, meaning that the force must be diffused in all directions in space, in the form of a sphere. As the force is strongest in a reflection from a concave body because the lines converge in a point, so the force is strongest from an agent if it is received by a recipient, as in the eye, if the lines of light converge in a point in the form of a pyramid or cone, as suggested by Euclid in the *Optics*. The different forces which emanate from different parts of an agent are united at the apex of the cone in the medium of the recipient; what would otherwise be a fragmented and dispersed collection of forces from the various parts of the agent are unified in a singular force as the agent is received by the eye in vision, in the intromission of the lines of light. The cone of vision allows the perceiver to see sensible objects as unified and homogeneous, as they are transformed in the sensible form in vision. The cone of vision facilitates the imposition of the form on sensible reality, as it is defined in geometry and mathematics, in the dimensions given to matter by light.

In the *De lineis*, an infinite number of cones of light can leave the surface of an agent, and the lines of light can converge in an infinite number of apices in the receiving agent, for example the eye. As force is stronger in a shorter line, so force is stronger in a shorter cone. With a shorter cone, the recipient is more closely joined with the agent, and can be more altered by the force in its receptive capacities. The apex of the shorter cone will be more active, but the apex of the longer cone will be more acute, as the angles are sharper, and the force in the lines will be more concentrated in the longer cone by the time it reaches the apex, and the most concentrated at the apex. The lines of the longer cone are also closer to being perpendicular to the surface of the agent, which would give them more force.

In the treatise *De Iride (On the Rainbow, or on the Rainbow and the Mirror)*, written just after 1230, Grosseteste defines the visible form as "an assimilating substance of the nature of the sun, lighting and radiating, the radiation of which, conjoined with the radiation of a wholly outwardly illuminating body, completes perception" (Eastwood, p. 179). The visible form is the form or force of light as defined in *De lineis*, but it emanates from the perceiver in extramission, rather than from the surface of the agent. Perception is thus both passive and active, and requires the participation of the viewer in the illumination of objects. The form which is produced by the act

of perception itself is the intelligible form, a product of the spiritual irradiation in the soul, as the incorporeal, inner light of Plotinus, and the light of the intellectual. The form of the rays of light in extramission in perception forms the first substantial form (*prima forma substantialis*) in the same way that the spiritual light is the first corporeal form.

In the same way that the intellection of the form as intelligible form requires the participation of the intelligible of the cosmic intellect in the intellectual, as in the participation of the active intellect of Aristotle in material intellect, in the formation of the sensible form, so the perception of the corporeal form requires the participation of the spiritual light in the illumination of the visible form. Avicenna described perception as the meeting of an external light with light from the eye. Bartholomew (Bartholomeus Anglicus) in *De proprietatibus rerum*, described perception using the model of intersecting cones or pyramids, with one cone extended from the surface of the agent to the viewer as apex, and the other cone extended from the viewer to the object as apex, as in the theories of Leon Battista Alberti and Athanasius Kircher, as will be seen.

The extramission of light from the eye in perception was described by Plato in the *Timaeus* (45c–d). According to Plato, the eyes are the first among the organs of perception. The gentle light from fire, which is not burning but which illuminates the sensible world, is the same light which flows through the eyes. The eyeball has a smooth and polished surface for the purpose of filtering through it only the pure gentle light from fire, which coalesces with daylight in a visual stream, resulting in the formation of “a single uniform body in the line of sight, along which the stream from within strikes the external object,” in the extramission of light from the eye. In the same way that the formation of the uniform body is a product of the combination of the intromission and extramission of light, for Grosseteste it is a product of the combination of the sensible form, resulting from the intromission of light, and the intelligible form, resulting from the extramission of light, although, as has been seen, extramission is required in addition for the sensible form, as intelligible form, as intromission is required in addition for the intelligible form, as spiritual light.

In the *Timaeus*, the sensible form of the uniform body is homogeneous because of the similarity between the light streaming from the eye and the daylight which enters the eye. When the stream of light from the eye comes into contact with an object, motions are created which “penetrate right through the body and produce in the soul the sensation which we call sight.”

The sensation would be the appearance of the sensible form in the mind's eye in imagination; Plato does not specify that the motions penetrate the polished surface of the eye, so perhaps factors are involved in the formation of the sensible form other than the stream of light itself, corporeal functions of the soul.

Sight is not possible without daylight, Plato explained, because the visual stream has nothing with which to coalesce, and is cut off. The visual stream is also cut off when the eyelids are closed, and since there are no motions, there is a calm. Sleep is calm when there are no motions, but residual motions can cause "images...formed internally and remembered as external events when we wake." The internally formed images correspond "in quality and number to the type and location of the residual motions..." The internally formed image is the mnemonic residue of the sensible form in imagination. Plato also explained reflections in mirrors as the result of the coalescing of the "internal and external fire," the extramitted light from the eye and the intramitted light of the sun. The internal and external fire "form a unity at the reflecting surface," on which light is projected from both the eye and the sun, where they meet as they would on the surface of any object, but in this case the light from the eye is reflected back to it as it is joined to the light from the sun. Because the light is reflected the image is much weaker than an object would be. The reflected image of an object in a mirror would have to be a combination of the sensible form of the object, given by intramitted light, and the intelligible form of the object, given by extramitted light, as the rays of light meet at the surface of the mirror.

In the same way that rays of light were described by Grosseteste in *De lineis*, in the *De Iride* there are three qualities of light extramitted from the eye. The ray of light of maximum force travels in a straight line through a "uniform transparency interposed between the viewer and the object" (Eastwood, p. 187). If it travels through the medium of a uniform transparency but "its path follows a straight line to a body having the nature of that spiritual mode, by which it is a mirror," then it is reflected as it meets a similar spiritual or intelligible force, and is weakened in its reflection. If the ray of light travels through "many transparencies of various kinds," it is refracted; the ray of light from the eye does not reach the object in a straight line, and it has the weakest force of the extramitted rays of light.

In the *De Iride*, "sight occurs through reception from within." Visual perception is both passive and active, because what is seen is the form of an object, an *eidos*, as it is imprinted in the mind's eye. But the sensible form of

the object must always already be an intelligible, given by the intelligible form, the product of the intellectual, in the irradiation of the spiritual light to create the visible form. As impressions are printed by the rays of light upon the mind's eye in the imagination in the soul, the passive part of perception in intromission, they are discerned by reason, subject to apperception (*vis aestimativa*), which is the active part of vision. The sensible form in perception is a simulacrum of the intelligible form; imagination is passive in relation to the intromission of light in the same way that discursive reason (*virtus cogitativa*), is passive in relation to the cosmic intellect in the intellectual (*virtus intellectiva*).

In the *De Iride, perspectiva*, the science of optics, is defined as being based on geometrical figures, which are in turn based on the operations of light. "We first say that optics is a science which is built on visual figures, and this includes the science which is based upon figures formed by radiant lines and surfaces, whether they are radiating projections from the sun, the stars, or any other radiant body" (Eastwood, p. 177). Sources for Grosseteste's theories of optics include the *Meteorologica* of Aristotle, the *Optica* and *Catoptrica* of Euclid, the *De aspectibus* of Alkindi, and works by Avicenna and Averroes. Light for Grosseteste is the instrument by which the intelligible form of archetypal knowledge in the intellectual is known as the sensible form of discursive reason (*virtus cogitativa, nous pathetikos*) in perception and sensation. Archetypal forms of knowledge given by the intelligible form are the *principia essendi* (intelligibles, essences) existing *ante rem* (immaterial, universal, before the object) as intelligibles or prior causes, while the discursive knowledge in reason in the soul, given by the sensible form, is composed of the *principia conoscendi* (principles, concepts) existing *in re* (as object), in particulars, in alterity.

The eternal forms of the intelligibles are only known to human reason when they are projected as concepts, in the irradiation of the spiritual light in the mind's eye. The rays of the spiritual light have the same relation to the interior eye (*ad oculum interiorem*), and the intelligible form, as the rays of light of the corporeal sun (*lumen solaris*) have to the bodily eye (*ad oculum corporalem*) and to the visible form or sensible form. As the intelligibles are only known as concepts, so the intelligible form is only known as the sensible form.

As the visible form is defined in *De Iride* as "an assimilating substance of the nature of the sun, lighting and radiating, the radiation of which, conjoined with the radiation of a wholly outwardly illuminating body, completes per-

ception,” in the *Commentary on the Posterior Analytics* of Grosseteste, in the same way that rays of light emanate from the sun, intelligibles are illuminated in the mind, in the interior eye (*oculus interior*). The spiritual light “floods over intelligible objects” (*res intelligibiles*), and “over the mind’s eye,” and “stands to the interior eye” (*oculus interior*) “and to intelligible objects as the corporeal sun stands to the bodily eye and to visible corporeal objects” (I.17, 39–42).¹¹ Sensible objects are understood to the extent that they correspond to the *visus mentalis*, the mental vision of them, which is made possible by the spiritual irradiation in the mind’s eye, as the light (*lumen solare*) of the sun makes sensible objects visible to the corporeal eye. Intelligibles are more receptive of the spiritual light, as they are not tied to corporeals, and are thus more visible to the mind’s eye of the incorporeal soul (*anima rationalis*). The more receptive the intelligible object or form is to the spiritual light, the more visible it is to the mind’s eye. The corporeal spiritual light (*lumen spiritualis*), light produced by the incorporeal spiritual light (*lux spiritualis*), allows the mental sight (*visus mentalis*), to apprehend the intelligibles in the intellectual (*virtus intellectiva*), as the light of the sun (*lumen solare*) makes perception possible.

Sense perception is not the cause of knowledge, but rather is the condition by which knowledge is possible, Grosseteste explained in the *Commentary on the Posterior Analytics* (I.18, 133–134), following Aristotle. Reason results from sense perception because reason is the apprehension of the thing signified, the intelligible form in relation to the sensible form. Reason, the *virtus cogitativa* or *virtus scitiva*, apprehends the signification or intelligible form still as a singular or individual, as it is connected with material things and determined by space and time, while the intellectual, as illuminated by the spiritual light of the cosmic intellect, apprehends the signification in its totality, as universal knowledge (I.18, 136, 164).

The reason is that that which perceives is not contingent with that which is perceived; what is perceived is the sensible form, not the object itself, the object-in-itself as it were, as determined in its singularity by the preconditions of space and time. In that what is perceived is the sensible form and not the object itself, sense perception already consists of a process of abstraction. As the individual sense perception is determined by space and time, there is no possibility of immediate, unmediated sense perception, as in phenomenology, or of an immediate knowledge of objects in the physical world outside of intellection. Sense perception is a spiritual operation rather than a physical operation, as Grosseteste says in the treatise *De lineis, angulis et*

figuris.¹² The abstractions made by sense perception are primitive in nature, confused and relative. The sensible form in perception is corrupted, indeterminate, and in flux, while the intelligible form in the intellectual is integrated and clear, as described by Grosseteste in the *Commentary on the Physics*.¹³ Sense perception receives reality as multiple, undifferentiated and incomplete, in what Plotinus saw as apperception, but the sensible object generates the singular image of it which is perceived. Intellection and sensation, language and perception, thus engage in a dialectical process involving the sense object and the perception of it, as in Plotinus and transcendental idealism in the nineteenth century.

In the *Commentary on the Posterior Analytics*, the sensible form is apprehended without matter, as illuminated by the intellectual; the intelligible form creates a likeness in understanding, as in *Enneads* V.3.2 of Plotinus, where “reasoning-principle in the soul,” discursive thought, “acts upon the representations standing before it,” the intelligible form, “as a result of sense perception,” the sensible form.¹⁴ For Plotinus, discursive reason approaches when reason recognizes its recent sense impressions and “adapts them, so to speak, to those it holds from long before,” the mnemonic residues or memory traces of previous sense impressions, in a process of reminiscence. This is also described in the *Hexaameron* of Grosseteste, and the *Theology of Aristotle*, a paraphrase of the *Enneads*.

In the *De motu supercaelestium* of Grosseteste, the faculty of sense perception is controlled by the *vis apprehensiva* of the soul, and its primary goal is only that of self-preservation. Sense perception is assisted by *sensus communis*; imagination, the formation of the *phantasmata* in the mind’s eye; and memory; as such it allows knowledge to be possible, the *scientia*, knowledge gained by abstraction in reason, and the *intellectus*, the knowledge of first principles or intelligibles; but sense perception is not the cause of knowledge. Sense perception alone cannot apprehend universals, which are the materials of knowledge. In the *Commentary on the Posterior Analytics*, sense perception alone can perceive things only in a particular signified place and time (I.18, 137–138); it can only perceive a particular, without the context given by the intellectual and the active intellect. As space and time, intelligibles in the intellectual, are the conditions of sense experience, sense experience cannot be the cause of *scientia* (*virtus scitiva*) or *intellectus* (*virtus intellectiva*), although it acts as a mediator or instigator in the intellectual process. It is up to the intellectual to combine and differentiate the particular qualities of objects as given by sense perception in the apprehension of the sensible form—

size, proportion, shape and color.

Because the sensible form, the form of the object, in sense perception is connected to material objects, sense perception restricts the incorporeal *virtus* of *intellectus* to a certain extent. In the *Commentary on the Posterior Analytics*, the active or cosmic intellect, as the highest part of the soul, has complete knowledge of both singulars and universals, because it is illuminated by a radiated spiritual light, and it is separated from the heavy, clouded body in sense perception, in the same way that the soul is separated from the body. As such, active intellect or *intelligentia* is separated from the *phantasmata* of corporeal objects in the imagination, the lower function of the intellectual, and from the desire created in the relation between the intellectual and the *phantasmata*, or mnemonic residues, the *affectus mentis*, the desire created by the multiple and fragmented images of perception as constructed in logic and discursive reason (I.14, 228–235). Sense perception supports the soul, but it is lower and separated from it, and is caused by it rather than being the cause of it. For Plotinus, sense perception was the lower part of the soul, intellection was the higher, and imagination was the mediator between the two.

Bodies and things in sense experience, as *principia essendi*, are mirror reflections of the *principia conoscendi* in intellect, as it is projected onto the sensible world through sense experience. Just as in Grosseteste's theory of perception, which requires the combination of the intromission of light as reflected off of sensible objects, and the extramission of light as projected from intellect, so the existence of bodies and objects in the world requires a dialectic of their essential being and their definition as projected onto them by intellect. This dialectic can be found again in Plotinus, and the transcendental idealism of Hegel. In *Enneads* I.4.10, *ratio*, or discursive reason, the lower part of the soul, "becomes like the reflection resting on the smooth and shining surface of a mirror." The sense impression itself of the sensible body or object exists in intellect as a reflection of the *principia conoscendi*. There can be no immediate sense perception of an object, without the mediation of the abstraction of the object in intellect, the formation of the *species* of the object, based on prior perceptions, in the process of intellection.

In the *Shifa: De anima* of Avicenna, intelligibles are differentiated in the compositive imaginative faculty, as in *Enneads* IV.3.29 and IV.3.30. In the *al-Madina al-Fadila* of Alfarabi, active intellect is compared to the sun, and light imprints *species* in the material intellect. Active intellect transforms sense perceptions into principles, which are the first intelligible thoughts, as in *Enneads* I.3.5. For Grosseteste, light (*lux*) is the first corporeal form, and

the cause of all becoming of natural things. Through *lux*, the mind is able to know the *principia essendi*, the intelligibles, as for Plotinus. As illuminated, the *principia essendi* become the *principia conoscendi*, the principles upon which reason is based. In the *Hexaameron* of Grosseteste, light is the instrument by which the form or *species* apprehended by the particular sense, the *species sensibilis*, corresponds to the form apprehended in the common sense, *sensus communis*, as *species apprehensibilis*. Imagination, *phantasia*, is the process of making that correspondence.

In his *Hexaameron* (VIII, IV, 7), Grosseteste described imagination as a process which combines the sense object, and the imprint of the form of the sense object in the senses, in intellection. The union of the sensible form and the intelligible form is the union of the corporeal and incorporeal, and the first step in intellection from the passive intellect of sense perception, weighed down by the corporeal, to the active intellect of the *virtus intellectiva*, freed from the corporeal. The best example of the correspondence between sensible form and intelligible form is color, which is visible in the corporeal object and in the mind's eye. Science has confirmed that color is not an inherent quality of a sensible object, but is rather a product of the reflection of light on the object, which requires the act of perception of the observer in order to exist. Because in the act of perception the color in the sense object is not distinguished from the color in the mind's eye, the "begetter and the begotten" are united, the color in the sense object and in the mind's eye, and the perceiver is united with the sense object in the act of intellection in perception.

Through the corporeal experience of sense perception, the knowledge on the part of the soul of the *phantasmata* as mnemonic residues in the imagination of the mind's eye is clouded or forgotten, and the soul is not aware of the correspondence being made in intellection in the process of perception, and takes the sense perception to be immediate of the sensible object, as the soul is weighed down by its corporeity. The *aspectus mentis* is the ability of the mind to grasp ideas through the perception of visual forms, the ability of the mind's eye to "see" the concept, the intelligible connected with the intelligible form, which is related to the sensible form, in that the sensible form is always already a product of the intelligible form in intellection in perception. The mind sees the intelligible in the *irradiatio spiritualis* of the *intelligentia*. Perception appears to be a learned process for Grosseteste, a product of the perceiver learning how to recognize objects and relationships in relation to previously perceived objects and relationships, in order to process them in

perception, as George Berkeley would propose in *A New Theory of Vision*.

In the *De anima* (3.7.431b, 2), Aristotle wrote that the human intellect thinks the forms in the images, that the sensible form is given by the intelligible form, which is formed in the imagination and is presented to discursive reason in the process of perception. According to Avicenna, or Ibn Sina, in the *Shifa: De anima* (235), also known as the *Metaphysica*, in the eleventh century, the image or *species* is formed in the *sensus communis*, as for Grosseteste, and is then received by the imaginative faculty, the *phantasia*, which combines the images in different configurations. Discursive reason then receives an “abstraction” of the *species* from the *phantasia*, a representation of the intelligible form which corresponds to the sensible form.

The sensible form of Grosseteste is a *similitudo* of the intelligible form, as a mnemonic residue, and is thus a representation of the intelligible form, which is itself a representation of the object to which its form corresponds. The representation of the representation in the mnemonic residue is what Sigmund Freud would call the *Vorstellungsrepräsentanz* in picture thinking, imagination, and dream formation. For Grosseteste in the *Hexaameron* (VIII, IX, 11), the *virtus* of the retentive memory must be proportionate to the *virtus intellectiva* or intellectual in order for the intelligible form to be formed. Memory is not always active (VIII, IX, 12), but when it is active it produces a *similitudo* of intellection, as the *ratio*, the lower intellect, or discursive reason (as in the conscious process of memory) mirrors the intellectual or *nous* (as in the unconscious process of memory), as Grosseteste described in the *Commentary on the Posterior Analytics*. This theory of perception is very similar to that of Plotinus.

In the *Enneads* of Plotinus, while perception grasps the “impressions printed upon the Animate by sensation” (I.1.7), the intelligible form, through the mnemonic residue, “nothing will prevent a perception from being a mental image for that which is going to remember it, and the memory and the retention of the object from belonging to the image-making power” (IV.3.29), or the imagination (*phantasia*) of Grosseteste. In the representation in the mnemonic residue, the intelligible form, “what was seen is present in this when the perception is no longer there. If then the image of what is absent is already present in this, it is already remembering, even if the presence is only for a short time.” Through memory, “an image accompanies every intellectual act,” as described in *Enneads* IV.3.30. Through the intelligible form, “the intellectual act is without parts and has not, so to speak, come out into the open, but remains unobserved within...” The intelligible form functions

as a kind of hieroglyph, communicating the elements of intellect which cannot be communicated by words, and are not accessible to discursive reason in language.

The function of language, or the extent to which language can function, is as the mirror reflection of the *virtus intellectiva* in *ratio*, discursive reason, in the facilitation of memory, in that, as Plotinus says, “the verbal expression unfolds its content and brings it out of the intellectual act into the image-making power, and so shows the intellectual act as if in a mirror, and this is how there is apprehension and persistence and memory of it.” The mechanism of perception mediates between the sensible world of objects in nature and the inaccessible intellectual, or *nous*, in a dialectical process between the subject and the world. There must be an “affection which lies between the sensible and the intelligible” as Plotinus puts it, “a proportional mean somehow linking the two extremes to each other” (IV.6.1), the sensible form and the intelligible form. In the perception of an object, “we look there where it is and direct our gaze where the visible object is situated in a straight line from us....” The object which is being perceived is already apprehended by the perceiving subject in relation to the perceiving mechanism, the construction of intellect involving the mnemonic residue and the intelligible form, through the use of geometry, as perception is understood in relation to geometry and mathematics, the intelligible mechanisms as the underlying structure, as for Grosseteste.

In his *Commentary on the Posterior Analytics*, Grosseteste defined *solertia*, a term from the *Posterior Analytics* of Aristotle, as translated into Latin by James of Venice, as the penetrating power of the mind’s eye, which is able to see beyond the surface of an image, such as a form, pattern, or symbol. If the eye sees color, for example, the mind’s eye sees the structure of which the color is an effect, as described in geometrical terms by Grosseteste in *De Iride*. *Solertia* is the ability to understand, in perception, the archetypal and intelligible forms that define perception itself, and define the process of intellection of the perceiving subject. *Solertia* is the clarity of the vision of the mind’s eye of the intelligibles of active intellect as illuminated by the irradiation of spiritual light and is thus a faculty of *sapientia* in the intellectual, the higher part of the soul.

In the *De anima*, Aristotle compared the active intellect, what can be taken as the *virtus intellectiva* or *nous*, the cosmic intellect, to light itself, in relation to the potential intellect, what can be taken as *ratio* or discursive reason, as “in a certain fashion, light makes potential colors actual...”

(3.5.430a 10–25).¹⁵ Aristotle contrasted the active or productive intellect, the *nous poietikos*, with the potential or passive intellect, the *nous pathetikos*. The active intellect illuminates what is intelligible in the sensible world. More precisely, the active intellect illuminates the intelligible form, what is intelligible in the *species*, in the sensible form as formed by the imagination or *phantasia*, from the imprint in sense perception, which is then given to discursive reason. The word *phantasia* comes from the word for light, *phôs* (3.3.429a 2–3). *Phantasia* is composed of after-images of sensations, traces in the mind’s eye, or what Sigmund Freud would call mnemonic residues. For Aristotle, *phantasia* is not part of intellect; it merely supplies intellect with the sensible form, which the intellect illuminates, as light makes potential colors actual, to form the intelligible form in actual intellect. It is impossible to think without mental images though, so the *phantasia*, though not part of it, is necessary for the functioning of intellect.

Alexander of Aphrodisias, in his commentary on the *De anima* of Aristotle in the second century, described the content of imagination or *phantasia* as “traces that perdure as a result of actual sensation” (68–69),¹⁶ as the mnemonic residue of sense perception, the sensible form which becomes the intelligible form through the interaction of intellect, and “representations which are perceptible to it even when the real sensibles have disappeared.” In that the real sensible is a representation to begin with, a sensible form, the trace in *phantasia* is a representation of a representation, what Freud would call the *Vorstellungsrepräsentanz* in imagination and dreams. The trace should only be called an impression in the metaphysical sense, according to Alexander, because the sensible object does not make an imprint in vision like the traces in wax of a signet ring, for example. The initial apprehension of the sensible form does not involve an imprint of a form, nor does the mnemonic residue of the sensible form in the imagination.

In his *Paraphrase of the De anima*, Themistius, wrote in the mid-fourth century that “when light becomes present in the potential [discursive] faculty of vision and in potential colors [prior to perception], it turns the former into actual vision [perception of the *virtus intellectiva*] and the latter into actual colors” (98–99).¹⁷ Potential intelligible thoughts are sense perceptions without the intellectual, which become mnemonic residues and are processed by the imagination; they are illuminated by the active intellect, and are compared to potential colors. *Phantasia* is the primary image-making faculty, and preserves the impressions in sense perception, when it is illuminated by the active intellect or *virtus intellectiva*, and in turn illuminates the imprints of the

sense perceptions as intelligibles, as light illuminates colors. It is through *phantasia* that the *phantasma*, or *species*, comes to exist in intellect as a *tu-pos*, imprint, or *morphê*, form, of the *aisthêma*, the sense impression (89).

The relation between the object of sense perception and sense perception itself is the same as the relation between sense perception and imagination, as both require the imprinting of the *species*, the former being the *species sensibilis*, the latter being the *species apprehensibilis*, functioning as the *Vorstellungsrepräsentanz* of Freud, the representation of a representation. Themistius compared the intelligible form to the print of a wax block on air, the wax block being the *phantasia* or imagination, “just as though the wax received the imprint of the seal right through itself, and after receiving the imprint and being enfolded in it had gone on to stamp the same imprint on the air” (92),¹⁸ the result being that “even though the wax and ring had gone away, the surrounding air had acquired a structure,” the intelligible structure. The enfolding of the *phantasia* in material intellect constitutes the process of actualization or entelechy of the material intellect to active intellect, in the perfection of the imagination through sense perception.

According to Themistius, natural light comes from a single source, and through the “multiplication of species” of Grosseteste, becomes multiple in different perceiving subjects. The unity and simplicity of the spiritual light becomes multiplicity and diversity in the physical light, as the unity of the intelligible becomes multiple in the sensible. When intellect thinks an object in matter, the sensible form, intellect and object are distinct, according to Themistius (*De anima* 97), but when intellect thinks the immaterial object, the intelligible form, as it has become an intelligible through the illumination of the intellectual, “what thinks and what is being thought are identical.” The same would be said for perception: when the perceiver sees the enmattered object, perception and object are distinct, but when the perceiver sees the intelligible form in the mind’s eye of Grosseteste, as again illuminated by the intellectual as an intelligible, what sees and what is seen are identical. As Plotinus said in *Enneads* I.6.9, “you are now become very vision” when you understand “that only veritable light which is not measured by space,” in the actualization of *nous* in vision, in the perception of the intelligible form.

Abu Nasr Alfarabi, in the *Risala* (25–27), also known as *De intellectu*, or *Letter Concerning the Intellect*, in the ninth century, wrote that the light of the sun, or transparency (from Aristotle, *De anima* 2.7.418b, 9–10), makes the eye, or potential perception, transparent or illuminated itself. When both the eye and the medium of the sensible world are transparent, that is, when

they are illuminated and can see the intelligible, then perception is possible. Colors become actually visible, and potential perception becomes actual perception. In the same way, active intellect makes potential intellect transparent, and *nous* make discursive reason transparent. The transparency of light and color illuminates the intellect in the process of perception, making intelligibles transparent to reason. Alfarabi compared what he called the “agent intellect” to the sun, and the potential intellect to the eye in darkness; it is the agent intellect which illuminates potential intellect and allows it to be active intellect. In the *Risala*: “Just as the sun is that which makes the eye sight in actuality and visible things visible in actuality, insofar as it gives illumination, so likewise the agent intellect is that which makes the intellect which is in potentiality an intellect in actuality insofar as it gives it of that principle,” illumination in principle, “and through this very same thing the intelligibles become intelligibles in actuality.”¹⁹

Alfarabi thus distinguished between a potential intelligible and an actual intelligible, and it is the agent intellect which is necessary as an entelechy, like the light of the sun, to make the potential intelligible understandable to the potential or material intellect, as a transparent medium, or mediating device. Darkness is potential transparency, and transparency is defined as illumination by a luminous source, that is, the sun. It is the agent intellect which thinks the archetypes and intelligibles, mathematics and geometry, abstractions of material forms. The divisible and impermanent form in matter, the *species* in vision, becomes the eternal and indivisible form in the agent intellect, as the particular becomes the universal.

Meaning in language, as the ability of intellect to grasp the intelligible, is the product of the cooperation of discursive reason and the intellectual, the corporeal and incorporeal in the soul. The sensible phonetic form of the word is received in sense perception as the *species sensibilis*, but it is only retained as a mnemonic residue in *phantasia*, the creative capacity of intellect, as a *species apprehensibilis*, into which it has been transformed by the *virtus intellectiva*, the agent intellect combining the passive, material intellect and the active, cosmic intellect. Once the word has become the intelligible form in the imagination, then discursive reason is able to reinsert it into the present particular of language use, as it is able to see it as illuminated by active intellect. The dialectic of the sensible form and the intelligible form constructs meaning and makes communication possible.

Avicenna, in his *Najat* (69), as influenced by Alfarabi, compared the essentially visible sun to the essentially intelligible intellect. In the process of

perception, rays of light from the sun conjoin with potentially visible colors, which become actually visible, and potential perception, which becomes actual perception. In the same way, the active intellect illuminates the imagination to render potential intelligibles (particulars) actually intelligible (universals), resulting in abstract concepts. In the *Shifa: De anima* (235–236) of Avicenna, the light of the intellectual conjoins with discursive reason and sensory thought, which allows the latter to abstract the form, to see the sensible form as the intelligible form, as illuminated by the intelligibles. In the *Liber Naturalis* of Avicenna, the *virtus cogitativa* consists of sensory representation in the common sense, or *sensus communis seu phantasia*; imagination or *phantasia*; sensual judgment, or *vis existimationis* or *aestimativa*; and memory.²⁰

As it is illuminated by the light of active intellect, material intellect is able to see universals in relation to the particulars of the phantasm or sensible form in the imagination, and see the relation between the sensible form and the intelligible form. Imagination and material intellect are activated to form a *virtus* which combines them with the intellectual to receive intelligible forms. The intelligible form or universal, *intentio*, does not create a likeness of itself on its own, but rather is illuminated by the reflected spiritual light, and formed from the particulars of sense perception in imagination, so the *sensus communis*, *imaginatio*, *virtus cogitativa*, and *intelligentia* must work together to allow the intellectual to comprehend the intelligible, to receive the abstraction from active intellect.

Material intellect is not capable of retaining abstractions, concepts, universals or intelligibles. The concept is only present in material intellect, *virtus cogitativa*, while it is being thought or cognized. The mind's eye is not capable of retaining the sensible form; the sensible form can only be retained once it has been associated with the intelligible form, from the *sensus communis*, *phantasia* and *memoria*, and stored in the imagination, as a mnemonic residue. In *Liber Naturalis* 6.4.1: "That which receives is not the same as that which preserves. The storehouse of that which is apprehended by sense is the faculty of imagination, while the storehouse for that which apprehends intentions is memory." That which apprehends intentions, *thesaurus apprehendentis intentionem*, is the *virtus intellectiva*, the intellectual, in connection with the *vis aestimativa*.

The immediate sensible perception, the *species sensibilis*, can have no permanence until it has been transformed by the intellectual into a universal, and processed in incorporeal intellection. The intelligible form is then re-

ceived by the soul and becomes the material of the acquired or obtained cognition, *intellectus adeptus* or *intellectus accommodatus*, and actual cognition is possible. The acquired cognition is the acquired intellect, *nous epiktetos*, but is not the same as the *intellectus in habitu*, which is discursive reason as distinct from *virtus intellectiva*. In relation to Aristotle's doctrine of passive and active intellect, the active intellect becomes the foundation for intellection, like the Platonic *idea*, as mediated by the *intellectus in habitu* in combination with the *intellectus adeptus*. Sense objects of themselves are subject to the fluctuating and impermanent collection of unrelated particulars that constitute the material world. The same is true of the *species sensibilis* of the sense object in the *phantasia*, as long as it is connected to the corporeity of the *sensus communis* and the imagination in the *virtus cogitativa*. As the sensible form is processed as the intelligible form and stored in imagination and memory, the mnemonic residues can be retained by the material intellect and the *vis aestimativa* to varying degrees, so that intellect is seen as a kind of palimpsest of traces of forms and intelligibles of varying clarity in relation to cognition.

Averroes, or Ibn Rushd, in the *Long Commentary on the De anima* (*Commentarium magnum in Aristotelis de Anima libros*), took the position that rays of light making colors visible are analogous to the *virtus intellectiva*, as active intellect, making intelligibles understandable to *ratio*, as human intellect. He wrote, "Just as vision is not moved by colors until they have become actual, a situation occurring only when light is present, light being that which leads colors from potentiality to actuality, so too notions in the imaginative faculty do not move the material intellect until they have become actually intelligible,"²¹ as illuminated by the intellectual. Color is the essence of the *species* in vision, the *intentio*, and is transformed by light from potentiality to actuality, in the same way that the *species* in the *phantasia*, the *intentione*, is transformed from potentiality to actuality in order to inform the material intellect. As with Alfarabi, it is the agent intellect which acts as entelechy, a concept derived from Aristotle.

In the *De anima* of Averroes, the transformation from potentiality to actuality takes place in the speculative intellect, which includes the *intellectus in habitu*, and is distinguished from the agent or productive intellect, *intellectus agens*, and the material or passible intellect, *intellectus passibilis*.²² The actualizing of the material intellect by the productive intellect is the result of the productive intellect illuminating the residues of sensations existing in the mind, the *formae imaginativae*, or mnemonic residues. The *formae* act

on the material intellect after they have been illuminated, and material intellect is transformed into speculative intellect, which combines the material and productive intellects, the physical and eternal or archetypal, corporeal and incorporeal. The *formae imaginativae* themselves are both physical and archetypal, sensible and intelligible.

Averroes described the material intellect, *intellectus materialis*, or possible intellect, as the transparent medium in relation to the *intellectus agens*, as light. As with Plotinus, in the relation between *nous* and discursive reason, the activity of the *intellectus agens* must precede that of the *intellectus materialis*, in a variation of the doctrine of Aristotle similar to Avicenna. In the *intellectus passibilis*, individual representations are distinguished, in the *virtus aestimativa naturalis*. The material form, the *species sensibilis*, is seen as color in relation to the light, the reflected *lumen spiritualis*, from the *intellectus passibilis*, the *intentione* in the imaginative faculty, or *phantasia*. In other words, as Averroes says in *De anima* (3.3.18), “the relation of the intentions in imagination to the material intellect is the same as the relation of the sensible to the senses.”²³ The material intellect receives the active intellect, or agent intellect, in the same way that transparent bodies “receive light and colors at the same time; the light, however, brings forth the colors” (3.5.36). The intelligible form, *species apprehensibilis*, results from the cooperation of the material and agent intellects.

For Averroes, light is the entelechy (actualization or *perfectio*) of the transparent, or discursive reason, just as the *virtus intellectiva* is the entelechy of discursive reason. The *intellectus agens* is seen as an entelechy or *perfectio* of *intellectus materialis*. The transparent is not affected by color in any way unless it is illuminated, just as discursive reason is not affected in any way by intelligibles unless it is illuminated and perfected by the intellectual, the higher intellect or *nous* which participates in divine intellect. Light according to Averroes is the perfection of the transparent medium as the agent intellect is the perfection of the material intellect. When the material intellect is perfected by the agent intellect it is joined to it as an *adeptio* or acquisition, and the combination becomes *intellectus adeptus* or acquired intellect, as for Avicenna. Once the combination of the *intellectus materialis* and the *intellectus agens* has formed the intelligible form and allowed the material intellect to apprehend the intelligible, the concept and universal are able to play a role in cogitation, and meaning and communication are possible. As Averroes says in the *Commentarium magnum (De anima)*, when “the relation of the intentions in imagination to the material intellect is the same

as the relation of the sensible to the senses, as Aristotle says, it is necessary to assume another mover which makes them actually move the material intellect, and this simply means that it makes actual thoughts by separating them from matter” (3.3.18). The *intellectus agens* produces the intelligible form when the *sensus communis*, *virtus cogitativa* and *imaginatio* in the *nous hylikos* establish a foundation in cooperation to provide material for the *intellectus agens*, which it then processes in relation to the *intellectus actio*, *nous poietikos*.

The intelligible form is a hybrid of the universal concept which is the product of the *virtus intellectiva* as illuminated by *intelligentia*, and the sensible form, which is the product of sense perception and imagination. In the *Commentarium magnum*, “It is necessary to assign two subjects to these actually existing intelligibles, one of which is the subject due to which the intelligibles are true,” incorporeal and universal, “. . .the other, the subject due to which the intelligibles are only a single one of the entities in the world, and this is the material intellect itself” (3.1.5). The intelligible form unites the material intellect, *virtus cogitativa*, with the intellectual or noetic, *virtus intellectiva*, and sense perception with intellection.

The material intellect, in that it is tied to the particulars of sense perception, is a singular entity in each individual, and cannot produce meaning or communication, cannot unite the cognitive faculties of each individual. The active intellect, *virtus intellectiva*, on the other hand, in that it is capable of formulating intelligibles, which are incorporeal and not tied to the materials of individual sense perception, is able to unite particular individuals engaging in cognition in order to create a shared intellection which produces communication and meaning. In the *Commentarium magnum*, “And since it has already been shown that the intellect cannot unite with all individuals by multiplying according to their number with respect to that part that is the opposite of intellect qua form,” material intellect, “the only thing that remains is that this intellect unites with all of us through the union with us of concepts or intentions present to the mind. . .” (3.1.5). While the operation of the material intellect is particular to each individual, the intelligible form, which it receives from the active intellect, the *virtus intellectiva* and the *intelligentia*, is universal and shared by every individual, as it is retained as a permanent archetype in intellection, as from Plato. The receptive intellect, *intellectus adeptus*, and the active intellect are eternal, archetypal intellects, while the material intellect, *virtus cogitativa*, is part archetypal, part generable and corruptible, as it engages both the *species sensibilis* of sense percep-

tion and the *species apprehensibilis* of intellection.

When the intelligible is received by the material intellect, it is subject to generation and corruption, multiplicity and accident. The intelligible form, when it is connected to the sensible form in material intellect, is not a permanent mnemonic residue as an archetype, but is fluctuating and impermanent in its corporeal manifestation. But the intelligible form does not disappear when its corresponding sensible form does, it merely ceases to participate in the sensible form “And if intelligibles of this kind are considered, insofar as they have being *simpliciter* and not in respect of some individual,” as universals, “then it must truly be said of them that they have eternal being, and that they are not sometimes intelligibles and sometimes not, but that they always exist in the same manner...” (3.1.5). The intelligible form can participate in the sensible form, of its own volition, or the volition of the *virtus intellectiva*, but the sensible form cannot participate in the intelligible form, in its corporeal limitations, in the same way that color, for example, because it is tied to the corporeal body, cannot participate in light, although they are perceived simultaneously and are undifferentiated in perception.

Aristotle, in the *De anima*, defined light as a transparent medium. For Averroes, the material intellect receives intelligible thoughts as the transparent medium receives colors through illumination. As light makes colors visible to the eye, so light makes intelligibles understandable to the material intellect, discursive reason, resulting in abstract thoughts and concepts. Averroes saw the material intellect as a medium, as light is in the sensible world, an eternal substance independent of the mechanisms of the senses, as much as the active intellect. This theory of perception promoted by Avicenna and Averroes has its roots in Neoplatonic philosophy, and had a great influence on Grosseteste. A similar view can be found in the *Fons Vitae* of Avicenna, Solomon Ibn Gabirol, and the writings of Dominicus Gundissalinus, translator of the *Fons Vitae* and works by Avicenna.

In the *Commentary on the Posterior Analytics* of Grosseteste, the *lux spiritualis* “floods over intelligible objects (*res intelligibiles*),” and “over the mind’s eye (*oculus mentis*),” and “stands to the interior eye (*oculus interior*) and to intelligible objects as the corporeal sun stands to the bodily eye and to visible corporeal objects” (I.17, 39–42), following Aristotle, Themistius, Alfarabi, Avicenna, and Averroes. The *lumen spiritualis*, light produced by the *lux spiritualis*, allows the mental sight, the *visus mentalis*, to apprehend the intelligibles in the *virtus intellectiva*, as the light of the sun, the *lumen solare*, makes vision possible. The *lumen spiritualis* is the “first visible” in in-

terior sight, *visus interior*, as the colored body is the first thing receptive of the light of the sun. The more receptive the intelligible form is to the spiritual light, the more visible it is to the mind's eye. The object which is most similar to the light, the least material, is the most receptive of it. The power of the mind, the *acies mentis*, is a spiritual light, an *irradiatio spiritualis*, which operates in the intellectual to illuminate the intelligible form, and the *virtus* is strongest when the object is the least material and conforms most easily to the immaterial *species*.

In the *Republic*, Plato compared the sun to the good, the *lux spiritualis*, which is present to intellect as the sun is to sense perception, through the *lumen solare*, as for Grosseteste. The sun is the presence of the *lux spiritualis* in the material world, as the *anima mundi* is present in matter. In the *Republic*, "that is what I call the child of the good....The good has begotten it in its own likeness, and it bears the same relation to sight and visible objects in the visible realm that the good bears to intelligence and intelligible objects in the intelligible realm" (508).²⁴ Human perception operates like the light of the sun, as "the eye's power of sight is a kind of infusion dispensed to it by the sun." The light of the sun allows the eyes to have clearness of vision. The perception of the soul in the *oculus mentis* operates like the perception of the eye; it can only see clearly when it is illuminated by the light of the good, the *lux spiritualis*, which allows the intellectual to be illuminated by the active intellect, in the projection of the archetypes and intelligibles. In the *Republic*, the good, as the *lumen solare*, is "what gives the objects of knowledge their truth and the knower's mind the power of knowing...."

While in the *Republic* "the sun...not only makes the things we see visible, but causes the processes of generation, growth and nourishment, without itself being such a process," (509), thus "the good therefore may be said to be the source not only of the intelligibility of the objects of knowledge, but also of their being and reality; yet it is not itself that reality, but is beyond it, and superior to it in dignity and power." The good is only accessible itself to active intellect, while its *principia essendi* or intelligibles are accessible to the intellectual, *virtus intellectiva*. There are thus two powers in the *Republic*, the visible and the intellectual or intelligible, both governed by the same proportions.

Plotinus, in the *Enneads*, distinguished between "the form perceptible to the sense" and "the medium by which the eye sees that form" (V.5.7), that is, the *lumen solare*, which is perceptible to the eye, distinct from the *species*, and the cause of seeing. The light of the sun is within the eye, as the *lumen*

spiritualis, projected in the *oculus mentis*, as a spark from a flame. The light produces the spiritual light which is responsible for the *acies mentis*, the power of the mind, which illuminates the intelligible form in the intellectual. For Plotinus, “the eye is not wholly dependent upon an outside and alien light; there is an earlier light within itself, a more brilliant....” The inner light of the eye, the *irradiatio spiritualis*, is the equivalent in Plotinus of the intellectual. In order to ascend to active intellect, or in Plotinus’ case to the One, the intellectual must be able to see its radiated spiritual light in the mind’s eye. In the *Enneads*, “The Intellectual Principle, hiding itself from all the outer, withdrawing to the inmost, seeing nothing, must have its vision—not of some other light in some other thing but of the light within itself, unmingled, pure, suddenly gleaming before it.”

According to Pseudo-Dionysius in the *Divine Names* (IV.4), “Light comes from the Good,”²⁵ that quality defined by Plato as the spiritual light. The good according to Pseudo-Dionysius both participates in and remains inaccessible to all things, like the One of Plotinus. In the *Divine Names*, “The goodness of the transcendent God reaches from the highest and most perfect forms of being to the very lowest. And yet it remains above and beyond them all, superior to the highest and yet stretching out to the lowest.” The good, or the sun, the *lumen solare*, provides everything with “measure, eternity, number, order,” as the *lumen spiritualis* illuminating the archetypes and intelligibles as the *principia essendi* and *conoscendi* in the *virtus intellectiva*. Thus, for Pseudo-Dionysius in the *Divine Names*, “The great, shining, ever-lighting sun,” the *lumen solare*, “is the apparent image of the divine goodness,” the *lux spiritualis*, “a distant echo of the Good. It illuminates whatever is capable of receiving its light,” the *oculus mentis* of the *virtus intellectiva*, “and yet it never loses the utter fullness of its light.”

According to Pseudo-Dionysius, “Light too is the enumerator of the hours, of the days, and indeed of all the time we have.” The divisions of time are mechanisms of the *virtus intellectiva*, in discursive reason, like mathematics and geometry. They are abstractions from sensibles, but at the same time they are derived from archetypes, through the *irradiatio spiritualis*. As for Plato in the *Timaeus*, it was the alteration of day and night, the definition of time, which created the necessity for arithmetic, which in turn led to philosophy, that exercise of *virtus intellectiva* which aspires to *intelligentia*. In *Timaeus* 47, “But now the sight of day and night, and the months and the revolutions of the years, have created number, and have given us a conception of time, and the power of enquiring about the nature of the universe; and

from this source we have derived philosophy, than which no greater good ever was or will be given by the gods to mortal man.”

In the fifteenth century, Marsilio Ficino would compare God to the sun, following Pseudo-Dionysius. As desire is kindled by the good, like a spark from a flame, in the *De amore* of Ficino, “Not without reason does Dionysius compare God to the sun, for just as the sun gives light and warmth to the body, so God offers the light of truth and the warmth of love to souls...” (II.2).²⁶ Reflecting an intramission and extramission theory of perception, “Obviously the sun creates both visible bodies and seeing eyes; into the eyes, in order that they may see, it infuses a shining spirit,” the *lumen spiritualis* and *irradiatio spiritualis*, “and the bodies, in order that they may be seen, it paints with colors,” as the *lumen solare*. “But neither the ray proper to the eyes nor the colors proper to the bodies suffice to bring about perception unless the one light itself above the many,” the *lux spiritualis*, “from which the many lights proper to eyes and bodies,” in the *lumen solare*, are distributed, “arrives, illuminates, arouses, and strengthens,” both the *virtus* of sensible bodies, as Grosseteste described in *De lineis, angulis et figuris*, and the *virtus intellectiva* in the mind’s eye, as Grosseteste described in the *Commentary on the Posterior Analytics*.

Similar to Grosseteste, Ficino defined the hierarchy of intelligences, soul, and matter in *De amore* in relation to the good as the sun, the *lux spiritualis*. Each element in the hierarchy of being is infused with the rays of the sun as divine power, the *virtus* of the *lumen spiritualis*. The rays of the sun contain a “fecund power of creating all things” (V.4), and the arrangement and order of the world, the archetypal principle or idea, is imprinted at each level, but it shines more clearly at the levels closest to the source, as for Grosseteste the more receptive the intelligible object is to the spiritual light, the more visible it is to the mind’s eye, and the object which is most similar to the light, the least material, is the most receptive of it. The picture of the world for Ficino shines most clearly in the intelligences, or the Angelic Mind, the *intelligentia* or cosmic intellect, then less clearly in the *anima mundi* or world soul, and still less clearly in the body of the world, as each is further away from the light of the sun. As described in *De amore*, “In the Angels, these pictures [*species apprehensibilis*] are called by the Platonists Archetypes or Ideas; in the Souls [*virtus intellectiva* and *virtus scitiva*] they are called Reasons or Concepts; in the Matter of the World they are called Forms or Images [*species sensibilis*].” Each level is described as a mirror to the shining face of God, as the sensible form mirrors the intelligible form for

Grosseteste, and *ratio* or material intellect mirrors the *virtus intellectiva* in *intellectus*, which mirrors *intelligentia*. Angelic Mind, *intelligentia*, being able to free itself from body, as for Grosseteste, can confront the shining face of God directly, and the splendor and grace of this face is to be called universal beauty, and the desire to see universal beauty is universal love, the *amor* of Augustine in *De Trinitate*, the *affectus mentis* of Grosseteste.

In the *De amore* of Ficino, universal beauty is incorporeal because nothing can be seen without the light of the sun, “for the shapes and colors of bodies are never seen unless they are illuminated with light” (V.4), as for Grosseteste. In order for the eyes to see the light of the sun, and to see the colors and shapes of the illuminated bodies imprinted in the light, the eyes must contain a certain ray of light of their own, and the colors and shapes which are imprinted on it, the intelligible form, as for Grosseteste. The light in the eye is the divine light imprinted in it, the *irradiatio spiritualis*, a light separated from matter and body, the *lumen spiritualis*. In *De amore*, “Obviously the sun creates both visible bodies and seeing eyes; into the eyes, in order that they may see, it infuses a shining spirit” (II.2). Light “receives the colors and shapes of bodies in a spiritual way,” as *species apprehensibilis*, “and in this same way it is itself seen when it is received by the eyes. Whence it happens that all this beauty of the World, which is the third face of God, presents itself as incorporeal to the eyes through the incorporeal light of the sun” (V.4).

The beauty of the body for Ficino in *De amore* “consists in the composition of many parts; it is restricted in place, it is subject to time” (VI.17), as given by discursive reason. The beauty of the Soul, on the other hand, “suffers changes of time, of course, and contains multiplicity of parts, but is free from limits of place.” The beauty of the soul is an intelligible, apprehended by the intellectual. In order to see the beauty of the Soul, it is necessary to “take away from corporeal beauty the weight of matter itself and the limitations of place,” as well as the “progression of time,” and the “manifold composition of Forms,” in other words, to transcend and reject the mechanisms of discursive reason in material intellect. What is left is only simple form, apprehended by active intellect, as mirrored in the intellectual, and the simple form is the spiritual light, as mirrored in the physical light, the light of the sun, which is the source of all physical beauty for Ficino. In *De amore*, “The beauty of all bodies is that light of the sun which you see, stained with those three things: multiplicity of forms (for you see it painted with many shapes and colors), the space of place, and temporal change,” that is, as inte-

grated with sensible form. What is left is a “brilliant light,” and a simple and pure light, as for Plotinus, which is “engraved with all the Reasons of things,” the Platonic archetypes, essential principles and intelligible forms, which are imprinted in the mind’s eye.

As Plotinus prescribed in *Enneads* V.8.9, “Let us, then, make a mental picture of our universe,” then “bring this vision actually before your sight, so that there shall be in your mind the gleaming representation of a sphere, a picture holding all the things of the universe moving or in repose or (as in reality) some at rest, some in motion,” the picture of reality as given by the sensible form in material intellect in sense perception. “Keep this sphere before you, and from it imagine another, a sphere stripped of magnitude and of spatial differences; cast out your inborn sense of Matter, taking care not merely to attenuate it: call on God, maker of the sphere whose image you now hold....” In such a way the intellect ascends from the material to the active intellect, and understands the spiritual light as the source of all perception, reason and beauty, the products of the mechanisms of the intellectual as reflecting the intelligibles of the active or cosmic intellect.

In *Enneads* V.5.7, Plotinus described the inner light of the extramission theory of perception, the spiritual irradiation, which produces the *acies mentis*, which illuminates the intelligible form: “At night in the darkness a gleam leaps from within the eye: or again we make no effort to see anything; the eyelids close; yet a light flashes before us; or we rub the eye and it sees the light it contains,” perhaps a mnemonic residue of sensory experience. “This is sight without the act, but it is the truest seeing, for it sees light whereas its other objects were the lit not the light.” The truest form of perception is not dependent on sense reality and material things, so it is closest to the active intellect. Plato described the inner light in the *Timaeus*: “For when the eyelids, which the gods invented for the preservation of sight, are closed, they keep in the internal fire; and the power of the fire diffuses and equalizes the inward motions” (45), the active intellect in the intellectual.

In the *De amore* of Ficino, the ray of beauty descends from the sun in the physical light as God passes through the intelligences and souls, the intellectual and material intellect, “as if they were made of glass” (VI.10) and into the body. From the body, the beauty of God “shines out, especially through the eyes, the transparent windows of the soul.” The beauty of God shines out through the eyes as light penetrates other eyes, and other souls, and kindles other appetites in love. The perception of the eye is created by the light of the sun, which is the light of the divine intellect, as Plato described in the

Republic, “though the sun is not itself sight, it is the cause of sight and is seen by the sight it causes” (508). Perception is the physical manifestation of the good, according to Plato, and divine intelligence. In the *Republic*, “The good has begotten it in its own likeness, and it bears the same relation to sight and visible objects in the visible realm,” the sensible form in material intellect, “that the good bears to intelligence and intelligible objects in the intelligible realm,” the intelligible form in the intellectual.

Thus, for Ficino in *De amore*, “as the sun is to our eyes, so God is to our intellects” (VI.13). As the world would be “sunken in eternal darkness” without the light of the sun, “the intellect would be empty and dark unless the light of God were present to it, in which it sees the Reason of all things.” In the same way, for Alfarabi in the *Risala*, “Just as the sun is that which makes the eye sight in actuality and visible things visible in actuality,” so “the agent intellect is that which makes the intellect which is in potentiality an intellect in actuality insofar as it gives it of that principle,” and, “through this very same thing the intelligibles [in *intelligentia*] become intelligibles in actuality [in *virtus intellectiva*].” In the *Commentary on the Posterior Analytics* (I.17, 363–365) of Grosseteste, the science of incorporeal substances, like mathematics, is more certain than the science of substances linked to the body, and knowledge from *intelligentia* is most certain of all. If intellect is weighed down by body and matter, if it is overly concerned with corporeal things, then it functions in darkness and shadows, as in the simile of the cave in the *Republic* of Plato.

As with Alfarabi and Ficino, in the *Commentary on the Posterior Analytics* (I.19, 29–32), of Grosseteste, the light of the sun makes things visible, as the spiritual light makes intelligibles visible in the mind’s eye. The inner light causes the intelligible form to be intelligible in the mind, in a process of picture thinking, as the light of the sun causes visible things to be visible and knowable as the sensible form. Plato, in the *Republic*, distinguished between the sensible form and the intelligible form, between particulars which are object of sight but not intelligence, and forms which are objects of intelligence but not sight. Objects illuminated by the spiritual light of the good in the mind’s eye can be known and understood in perception. In the Divided Line, Plato distinguished between the sensible realm of perception, objects and images, known to discursive reason, opinion (*doxa*) and belief (*eikasia*), and the intelligible realm of perception, consisting of the forms or archetypes/intelligibles, known to intelligence (*noēsis*), dialectic, and mathematical reasoning (*dianoia*) in knowledge or *epistēmē*, the intellectual of

Plotinus. Perception of objects and images is represented by the shadows on the wall in the Allegory of the Cave, while perception of forms or intelligibles is represented by the puppet show along the road outside the cave, which is not visible to the prisoners in the cave (us). We don't normally perceive intelligibles, but through disciplined intellectual exercises and philosophy, we can learn how to perceive them, and how to distinguish them from sensible forms.

The sun bears the same relation to the sensible form in discursive reason in perception, as the sensible object is illuminated and a mnemonic residue (*phantasma*) of it can form in the mind's eye, as the good bears to the intelligible form in the intellectual, as incorporeal form, as it is illuminated by the spiritual light. The sun is the originary sensible form, as it is seen by the sight it causes; it makes all other sensible forms possible, and is formed as a simulacrum of the intelligible form of the good. The sun is as the children of the demiurge, enacting the idea of the demiurge in bringing to form sensible things. In perception, when we turn our eyes "on things on which the sun is shining, then they see clearly, and obviously have vision" (508d). The sun makes corporeal perception clear in the same way that the spiritual light makes mental perception clear, in the power of the mind (*acies mentis*), through the lens of the mind's eye in the soul.

The good is the source of "the intelligibility of the objects of knowledge" (509b); it is thus the source of the capacity of human intellect to understand the intelligible, because it illuminates the intelligibility of an object, as the spiritual irradiation illuminates the sensible form, and it can be seen as the intelligible form. The sensible form is illuminated by an exterior light, which makes its form visible, and it is illuminated by an interior light, which is not perceptible to the corporeal eye, but only to the mind's eye, and it lights the sensible form from within, to reveal its internal structure, as it were, which is its intelligible structure, its existence as an idea rather than as a form. In the *Republic*, the sensible form illuminated from within would be the object "illuminated by truth and reality" (508d), which allows the mind's eye to know the sensible form as an intelligible form, as it is capable of understanding an intelligible, in that "its possession of intelligence is evident." When the mind's eye is "fixed on the twilight world of change and decay," the multiple and fragmented particulars of sense perception illuminated by the sun alone, then the soul lacks intelligence and its perception is confused.

It has been seen that the sensible form must always already entail the intelligible form in perception, that the twilight world of change and decay, or

the multiple and fragmented particulars of sensible reality, have already been unified by the processes of perception in order for the sensible form to occur. For Grosseteste, human intellect lacks intelligence and its perception is confused until the intellectual is illuminated by the cosmic or active intellect, and the relation between the sensible form and the intelligible form is clear, as when potential intellect is actualized by active intellect. The good of Plato gives both “the objects of knowledge their truth and the knower’s mind the power of knowing....” In higher intellection, the knower is identical to the known.

In the *De amore* of Ficino, forms of sensible objects “cannot be imprinted directly on the soul because incorporeal substance...cannot be formed by them through the receiving of images” (VI.6). The imprinting of the sensible form in imagination requires the intervention of the intelligible form, and the form is imprinted by cosmic intellect, by the light of the reflected spiritual light, so the lens of the mind’s eye only needs to be clear in order to match the intelligible form formed in the soul with the sensible form as then given by the reflected light of the sensible object. Images of sensible objects cannot be immediately perceived; there must be an intermediary in the soul which translates the image of the sensible object in perception, which forms the sensible form of the sensible object from the intelligible form of it, then matches what has been formed with the corporeal intromission of light from it, as it has coalesced with the extramitted light of the intelligible form. The soul, according to Ficino, “easily sees the images of bodies shining in it, as if in a mirror,” and depending on the clarity of the mind’s eye, easily sees the idea of the body shining in it. The soul corresponds the form of the idea, the intelligible form, with the form of the figure (*tupos*, stamp) of the sensible object, the sensible form, and this operation occurs in the imagination or image-making power (of Plotinus) of the soul, according to Grosseteste.

Imagination consists of the formation of the form in the mind’s eye, which is a representation of the form in perception, which is a representation of the intelligible form in intellect. The *phantasma* in the imagination is a representation of a representation, what Sigmund Freud, in *The Interpretation of Dreams*, called the *Vorstellungsrepräsentanz* in intellection (*Vorstellung*), imagination, and dream formation. For Freud, mnemonic residues or *phantasmata* include the images in hallucinations and dreams, as well as perceived sensible objects, the *species sensibilis*, and it is the reproduction of the *phantasmata* by the image making power in the unconscious, comparable to the *phantasia* of Grosseteste, which constitutes unconscious thought pro-

cesses, for example dream construction, in psychoanalysis. The *phantasmata* in the dream, the transposition of the mnemonic residues of perception, are the *Vorstellungsrepräsentanzen*.

What is seen by Grosseteste and classical philosophy in general as a transcendent form of intellectual development, is seen by Hegel and Lacan as a form of the self-alienation of reason, but the distinction between the intelligible and the object, which is a given in classical philosophy, is already a form of the self-alienation of reason from the sensible world which it perceives, as if it were caught in a play of mirrors. The subject of Lacan is divided because as soon as it appears in the signifying chain, as represented by a signifier, it disappears; as soon as the sensible object appears in the form of the *principia conoscendi* (concepts, principles) in signification, it disappears in the form of the *principia essendi* (intelligibles), or being-in-itself (*An-sichsein*), in the same way that the mnemonic residue of perception disappears when it is inserted into the signifying chain of the dream and is replaced by the *Vorstellungsrepräsentanzen*, and becomes that which takes place of the representation. Such displacement and alterity allows for the soul to distinguish between the sensible form and the intelligible form, when it has consciousness and distinguishes itself as other from itself, according to Hegel.

Hegel, in the *Phenomenology of Spirit*, defined perception, or “picture thinking” (*Vorstellung*), as the “synthetic combination of sensuous immediacy and its universality or thought” (764),²⁷ in other words, the union of the sensible form and the intelligible form. According to Hegel, the sensible object or the particular, the real, can only participate in the universal, in thought, or the ideal, through perception, as perception is the mechanism of intellection for Grosseteste. It is through perception for Hegel that spirit or mind becomes self-conscious, and subjective spirit is differentiated in objective spirit, in the “consciousness of passing into otherness” (767), as the soul might be aware of itself seeing the intelligible form in the mind’s eye. As perception is a function of intellection, and abstraction, it must be seen as something other than an immediate vision of the sensible world, which either does not exist, or is absorbed into the processes of perception.

Hegel describes universal principles as differentiated into particulars in the “dissolution of their simple universality and the parting asunder of them into their own particularity” (774), in the transposition of the intelligible form and the sensible form. The intelligible is retained in particularity as a trace of the gap between the sensible form and the intelligible form, between perception and vision, and the intelligible is recognized by the subject in the

particular, or the subject can see clearly the intelligible form in the mind's eye, when the subject has consciousness and distinguishes itself as other from itself. Consciousness in perception for Hegel maintains the illusion of the presence of the subject to itself as other to its own differentiation in reason, in the conflation of the sensible form and the intelligible form. In the *Phenomenology of Spirit*, the subject must become other to itself before it can recognize itself as spirit, in the same way that it must differentiate the sensible form and the intelligible form in intellection.

As with the *Vorstellungsrepräsentanz* of Freud, the sensible form for Grosseteste, which is processed in perception, is divorced from the sensible object itself, and perception of the object requires the absence of the object rather than its presence, as the sensible form is that which takes place of the representation. The perceived object is always already a *phantasma*, as an intelligible form in combination with a sensible form, as it is processed in the imagination. The *phantasmata* retained in the imagination constitute memory, as the form begotten in the imagination of the common sense begets of itself an identical form in memory. While memory can preserve a form, in the retention of the mnemonic residue, the corporeal eye in perception "can receive images of a body only in its presence," as Ficino says in *De amore* VI.6, which then becomes an absence, as the eye can only reflect it, like a mirror, the reflected image being a *Vorstellungsrepräsentanz*. When I look in a mirror, I do not see myself, though the extramitted and intromitted light may coalesce, for Plato: at the very least, I see a reverse image of myself. The sensible and intelligible do not correspond completely in the mind's eye any more than they do in the material world.

When I look in the mirror, and point to the right side of my face, the person in the mirror points to the left side of his face. By my logic, which alienates me from myself as image, the sensible form in the mirror is not me; the *Ansichsein* does not correspond to the *Fürsichsein*; the intelligible does not correspond to the concept. The image has taken my place, as a *Vorstellungsrepräsentanz*, and I can only take it as myself if I connect the sensible form of myself with the intelligible form of myself, my idea of myself, in my intellectual capacities. Once the sensible form is not present to perception, it is lost, and is sometimes not retained by memory. The form can only be retained, and transformed in the imagination, combined with the intelligible form, through the operations of the intellectual in the irradiation of the reflected spiritual light, in the classical and scholastic traditions.

This essay was developed from sections of the chapters “Philosophy of Intellect” and “Philosophy of Vision” in *Robert Grosseteste: Philosophy of Intellect and Vision*, Sankt Augustin: Academia Verlag, 2010. The Latin terminology was converted to English for the most part for simplification. Discussions on Plato and Ficino were added.

¹ Philip Wheelwright, ed., *The Presocratics* (Indianapolis: Bobbs-Merrill Educational Publishing, 1960), p. 57.

² Ibid.

³ Charles H. Kahn, *Anaximander and the Origins of Greek Cosmology* (Philadelphia: Centrum, 1985), p. 76.

⁴ Ibid., p. 79.

⁵ Aristotle, *On the Soul (De anima)*, trans. J. A. Smith, in *The Works of Aristotle* (Chicago: Encyclopaedia Britannica, 1952).

⁶ Plato, *Timaeus and Critias*, trans. Desmond Lee (New York: Penguin Books, 1965).

⁷ Robert Grosseteste, *On the Six Days of Creation, A Translation of the Hexaëmeron*, trans. C. F. J. Martin (British Academy, Oxford University Press, 1996).

⁸ Proclus, *A Commentary on the First Book of Euclid's Elements*, trans. Glenn R. Morrow (Princeton: Princeton University Press, 1970).

⁹ Robert Grosseteste, “On Lines, Angles, and Figures, or the Refraction and Reflection of Rays,” trans. Bruce Stansfield Eastwood, in *The Geometrical Optics of Robert Grosseteste* (University of Wisconsin, Ph.D. Thesis, 1964), p. 92.

¹⁰ Bruce Stansfield Eastwood, *The Geometrical Optics of Robert Grosseteste* (PhD Thesis, University of Wisconsin, 1964), p. 162.

¹¹ Steven P. Marrone, *William of Auvergne and Robert Grosseteste: New Ideas of Truth in the Early Thirteenth Century* (Princeton: Princeton University Press, 1983), p. 196.

¹² Ludwig Baur, *Die philosophischen werke des Robert Grosseteste, Bischofs von Lincoln*, in *Beiträge zur Geschichte der Philosophie und Theologie des Mittelalters*, IX, Münster: Aschendorff, 1912, p. 60:25.

¹³ Robert Grosseteste, *Roberti Grosseteste Commentarius in VIII Libros Physicorum Aristotelis*, ed. Richard C. Dales (Boulder: University of Colorado Press, 1963), pp. 4–5).

¹⁴ Plotinus, *The Enneads*, trans. Stephen MacKenna (London: Penguin Books, 1991).

¹⁵ Herbert A. Davidson, *Alfarabi, Avicenna, and Averroes, on Intellect* (Oxford: Oxford University Press, 1992), p. 19.

¹⁶ *The De Anima of Alexander of Aphrodisias*, trans. Athanasios P. Fotinus (Washington, D. C.: University Press of America, 1979), p. 85.

¹⁷ Herbert A. Davidson, *Alfarabi, Avicenna, and Averroes, on Intellect*, p. 26.

¹⁸ Themistius, *On Aristotle's On the Soul*, trans. Robert B. Todd (Ithaca: Cornell University Press, 1996), p. 113.

¹⁹ Alfarabi, *The Letter Concerning the Intellect*, trans. Arthur Hyman, in Arthur Hyman and James J. Walsh, ed., *Philosophy in the Middle Ages: The Christian, Islamic, and Jewish Traditions* (New York: Harper and Row, 1967), pp. 218–219.

²⁰ Franz Brentano, *The Psychology of Aristotle: In Particular His Doctrine of the Active Intellect* (Berkeley: University of California Press, 1977), pp. 7–8.

²¹ Herbert A. Davidson, *Alfarabi, Avicenna, and Averroes, On Intellect*, p. 317.

²² Philip Merlan, *Monopsychism Mysticism Metaconsciousness, Problems of the Soul in the Neoplatonic and Neoplatonic Tradition* (The Hague: Martinus Nijhoff, 1963), p. 85.

²³ Franz Brentano, *The Psychology of Aristotle*, p. 10.

²⁴ Plato, *The Republic*, trans. Desmond Lee (London: Penguin Books, 1955).

³⁰ Pseudo-Dionysius, *The Complete Works*, trans. Colin Luibheid (New York: Paulist Press, 1987).

²⁶ Marsilio Ficino, *Commentary on Plato's Symposium on Love*, trans. Sears Jayne (Dallas: Spring Publications, 1985).

²⁷ Georg Wilhelm Friedrich Hegel, *Phenomenology of Spirit*, trans. Arnold Vincent Miller (Oxford: Oxford University Press, 1977).