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**ADMIRING INTUITION:
AN EXAMINATION OF *NOUS*
IN ARISTOTLE'S *POSTERIOR ANALYTICS* II.19**

Thèse
présentée
à la Faculté des études supérieures
de l'Université Laval
pour l'obtention
du grade de Philosophiae Doctor (Ph.D.)

FACULTÉ DE PHILOSOPHIE
UNIVERSITÉ LAVAL
QUÉBEC

SEPTEMBRE 1999

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Résumé

Bien que la noétique aristotélicienne soit à l'origine de nombreux travaux et commentaires à travers les siècles, très peu d'entre eux font une lecture articulée du *nous* tel que présenté dans les *Seconds analytiques* d'Aristote. Cette dissertation a pour but d'en faire l'analyse à partir du chapitre II.19, où Aristote parle d'un état du *nous* exprimant les principes de la science résultant d'une induction prenant racine dans les sens et la connaissance sensible. En comparant le *nous* avec la science et les opérations discursives étudiées en logique d'une part, avec les sens et la connaissance sensible, surtout l'expérience humaine, d'autre part, la nature du *nous* est ainsi éclairée. Il est montré que le *nous* signifie une opération intuitive de l'intellect humain par laquelle l'être humain acquiert une connaissance, principalement de l'essence d'une substance.

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Résumé

Avec l'esprit socratique de comprendre l'homme qui se trouve dans «une crise de la connaissance», cette dissertation propose d'examiner l'homme en tant qu'animal cognitif en puisant dans la longue et riche tradition de la philosophie aristotélicienne afin de nous inspirer d'un de ses courants de réflexion : le *nous* comme l'opération de l'intellect humain par laquelle une intuition de la réalité substantielle est acquise, permettant d'ancrer la connaissance scientifique dans le réel.

L'examen du *nous* se base sur le texte des *Seconds analytiques* II.19, où Aristote présente «l'état du *nous*» résultant d'un processus non-rationnel par lequel les principes de la démonstration (laquelle exprime la connaissance scientifique) sont acquis. En jettant un regard sur chacune des étapes mentionnées dans le texte, nous avons la possibilité d'articuler les différentes capacités cognitives chez l'humain et la connaissance que chacune d'entre elles lui prodigue. Cela nous permet de faire une comparaison entre les différentes capacités et d'établir les rapports qu'elles entretiennent entre elles, ce qui est fort utile en vue de déterminer la place et le rôle de l'intuition dans la connaissance humaine.

En commençant par les vues d'Aristote sur la logique et la science, il est établi que les opérations discursives de l'intellect présupposent des opérations non-discursives de l'intellect, ce qui ouvre la porte à une opération intellectuelle qui pourrait être complémentaire à l'opération discursive. Il est montré que cette autre opération intellectuelle est intimement liée aux sens et à la connaissance sensible, qui elle-même est le moyen par lequel l'intellect entre en contact avec la réalité externe. Le plus haut niveau de connaissance sensible est l'expérience, mais puisque l'expérience humaine incorpore aussi l'activité de l'intellect, l'induction des principes de la science signifie une opération de l'intellect partant de l'intelligibilité de l'expérience sensible. Nous concluons enfin que l'acte de l'intellect présent dans l'induction est essentiellement intuitif puisqu'il s'agit d'une saisie intellectuelle d'une substance, de son essence.

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Abstract

In a Socratic spirit of coming to a better understanding of man who finds himself in the midst of a “crisis about knowledge,” this dissertation proposes to examine the human subject as a cognitive animal by turning to the long and rich tradition of Aristotelian philosophy, largely ignored today, to focus on and gain inspiration from one of its principal currents of reflection: *nous* inasmuch as this refers to the human intellectual operation intuiting the substantial level of reality, which can then anchor scientific knowledge of it.

The examination of *nous* is based on the text *Posterior Analytics* II.19, in which Aristotle briefly presents the “habit of *nous*” as the culmination of a non-rational-discursive process by which the principles of demonstration (which is scientific knowledge) are acquired. By looking at each of the stages mentioned in the text, there is offered the opportunity to study in detail the different human cognitive capacities and the cognition they provide. This also allows for a comparison and contrast of the capacities and the relationships that can be established between them, which is helpful in understanding man as a cognitive animal, in general, and in determining, in particular, the place and role of intuition in human cognition.

Starting with Aristotle’s views on logic and science, it is established that the rational-discursive operations of the intellect presuppose other non-rational-discursive operations of the intellect, which opens the door to another intellectual operation that can complement the first-mentioned. This other intellectual operation is seen to be closely related to sense cognition and its powers, the means through which the intellect makes contact with external reality. The most important of the different levels of cognition provided by the senses is its highest level, experience; and since human experience involves the activity of the intellect, induction of the principles of science is seen to be an act of the intellect starting from the intelligibility of sense experience. It is concluded, finally, that this act of the intellect is essentially intuitive, consisting mainly in an intellectual grasp of a substance, an insight into its essence.

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Preface

It is often remarked by writers that although the act of writing is usually a solitary endeavour, the author is never really completely alone. The experience of completing this dissertation was no different, and I would like to take a moment to thank those who nourished and guided my reflections, and encouraged me throughout the realization of this project. I thank my director Professor Thomas De Koninck of Université Laval for his confidence in my abilities and unceasing encouragement. To the members of the jury, Professors Robert Plante and Jean-Marc Narbonne of Université Laval, and Franco Volpi of the Università Degli Studi di Padova (Istituto di Filosofia), I thank you for taking the time and consideration in evaluating the dissertation. For generously giving their time and for their helpful criticisms and suggestions, Professors Warren Murray and John Gallup, both of Université Laval, deserve acknowledgement, as well as Mr. Edmond Gendron. I thank all my friends and fellow students of philosophy for accompanying me on this philosophical journey, in particular, Mireille Boisvert, Jean Lanza, Dany Rondeau, and Stéphanie Grégoire. A special thanks, too, to both Madame Andrée Marcil for all her support and Françoise St-Hilaire for guiding me through the administrative maze. Finally, I am especially indebted to all the members of my family, immediate and extended, who were always in my thoughts during trying times. They gave me the encouragement and determination needed to overcome all obstacles, and helped in more ways than these few words can express. It is to my parents, Lucia and the late Tarcisio Biondi, that I dedicate this dissertation.

The research and writing of this dissertation were made possible through the financial assistance offered by the FCAR, the Fondation de l'Université Laval, and the Fonds de soutien of the Faculté de philosophie de l'Université Laval.

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INTRODUCTION

Aristotle has the reputation of being the father of logic, a point acknowledged by Kant¹ many centuries later, because he was the first to develop the science of logic, that is, he presented in a fairly systematic form general rules or principles explaining how human thought functions. The masterpiece of his logical theory is undoubtedly the syllogism which is the core of logical thinking and one of two modes by which humans are said to argue (the other being induction of singular instances each manifesting something similar and by which one acquires a universal knowledge of the similar element). Aristotle seems to have been proud of his discovery and is sometimes accused of hubric pride, for he tries (in *Prior Analytics*) to fit every intellectual activity into some syllogistic form or other. Over the centuries Aristotelians have continued to develop this science and the trend has been toward an increasing formalization of the activity of thinking. From the Scholastic development of giving letters and names to represent the different syllogistic figures to the mathematization begun shortly after Kant's time and still in vogue today, logic has changed radically from an art that was to help man's natural ability to think rationally and cogently using ordinary language into a technique of formal consistency of a closed system of symbolic thought such that the father would probably no longer recognize the offspring of his reflections. Now there is one somewhat surprising statement made by Aristotle which leads us to think that the mathematical and symbolic direction given to Aristotelian logic is likely an impoverished description of human thought. In *Physics* Aristotle states:

That nature exists, it would be absurd to try to prove; for it is obvious that there are many things of this kind, and to prove what is obvious by what is not is the mark of a man who is incapable of discriminating what is self-evident from what is not. (That this may occur is not obscure. A man blind from birth might discourse or reason about colours. Presumably therefore such persons must

¹ *Critique of Pure Reason*, Preface to the second edition, Bviii. For the sake of economy, references will be limited to an abbreviated version of the title alone (in quotation marks for articles without information about the periodical or book in which they are found and in italics for books) along with the page number or textual site. It is for the same reason of economy, and not because they are to be considered secondary or irrelevant to the argument, that most quotations from non-English sources, especially long ones, are placed in the footnotes without a prior English translation in the text.

be talking about words without any thought to correspond.)²

Now what could the father of logic and the syllogism mean by this? What do *noein* and *nous* have to do with syllogistic thinking? Although the question of the Aristotelian noetic has generated a voluminous amount of literature over the centuries, most debates concerning it often centre on the brief and dense passages presented in *On the Soul* which invite much interpretation and controversy. There are also many studies made of *Metaphysics* where a “divine” *nous* is spoken of as well as *Nicomachean Ethics* where man is identified with *nous* and the best human life is said to be the one according to *nous*, which is usually understood to signify a contemplative and philosophic life of the mind.³ Our research has discovered that there is comparatively little work done on *nous*’ relationship with syllogistic thought and its place in Aristotelian logic in general. If *nous* is human and is intended to indicate a human rather than divine cognitive capacity, it would surely be here in the logical treatises that it could be found since syllogism, logic, and rational discourse refer to activities under man’s control and are commonly held to be

2 *Ph* II.1, 193a 1-8 (translating lls. 5-8 only): “Τὸ δὲ δεικνύναι τὰ φανερὰ διὰ τῶν ἀφανῶν οὐ δυναμένου κρίνειν ἐστὶ τὸ δι’ αὐτὸ καὶ μὴ δι’ αὐτὸ γινώριμον. Ὅτι δ’ ἐνδέχεται τοῦτο πάσχειν, οὐκ ἄδηλον· συλλογίσαιτο γὰρ ἄν τις ἐκ γενετῆς ὦν τυφλὸς περὶ χρωμάτων· ὥστε ἀνάγκη τοῖς τοιοῦτοις περὶ τῶν ὀνομάτων εἶναι τὸν λόγον, νοεῖν δὲ μηδέεν.”

3 For historical surveys of the noetic question, see Hamelin (*La théorie de l’intellect des commentateurs*), Brentano (*Psychology*, pp.4-24), and Soleri (“Il Nous aristotelico,” pp.281-88). For the period covering the Greek commentators, see Moraux (“Tradition grecque,” pp.281-324). Le Blond (*Logique et méthode*, p.135, ft.1) remarks that, “C’est à partir d’Alexandre d’Aphrodise que la distinction des deux intellects [δυνάμει and ποιητικός] commence à jouer, dans la noétique de l’école aristotélicienne, un rôle de premier plan.” Hicks (*De Anima*, Introduction, p.lxvi) notes that this distinction gave rise to interpretations going in either of 2 directions: “Either they make the two intellects two faculties of the human soul, or they seek to identify one, if not both, of them, with an intelligence outside man.” Kal (*On Intuition and Discursive*, pp.93ff.) provides a brief history of the interpretations of *DA* III.4-5, stating that, “St. Thomas Aquinas follows a quite different path from Alexander and the Neoplatonic and Arabian interpreters of Aristotle. It makes sense to speak of a break with earlier traditions,” quoting (p.103, f.99) Gilson who calls this “le plus grand événement philosophique de tout le moyen âge occidental.” On this period of intellectual ferment, see McInerney (*Aquinas Against Averroists*, Introduction). The “break” in the Neoplatonic and Arabian tradition inaugurated by Aquinas was to consider the faculties of human intelligence as being within man and under his control rather than being dependent on the agency of an intelligence outside man, the prevailing conception that had been promoted up to that point in time. It is to be noted, however, that Aquinas’ position was already expressed by Themistius (*DA Paraph*, pp.99-108) who stood apart from the mentioned tradition.

essential to him.¹ So what do *nous* and *noein* express about human thought, especially as this is understood in Aristotle's logical and syllogistic theory?

As a general introduction let us examine the *Physics* passage quoted above. The distinction that the Stagirite seems to want to bring to our attention is that between a discourse that expresses a thought and one that does not depending on whether one has, or lacks, the ability to discriminate between the self-evident and that which is not self-evident.² The example of the man blind from birth representing one who lacks this ability (and consequently lacks thought) describes a common human experience most noticed by us whenever we listen to someone talking about a subject of which we are ignorant. Although we clearly hear the words spoken, we fail to understand what is being said. If we are asked to respond to what was said, we may, rather than admitting ignorance, make an attempt at saying something meaningful or significant about the subject; but without any understanding of it, we may be unsure as to where to begin our discourse and are left with manipulating the jargon heard and language used by others in the discussion in the hopes that no one will discover that our discourse lacks thought. The difference being brought into focus seems to be one where speaking and talking can sometimes have a conceptual content while sometimes they can consist simply in using language and words without any conceptual content. More plainly put, it is the difference between talking and saying something and talking and saying nothing.

Now a strictly grammatical analysis of a linguistic discourse would be incapable of discerning whether the words spoken are expressing thought and conceptual understanding or not since its concern is language and the modalities of linguistic expression. Speaking can be done correctly whether or not a conceptual content is being expressed whenever the words are used according to the grammatical rules of the language being spoken. As long

¹ Cf. A. O. Rorty ("Introduction B," p.11) who observes: "Because the discussion of *nous* in *De Anima* is so fragmented and apparently incomplete, we must turn elsewhere for its fullest analysis. Since the range of logical works--the *Organon*--articulate the structure of valid thought, they contribute to a philosophical understanding of forms--the *eidē*--of *nous*." Ironically enough, this remark is to be found in yet another volume dealing with *On the Soul*.

² Cf. Simplicius' commentary (*In Physic Comm.*, pp.271,23-273,4) of this passage which makes explicit reference to Aristotle's doctrine on science and demonstration as presented in *Post An.* As Simplicius notes, the capacity to judge that which is self-evident and that which is not is at the base of demonstration itself since the principle of demonstration is the self-evident, and it is from and through this that that which is not self-evident comes to be known.

as one possesses the terminology proper to a given subject and knows how to construct grammatically correct sentences with this, one can participate in a discussion without necessarily having an idea as to what is being signified or meant, as Aristotle says¹ about youth in their discourse concerning ethical matters. It may certainly be granted that one with understanding will be better able to use language, but nothing prevents one without understanding from using language merely by repeating words or phrases and imitating the use made of them by others, especially if the person has a good memory or is habituated in the use of certain vocabulary. That means that to determine whether language is expressing thought or not requires an analysis not of how thought is verbally expressed, but of the thought itself being expressed in or through the medium of language. As logic is claimed to be the study of the modalities or modes of thought and conceptual expression, it would thus seem to fall upon this science to determine whether or not there is a thought being expressed in a linguistic discourse and how it is being expressed.

The first thing that can be said about thought and understanding when compared to language is that it *says or expresses something* whereas language is the *means of saying or expressing it*. The difference between the fact of saying or expressing something and how it is said or expressed is made evident by the possibility of expressing thought and understanding in what is commonly called body language (or body English) in the realm of human communication. The disapproving scowl of a parent may be enough for a misbehaving child to stop doing whatever he was doing: without ever a word being spoken, the child understood the meaning or signification of what was physically or sensibly expressed. So not only can one express something by talking, but one can also express something without talking. In other words, it is possible to express thought and a conceptual content otherwise than by words. Admittedly the phrase *Body language says something* is metaphorically derived from language in the proper sense of using words, but only because it really can express an understandable meaning. What is proper to thought, then, is that it expresses a meaning or a signification; and understanding is to have grasped or received the signification expressed through language, verbal or otherwise.

As thought has meaning or signification, it signifies (something); and since to signify means to represent by a sign, then thought is a sign representing something that is other

¹ NE VI.8, 1142a 11-20.

than itself, namely, that which is signified by the thought. The signified is usually understood to refer to extra-mental reality, but sometimes it could also refer to a mental reality, for example, the statement *Man is an animal* is one in which one concept signifies another concept. Nevertheless, it can be affirmed correctly that even though thought directly signifies whatever reality, whether mental or extra-mental, is being represented by the thought and to which it refers, it ultimately always signifies something about the extra-mental reality of individual sensible beings. (This is particularly so if thought is to be a knowledge of reality with truth.) If man is an animal, it is only because individual men like Socrates and Plato are perceived to have the property of animality. This property of signifying thereby reveals thought's intentional nature, its openness to tend towards something outside or other than itself. This characteristic of human thought appears to be intimately tied to another. According to the text cited above, if the blind man's discourse about colours is not an expression of thought, it is because it lacks concepts with respect to colours which is due to his lack of sense knowledge of colours that would have given rise to such concepts. Only the person with healthy eyesight could acquire some sense cognition of colours which, in turn, could allow him to acquire a thought about colours; this, in turn, would then enable him to manipulate words with understanding and to talk in such a way as to express something significant concerning colours. This is a manifestation of the cognitive principle, followed by Aristotle, that all intellectual knowledge must originate in sense cognition and that the intellect is always somehow dependent on the senses to provide it with something to think about. This also sheds light on his affirmation that the activity of thinking can only occur with images. It would thus appear that (conceptual) thought consists in being a sign signifying an image, or a certain aspect of an image, or else a sign signifying extra-mental reality through the intermediary of an image of reality.

At this point some logicians may object to including what has been said thus far about thought within the science of logic. Although they may willingly accept the point that logic is the study of the modalities of thought, they might not agree with the idea that it examines its intentional nature inherent in the act of signifying something other than the thought itself. For these logicians logic does not concern itself with the conceptual content or with what is being thought about and its relationship to that which is being signified. Instead it deals with entities of reason or mental reality and, in particular, the logical relationships that can be established between them. The logician's concern is to determine logical consistency

among concepts, regardless of their content or meaning with reference to extra-mental reality, and to establish rules of correct thinking and reasoning in a rational or logical order. To this end concepts are examined insofar as they play a certain logical role in our thinking (such as that of being a genus or a species) and insofar as they can be joined in various rational relationships (such as joining terms in a syllogism to produce a valid necessary inference). All these things, they claim, can be studied without bothering about the signification or meaning of concepts because they are applicable to all concepts as concepts. Strictly speaking, this is correct, which is why logic can be rightly said to examine the rules of the art of thinking correctly without regard to what is being thought about. Logic is to be a purely formal examination of human thought without considering the meaningful content or matter of concepts. If that is so, then it must be granted that logic does not examine the whole of human thought and understanding, for it leaves out the aspect of signification or intending some meaning and the related act of understanding meaning.

Given the limitations of a strictly logical analysis of human thought, and the fact that logic as posited thus far only examines one modality of it, it is surprising to see that there are philosophers (and non-philosophers, too) whose conception of human thinking pretty much equates it with the logical and rational aspect alone. They hold that thought and thinking is merely a question of technique and that people, once armed with the instrument of logic, will then be able to think about almost anything. The fact that humans must think in a logically consistent manner or must have a correctness in the reasoning process is undeniably important but it does not say everything about human thought. It must not be forgotten that thought does express signification and meaning, too. The danger inherent in a conception of human thinking based solely on what is revealed about it in the science of logic is that the complex reality of human thought may be reduced to and identified with the formal and logical part alone and then taken to reflect the whole of human understanding. The consequence of this reduction is an over-simplification of human thinking that opens the door to treating it as a mere technique in formal consistency and a rational calculating machine whose nature, according to some proponents of this kind of view of human cognition, is best manifested in the computer model of the mind and its artificial intelligence. So to avoid this pitfall it would be worthwhile to retain the two modes of thought recognized thus far, and admit either that logic as defined until now does not deal with human thought in its entirety or that logic must also examine the intentional nature of thought revealed in its property of signifying.

Although Aristotelian logical theory does provide several indications that the aspect of signification and thought's intentional nature is to be touched upon such that both modalities are, in fact, examined in logic, logic will, nevertheless, examine this modality of thought only insofar as it falls within its formal limits of treating concepts as concepts. An example of this is the distinction made between a demonstrative and a dialectical syllogism. Both are claimed to be syllogisms because both incorporate the syllogistic structure, the formal necessary inference, or reasoning with necessity; but the difference between the two is to be explained by the matter of the premisses: demonstration requires necessary and true premisses whereas dialectics proceeds from probable and opinable premisses. As this difference is determined by the content or signification of the terms composing the premisses, it would have to be explained according to the mode of thought related to signification, unlike the syllogistic form which would be explainable by the formal mode of thinking. Another example is the distinction noted above between the self-evident and that which is not self-evident. This, too, seems to have more of an affinity with understanding the meaning of the thought involved rather than with any formal reasoning process; for to judge whether something is self-evident depends on understanding what it is in itself or what is being signified in itself, that is, on the relation of self-identity. Notice, though, how there is no mention of any sensible reality being signified. The proposition *Man is an animal*, for example, will be studied by logic insofar as it is considered to be true and necessary but not insofar as it signifies something about reality. In other words, demonstration requires the matter of true and necessary premisses insofar as they are true and necessary regardless of whether they make claims about man, animals, stars, or whatever. As a consequence, one who wishes to examine the nature of human thought and thinking in regard to the two modalities recognized thus far must go beyond a strictly logical analysis.

This goal could be achieved by examining the meaning and nature of *nous* by comparing and contrasting it with both the syllogism and sense. By relating *nous* to the syllogism, the study of human thinking will fall within the domain of logic; by relating *nous* to sense, it will step outside logic's domain. This approach, inspired by the *Physics*' passage just examined, will thereby neatly provide a general context within which to examine the subject of our dissertation: human *nous* and *noein* understood as human intuition; for our thesis is that within this context, *nous* signifies intuitive thought resulting from an intuitive operation

involved in human thinking, an intellectual operation complementing the rational discursive operation used in syllogizing. Now if reason is usually accepted as a description of human thinking and seen to be the essence of human thought, the status of intuition, on the contrary, is often doubted and a certain hesitation is often felt before making reference to intuition in philosophical discussions. Many Aristotelians, for example, prefer translating Aristotle's *nous* and its activity of *noêsis* by *intellect* and *intellection* to avoid using the term *intuition*. But the term *intellection* can conceal an ambiguity: unless one takes *intellect* in a strict sense and opposes it to reason, which would then have reasoning or rational discourse as its operation, *intellection* could ambiguously signify either any act of the intellect or just the one opposed to reasoning.¹ If intellection is intended to signify an operation that is different from the rational discursive one, then what is the nature of this operation? Calling it an intellection tells us nothing more than that it is an activity of the intellect whereas calling it an intuition could at least open the door to specifying the nature of this activity in contradistinction to the rational discursive operation of the intellect. Even if intuition is accepted as a plausible signification of *nous* (and an act of intuition for *noêsis*), philosophers may still hesitate before using this term. Perhaps this hesitation is due to the mystical or spiritual connotations the word has acquired and that these esoteric subjective, almost superhuman or transcendent, experiences do not generate "real" knowledge, that is, knowledge that is objective, rational, discursive, communicable, and scientific in the sense of being open to the trial of empirical experimentation. Perhaps it is the result of the ambiguity of the signification of the term *intuition* as the following definition of it plainly shows:

The broadest definition of the term 'intuition' is 'immediate apprehension'. 'Apprehension' is used to cover such disparate states as sensation, knowledge, and mystical rapport. 'Immediate' has as many senses as there are kinds of mediation: It may be used to signify the absence of inference, the absence of causes, the absence of the ability to define a term, the absence of justification, the absence of symbols, or the absence of thought. Given this range of uses, nothing can be said about intuition in general.²

Recognizing these obstacles, one who insists on using the word *intuition* is obliged to

1 See *Comm. Collegii Conimbri* (c.I, q.1, a.4 (pp.425-26)): "*Dicitur vero intellectum, ut plerique tradunt, quia gignitur ab potentia intelligendi, prout intellectus denominatur; quamvis enim vis intellectiva unica sit, quia tamen aliqua percipit sine discursu, aliqua discurrendo; ut posteriori modo agit, dicitur ratio, ut vero priori, intellectus nominatur: habitus autem principiorum per actus non discursivos generantur.*"

2 "Intuition." *The Encyclopedia of Philosophy*. IV, 204.

define what is intended by it. The purpose of this dissertation is to attempt just that; however, maybe something can be said now to clear the way toward this attempt. Beginning with what is probably its most common and ordinary meaning, intuition signifies a “hunch” or an unjustified true belief not preceded by any (rational) inference.¹ It is often understood to be the result of that capacity at times called the “sixth sense” which women are supposed to possess more than men who are seen to be more “rational.” Following the etymology of the term, one could generally define intuition as a direct or immediate insight since insight evokes the act of intuiting.² And contrary to the rarity of the occurrence of intuition in humans that the mystical connotations may confer upon it, insight and intuition are quite familiar ordinary occurrences; for all having an insight really means is to understand something (previously not understood).³ The added notion of being immediate or direct seems to be the most commonly admitted property used to describe and define intuition, and is usually intended to emphasize the lack of inference proper to reasoning.⁴

Taking a brief look at the use of intuition in philosophy⁵, and starting with the pre-Modern period, Plato distinguishes four modes of knowledge according to their degree of truth and clarity: conjecture, firm belief, discursive knowledge (*dianoia*), and intellectual intuition (*noêsis*). Whereas the first two, the more inferior modes, are of becoming and can result in opinion (*doxa*), the last two, the more superior, are of being and can result in science (*epistêmê*). The object of intellectual intuition are the Forms, the intelligible eternal essences

1 “Intuition.” *The Encyclopedia of Philosophy*. IV, 204.

2 The latin *intuivus*, *intueri* (*in-* at + *tueri-* to look) originally means to look upon, to consider, to contemplate, to fix one’s gaze upon, and/or to gaze at with the mind’s eye. See “*Intueor*” and “*Intuitus*.” *Oxford Latin Dictionary*. p.955. And “Intuition.” *The Oxford English Dictionary*. VIII, 29-30. *Insight* clearly manifests the idea of looking into the thing being looked at, of *seeing into* its inner nature.

3 Cf. Lonergan (*Insight*, Preface, p. ix): “By insight, then, is meant not any act of attention or advertence or memory but the supervening act of understanding. It is not any recondite intuition but the familiar event that occurs easily and frequently in the moderately intelligent, rarely and with difficulty only in the very stupid. [...] insight is not only a mental activity but also a constituent factor in human knowledge.”

4 See Lalande (“Intuition.” *Vocabulaire technique* . I, 543); F. De Buzon (“Intuition.” *Encyclopédie Philosophique Universelle*. II.1, 1368); and, L. Pelloux *et alia* (“Intuizione.” *Enciclopedia Filosofica*. III, 1015 and 1024).

5 A brief history of intuition in philosophy can be found in Pelloux *et alia* (“Intuizione.” *Enciclopedia Filosofica*. III, 1016-23) and De Buzon (“Intuition.” *Encyclopédie Philosophique Universelle*. II.1, 1368-70). M. Dixsaut (“Nous.” *Encyclopédie Philosophique Universelle*. II.2, 1773) provides a brief history of the use of $\nu\omicron\hat{\upsilon}\varsigma$, the cognitive capacity most generally assigned to be intuitive, in Greek philosophy from Homer and Hesiod to Plotinus.

which alone are real and exist.¹ Plotinus' conception of intuition is more than just an intellectual vision of the intelligible (as Plato sometimes presents it), consisting in a union with the intuited object, especially in reference to the mystical union with the ineffable One.² In Scholastic philosophy, the act of intuition is usually reserved to describe the spiritual perception of angels and God's vision of all things or else of man's beatific vision of God.³

In Modern philosophy intuition is associated mainly with Descartes, Kant, and those influenced by them. For Descartes, intuition is knowledge of an evident truth which can be either of things having a simple nature or of relations. Descartes accords more value and importance to intuition than to deduction or reasoning because it is the principle of reasoning and grounds deductive evidence and certitude.⁴ Finally, Descartes, like Plato, relegates the act of intuition to the intellect or intelligence and not to the senses.⁵ The importance of this last point lies in the fact that Kant later denies the possibility of man having intellectual intuitions, that is, intuitions of transcendental reality, or intellectual or non-sensible things, because man cannot have any knowledge without an empirical content of some sort.⁶ Kant defines intuition (*Anschauung*) as a direct and immediate view of an object of thought actually present to the mind and grasped in its individual reality. Human intuition is divided into the empirical intuition of an *a posteriori* sensible and the pure intuition of an *a priori* sensible. The object of the first kind is a phenomenon known through the senses whereas the second kind consists in the forms of space and time which are present *a priori* in the mind and are formal aspects unifying and grounding all empirical

1 Guy Bugault ("En quelle mesure et en quel sens peut-on parler de 'philosophie indienne'?" *Encyclopédie Philosophique Universelle*. I, 1584) and Dixsaut ("Nous." *Encyclopédie Philosophique Universelle*. II, 2, 1773). Bugault remarks that in Occidental theories of knowledge, this Platonic outline has generally been followed with value being given to discursive knowledge.

2 Pelloux *et alia* ("Intuizione." *Enciclopedia Filosofica*. III, 1016).

3 De Buzon ("Intuition." *Encyclopédie Philosophique Universelle*. II, 1, 1368). Cf. "Intuition." *The Oxford English Dictionary*. VIII, 29-30.

4 Pelloux *et alia* ("Intuizione." *Enciclopedia Filosofica*. III, 1017); De Buzon ("Intuition." *Encyclopédie Philosophique Universelle*. II, 1, 1368); and, Lalande ("Intuition." *Vocabulaire technique*. I, 537-38).

Lalande (p. 543, ft. 4) indicates that, according to Descartes, intuition sometimes follows rational discourse or much intellectual analysis.

5 De Buzon ("Intuition." *Encyclopédie Philosophique Universelle*. II, 1, 1368).

6 Lalande ("Intuition." *Vocabulaire technique*. I, 538-39). See De Buzon ("Intuition." *Encyclopédie Philosophique Universelle*. II, 1, 1369) who writes: "La rupture instaurée par Kant dans la théorie de la connaissance concerne essentiellement la question de l'intuition." For Kant, only God can have an intellectual intuition.

intuitions as a condition of their being knowable and known as objects. Kantian successors such as Fichte, Schelling, and other German Idealists end up admitting the possibility of man having intellectual intuitions, although the object of this intuition is not similarly understood by them.¹

In the contemporary intellectual scene, the notion of intuition finds an expanding role, spreading into mathematics, while in philosophy it is mostly associated with Husserl and the phenomenologists on the one hand and Bergson on the other. Husserl says that all acts of knowledge have an intuitive content and a significative (*signitiv*) content, and a pure intuition can be had by abstracting the former aspect from the latter-mentioned. He, like Kant, admits different kinds of intuition: sensible (an act of perception or imagination), categorial (a possible object of sense-perception), and eidetic or essential (*Wesenerschauung* or *Wesenanschauung*) whose object is the essence itself without empirical particularities.² Bergson's views on intuition are closely tied to his conception of duration since intuition is an apprehension of duration. It is described as a simple and immediate contact, a vision, or an apprehension of a thing from within its dynamic reality which is a sympathy and coincidence with its movement. It is opposed to reasoning and the rational and conceptual analysis used in scientific knowledge which only provides a static picture of the duration (of a thing) from the outside.³

According to Lalande⁴, the Kantian and Cartesian meanings of intuition are the prevalent ones in philosophy today, giving rise to two tendencies in the signification of intuition which sometimes intertwine. The first is closely tied to its etymology and expresses the Cartesian idea of evidence and full intellectual clarity whereas the second, more Kantian, signifies the concrete presence of an actually given reality. He notes that the first does not admit of any inference whereas the second does not necessarily exclude the use of reasoning. The combined or intertwined meaning of intuition indicates a concrete (as

1 De Buzon ("Intuition." *Encyclopédie Philosophique Universelle*. II.1, 1369) and Pelloux *et alia* ("Intuizione." *Enciclopedia Filosofica*. III, 1019-20).

2 De Buzon ("Intuition." *Encyclopédie Philosophique Universelle*. II.1, 1370) and Pelloux *et alia* ("Intuizione." *Enciclopedia Filosofica*. III, 1022).

3 Barthélemy-Madaule (*Bergson*, p. 126): "l'intuition est coïncidence avec le mouvement du mouvant." "L'intuition est donc appréhension, en tout, de la durée." (p. 130). "Intuition signifie donc d'abord conscience, mais conscience immédiate, vision qui se distingue à peine de l'objet vu, connaissance qui est contact, et même coïncidence." (p. 131).

4 "Intuition." *Vocabulaire technique*. I, 541-43.

opposed to abstract) view of things and the penetration by which one feels or guesses that which is not apparent. However, of the six senses admitted by Lalande, the Kantian meaning is held by him to be the original meaning of intuition; the others being less properly intuition, they should be designated by some other term. F. De Buzon¹ seems to follow this notion since intuition in general is for him a knowledge in which the object is immediately and totally present to the mind, but he stipulates that *object* could mean quite different things according to different philosophers. Besides the idea of an immediate or direct presence of an object to the mind (or to any given cognitive faculty), there is the Bergsonian and Plotinian idea of intuition as a coincidence of the subject and object, which resembles more an immediacy of touch or sympathetic contact than a mental or intellectual sight or vision.²

Although Aristotle has been left out of this summary historical survey of intuition as understood by certain philosophers, De Buzon observes on several occasions that Descartes' conception of an intuition of principles of deduction is nothing more than an echo of what Aristotle himself said about *nous* being of the principles of science.³ Descartes may have learned this from his scholastic education, for De Buzon also notes that the conception of intuitive knowledge developed in the Middle Ages and the Scholastic period "[took up] most of the functions Aristotle attributed to *nous*, especially in the last page of *Posterior Analytics*."⁴ Also, the notion that *nous* is dependent on sense could likely parallel the Kantian notion of an *a posteriori* empirical intuition of something actually present to the mind in its individual reality. In effect, does not Aristotle's claim that no thinking can take place without an image resemble this conception since this means that the individual image is indeed present to the mind while it is in operation? Thus if these

1 "Intuition." *Encyclopédie Philosophique Universelle*. II.1, 1368.

2 Pelloux *et alia* ("Intuizione." *Enciclopedia Filosofica*. III, 1016).

3 "Intuition." *Encyclopédie Philosophique Universelle*. II.1, 1368. See also Pelloux *et alia* ("Intuizione." *Enciclopedia Filosofica*. III, 1016) where it is remarked without further explanation that Aristotle's position on the intuited principles of science actually originates in Plato's notion that the intuition of Forms is an intuition of first principles of scientific knowledge. It is interesting to note that, apart from the incidental references to Aristotle that will now be mentioned, none of the encyclopedic references consulted discuss in any detail Aristotle's notion of intuition.

4 "Intuition." *Encyclopédie Philosophique Universelle*. II.1, 1368: "La notion de connaissance intuitive élaborée au Moyen Age et par la scolastique reprend pour une grande part les fonctions qu'Aristote attribuait au *nous*, notamment dans la dernière page des *Analytiques seconds*;" but he warns the reader immediately, "cependant, bien que la traduction de ce terme par intuition soit attestée à l'époque moderne, elle surdétermine le sens du terme grec en lui conférant la métaphore de la vision immédiate et instantanée."

meanings of intuition admitted to exist in other philosophers seem likely to have a correlate or even originating source in Aristotle's thought, then could one not be justified in searching for the nature of human intuition as this is manifested in Aristotle's conception of *nous*, particularly in its relationship to the syllogism and the senses? If there is little or no mention of intuition with reference to Aristotle, perhaps it is due to the tendency of most students and scholars of Aristotle's philosophy to focus almost entirely on what he says about the syllogism and discursive reasoning. As a result, human thinking as it is presented with reference to Aristotle often appears to lack an intuitive component. But this tendency is probably misguided and reveals a misunderstanding not only of human intuition, but also of human reasoning. By showing the limits of human reason—limits which Aristotle admits and which may be more readily recognized in the sceptical and anti-rational climate of contemporary thought—it can be made evident that these limits call for and are even overcome by an intuitive mode of thought. Perhaps it is time to look into the possibility of intuition in human thinking as this is described by Aristotle.¹

Research into the nature of human intuition through Aristotle's conception of *nous* requires a certain measure of discrimination. One important distinction to be made is that between human and divine thought, which is not easily done in certain passages of Aristotle's works. This dissertation will focus strictly on human thought and make no reference to the divine mode of thought, except perhaps incidentally. Although there are some Aristotelians who think that even human thought is fundamentally dependent on the divine mind for its operation, we do not accept this "divine intervention" for several reasons: it does not seem to have any confirmation in ordinary experience; the act of human thinking appears to be within the power of each individual person²; and, as a consequence of these, human thinking ought to be explained as much as possible with reference to human capacities before seeking an explanation outside man. After all, does not Aristotle himself claim³ that man is principally his *nous* and that the way of life according to it is the most liberal for him? This would hardly be the case if he was dependent on something, or someone, outside himself to accomplish this the most liberal and autarchic of human activities in

1 We cannot help recall, at this point, Chesterton's remark (*Orthodoxy*, p32) that, "The madman is not the man who has lost his reason. The madman is the man who has lost everything except his reason."

2 As Aquinas held against the Averroists: "*Manifestum est enim quod hic homo singularis intelligit.*" (*De Veritate Intellectu*, c. III, n.62 in McInerney, *Aquinas Against Averroists*, p.80.)

3 *NE* IX.4, 1166a 16-17; IX.8, 1168b 30- 69a 1; and X.7-8, especially 1177b 25-1178a 8.

Aristotle's eyes. The contradiction between this conception of man and one stating that he is dependent on God to think and contemplate is, it seems to us, simply too astounding. It also goes against a principle Aristotle was fond of pronouncing in his natural treatises, namely that nature always provides that which is necessary for an entity to perform the functions it actually performs.¹

It must also be realized that in Greek *nous* and its cognates possess several meanings, and this is no different in the Aristotelian corpus.² In *On the Soul*, for example, Aristotle speaks of a *nous* insofar as it is possible or potential because it can receive intelligible objects, a *nous* insofar as it is active or productive because it makes or creates the intelligible object, and even a *nous* that is "passive" (*pathêtikos*) which is sometimes equated with the first-mentioned and sometimes distinguished from it to be identified instead with imagination or memory or some other mental faculty functioning in conjunction with the body. Thus, Aristotle employs the same term sometimes with a broader signification similar to *mind* in English referring to a seat of various intellectual or mental faculties and activities, and sometimes in a more restrictive sense to indicate any one of the faculties of mind.³ Mignucci observes that *dianoêtikê*, a cognate of *nous*, can have two cognitive senses: 1) intellectual activity as it is opposed to sensible activity; and, 2)

1 See GA I.4, 717a 16; II.6, 744a 36 and b 15-27.

2 For the term νοῦς, see Liddell and Scott (*Greek-English Lexicon*, pp.1180-81) and Bailly (*Dictionnaire Grec-Français*, pp.1332-33). Its meanings in the Aristotelian corpus are noted by Bonitz (*Index*, pp.490-91).

3 DA III.5, 430a 14-16 and 23-25. Recent literature demonstrates that many of the names and labels given to these different descriptions of νοῦς cannot be found in Aristotle's texts but are later inventions of Aristotelian commentators. Paul Moraux ("Tradition grecque," p.284) observes that, "c'est chez Théophraste qu'apparaissent les expressions δυνάμει νοῦς, ἐνέργεια νοῦς, πολιτικὸς νοῦς et d'autres analogues, qui allaient rester en usage pendant de nombreux siècles." Although some scholars interpret the different descriptions given by Aristotle as a sign of an unsettled position on the nature of νοῦς, others conclude that Aristotle wanted to signify different functions performed by one entity called νοῦς and not several hypostatized noetic entities which the substantive labels may suggest. See Henry Blumenthal (*Aristotle and Neoplatonism*, p.164): "[By the term νοῦς in DA and other treatises.] I am assuming that Aristotle intended no more than two and possibly only one [νοῦς in man]. Yet he himself distinguished intellect from reason, active intellect from passive or potential intellect, and theoretical intellect from practical reason, all of which could, of course, be referred to by the single word *nous*, with or without qualification." See also Blumenthal ("*Nous Pathêtikos*," pp.191-206) and Pamela Huby ("Stages in Development," pp.129-43).

discursive thought as it opposes *nous*.¹ But he does not notice that these two meanings could be related since the *nous* that is opposed to discursive thought (sense 2) could be (one part of) the *nous* in relation to the senses (sense 1) and which the *Physics* passage states as being the source of thought in syllogistic discourse. In fact, does not *dianoêtikê* simply mean a movement of *nous*, of a thought that was somehow first generated from sense? In other words, *nous* could be understood to have the following meanings. In its broadest and most general meaning it could signify all the cognitive capacities in man and any one of them indiscriminately, that is, both capacities that operate in conjunction with a bodily organ, such as sense, imagination, and memory, and the intellect which is said to operate without a bodily organ. In this sense, *nous* will be designated as mind or mental.² *Nous* could then bear a more restrictive meaning by referring to that part of the mind not operating in conjunction with a bodily organ and is thus distinguishable from the part, or rather parts, that do. In this sense, *nous* will be designated as intellect or intellectual. Finally, *nous* could have its most limited meaning when it signifies a part of the intellect itself, namely, an intellectual operation distinguishable from the intellectual operation designated by *dianoia*. It is with reference to this last meaning of *nous*, which Mignucci says is opposed to *dianoia*, that we hope to elucidate the existence and nature of an intuitive element in human thought, one that is related to both the senses and the “dianoetic” activity of syllogizing.³

In effect, due to the possibility for confusion and the difficulty of defining the intuitive nature of *nous* and *noein*, it seems prudent to examine it within a larger context. By respecting the relationships human thought has with its mental discursive activity and with the external world as it is perceived through sense, it will be more likely that the richness

1 Mignucci (*L'Argomentazione Dimostrativa*, pp.1-3) presents these in his analysis of the first sentence of *Post An I.1*, remarking that the commentators of the passage always understand it in either one of these two meanings. He also notes that these cognitive meanings of $\delta\iota\alpha\nu\omicron\eta\tau\iota\kappa\acute{\eta}$ are further distinguished from a third non-cognitive sense used to designate the intellectual habits in contradistinction to the moral.

2 We realize that today mind is often taken to be an epiphenomenon of the body and that some people do not admit the existence of a part of the mind without the body. As far as we admit such a part, our conception of mind will therefore differ in meaning from those that do not.

3 Kal (*Intuition and Discursive*, p.9, ft.6) notes that one must be careful when looking to the language and vocabulary employed by Aristotle since both $\nu\omicron\hat{\upsilon}\varsigma$ ($\nu\acute{o}\eta\sigma\iota\varsigma$) and $\delta\iota\acute{\alpha}\nu\omicron\iota\alpha$ ($\delta\iota\alpha\nu\omicron\acute{\epsilon}\sigma\theta\alpha\iota$), which are parts of the intellect, are indifferently used to designate the whole intellect. Whenever possible the term $\nu\omicron\hat{\upsilon}\varsigma$ itself will only be used throughout the dissertation in the third most limited sense, the other senses being designated respectively by *mind* and *intellect*.

and diversity of human thought will be preserved. By comparison and contrast with these other modes of knowing, the acquisition of a definition of the nature or essence of human intuition will be facilitated since the similar and common characteristics could serve as genus while any differentiating properties found could serve as specific difference in our definition of it. For these reasons, the primary text from the Aristotelian corpus on which this thesis will concentrate is *Posterior Analytics* Book II, chapter 19, in its entirety, “the *locus classicus* [describing] the process whereby universal concepts are formed out of repeated acts of sense perception.”¹ This text incorporates the three principal modes of human cognition determined thus far as it outlines the manner in which man acquires, by beginning and passing through the different levels of sense cognition, the noetic habit which can then serve as the principle of scientific knowledge, a rational discursive form of knowing.² Since the *Posterior Analytics* is a treatise whose subject-matter is logic viewed as the human instrument (*organon*) by which we know, the presence of this chapter in this place is meant to add something to Aristotle’s thoughts on logic, in particular, to his theory of syllogistic and demonstration (or science since scientific knowledge is expressed in a demonstrative syllogism). Although *Metaphysics* Book I, chapter 1 parallels this text on many points, its concern is to determine which knowledge is that of causes with which wisdom is said to be equated and, as a result, it does not manifest the relationships existing between the three principal powers of human knowing and the cognition they provide as clearly as the chapter in *Posterior Analytics*, whose expressly stated goal is to show that man’s demonstrative habit must be based upon a habit of universal or intellectual principles formed or obtained from the knowledge of sensible singulars. The *Metaphysics* text will, nevertheless, be used as a secondary reference source, a practice prevalent among many commentators of our primary text.

Before outlining the order of the dissertation, there are a few methodological remarks to be made concerning the textual commentary form of the examination of *nous*. A commentary

1 W.E. Dooley (See Alexander, *On Aristotle Metaphysics I*, p.23, ft.39). The editions of the Aristotelian corpus followed are Bekker’s for the Greek and both Oxford (ed. Ross) and Revised Oxford (ed. Barnes) for the English. All citations in English come from the Oxford edition, though slightly revised in many instances. For simplicity’s sake, we will hereafter call this text of which this thesis is a commentary “II.19” or “the primary text.” Appendix A provides the abbreviations used for Aristotle’s works cited in the footnotes. Appendix B provides Bekker’s edition of the Greek text of II.19, which the reader may consult whenever reference is made to it.

2 Note that we identify the noetic habit with the intuitive faculty and operation, a position which will be justified in the dissertation against those who do not make this identification.

is commonly understood to be an examination of a text done by a student of the author of the text for the purposes of clarifying the original author's intentions, the presupposition being that the commentator is merely representing as faithfully as possible the author's true thoughts. The long history of Aristotelian commentary, filled with a wide diversity of interpretations on many key issues resulting in endless debates and discussions, clearly shows the limitations of such a conception. We do not, therefore, share Trendelenburg's pretension (or anyone else holding the same view) to be simply understanding "*Aristoteles ex Aristotele*," which suggests that it is Aristotle himself who is interpreting one text or passage in the light of other texts or passages. This is to forget or ignore that it is the commentator himself who selects the passages in the first place and, as a result, intervenes by performing a hermeneutical act. For the sake of scientific knowledge and certitude, the only certain measure of fidelity and truthfulness to Aristotle's philosophy would be to ask Aristotle himself to explain his understanding expressed through the medium of the written word as we have it. As this is obviously impossible, the only other possible measure of fidelity, it seems, would be to treat the Aristotelian corpus itself as a phenomenon, whose objective reality can be saved to the extent that a commentator's understanding and explanation of Aristotle's words manifests coherency and completeness, that is, the corpus is seen to form, as much as is possible, a unified whole. But, this too would be problematic in the eyes of some commentators since it presupposes that Aristotle lacked all confusion and contradiction, and was thus coherent in thought and clear in expression. To these scholars, the scientific principle of completeness and coherence in an explanation of a phenomenon would be to beg the question in the case of Aristotle's philosophy.

Recognizing, therefore, the limitations in this conception of a commentary, we will follow the etymology of the word *commentary* and its cognates: the commentary is an explanation of an author (*commentarius*) performed by the commentator (*commentator*) who applies his thought to something in order to exercise his mind (*commentor*). Therefore, the act of applying our thought to II.19 is a way for us to exercise our minds done with the purpose not of faithfully representing Aristotle's thought contained in the text, but to help us come to a better understanding of our subject, namely, the nature of human intuition. This is not meant to negate an objective reality in regards to Aristotle's philosophy, nor to admit a relative standard of truth. It is simply the admission of the extreme difficulty, if not impossibility, of determining with any scientific rigour the truthfulness of one's claims in certain domains. This is not only so in the case of the Aristotelian corpus taken as the

measure of our views. It is also so in the case of the reality and essence of intuitive thought itself, which is the reason we will try to understand it by using Aristotle as a guide; for we do think (though we cannot say we definitely know) that Aristotle makes reference to such a thought in his treatises. In short, this is not a thesis about human *nous* as it is found in Aristotle's philosophy, but rather the study of human *nous* through Aristotelian philosophy, the ultimate measure being the objective reality of human intuition. Non-philosophical speculations such as the chronology of the texts in the corpus, philological analysis, and other such principles of hermeneutical examination, whenever used, must consequently be understood as being subordinated to the principal philosophical task of trying to understand the nature of human intuition.

We terminate our introductory remarks by briefly outlining the order of our dissertation. The first chapter will present definitions of some key words in our vocabulary covering cognitive capacities and will further set up the backdrop by adding more details to the context within which this examination of *nous* will take place. Chapter two will present Aristotle's theory of logic and science to see how it describes the activity of human thinking, the goal here being to determine the moments at which is manifest an indemonstrable, non-syllogistic, hence, non-discursive mode of thought; for it is this non-discursive thought that will indicate the presence of *nous* in thinking. Since sense cognition expresses a non-discursive kind of knowledge, the next two chapters will outline the capacities of sense (the external in chapter three and the internal in chapter four), their activities in sense-perception, and the cognition they provide, especially the sum of sense cognition signified by sense experience. There will then follow a chapter on "the human experience," that is, a study of how sense experience can be modified under the influence of the intellect (signified by *logos*) seeking to prepare the primitive form of experiential cognition to make it suitable for the intellectual pursuit of seeking scientific knowledge and understanding. Chapter six will study the method of induction by which the principles of science are declared by Aristotle to be acquired. After studying the different species of induction, this chapter will terminate with remarks on the relationship between induction and the habit of *nous* said to come through this process. In this way, we hope to join the non-discursive knowledge gained through an induction from sense with the non-discursive mode of thought revealed in our study of logic, thereby opening the door to the last chapter in which *nous* as signifying an intuitive capacity and activity concerned with the principles of science will be analyzed.

CHAPTER I

THE HUMAN COGNITIVE CAPACITIES

As this dissertation seeks to come to an understanding of the nature of human intuition by comparing and contrasting it with other more familiar cognitive capacities in man, it would be beneficial to clarify first of all some of the terminology regarding these in general as well as to present an overview of their place in human cognition.

1.1 Lexicon

A cognitive capacity (*dunamis*) is the ability of the subject possessing such a capacity to act cognitively, that is, to know. A power is a sense capacity and a faculty is an intellectual capacity to act thus.

Activity (*energeia* or *entelekheia*) refers to the capacity while it is acting.¹ Thus the capacity as such is in potency to act and is potentially in activity prior to actually acting. The cognitive capacity is, therefore, an active, not a passive, capacity, for it is a potency to act. The passive potency is to be situated in the subject or seat of the cognitive capacity and indicates that which is capable of receiving the active capacity, for example, the eye (passive capacity) is the seat of the power of sight (active capacity) whose activity consists

¹ On the difference between ἐνέργεια and ἐντελέχεια, see Bonitz's definition (*Index*, p. 253) of ἐντελέχεια: "inde ita videtur Ar ἐντελέχειαν ab ἐνεργείᾳ distinguere, ut ἐνέργεια actionem, qua quid ex possibilitate ad plenam et perfectam perducitur essentiam, ἐντελέχεια ipsam hanc perfectionem significet."

in actually seeing.¹ An activity can also be referred to as an operation, an exercise, or a function, whether it be of a power or a faculty.

An object (*ta antikeimena*) is that upon which a cognitive capacity is acting when in activity. It is to be noted that since an activity (being a state or quality of a capacity) is seated in the capacity's subject, and since activity and object are identified by Aristotle, then the object is also to be seated in the capacity's subject. The object red, for example, is in the power of the eyes seeing something red.² Although the cognitive capacity in activity acts on the object with which its activity is identified, this does not mean that it knows the object. What is known is that which is the source and cause of the object's presence in the capacity and which can be referred to as a cognizable subject.³ But the cognizable subject is known objectively, that is, through the object as the medium directing the activity of the cognitive capacity's cognition of it.⁴ In fact, the cognitive capacity is dependent on the cognizable subject to provide the object because the capacity is only in potency to act and must be actualized by an agent in act other than itself. As actualizing agent of the cognitive capacity,

1 Cf. Bonitz (*Index*, pp.206-07) who gives 2 main senses to δύναμις: "duas potissimum distinguendas esse δυνάμεως notionas [...] quamquam ea distinctio non ubivis severe tenetur. [...] 1) potentia- ἢ κατὰ κίνησιν λεγομένη δύναμις, [...] quoniam per id, quod aliqua res πέφυκε ποιεῖν ἢ πάσχειν, ipsa natura et qualitas rei significatur, δύναμις affinis est et comi cum notionibus εἶδος, μορφή, λόγος, φύσις. [...] 2) possibilitas- δύναμις, τὸ δυνάμει ὄν, τὸ κατὰ δύνανμιν ὄν." See, also, Trendelenburg (*De Anima*, pp.242-62) who provides an extensive analysis of the different meanings of δύναμις and ἐνέργεια.

2 When speaking of potency, act, and object with respect to intellection and sensation, F.M. Schroeder and R.B. Todd (*Two Greek Commentators*, Preface, p.xi) observe: "Also the introduction of the term 'object' presents the greatest risk of confusion in suggesting a misleading dichotomy between the activity and that with which it is identical in Aristotelian doctrine." Cf. Wedin ("Tracking," pp.134-35).

3 Cognizable subject refers firstly to the cognitive quality received by the cognitive subject, e.g., the red (table) that is seen. It then refers to the substance-subject, e.g., the (red) table, since all accidents must exist in a substance-subject, the only things that can exist independently or separately on their own. The same may be said with respect to the cognitive subject: first it refers to the capacity receptive of the object (eyes and sight), then to the subject-substance of the capacity (Mary who has sight).

4 Concerning the expression 'medium of knowledge' or 'means of knowing', Langston ("Scotus's Doctrine," pp.5-13) distinguishes 2 senses: 1) the medium itself is known so that in knowing it something else is known, e.g., the conclusion is known by means of the principle; and, 2) the medium itself is not known but merely functions as the means of knowing, e.g., the sensible species in a sense power is a means of knowing a sensible thing. The second meaning is intended in the present case. Aristotle expresses something similar to this notion in *SS 6*, 446b 18-27 when dealing with the difficulty of explaining how many individuals can perceive numerically one thing. His answer is that all perceive the first or primary numerically one and the same motion set up by the cognizable subject in each individual's senses while the special or proper object in each cognitive subject is numerically other but specifically the same.

the cognizable subject must therefore first exist; and until it is actually known, it is only an object in potency corresponding to the capacity in potency to act. But once the cognizable subject is present to the capacity by somehow making contact with it, the former activates the latter such that the capacity is in activity and actually possesses its appropriate object through which the cognizable subject is known.¹ There is thus an element of passivity and receptivity on the part of the cognitive capacity due to its being first in potency to act and requiring an actual object, which it cannot provide itself, to actualize it. But as the cognitive subject's capacities are active, once the object has been received, the capacity acts on it and comes to know the cognizable subject through it. Thus the object and the activity with which it is identical is possible because object signifies the determination a cognitive capacity acquires when in activity. As all acts or activities of a capacity are always singular, the singularity of an activity will be determined by the object the capacity acts on during a singular act. Consequently, in any given act, they are identical and there is no subject-object dichotomy, although they may be distinguishable in thought by saying that the object signifies the capacity's mode of acting while activity refers to the bare fact of its acting, an abstraction made from the singular mode it must always be in, whatever mode it may be.²

In other words, the act of cognition is intentional, that is, the cognitive subject tends to the cognizable subject but does so by acting on the object it has received from the latter. It is only through a second cognitive movement (possible only to certain capacities) that the object found within the cognitive subject can be known in itself rather than being used as a medium through which a cognizable subject is known.³ The notion of intentionality as it was first developed by Brentano characterizes the intentional object by its feature of not having to exist outside the mind in order to serve as an object, which Brentano calls "intentional inexistence."⁴ However, Brentano's conception of intentionality, born within a

1 *Cat* 7, 7b 23-8a 11.

2 Observe that the subject-object dichotomy has been transformed into a subject-subject dichotomy, while the presence of the object in the cognitive subject during actual acts of cognition can indicate that an inter-subjective cognitive relationship has been established between the two.

3 Owens ("On Cognition," p. 112): "In confronting the problem of cognition, the Aristotelian account calls attention to the fact that every thought and every sensation is of something other than itself. What you see or know directly is the desk or the table, and not the act of seeing or of knowing it. You are, of course, concomitantly aware of your own cognitive acts, but only in the course of attaining something else." The awareness of one's acts of cognition will be looked at with reference to the internal senses.

4 Sorabji ("Development of Intentionality," pp. 247-48) shows Brentano's claim, that the idea of intentionality was already present in Aristotle's doctrine of the senses receiving form without matter, really to be an interpretation of Aristotle made possible by later developments in Aristotelian commentary.

Cartesian philosophical context, overlooks the fact that some, if not all, cognitive capacities only possess an object in the presence of the cognizable subject originating it, that is, the existence of something “outside the mind.” This is most obvious in the case of sensation where the external powers cannot activate themselves. Now, to the extent that a cognitive capacity cannot give itself an object to actualize its activity, the cognitive capacity is dependent on something external to it. To this extent the activity of a cognitive capacity could be said to consist in an act or activity of receiving the object, which would be a rather passive form of activity. However, if the distinction between active and passive capacity made above is valid, then at some point in the act of cognition there must occur on the part of the capacity an active acting on the object according to which it knows the cognizable subject. The notion of intentionality is intended to indicate this active aspect in the cognitive activity.¹

A capacity being at first only in potency to act has the possibility (*dunamis*) of either acting or not acting. A disposition (*diathesis*) is the initial orientation of the capacity to act without fixity or stability, and a habit (*hexis*) is its later orientation to act in a stable or fixed manner. Habits develop through the capacity’s performing individual acts or activities, the disposition being a transitory stage or state of a capacity before it develops into a habitual and more permanent way of acting. Though the number of times a capacity must act before its disposition becomes a habit is difficult to determine with precision (and is perhaps irrelevant), the importance in the establishment of a habit lies more in the necessity of repeating the same act.² In this manner, a capacity changes from a state of possibility to one of potentiality, the difference being that the latter indicates the firm, though latent, possession of an activity in a capacity’s habit, and the former the mere disposition or initial openness of a capacity to acquire the potentiality. Thus the habitual manner of acting indicates that the capacity now possesses more or less permanently the activity which is the

Brentano does assert that he was following Aquinas and the medieval scholastics. According to Sorabji, intentional being for Aquinas does not imply awareness as it does for Brentano, though it may imply a message.

¹ The relationship existing between cognitive capacity and object will be examined during more detailed discussions of the acts of sensation and intellection. Note for now that if a cognitive capacity is to be understood as a passive capacity, it would have to be defined as an ability to be acted on (by the object) rather than the ability to act (on the object).

² See Aegidius Romanus’ explanation (*Post An*, cols.4-5 and 8) of how a habit is developed from many acts performed on its object. (As Aegidius’ commentary does not have page numbers, we numbered the columns within the section of his commentary covering *Post An* II.19.)

perfection of the capacity's power to act.¹ It must also be realized that the dispositional state of a capacity is generic in nature whereas the habitual states (for a capacity can really develop many habits) are specific in nature determined according to the individual acts and objects acted on. The power of sight, for example, is a natural disposition to see colour (a genus), for one does not gain sight by often seeing, but had sight before exercising the capacity; but, the ability to see specific colours, say, red, is acquired by the eyes repeatedly seeing instances of red.² These remarks likely explain Aristotle's tendency to restrict the designation of activity to the act of a capacity only after it has established a habit. The dispositional acts are really imperfect (generic) acts of the capacity because its orientation is still somewhat undetermined such that it may or may not always act (specifically) in the same way. As a result, these are not really to be called activities.³

1.2 Anatomy of Human Cognition

In II.19 Aristotle provides several indications as to how the principal cognitive capacities found in man may be related to each other, these capacities being the power of sense (taken as a whole) and apparently two intellectual capacities: one which can become the habit of the principles of science and the other, the habit of science.⁴ A brief examination of Aristotle's comments regarding these capacities will help situate them with respect to each other and provide a global view of the anatomy of human cognition. The first-mentioned habit is identified with *nous* and the second-mentioned is said to be demonstrative or to have a cognition acquired through demonstration. Although Aristotle wonders at the start of

1 Bames (*Post An.*, p.260) notes that ἔξις is the verbal noun of ἔχειν and is cognate with the Greek for *grasp* or *possess*; thus, ἔξις would be a *having* or *grasping*. On the distinction between possibility and potentiality, see Irwin (*First Principles*, pp.227-30).

2 The example of the Inuit who have many more words to describe snow and ice reveals how their sight has been habituated to see many shades of whiteness that non-Inuits would not see (at first glance). Another example would be the refined taste of those (professionally) involved in the culinary arts.

3 This is implied by Aristotle in *NE* II.1, 1103a 26-b 25. Note that one could distinguish a habit of the sense powers from that of the intellectual faculties by calling the latter a virtue (ἀρετή), a term equally applicable to moral habits. However, as Aristotle uses the term ἔξις in *Post An* II.19 when referring to the cognitive habits, as well as the fact that virtue has other more familiar connotations in contemporary English that may cause confusion, we will use habit to signify the perfected state of both sense and intellect.

4 Even though Aristotle affirms (at 100b 5-8) that the habit of the principles of science is intellectual, some commentators take the habit of the principles of science to be related to sense from which the habit is said to come rather than to the intellect; hence, the guarded affirmation.

the chapter whether the habit of the principles of science is the same as the one of science, at the end of the chapter he states that they are, in fact, different intellectual habits providing different kinds of knowledge.¹ As can be seen from the descriptions given of these two intellectual habits, *nous* is prior to science because it is of the principles on which the latter depends. There is thus some sort of causal relationship between the two habits which is usually understood with reference to the fact that scientific knowledge, being demonstrative in nature, is a knowledge of a demonstrated conclusion while the cognition corresponding to *nous*, being of the principles of science, is a cognition of those elements necessary for the demonstration to take place.

In regard to *nous*, the habit of the principles of science, Aristotle posits that it is to be generated from the power of sense. In this context the power of sense refers to all the specific sense powers working together, each of which being just a stage in the development and acquisition of a final, rather advanced state of sense knowledge enabling the formation of the habit in question. This affirmation agrees with the principle that the intellect must be fed by the senses in order for it to accomplish its operations. Although this position must overcome the obstacle (at least in the eyes of some commentators) of determining precisely how the power of sense can develop into an intellectual habit and how sense knowledge of singular individuals could give rise to intellectual knowledge of a universal, it must be maintained because of the impossibility of the alternative explanations offered as to how the habit comes to be in man.

One explanation would be to maintain that the habit of *nous* is innate in man and already determined from the start of his life but remains hidden such as to be at first unnoticed. Many commentators take this position to be a reference to the theory of reminiscence expounded in several Platonic dialogues where it is maintained that the knowledge of the Forms is already actually present in man (having been acquired from a previous life), and that in this life one learns by remembering and recalling them. Thus knowledge is always

¹ Aristotle (99b 22-26) asks three questions: two dealing with the cognitive habit of principles and one with the process of acquisition resulting in the habit. Some commentators retain the three questions whereas others either reduce the two concerning the habit or state to one question having two related parts or treat it as being two expressions of the same question. As examples of these positions, Mauro (*Braevi paraph.*, XI, n.2) reads three questions, Apostle (*Post An.*, p.71), two, with the one concerning the habit having two related parts, and Warrington (*Pr and Post An.*, p.265) simply reduces the questions about the habit thus: "The questions arise (1) whether these are objects of science, as the conclusions from them are, or of some other faculty, ..."

present in man who comes to know by changing from a state of being unaware of its presence in him to one of awareness. Now Aristotle says that the idea of having a form of cognition superior to that provided by the demonstrative knowledge of science and yet remain unaware of it is absurd.¹ If in the case of scientific cognition one cannot ignore or not know what one knows, then this applies all the more so in the case of the knowledge of the principles from which science comes. After all, if science is of a demonstrated conclusion, and in order to have a demonstration it is necessary to posit the elements from which one draws the conclusion, then it is impossible to know the conclusion without having previously known the principles posited for its demonstration.²

Contrary to this thesis is the position stating that the habit comes from nothing, that is, from no prior knowledge whatsoever. Aristotle rejects this view as well because, according to him, all learning requires a form of pre-existent or prior cognition from which newly acquired knowledge comes.³ This is obvious in the case of scientific knowledge since demonstration requires that one already know the principles that will produce the conclusion before the latter becomes known through demonstration. Though it may be less obvious in the case of the habit of the principles of science, the necessity of some kind of pre-cognition remains valid. According to Wieland, the principle proclaiming the need for prior knowledge is really derived from another well-known Aristotelian distinction, namely, that between that which is better known to us and that which is better known by nature. Since the former is always the first kind of knowledge man has of something, it can serve as the basis from which he attains the latter.⁴ With this understanding, it becomes

1 99b 27-30. For now, *superior* translates the comparative adjective ἀκρίβεστέρως (99b 27) because it expresses the notion of better without mentioning the cognitive quality being compared. The meaning of ἀκρίβεια will be examined in the next chapter during the discussion of the principles of science.

2 Aquinas (*In Post An Expos.*, II, l. 20, n. 585).

3 99b 28-30. This principle of the necessity of pre-cognition appears to be a reference to *Post An* I.1 where this idea is stated. So comprehends Waitz (*Organon*, p. 429), among others. Themistius (*Post An Paraph.* p. 2, 2-25), in commenting the passage enunciating this didactic principle, acknowledges that one needs prior knowledge not only in all sciences, but also in all logical forms of learning (“πᾶσαν μάθησιν λογικῆν”), the arts, and especially in discursive teaching (“μάλιστα δὲ δῆλον ἐπὶ τῶν διὰ λόγου τι διδασκόντων”), e.g., in geometry one needs to know beforehand the significance of *part* in order to learn that the point is that which has no parts. See also Alexander (*In Meta Comm.*, p. 129, 10ff.).

4 Wieland (“Inquiry into Principles,” pp. 128-32) explains that the distinction between what is better known to us and what is better known by nature is not one between “a subjective and an objective sphere, or between an order of being and an order of knowledge. He [Aristotle] is concerned merely with different forms of knowledge (i.e., with ways in which a thing is known), not with an opposition between knowing and

easier to see how the habit of the principles of science can have prior knowledge from which it comes because sense knowledge is better known to us whereas the habit generated from it could be knowledge that is better known by nature.

So *nous*, this intellectual habit of the principles of science, is neither innate in man as an already determined, delimited, or terminated state, nor does it come from no previous knowledge whatsoever. It develops from the prior cognition acquired through the operation of the sense powers. Recalling that the powers work together to provide a final state that could be referred to as the sum of all sense knowledge, this ultimate sense habit probably still does not provide a form of knowledge superior to the habit of *nous* since the habit of the principles of science is claimed by Aristotle to be superior to or more valuable than the sense powers and their knowledge.¹ Thus, the intellectual habit of science has for its pre-existent knowledge the intellectual habit of the principles of science called *nous* and this, in turn, has for its pre-existent knowledge that of the sense powers. Since the habit of the principles of science is said to be superior (in *akribeia*) to both the habit of science following it and the senses preceding it, the nature of the prior cognition is not the same in both instances: sense cognition is inferior in *akribeia* to the habit of *nous* while this habit is superior in *akribeia* to the habit of science.² But there is no pre-cognition in the acquisition of sense knowledge. What precedes it is simply the power to sense which is activated when in contact with its proper object.³ Sense is the capacity to acquire some type of knowledge thing known, or with an ontological dualism. [... The path from better known to us to better known by nature] is emphatically not a path from not knowing to knowing, but a movement from one form of knowing to another." Wieland says that this path to knowledge explains the meaning of the necessity of pre-existing knowledge in *Post An* I.1.

1 Aristotle (99b 32-35) claims that sense is a capacity that is "μὴ [...] τιμιωτέρα κατ' ἀκρίβειαν" in comparison to the habit of the principles of science generated at the end of the process of its acquisition. Notice how the comparison is again based on the quality of ἀκρίβεια as it was in the comparison between the habit of science and the habit of its principles. Also, Aristotle (100a 10-11) affirms that the habit of the principles of science does not come from other habits that are γνωστικώτερον, but from sense; thus implying that sense is an inferior habit with respect to the knowledge it provides, which Eustratius (*Post An Comm*, p.257,8-12) describes as "ἀπὸ χειρόνων ἕξεων γνωστικῶν."

2 This seems to imply that the term ἀκρίβεια would have two different senses, for in one case νοῦς is being compared to sense knowledge while in the other it is being compared to science, i.e., intellectual knowledge.

3 This is particularly so with the external senses, as will be seen later. Themistius (*Post An Paraph*, p.2,23-25) explains that there is no pre-cognition for sense knowledge because it is not acquired by any learning ("οὐ γὰρ διὰ μαθήσεως") or logical method ("οὐδ' ἐκ μεθόδου λογικῆς"). Granger (*Théorie de la science*, p.34) describes sensation as having the character "du non-doxique et de l'immédiat." Barnes (*Post An*, pp.261-62) also suggests that the acquisition of the principles need only

which can then serve as a first knowledge existing prior to all further acquisition of knowledge, especially the intellectual knowledge of the principles of science and ultimately scientific knowledge itself. By furnishing the first bits of information and cognition, the power of sense could be considered to be the principle of all human cognition.

Rooting an intellectual habit in the power of sense does, however, seem to pose one particular problem. If a habit is seated in a capacity, then how can a power of sense, or even the sense power taken as a whole, develop into an intellectual habit? After all, one kind of capacity cannot develop a habit appropriate to another kind of capacity. Either the habit of the principles of science is intellectual, in which case it must be seated in a faculty, or this habit of principles must come from the power of sense, in which case it would only develop into a sense habit. The second possibility would ultimately end up identifying the habit of *nous* with the final state of accumulated sense knowledge. But if *nous* is an intellectual habit (which it would have to be in order for it to be the principle of science which is itself intellectual), then this solution would still face the difficulty of having to explain how a habit of sense becomes intellectual or can be a principle of intellectual knowledge.¹ The first option would require that the habit of the principles of science be the result of the activity of an intellectual faculty. Now if this faculty can act on its own without sense, then it would produce an intellectual cognition on its own. But if this is impossible for it to do (for all intellectual learning requires prior knowledge), then it must turn to the senses in its activity since the only other cognition available comes from their activity. Now if this faculty is able to act on the cognition acquired through the powers of sense, then the habit resulting from this activity would indeed be intellectual all the while being dependent on sense and being generated in part from sense cognition. From this perspective, saying that sense cognition exists prior to the habit of *nous* and is inferior to it with respect to the knowledge it provides would be like saying that it is a disposition to this intellectual habit, or is predisposed to become this habit, or, as Grosseteste describes the situation, that sense is a possible, material, and passive habit which is potentially the habit of principles and

depend on the exercise of the capacity of perception; but as his understanding of the habit of $\nu \circ \hat{\nu} \varsigma$ pretty much equates it with the final product of sense knowledge, the habit does not therefore require prior knowledge but just the power of sense. So he affirms that the innate cognitive capacity of II.19 "has nothing to do with the principle [of I.I because the latter] deals with the 'intellectual learning' of derived propositions [while the former] is concerned with a non-intellectual acquisition of underivable principles." 1 After accepting the habit of principles as coming directly from the sense powers, Barnes (*Post An*, p. 262) admits the difficulty in figuring out how this "empirical" habit can become a principle of "rational" knowledge.

actually becomes a habit of principles only once the intellectual faculty acts on it.¹ In this way, it may be justifiably affirmed that the potentiality of the habit of *nous* lies in the power of sense and the cognition it provides; yet, it must be realized that this potentiality can only be actualized by a capacity other than sense, namely, an intellectual faculty that can act on sense and its knowledge. This conception is implicit in Aristotle's rejection of both the view that the habit of the principles of science is actually fully developed in us at birth and the contrary view that it develops in us from no prior knowledge, and his acceptance of the position that it comes from pre-existent sense knowledge. If it is noticed that this judgment in the realm of human cognition parallels the metaphysical view, that being comes neither from absolute being nor from absolute non-being but comes from potential being, then it may be affirmed, by analogy, that sense knowledge is the potentially intellectual from which comes actual intellectual knowledge: the sensible is potentially intelligible. In short, it is the intellectual faculty whose exercise has for its object the result of sense cognition that can develop the habit of *nous*, that can render the sensible intelligible, thereby acquiring the principles of science, an intellectual form of knowledge.

It may be objected that the idea of a capacity actively producing knowledge, especially a faculty acting on sense cognition, is a misunderstanding of Aristotle's account given in II.19. Is not the well-known simile or metaphor of the army being routed and then coming to a stop intended to show more clearly that, and how, "the soul undergoes this process"?² Now the metaphor may certainly give the impression that the cognitive subject is entirely passive and simply receives not only the various kinds of sense knowledge mentioned (sensations, memories, and experiences), but even the intellectual knowledge of universals. However, the danger of supporting the claim that the acquisition of knowledge is entirely a passive affair for the knower on the basis of the metaphor is that this poetic image is

¹ Grosseteste (*In Post An*, p.39,4): "*habitus itaque eorum in nobis primo est possibilis et materialis passivus et non est activus. [...] sed fiunt in nobis a sensu per reductionem de potentia ad actum.*" Cf. Anonymous (see Philoponus, *In Post An Comm*, pp.599,27-600,7) who says that the potency to the habit of the principle is as that which is imperfect to that which is perfect or as matter to form; and, Philoponus, (*In Post An Comm*, p.433,32-33) who describes it as being "ἀφορμὴς," that is, a starting point, an occasion or means to undertake something.

² 100a 10-14. See Le Blond's objection (*Logique et méthode*, pp.134-35): "Rien, surtout, n'y fait allusion à une activité proprement dite, qui serait le fait de l'esprit: au contraire les expressions employées suggèrent la passivité de l'âme; il est remarquable, en effet, qu'Aristote ne dit nulle part, en ces développements que c'est l'esprit qui abstrait, qui fait l'universel. [...] Ce qui est suggéré, au contraire, c'est que l'âme collabore à la formation de l'universel en offrant aux sensations un réceptacle, un terrain, un théâtre, et si c'est là une allusion à l'activité de l'esprit, il faut avouer que c'est une allusion bien pauvre et bien discrète."

equally used to clarify the opposite thesis, namely, that the cognitive subject actively acquires knowledge, at least, insofar as the universal is concerned. It may be said, for example, that each soldier represents a sensible singular knowable through sense-perception and that the initial accumulation of sense-impressions is merely a scattered plurality like soldiers being routed. There is no order or organization in sense knowledge alone; but when the agent intellect shines its light on the plurality, the mind comes to recognize resemblances in the particulars, thus making a first stand in the soul. With each additional singular that is recognized as being similar to previous ones, a unity is made from the multiplicity and the universal takes shape in the soul like the army that regains its original formation and order. To say that the army regains its original order is apparently meant to manifest that the universal is already present in the sensible singulars but is not clearly perceived in sensation which is of a scattered multitude of singulars. It is only with the formation of the universal in the soul that one can perceive the order that was originally there.¹ Perhaps, though, the simile is not to be restricted to the formation of one universal from many singulars. It could be that the first soldier-universal is one around whom other soldier-universals will rally so that a stand-habit of principles is made which will make combat-argument possible. In other words, the soldier-universals are like concepts caught in the heat of action, and their coming together forms propositions which will end the rout and prepare them for battle-syllogism.² Whatever may be the exact significance of the army image, the limitation and danger inherent in the simile consists in the fact that one will more than likely understand it in the same way that one understands the process itself.³ More

1 I thank my director Thomas De Koninck for this explanation which is guided by the commentaries of both Themistius (*Post An Paraph*, pp.63,33-64,2) who maintains that the soul, by its nature, is the cause of the universal by assembling similar sensible signs and uniting them to constitute it, and Aquinas (*In Post An Expos*, II, l.20, n.593) who adds the abstractive activity of the agent intellect to the possible intellect's passively "undergoing" the process.

2 I thank Mr. Edmond Gendron for this interpretation which could, by the way, reveal why some Greek terms used in the realm of argument are derived from the terminology of warfare, e.g., polemic (πόλεμος). On the use of common language for philosophical purposes, see Von Fritz ("Noos in Homeric Poems," p.79) who remarks that the Greeks "developed a complete scientific and philosophical terminology entirely in its own language and almost free from any foreign influence. Most of the terms used in Greek philosophy and science are, therefore, either directly taken over from prephilosophical and prescientific language or are derivations from and adaptations of words belonging to this prephilosophical language."

3 Apostle (*Post An*, p.294, n.12) provides an excellent example of this limitation as he explains the metaphor with reference to the cognitive process rather than the other way round. This goes against the role of the simile in the chapter: for it is not introduced to be explained by the process of acquiring universal principles, but rather to clarify it.

importantly, to take *passkhein* in its first, literal sense of passively suffering or undergoing is to forget Aristotle's restrictions on the meaning of this term when employed to describe the animate capacities of sense and intellect.¹ Consequently, the position that the habit of *nous* is a passive product of sense can be avoided and the possibility remains of the intellect being able to act on sense.

A sign of the intimate link between sense and intellect is that Aristotle compares the sense power with an intellectual habit with respect to their *akribeia*. Now if the two were not to an extent the same or similar, they would have been incomparable. It is because sense is inferior to *nous* with respect to a cognitive quality that it can be held to be a disposition and transitional stage on the same road leading to the more permanent intellectual habit. The possible continuity between sense and intellectual knowledge is also present in the notion that sense is potentially intelligible. In explaining the cognitive development of *nous* from sense, Cajetan² observes that the habit of the principles of science is both natural and internal insofar as the potency of the habit is congenital, and acquired and external insofar as the capacity comes to be in act through our acts or actions. This last remark raises an important point that may be overlooked in the contemporary context influenced by computer models of human cognition, namely, that cognition is a natural and animate activity.³ When, for example, Aristotle affirms that some animals have the capacity to retain sensations, it must be realized that this enduring sensation "becomes a part of the life (*psychê*) of the perceiving organism [... and] with the persistence of some particular in the life of the knower, the earliest universal comes into being."⁴ In other words, being vital, that is, a form of life, cognition can grow within a cognitive subject. The developmental nature of the habit of *nous* in particular (but of any cognitive habit in general) is often manifested in the language used to describe the process of acquiring knowledge. The

1 See particularly *DA* II.5.

2 *Comm In Post An.*, II, c.XII. (pp.204-05).

3 Throughout this thesis, animate, psyche, soul, and their cognates will refer to the animating principle, the "breath of life," which only living entities possess and which distinguishes them from the non-living and inanimate. For Aristotle, not only humans, but also animals and plants have souls. Regarding humans, any supernatural connotations, e.g., human immortality, are not to be read into these terms. Care should also be taken not to completely equate *psychological* with views present in contemporary psychology and theories of cognition concerning *mental* reality, since, as mentioned in our Introduction, there is a difference in conception of what constitutes the mind. This is not to deny, however, the possibility of some similarities existing between contemporary theories and an "Aristotelian theory of mind."

4 Tejera (*Analytics*, p.67).

universal notion “is born” from the sensations retained and collected in the soul through experience; or, it is said that “the soul conceives the universal,” bringing to mind the idea that mental conception is a form of conception literally-speaking, a giving birth to a new form of life.¹ Pacius even explicitly equates the acquisition of the habit of principles with birth processes of any and all kinds.² Even the fact that the cognitive capacities are said to develop habits shows that there is a real process of habituation, that is, that a cognitive capacity must repeat its acts over and again in order to develop, reinforce, and fix its capacity to know. It is not a simple issue of programming a capacity just once and then letting the machinery go along the sole path traced out for it. Certainly, once the more permanent state of habit is attained, the activity will be more regular, fixed, and machine-like; but this only comes with time, especially when one is dealing with superior cognitive capacities where, at the level of intellect, habituation becomes learning, the appropriation of knowledge such that one can know and exercise the faculty through willing it oneself. This means that sensations could become memories, then experiences, and eventually universal conceptions only in beings possessed with the appropriate animate capacities or apparatus, bringing to mind Aristotle’s remark that an eye without the power of sight is an eye only in name.³ In short, it may behoove us to recall in this “bio-tech age” that, as Aristotle so succinctly and profoundly puts it, “the energy of *nous* is life.”⁴

1 Trendelenburg (*Elementa*, p.111) says that the habit formed by the sense power is like a collection of retained sensations “*ex quo universae rerum notitiae nascantur.*” Waitz (*Organon*, p.431): “*notio universales quam animus concepit.*”

2 See *Organon*, p.346, n.3: “*quomodo acquiratur cognitio primorum principiorum [...] acquiritur progressu temporis, cum nascamur omnium rerum,*” p.346, n.5: “*ex sensu nascatur memoria;*” and, p.347, n.5: “*quomodo in hominibus gignatur ratio, id est, quomodo ex cognitione sensitiva nascatur intellectiva.*”

3 *DA* II.1, 412b 10-24. One may wonder whether Aristotle would have considered artificial intelligence and computer models of the human brain to be expressions of intelligence properly speaking or not. If an eye without the capacity to see is just an eye in name, then would not an “intellect” or “brain” without the animate capacity to think or reason also be one in name alone?

4 *Meta* XII.7, 1072b 27: “ἡ γὰρ νοῦ ἐνέργεια ζωή.” G.B. Matthews (“Meaning of *Life*,” p.18) notes that Aristotle seems to be the first thinker to try to understand life and what it is to be a living thing by reference to a list of characteristic life-functions (which Aristotle calls psychic or soul powers). Though the list may vary in different passages, the functions are usually selected from the following items: self-nutrition, growth, decay, reproduction, appetite, sensation or perception, self-motion, and thinking. Matthews goes on to remark, “From our modern point of view, the strangest item on Aristotle’s list of life-functions is thinking. Descartes convinced us moderns that thinking has nothing essential to do with life.” This dissertation hopes to make clear that human intuition, and thought in general, is animate.

CHAPTER II

ARISTOTLE'S THEORY OF LOGIC AND SCIENCE

The purpose of this chapter is to show the likelihood of *nous* having a place in thinking as this activity is presented in Aristotle's theory of logic and theory of science and demonstration. The possibility of *nous* representing a mode of thought other than that of science and demonstration is confirmed by the primary text in which it is stated that the acquisition of the knowledge of the principles of science culminating in the habit of *nous* is had in a way other than that by which science is had. However, the fact that the primary text is found at the very end of the whole *Analytics* poses a number of problems which must first be noted.

First of all, Barnes¹--besides acknowledging that commentators from Theophrastus onwards have been puzzled by the relationship between the two books of *Posterior Analytics*--claims that the place of II.19 within the rest of *Posterior Analytics* Book II is quite obscure. He notes that the introductory sentence of the chapter seems to suggest that Aristotle has completely finished discussing syllogism, demonstration, and demonstrative science, and that he is now about to tackle a new point: the nature of principles and their acquisition. He also remarks that some commentators even go so far as to state that this chapter is merely an addendum, perhaps performed by later editors who were not too sure as to where to put the piece of text. The view that there is at least a difference between the study of the principles of science and that of the subject-matter covered in the rest of *Analytics* appears to have some support, for Averroes² admits that the issue of the nature

1 *Post Art*, p.271.

2 *De Demonstratione Expos*, p.558.

and generation of the first principles of demonstration is not properly included in the science of logic. This, according to him, would explain why Aristotle begins by first doubting it to be like demonstration and a demonstrative form of knowledge. Albert also implies as much when he affirms that the study of cognitive capacities and habits does not properly belong to logic unless logic be understood in a broad, common sense. According to him, the capacities and parts of the soul are appropriately studied in natural philosophy (psychology) and the intellectual habits in ethics.¹ Yet, there are those who claim the contrary. Saint-Hilaire² thinks that demonstration consists in going from principles to conclusions, and this method is covered in *Posterior Analytics*. Since the principles are presupposed by this method, this chapter consequently becomes indispensable for completing the theory of demonstration itself. Mauro³ similarly admits the necessity of including this chapter to complete the doctrine on demonstration. On another front, Brunschwig⁴ (responding to Barnes' remark that this chapter does not seem to allude to the anterior discussion of definition and principles) affirms that, at the least, what is presented in II.19 does not contradict what was previously presented, and it may even be seen to be a general and abstract presentation of theses concretely illustrated in the preceding chapters. Thus, although admitting that there are still many difficulties to be overcome, he ultimately concludes that II.19 is the "official opening" ("ouverture officielle") of the problem of the cognition of principles and that it must be seen to form part of the whole.

Supposing that II.19 is in its rightful place--for it does teach us something about the principles of science and demonstration, even if these do not belong within the domain of logic strictly taken--, one may either conclude that it terminates both *Prior* and *Posterior Analytics* taken as one work, and is meant to indicate the method by which are acquired the principles of both demonstration in particular and syllogism in general, or consider it as belonging solely to *Posterior Analytics*, hence, dealing with the acquisition of principles of

1 *In Post An Comm*, I, tr. V, c.9 (p.209). Cf. Aquinas, *In Post An Expos*, I, l.44, n.405 who maintains that the study of intellect (*intellectus*) and science belongs in some ways to first philosophy, moral philosophy, and, as capacities, to natural philosophy. If $\nu \circ \hat{u} \varsigma$ studied in *DA* is an examination of it as a capacity and in *NE* insofar as it is an intellectual habit, then does Aquinas' unexplained reference to first philosophy mean that it is studied in *Meta* with respect to its substance, its form and activity? If so, the same $\nu \circ \hat{u} \varsigma$ would have been examined by Aristotle from three perspectives: as capacity, as habit, and as activity.

2 *Logique III*, p.286, ft.1.

3 *Braevi paraph*, c.XI, n.1.

4 "L'objet et la structure." pp.61-96.

demonstration, or the demonstrative syllogism, alone. Ambiguities of the sort appear to be symptomatic of *Analytics* in its entirety. Brunschwig remarks that many commentators have sensed a duality with which they have had to struggle in coming to understand and interpret these texts.¹ The ambiguity may be due in part to the very brevity of *Analytics*, and II.19 is no exception to this.² It is rather evident that Aristotle contents himself with merely indicating the main stages involved in the acquisition of the principles, for he does not explain any moment in any great detail. Couloubaritsis³ recognizes that the analysis outlined here of the formation of the universal through induction is a rapidly traced summary that presupposes elements already studied elsewhere. If that be so, the reader of the chapter is left with the task of obtaining these presupposed elements, whatever they may be, before determining whether or not the principles in question and the method of acquiring them apply equally to demonstration and syllogism. Kosman claims that in this chapter, "Aristotle is concerned more with the general and abstract nature of insight than with any question of how we acquire insight into specific principles of understanding."⁴ But what is likely the greatest source of confusion is the identity apparently expressed in the initial sentences of II.19 between syllogism, demonstration, and demonstrative science. In these sentences Aristotle concludes the study of syllogism and demonstration to turn to that concerning the principles stating, "about syllogism and demonstration, what each is and how they become is clear and, at the same time, also demonstrative science, for it is the same."⁵ The question that many commentators ask themselves is: "The same as what?" In effect, it does not seem at all clear whether demonstrative science is meant to be the same as

1 Brunschwig ("L'objet et la structure," pp.79-80) sees two distinct but co-existent objects: "L'une, par rapport à laquelle l'objet d'étude se détermine sous le nom de science démonstrative, vise essentiellement à situer celle-ci dans le cadre d'une théorie générale de la science, et à décrire ses liens d'opposition et de complémentarité avec la science des principes. L'autre, par rapport à laquelle l'objet d'étude se détermine sous le nom de démonstration, vise essentiellement à situer celle-ci dans le cadre d'une syllogistique générale."

2 Apostle (*Post An.*, Preface, p.i) affirms: "Of Aristotle's major works, the Posterior Analytics is perhaps the most difficult and the least understood. The work is very abbreviated, certainly more than the *Physics* and the *Metaphysics*." This may be one reason for the comparatively low number of commentaries on this treatise.

3 "Y a-t-il une intuition?" p.461.

4 "Understanding, Explanation," p.391. He candidly admits to not understanding many things about the chapter and its relation to the rest of *Analytics*.

5 99b 15-17.

syllogism or demonstration or both syllogism and demonstration.¹ But even before this question arises, the expression “demonstrative science” is itself confusing and seems to be repetitive or tautological since science is said to be identified with the possession of a demonstrative syllogism or a demonstration.² It is Aristotle’s treatment of syllogism and demonstration together in *Analytics* that poses a problem, for syllogism and demonstration are, it would seem, sometimes differentiated and sometimes identified. This chapter will therefore be oriented toward an examination of the natures of syllogism and demonstration. As well, we will take a look at the meaning of the expression *demonstrative science* and its identification with one or both of them. In this manner, the presence of a noetic mode of thinking concerned with the principles of science and operating in a way that is other than syllogistic or demonstrative can be determined. Once this is done, the existence of this other intellectual operation and faculty will have been established, whose nature, which we contend is intuitive, and mode of acquisition can then be studied.

2.1 The Syllogism

The centrepiece of Aristotle’s logic is the syllogism, that is, argumentation or reasoning (with rational necessity). In fact, the intellectual operation of syllogizing and the parts out of which a syllogism is composed constitute the subject-matter of the science of logic. In the introductory chapter of *Prior Analytics*, Aristotle defines the syllogism thus:

A syllogism is discourse in which, certain things being posited or laid down [i.e. the antecedent], something other than what is posited [i.e. the consequent] follows of necessity from their [the antecedent’s] being so. By “from their being so” I mean that they produce the consequence, and by this, that no further term is required from without in order to make the consequence necessary.³

¹ One may ask whether the καὶ between “συλλογισμοῦ καὶ ἀποδείξεως” is meant to be a disjunctive *and* or a clarifying *that is*. The first interpretation would consider the two as different whereas the second would identify them and restrict the subject of study to demonstration.

² See *Post An* I.2, 71b 18-19.

³ *Pr An* I.1, 24b 19-22: “συλλογισμὸς δὲ ἐστὶ λόγος ἐν ᾧ τεθέντων τινῶν ἕτερόν τι τῶν κειμένων ἐξ ἀνάγκης συμβαίνει τῷ ταῦτα εἶναι. λέγω δὲ τῷ ταῦτα εἶναι τὸ διὰ ταῦτα συμβαίνειν, τὸ δὲ διὰ ταῦτα συμβαίνειν τὸ μηδενὸς ἕξωθεν ὄρου προσδεῖν πρὸς τὸ γενέσθαι τὸ ἀναγκαῖον.” See, *Top* I.1, 100a 25-26 where Aristotle more or less repeats the contents of this introductory chapter of *Pr An*, stating almost verbatim the definition of syllogism.

First of all, as a species of discourse (*logos*), the syllogism is an expression of signification or meaning since, as Aristotle affirms in *On Interpretation*⁴, discourse expresses something significant or signifies a meaning by convention. This means that the discourse examined in logic is one of thought expressing a signification and not of the words or language through which the conceptual content is being expressed.⁵ In other words, a syllogism is rational, not linguistic, discourse, where rational signifies the presence of concepts and the movement from one concept to another in the activity of reasoning.⁶ Although any intellectual activity designated as logical, rational, ratiocinative, cogitative, calculative, or discursive incorporates this movement of going from one concept to another, the syllogism designates one very particular kind of rational movement: that of a movement from an antecedent, that which is posited, to a consequent, that which is other than the posited, such that the consequent follows the antecedent as a necessary result of the antecedent. Take for example:

All animals are mortal.
 Man is an animal.
 Therefore, man is mortal.

The last proposition, *Therefore, man is mortal*, is a consequent necessarily produced by the antecedent: the two propositions *All animals are mortal* and *Man is an animal* taken together as conjoined through the term *animal* found in each proposition. In other words, once the two propositions composing the antecedent are laid down together, the intellect (providing it understand the terms included in them) is forced to concede the consequent. In fact, the new conceptual relation expressed in the proposition of the consequent is this union itself such that once the two propositions are united, the consequent is normally generated simultaneously with this union. However, since the consequent is necessarily produced by

44, 16b 26-27: "Λόγον δέ ἐστι φωνῆ σημαντικὴ κατὰ συνθήκην, ἧς τῶν μερῶν τι σημαντικόν ἐστι κεχωρισμένον, ὡς φάσις, ἀλλ' οὐχ ὡς κατὰφασις, ἢ ἀπόφασις."

⁵ See Alexander (*On Pr An*, Introduction, p.18): "Alexander insists that the logician should attend not to words but to what words mean." (The reference is to a passage found on p.154 (p.84, 16-19 in the original Greek text).) It is important to realize that *λόγος* here indicates the aspect of signifying in human thought. Syllogism is one means by which the human mind can accomplish this; thus, *λόγος* does not signify discourse in the sense of *rational discourse*, the *logical* movement of thought in thinking and reasoning. This other meaning of *λόγος* (which will be mentioned next) is referred to in the rest of the definition indicating the specific difference of a syllogistic *λόγος*.

⁶ Aquinas (*In Post An Expos*, Prooemium, n.4): "*vero actus rationis est secundum id quod est proprium rationis, scilicet discurrere ab uno in aliud.*"

the antecedent because of a logical causality between antecedent and consequent, the consequent is logically posterior to the logically prior antecedent. This logical causality with its order of priority and posteriority means that the consequent is understood to be something produced by the antecedent which, in its turn, is understood to be that which produces the consequent. Nothing prevents one from knowing both propositions of the antecedent before the consequent temporally speaking, provided that they are known separately; but this no longer forms a syllogism. If one were to know simply one of the two propositions, say, *All animals are mortal*, while ignoring or forgetting at that moment the fact that *Man is an animal*, one would not know as a necessary consequence of the single known proposition alone that *Man is mortal*.¹ But the moment the other proposition becomes known and the two separately known propositions are known together and conjoined to form the antecedent, the consequent is generated at that very same moment, though logically it is posterior to the premisses. This is the rational inference that forces, that is, necessitates because it cannot be otherwise, the intellect to accept the consequent as coming from the antecedent.

The necessity of the inference or deduction is, according to Aristotle, to be explained by the antecedent's "being so." In the remarks clarifying the definition of the syllogism Aristotle makes reference to the terms of the antecedent and an instrumental type of causality (*diá*, by means of, because of); therefore, it is with reference to the terms composing the antecedent that the necessity of the syllogistic inference is to be explained.² To fully understand this instrumental causality of the terms composing the antecedent, it would be beneficial to look briefly at the parts composing the syllogistic discourse as a whole. The whole syllogistic discourse is immediately divided into antecedent and consequent joined through a link of necessity expressed in and signified by the word *Therefore* introducing the consequent. The antecedent and consequent consist of propositions, one in the consequent called the conclusion and two in the antecedent called the premisses. Each proposition consists of something which is predicated of something, that which is predicated being called the predicate and that of which it is predicated, the subject. The subject and predicate are called

¹ Apostle (*Post An.*, pp. 79-80, n. 14) provides a reason for this: "In general, then, the principles usually given at the start are too universal, and they require additional and less universal principles for demonstration. From 'all animals are mortal' the conclusion 'all men are mortal' does not follow unless the minor premise 'all men are animals' is supplied."

² Aristotle reaffirms this at *Pr An.* I.5, 28a 1-3; I.6, 29a 11-13; and, I.24, 41b 33-35.

terms when they are considered separately as the components of the proposition.¹ A look at the example given above shows that the antecedent is composed of three different terms (animal, mortal, and man) one of which (animal) appears in both premisses; yet terms are defined according to their function in the conclusion: *mortal* is the major term because it is the predicate of the conclusion; *man* is the minor term because it is the subject of the conclusion; and, *animal* is the middle term because it is not present in the conclusion but is present twice in the premisses, once in each one, and acts as a middle joining or linking together the two extremes (man and mortal) in the conclusion.² No fourth term is required, nor any further premiss for the syllogistic inference from antecedent to consequent to occur.³ But this explanation according to the material components of the syllogism is not quite sufficient to explain the necessity in the inference completely. Take for example:

Some animals are mortal.
 Man is an animal.
 Therefore, ?

The necessary conclusion would be *man may be mortal* but this would leave open the two possibilities *man is mortal* and *man is not mortal*. Unless it is clearly known to which group of animals man belongs, the mortal or the immortal, both possibilities can be concluded through the syllogism, that is, since these premisses can lead to either possibility indifferently, there is no necessity in the production of a conclusion stating determinately one of the possibilities. By implication, then, besides the matter of three terms united in two premisses, certain other factors must be taken into consideration, factors affecting the mode of predication of the terms in each of the premisses and the manner in which one premiss is subordinated to the other. The first factor concerns the position of the middle term. It can be the subject in both premisses, the predicate in both, or a subject in one and a predicate in the other. The position of the middle term affects the figure or arrangement of the terms in a syllogism.⁴ There are then two factors affecting a term's extension being considered, called the distribution of the terms, in a syllogism. Although a concept-term

1 *Pr An* I1, 24b 16-17: "Ὅρον δὲ καλῶ εἰς ὃν διαλύεται ἡ πρότασις."

2 Note that each of the premisses is called major or minor depending on which of the two so-named terms is contained in each. Thus, *Animals are mortal* is the major premiss and *Man is mortal* the minor.

3 This is proven in *Pr An* I25 for "πᾶσα ἀπόδειξις καὶ πᾶς συλλογισμὸς" (42a 30).

4 There are three possible figures: If the middle term is between the extremes, it is subordinated by the major and subordinates the minor. If the middle term is outside the extremes, it can either subordinate the major which in turn subordinates the minor, or it can be subordinated by the minor which is itself subordinated by the major. These possibilities give respectively the first, second, and third figures analysed by Aristotle in *Pr An*.

has a given extension that never changes--man has the fixed extension of all singular men in reality--, the distribution of a term refers to how much of this extension is being used or considered in a given syllogism. One factor refers to the quantity of the premiss and indicates the extension of the subject-term being considered in use. The two examples given show that the subject *animal* was taken once universally (All) and once particularly (Some).¹ The second factor refers to the quality of the premiss, whether it is affirmative or negative, and affects the distribution of the predicate-term.² Once these three factors affecting the terms of the antecedent are taken into consideration, it will be seen that sometimes a syllogism will conclude with necessity and sometimes it will not do so. Out of all the possible systems of subordination using three terms, a syllogism arises only when the consequent follows from an antecedent whose terms are arranged in such a way that the predicating of one term of the other in the premisses and the subordination of one premiss under the other leads necessarily to a conclusion strictly by the terms' "being so." If the conclusion is not produced with necessity, there is no syllogism.

The syllogistic inference is thus dependent on the activity of subordinating terms in the antecedent. The three terms in the premisses of the antecedent must be subsumed one under the other as whole and part or container and contained.³ Yet the activity of subordination

1 Note that a singular such as Socrates or Plato can be considered to be particular since the case of one is the extreme limit of *some*; for if this one is taken away, there remains *none* which is universal in quantity and opposed to *all*. See also *On Pr An* (Introduction, p.28, ft.124): "In Greek, as in English, it is natural to take part and whole as mutually exclusive things; hence if A is en holōi tōi B, it might seem to follow that A is not en merei tōi B. But in Aristotle's logic, 'Every A is B' entails 'Some A is B'; hence in this context wholes and parts are not mutually exclusive."

2 For an affirmative proposition, only part of the predicate's extension is in use while for a negative one the entire extension is being considered. Whether one says *all or some animals are mortal*, *animal* is subordinated only under part of the extension of *mortal* because the latter is conceived as being predicable of things other than animals. If one says *all or some animals are not mortal*, it is necessary to place *animal* outside of the entire extension of *mortal* so that either all of *animal*'s extension is not subordinated under the predicate or only that part which is not.

3 Many commentators have noted this character of subordination in the syllogism. Le Blond (*Logique et méthode*, p.68), for example, describes the syllogism as a "raisonnement par subordination, subsumption, et non, sinon comme cas limite de subordination, par substitution." In more contemporary terms, see Hintikka ("On Ingredients of Science," p.57): "Accordingly, Aristotelian explanation will operate by making class-inclusions clear through transitivity of this relation, that is, by inserting intermediate terms between the ones whose connection is to be explained." This way of conceiving and speaking about the syllogistic inference can, however, be dangerous since it may blur the differences between a mathematical logic of classes and a conceptual logic of universal thought having a definite signification.

itself is rooted in the activity of predication.¹ Whenever two terms are joined to form a proposition, it is necessary that one term be predicated of or attributed to the other term in each premiss. Also, through the common middle term providing the link between the two extremes in the premisses, the predication of one extreme of the other in the conclusion becomes possible. It is the act of predicating that establishes the relation of belonging or inherence expressed in any proposition: that the predicate-term belongs or does not belong to the subject-term. It is to be noticed that the act of predicating as presented by Aristotle possesses a very important peculiarity. Patzig (taking Alexander's cue) notes that Aristotle's different manners of expressing the relationship of predication existing between the terms of the premisses, namely, "A belongs to B," "A is said of B," "A follows the B," or "B is in A as in a whole," are all unnatural modes of speaking in Greek.² Outlining two differences between Aristotle's logic and traditional logic (that is, later developments of Aristotelian logic), Patzig manifests, firstly, that in Aristotle the predicate is at the beginning of the sentence and the subject at the end while it is reversed in traditional logic, and, secondly, that, "Aristotle looks at the logical relation of the terms from the point of view of the predicate, traditional logic from that of the subject."³ He goes on to comment that, "Both assert the same relation, but from different directions."⁴ Aristotle's way of presenting the activity of predicating seems to preserve the enunciative quality of a proposition in its natural order, that is, since an enunciation consists in expressing something of something, the predicate comes first (expressing something) and the subject comes second (of something). Whereas traditional logic seems to emphasize the subject's passive activity of receiving something, Aristotle's perspective retains the active intellectual act of expressing something, the act of predicating in which the subject is subordinated

1 Granger (*Théorie de la science*, p.42): "il est significatif en tout cas de constater dès maintenant combien la doctrine du syllogisme est profondément enracinée dans la théorie fondamentale de la prédication même." On p.32 he describes science itself as being a "connaissance *prédicative*."

2 *Theory of Syllogism*, p.9. The expressions translate respectively τὸ Α τῶ Β ὑπάρχει; λέγεσθαι κατὰ τινός or κατηγορεῖσθαι κατὰ τινός; ἀκολουθεῖν or ἔπεσθαι; and, τὸ Α παντὶ τῶ Β ὑπάρχει (where it means A belongs to every B). On p.11, he says that in the formulae "The A is said of or belongs to all B," in all of them, the predicate is always in the nominative case and the subject in the dative, except for the verbs κατηγορεῖσθαι and λέγεσθαι, in which case they are in the genitive. The reason for the difference is grammatical, not logical.

3 *Theory of Syllogism*, p.49.

4 *Theory of Syllogism*, p.49. Traditional logic would say, e.g., *Man is an animal* whereas Aristotle would have something like *Animal is said of man*. The sample syllogisms provided above are therefore "un-Aristotelian," though more natural to English linguistic expression.

under the predicate. Nevertheless, in either case the act of predicating must be done with reference to the meaning or signification of the terms, for the predicate's belonging or not belonging to the subject is determined by the compatibility or incompatibility in signification. Consequently, predication is enunciative in quality because expressing something about something with respect to the content of what is expressed becomes an expression of truth or falsity; for the predicate must say something about the subject that will either be compatible or incompatible with that which the subject signifies (its meaning or comprehension). In a syllogistic inference the act of subordinating seems, therefore, to differ from the act of predicating in that it takes place primarily with reference to the arrangement of the three terms in the premisses and their respective distributions, and merely presupposes the signification of the terms according to which the act of predicating is done in each of the premisses.

Since the act of predicating is performed according to the signification of the terms, it is therefore necessary that each term signify something definite and one. In logic this means using only univocal concept-terms, concepts that unambiguously express only one meaning. The importance of fulfilling this requirement cannot be underestimated since Aristotle uses this to defend the principle of contradiction.¹ He holds that the starting-point in any argument or discussion whatsoever is not expressing that something is or is not, but simply expressing something significant for the people involved. In other words, predicating something of something (which is what must be done if one wants to say that something is or is not) is rooted in the prior and more fundamental activity of expressing something significant. Aristotle then explains this as meaning that any name or expression put forth in a given discussion must have one definite and determinate meaning since not to have one definite meaning would be the same as having no meaning at all. If one desires to express something and not nothing, then one must express something definite and limited in meaning or signification. As a result, the enunciative quality in predication, which focuses on the content and meaning of the terms in its activity, finds its origin in the more basic fact that each term possesses one limited meaning. Predication requires, therefore, definition, the act of delimiting and determining the significant content and comprehension of concepts.

¹ *Meta IV.4, in toto*. What follows is a paraphrase of Aristotle's arguments in the chapter, in particular, 1006a 12-1007b 19.

The syllogism, the central subject of Aristotelian logic, can thus be seen to incorporate three operations or acts performed by the intellect. There is first the act of syllogizing which consists in signifying something such that something other than what is signified follows or is produced necessarily from what is first signified. There is then the act of predicating, that is, signifying something of something else. Finally, there is the act of defining by which means concept-terms are made to signify something definite. As the last two operations are prerequisite to the first, Aristotelian logic is usually divided according to these three operations of syllogizing, enunciating, and defining. First, concepts must be defined so that they signify something definite. This renders possible the act of predicating in forming an enunciation since each of the terms will have a definite signification or comprehension with respect to which predication can be done. Finally, syllogisms can be formed from appropriate propositions serving as premisses, namely, those fulfilling the conditions outlined above concerning the terms composing the antecedent. This hierarchical order between the operations is also evident in the fact that all three operations are expressions of an ever-widening signification in which the posterior act includes the anterior: signifying something definite is included in and expanded on in signifying something of something else which is, in its turn, included in and expanded on in signifying something such that a new signification follows necessarily. The presence of the activity of signifying in all three operations and the fact that they are grounded in the first act of defining show that these intellectual operations find their ultimate source and explanation in the intellect's essential activity of understanding or comprehending meaning. The end of the intellect is to understand, to find meaning, to make sense; and, if logic itself is called by Aristotelians an *organon*, an instrument or tool, it would be the intellect's tool used to achieve this creative end of "making sense."

Now the importance of emphasizing the presence of the act of signifying in all logical operations as well as emphasizing the intellect's end as seeking an understanding of extra-mental reality is that this point can be forgotten or overlooked, especially in an intellectual climate like today's where thought and thinking are often equated with computer models of the mind and mathematical or symbolic theories of logic. In such theories of logic, logic no longer appears to be an instrument used by the intellect to serve its end of seeking an understanding of reality. Logical thinking seems instead to have its own end of rational consistency within a closed intellectual theory that makes no claims on reality and is not measured by it. Whatever knowledge such theories may give, we hold that they cannot

provide scientific knowledge since this requires that a conceptual theory be measured against the reality of the phenomena it is attempting to represent conceptually. In effect, since all three operations studied in logic are activities of signifying, they thus call for a signified, that is, something other than the thought itself which the thought signifies. In the realm of scientific knowledge, the signified ultimately refers to something in extra-mental reality which is the measure of scientific knowledge. But more importantly to this chapter's purpose, highlighting the intellect's act of signifying opens the door to another mode of thought which is closely tied to the acts of understanding and signifying, and, as such, is present in each of the acts of syllogizing, enunciating, and defining.

In a syllogism, the consequent expresses a new and different signification that was not present, except potentially, in the antecedent. It is with respect to this property that the syllogism is claimed to be a way of going from the known to the unknown, thereby advancing one's knowledge. The conclusion *Man is mortal* is something that was not known in the antecedent whose knowledge consists in knowing *All animals are mortal* and *Man is an animal*. It is sometimes retorted that there is no real progress in knowledge because it was already implicitly there in the premisses: in knowing that *All animals are mortal*, one knows implicitly that man, who is known to be an animal, is mortal too.¹⁹ But this implicit knowledge would never be actualized if one were to never put together the two premisses. The premisses individually taken can only be said to be pregnant with that cognition or to have it potentially; it is only by their union that a syllogism will be formed along with producing its new knowledge in the conclusion. If one does not perceive the middle because (as it is commonly said) one "fails to make the connection," then the extremes cannot be joined and the conclusion will not be produced as a consequence. Now how does one perceive the middle term and understand it as functioning as a middle term, that is, as an intermediary or link that can join the extremes? If syllogizing is an activity of reasoning, a going from one term to another through a middle by which the necessary inference is made, then it depends on the perception of a term that will be able to fulfill the function of a middle and will make the rational movement from one extreme term to the other possible. In *Posterior Analytics* Aristotle presents a short chapter on *agxinoia*

1 Kapp ("Syllogistic," p.39) is one who doubts that the syllogism is ever intended to be "a principle of intellectual advance." Some commentators, though, without denying that new knowledge is usually acquired, signal particular instances of using the syllogism in which there is no new knowledge. Instances of such cases would apparently be "le syllogisme d'application" presented by S. Mansion ("La signification") and the *demonstratio potissima* as it is explained by Ross (*Pr and Post An*, p. 54).

(quickness of *nous*, quickness of intelligence, or quick wit) which is said to be the ability to grasp the middle term instantaneously.¹ It is described as follows: upon seeing the major and minor terms, one instantaneously grasps the cause of their union which is the middle term of the syllogism concluding the union of major and minor. Although the chapter only speaks of quickness of *nous*, this perception of the middle, whether it be done quickly or not, is required in all acts of syllogizing. Not only is the perception of the middle required to produce the new knowledge expressed in the conclusion, it is also required for the knowledge that the consequent is produced by the antecedent, that is, the intellectual link expressed by the word *Therefore* introducing the conclusion, which does not make any reference to the signification or meaning of the terms involved but expresses the rational conviction that the consequent is justified and justifiable by the antecedent from which it necessarily follows. Insofar as logic gives rules concerning the syllogism, it outlines the conditions that will make this necessary inference possible. But again, if the middle term is not perceived and understood to be that which can join the extremes, this inference would never happen. What operation of the intellect expressed as *agxinoia* performs this perceptive understanding of a term functioning as middle?

In enunciation a predicate is attributed to a subject according to the comprehension of the two terms involved. This attribution would be made by the intellect in understanding the comprehension of the predicate, the comprehension of the subject, and, by comparing the two, it would further perceive and understand that they are or are not compatible. Though there may be a rational movement between subject and predicate during the comparison, the judgment that they do or do not belong requires a perception and understanding either of a unity and compatibility of signification or of a lack of unity and incompatibility. The perceptive understanding of the compatibility or incompatibility of the comprehensions of the subject and predicate also grounds the union of the predicate and subject expressed by the copula (usually the verb *to be*) which does not express either of the terms' comprehensions but expresses the idea of inherence or belonging: the affirmative (*is*) signifying that the predicate belongs to or inheres in the subject and the negative (*is not*) signifying the opposite, the predicate does not belong to or inhere in the subject. It is this judgment which gives to predication the enunciative character of expressing truth or falsity;

¹ *Post An* I.34. Notice that the word ἀγχινοία is a cognate of νοῦς.

and unless it is made, the two terms remain separate.¹ What act of the intellect makes the judgment of truth or falsity and perceives that the predicate does or does not belong to the subject? Also, since the comprehension of concept-terms ultimately depends on sensible reality, the truth or falsity of an enunciation must be determined by measuring the enunciation's claim against the reality signified and referred to. This measurement cannot be done by an intellectual operation covered by any rules of logic since logic is said to study only the operations of the intellect using concepts and the various relationships that can be established between concepts: without making any reference to the relationship concepts have with sensible reality. How, then, is this correspondence or agreement between thought and reality effected?²

The correspondence between what is signified in thought and sensible reality is even more fundamental in the act of defining. First, the appropriate concepts must be acquired by an induction of similar sensible singulars. Then, these concepts are to be used to effect an orderly division of the most generic concept until one arrives at a definition that will express the essence, or whatness, of the thing being defined. In *Posterior Analytics* II.13 Aristotle provides rules for both the orderly acquisition of concepts, so as not to miss any, through an induction of singulars and the orderly division of generic concepts by other concepts acting as differences, so that one arrives at a valid definition. Now the prior conceptual acquisition through induction would appear to depend on a perception of the (sensible) appearance to guide the intellect's activity of collecting all the essential concepts without missing any, which implies that the thing being defined is somehow known before it is defined and understood through its definition. What kind of perception is this? As well, in the act of defining, one has to know when to terminate the act of dividing the genus. How does one know that this difference is the last one and the one that defines the reality as to its essence? The intellect must again perceive the appearance, to have it before the mind's eye, so to speak, so that it could understand that the definition obtained fits and corresponds to it and that the act of dividing has come to an end. Without this intellectual perception that the definition adequately signifies the defined as to its essence, the union of genus and specific difference would not occur. What kind of perception is involved here? It

¹ See *Int* 1, 16a 10-18 where Aristotle affirms that a single thought without being combined with another thought does not involve truth or falsity, while thoughts that are combined must be either true or false.

² In *Car* 12, 14b 10-21, Aristotle remarks that it is not because an enunciation is true that the sensible reality being signified exists that way, but, rather, it is because sensible reality is a certain way that the enunciation affirming this state is true.

differs from the former perception guiding the conceptual acquisition through induction in that it perceives the defined through its definition, but is identical to it insofar as both are a perception of the same phenomenal reality being defined. Without this perception of the defined, the rational and logical operations of orderly acquisition of concepts and analysis of a genus would be void of reality.

To sum up, each of the logical operations has at least one moment during which there is required an intellectual perception or a perceptive understanding. In every instance this perception seems to occur whenever the intellect comes to understand an intermediary signification capable of unifying two concepts or perceives that there is an agreement between thought and reality. Notice, too, that these are not mutually exclusive as in judging the truth or falsity of the enunciation *Socrates is white* would exemplify. Since the intellectual activity of reasoning always consists in a movement from one concept to another, this intellectual perception of a conceptual union or a correspondence in thought and reality does not seem to be an act of reasoning. What intellectual activity is this, then?

2.2 Science: Demonstration and Demonstrative Science

If the syllogism is the centrepiece of Aristotelian logic, then demonstration or the demonstrative syllogism is the most important kind as it is “a scientific syllogism, that is, a syllogism according to which we know (scientifically) simply by having or possessing it.”¹ Aristotle defines scientific knowledge or science as the knowledge of the cause by which a thing is or exists, that the cause is of that thing alone, and that it is not possible to be otherwise.² Otherwise said, science is the knowledge of a cause of a thing such that the cause is essential and necessary to its being. This knowledge is said to be had by one possessing a demonstration; and, in fact, the definition of science itself can be seen to fit into the syllogistic form: the antecedent producing the consequent can be understood to be the cause by which the consequent is or exists; the antecedent which produces one consequent and cannot produce any other can be understood to be the cause of the

1 *Post An I*2, 71b 18-19: “Ἀπόδειξιν δὲ λέγω συλλογισμόν ἐπιστημονικόν· ἐπιστημονικὸν δὲ λέγω καθ’ ὃν τῷ ἔχειν αὐτὸν ἐπιστάμεθα.”

2 *Post An I*2, 71b 10-12: “ὅταν τὴν τ’ αἰτίαν οἰώμεθα γινώσκειν δι’ ἣν τὸ πρᾶγμα ἐστίν, ὅτι ἐκείνου αἰτία ἐστί, καὶ μὴ ἐνδέχασθαι τοῦτ’ ἄλλως ἔχειν.”

consequent alone and essential to it; and, the necessity of the inference or deduction assures that it is not possible for the causal relationship between antecedent and consequent to be otherwise. By implication, science must be a knowledge of both a cause and the thing of which it is a cause, for the notion of causality in which a cause is known as a cause requires the effect caused by the cause.

That is why science consists in the possession of a demonstration, the whole syllogism composed of antecedent necessarily producing its consequent. Aristotle thus admits three elements of which every science is composed: 1) that which is being demonstrated, namely, the inherence of a per se property in its subject; 2) the subject of which demonstration manifests its per se properties; and, 3) the axioms on which the demonstration depends and from which it proves.¹ By demonstrating any one of the per se properties belonging to a subject, scientific knowledge is produced, with the unity of a science and all the demonstrations contained in it being due to the subject to which all the properties are proven to belong.² One important point not to be overlooked is that the words *subject* and *property* are not to be understood uniquely in a strict sense.³ Aristotle indicates that property, or proper, can either signify the essence or not: the proper signifying the essence is really the definition or a part of the definition of a thing's essence whereas the one that does not do so bears the usual meaning of property, namely, an accident necessarily following from the essence of the subject which is the cause of the accident's inherence.⁴ That means that there can be scientific knowledge and demonstrations of both properties and subjects, at least in part in the latter case.⁵ Secondly,

1 *Post An* I.7, 75a 40-b 2. *Post An* I.10, 76b 12-23 states the elements as being: that about which the science proves (περὶ ὃ δείκνυσι), what it proves (ἃ δείκνυσι), and the things from which it proves (ἐξ ὧν).

2 *Post An* I.28, 87a 37.

3 S. Mansion (*Le Jugement*, pp.202-03): "Tout théorème scientifique peut par conséquent être considéré comme exprimant une propriété par soi du genre-sujet. [...] A une condition toutefois, c'est que ce mot de propriété, de même que celui de sujet, ne soit pas pris dans un sens trop étroit. A côté du syllogisme apodictique qui consiste à rattacher un accident nécessaire à un substrat dont on connaît l'essence, Aristote fait une place dans sa science à la démonstration qui porte sur l'essence elle-même d'un objet." Mansion calls this other type of demonstration "le syllogisme de l'essence."

4 *Top* I.4, 101b 20-23. Of the proper, τὸ ἴδιον, Aristotle calls ὄρος, "τὸ μὲν τὸ τί ἦν εἶναι σημαίνει" while the one "τὸ δ' οὐ σημαίνει" is called ἴδιον.

5 According to S. Mansion, the utility of the syllogism of the essence is to give a partial demonstration of the essence. See also the conclusion of her examination of demonstration (*Le Jugement*, pp.198ff.) in which she notes three types of demonstrations: one of a property; one of (part of) the essence of the subject; and, one which combines these two to demonstrate the inherence of a property in its subject, for, "Si une

Aristotle affirms that science is a knowledge of that which is necessary, or the necessary, and since it is only that which belongs to something in itself (or per se) and as such that can belong to it from necessity, a demonstration can only be about that which belongs to a thing in itself.¹ As knowledge of the necessary, science can only be concerned with the essential and not with the accidental, whether this be about that which is essential to the subject of a science or essential to the accidents necessarily accompanying the subject, the per se properties demonstrated to inhere in it. It must be noted, though, that the necessity in question is not that indicating the inferential movement from antecedent to consequent but rather one making reference to the signification of the terms composing the premisses of a demonstration. The knowledge in the conclusion of a demonstration is that of a property necessarily belonging to a subject because it is of the essence of the property and/or subject, a necessity that cannot be guaranteed by the necessity in the inference which only guarantees that the conclusion is necessarily produced by the antecedent. For this other type of necessity, the inherence of a per se property in a subject, there must be a necessity in the predication of the terms in the premisses, and since predication is done according to the comprehension of the terms, this means predicating something belonging to the essence of the subject-terms. So, as Aristotle stipulates, the middle term of a demonstration must belong with necessity to both of the extremes because a necessary conclusion arises only from a necessary middle term.²

Demonstration must therefore come from principles satisfying certain criteria, such as having necessary premisses; otherwise, there will not be a demonstration. Yet, starting from scientifically deficient principles does not entail that there will be no syllogism at all.³ Demonstration is only one kind of syllogism; but not all syllogisms are demonstrative or scientific.⁴ It is possible to have non-scientific syllogisms, such as dialectical arguments dealing with something that is contingent rather than necessary, and accidental rather than essential, to the subject (its comprehension). Although the realm of the contingent and accidental remains outside the scope of scientific knowledge--only providing probable

propriété appartient par soi à un sujet, c'est aussi bien en vertu de l'essence de la propriété que celle du sujet."

1 *Post An* I.6, 75a 29-37. Aristotle claims (*Post An* I.6, 74b 5-12) that demonstration depends on necessary principles because everything belongs in either of two ways: with necessity or accidentally which, obviously, is not necessary.

2 *Post An* I.6, 74b 26ff.

3 *Post An* I.2, 71b 20-24.

4 *Pr An* I.4, 25b 26-30.

knowledge and opinions of varying plausibility¹—, once the premisses are laid down, a syllogism can be produced whether the premisses are suitable for demonstration or merely dialectical.² The only difference between demonstration and a dialectical argument is the nature of the premisses, the principles from which the deduction begins.³ As the act of predicating by which premisses are formed must necessarily either affirm or deny the predicate-term of the subject-term, it must assert one of two contradictory statements and will therefore necessarily express truth or falsity, for example, either *Man is an animal* or *Man is not an animal*. In demonstration, each of the premisses is such that one of the contradictory statements is laid down to the definite exclusion of the other because it is known to be true. The dialectical premiss, on the other hand, leaves open the choice between the contradictory statements and assumes either part indifferently because there are generally accepted opinions supporting both views.⁴ This would occur if it could not be known in a definite way either that man is an animal or that he is not one such that the property of being an animal would appear to signify something contingent or accidental about man rather than necessary and essential. One asks whether man is an animal or not and just posits one possibility for the sake of the argument. There are times, however, when one side of the contradictory possibilities does seem more probable and plausible than the other because it has support from the phenomena or is a generally accepted opinion. In these instances the side that is more likely would normally be taken as the premiss of the dialectical syllogism.⁵ But even though science poses principles because they are seen to be true whereas dialectics starts from a conventionally accepted response (to a question posed by the interrogator), there is nonetheless in both cases a reasoning process, a “form of reasoning,” which the difference in starting-points does not alter or affect.⁶

1 *Meta* VI.2, 1027a 20-28.

2 *Pr An* I.1, 24a 21-27.

3 *Post An* I.2, 72a 10 indicates the difference between a dialectical and demonstrative premiss. See also *Top* I.1, 100a 25-b 22.

4 *Top* I.10, 104a 9-15 provides a list of the kinds of opinions suitable for forming a dialectical proposition.

5 See *Top* I.1, 100b 20-22 where Aristotle grades the relative probability or likelihood of opinions.

6 Granger (*Théorie de la science*, pp.97-98): “Dans l’un et l’autre cas, dit Aristote, il y a bien raisonnement -SULLOGISMOS-, c’est-à-dire, comme on voit par la définition qui suit, concaténation nécessaire. La différence de statut des points de départ ne fait alors rien à l’affaire. Il s’agit donc, assurément, d’envisager une forme du raisonnement.” Cf. Le Blond (*Logique et méthode*, p.108): “Ce n’est pas, de ce point de vue, la forme syllogistique qui différencie la démonstration scientifique de la démonstration dialectique: c’est la manière, le point de départ,” which he affirms as being ἐξ ἀληθῶν for science and ἐξ ἐνδόξων for dialectics.

As a result, the syllogism as it was presented above turns out to be an abstract examination of this form of reasoning common to both demonstration and dialectical argument. This abstract syllogistic form would consist primarily in the necessary deduction of a consequent from an antecedent, as the definition of syllogism states, and could be used to conclude scientific knowledge in demonstrations and probable opinions (or refutations of unlikely views) in dialectical arguments.¹ But what is perhaps the most telling sign that the syllogism refers primarily to an abstract form of reasoning is that it can not only conclude something that is true or merely probable, but also something that is entirely false.² In other words, the content or signification of the terms does not at all alter the syllogistic form itself, so much so, that the syllogistic form by and in itself can be used to conclude contradictory expressions equally. Consequently, two aspects can be distinguished in any syllogistic discourse: 1) the syllogistic form common to all syllogisms and consisting in the necessary inference of a consequent from an antecedent; and, 2) the syllogistic matter which distinguishes the different kinds of syllogistic discourse and refers to the signification of the terms insofar as the propositions formed from them signify a truth, a falsity, or any degree of probability. Within the syllogistic form itself, one can also distinguish between the necessity of the inference which expresses the rational conviction that the consequent is generated by the antecedent on the one hand and, on the other, the expression of a signification in the consequent that is new and different from the ones expressed in each of the premisses of the antecedent. But this reference to signification in the syllogistic form abstracts from the syllogistic matter because it does not consider whether the syllogism signifies a truth, a falsity, or a probability. It merely indicates that all syllogism expresses a signification, regardless of what it may be. So the syllogism as it was studied above does not abstract from the fact of signifying but only from the content, or, otherwise said, not from that it signifies but from what it signifies.

Nevertheless, the syllogistic matter must be taken into consideration because it makes a “logical differentiation,” one which explains the difference in principles used in the

¹ Aristotle affirms (*Pr An* II.23, 8-13) that the syllogistic form is present even in rhetorical arguments and in any method of persuasion whatsoever including induction. It is to be noted, however, that most of these cases possess the syllogistic form imperfectly.

² *Pr An* II.2, 53b 5-10.

different species of syllogism.¹ The premisses of demonstration must both be true whereas dialectics need only begin from plausible and likely opinions. Since a demonstration proves the inherence of a *per se* property in its subject, the terms composing a demonstration must have the property as the major, the subject as the minor and the cause of the inherence as the middle. For both premisses to be true means that the middle must express something of the essence of either the property or the subject. As mentioned, this essential predication makes the premisses of science necessary. Since the necessity of essential predication is determined by the signification of the terms composing the premisses, that is, the syllogistic matter, it is not the same as the necessity of the inference proper to the syllogistic form. The necessity of the syllogistic inference in the syllogistic form could therefore be called a formal necessity while the necessity based on the signification and content of the terms making up the syllogistic matter could be called a material necessity.² Demonstration can thus be said to use terms having necessary matter signifying truth whereas dialectical argument uses terms having non-necessary or contingent matter signifying various degrees of probability. Demonstration turns out to be a syllogistic discourse possessing both types of necessity³, and if science is the knowledge of a cause that is necessary and essential to a thing, the formal necessity of the deduction would appear to be responsible for the quality of the cause being necessary while the material necessity in predication would arise from the quality of it being essential to one or both of the terms of which it is predicated. Dialectical argumentation, on the other hand, would only possess formal necessity.

The syllogistic form being the same in any syllogism, it does become possible to set aside the signification and content of the terms involved to focus strictly on the manner in which they may or may not be subordinated so as to generate a consequence with necessity. This purely formal examination of syllogism--carried out by Aristotle in *Prior Analytics*--could be described as the mechanics of predicating and subordinating terms to necessarily

1 McKeon (*Introduction*, pp.2-3): "Since all perfect inference may be reduced to a syllogism or a series of syllogisms, further logical differentiation of kinds of proofs is to be found in the premisses on which they are based."

2 Aristotle affirms (*Meta* V.5, 1015a 35) that "that which cannot be otherwise" is the root meaning of the necessary from which all others are derived. Applied to the two kinds of necessity being here distinguished, one could say that the formal necessity of the inference signifies that the consequent cannot not follow the antecedent while the material one in the propositions of science would mean that the predicate-term attributes and signifies something that cannot not belong to the subject-term.

3 In *Meta* V.5, one of the definitions of the necessary given by Aristotle (1015b 6-9) is, in fact, demonstration.

produce a consequence. Its goal would be to find out how to have a necessary rational movement, that is, how to go from one term to another in the antecedent so that it necessarily generates a conclusion, thereby establishing the rational conviction that it is produced by the antecedent. The logician is thus seeking to determine and judge correctness in the reasoning process or deduction and the validity of the rational inference. Nevertheless, since in everyday reality all arguments without exception must say something true or false, or else possess some degree of likelihood, the signification of what is expressed in the syllogism must also eventually be considered. By looking at the meaning or comprehension of the terms, one can judge the truth or falsity or probability of the premisses and conclusion. Since the truth or falsity of an enunciation ultimately requires judging the enunciation with reference to the reality signified, this analysis is not merely logical in the sense of being restricted to the concept-terms like in the other analysis. It requires that a correspondence be made between the signification of the thought expressed in the proposition and that which it signifies in extra-mental reality.¹ Whereas the first analysis seems to examine the terms and the act of predication with respect to the property of subordination, the second seems to examine the terms and predication with respect to the property of enunciating truth or falsity. As well, the first analysis focuses on the intellectual activity proper to reason, the rational inference, whereas the second focuses on a different activity seen above to be a perceptive understanding. Neither one is able to judge the other: checking the syllogistic form for the validity in reasoning cannot say if the syllogism is true, false, or probable; and, checking the syllogistic matter for the signification does not guarantee the validity of the inference. Thus, there seem to be two distinct facets to syllogistic thinking which can be separately studied and judged.

¹ This is what contemporary symbolic logic does not admit. Since its concern is strictly the consistency and coherence of a (closed) system of thinking, it only judges the correctness in reasoning and the validity of the inferences involved. As a result, truth-value in their systems has nothing to do with the truth (or falsity or probability) signified by the content of the terms as in an Aristotelian theory of syllogism, for signification requires one to go "outside or beyond" the syllogistic inference to what is being signified. It is nonetheless true to say that an Aristotelian logician also does not consider reality insofar as he limits the signification of the syllogistic matter to a logical comprehension, e.g., concept-terms as signifying a genus, a species, a necessary accident, and so on. But the Aristotelian logician knows (or ought to) that concept-terms *in concreto* do signify reality from which a logical examination abstracts. See Kal (*On Intuition and Discursive*, p.62, ft.4) where are cited comments made by certain contemporary logicians who admit that the difference between Aristotelian and modern logic lies in the fact that Aristotle goes outside the "logical sphere" to ground his logic on something "non-logical." Not surprisingly, these contemporary thinkers view this as a weakness whereas we see it to be a strength because it respects the richness of the duality in human thought and fulfills the ultimate purpose of reasoning which is to understand reality.

Syllogism, therefore, signifies the syllogistic form common to all syllogisms and refers to the necessary inferential movement in reasoning producing a new signification. But this generic view of syllogism abstracts from the syllogistic matter, the concrete signification of truth, falsity, or probability always expressed in the propositions of a given syllogistic discourse. Demonstration would thus be the same as syllogism only with respect to its syllogistic form. Through this identity, any kind of valid syllogism could be said to demonstrate in a weaker or wider sense of the term; but, insofar as non-demonstrative syllogisms lack the necessity of the syllogistic matter, they fall short of being demonstrative in the strict and proper sense of being a syllogism productive of scientific knowledge.¹ For its part, the expression “demonstrative science” seems to be just another way of naming the demonstration and would therefore be identical to it and the same as syllogism only with respect to its syllogistic form.² But if science consists in the possession of a demonstration, then calling it *demonstrative science* would only be redundant, for it would be like saying *demonstrative demonstration*. This may be why some commentators do attempt to distinguish between demonstrative science and demonstration, such as saying that they are related as a habit and the activity realized through the habit.³ Could it be that Aristotle

1 Demonstration in the strict sense is an ἀπόδειξις while the weaker sense of demonstrating would likely correspond to the Greek δεικνυμι. See, e.g., *Post An* I.3, 73a 13. Aristotle’s use of the two terms is not always rigorous. Sometimes he seems to use ἀπόδειξις in the non-demonstrative and weaker sense, e.g., *Pr An* I.15, 35b 10-20; I.23, 24ff.; II.14, 62b 30; and, II.16, 65a 10-12. At other times, he does seem to differentiate between the two, e.g., *Post An* II.7, 92b 37. This could be one source of confusion when it comes to trying to determine the subject-matter of *Analytics*. Cf. Kosman (“Understanding, Explanation,” pp.374-80) who presents a view of demonstration that is broader than a “quasi-mathematical deduction” along the lines of the mathematical deductive model of proof and more in keeping with the root meaning of ἀπόδειξις: δεικνυμι, showing forth or showing in the sense of revealing or uncovering.

2 The identity between demonstration and demonstrative science seems most patently made in Aristotle’s statement at *Post An* I.2, 71b 20-24: “Εἰ τοίνυν ἐστὶ τὸ ἐπίστασθαι οἷον ἔθεμεν, ἀνάγκη καὶ τὴν ἀποδεικτικὴν ἐπιστήμην ἐξ ἀληθῶν καὶ κτλ. οὕτω γὰρ ἔσονται καὶ αἱ ἀρχαὶ οἰκεῖαι τοῦ δεικνυμένου. Συλλογισμὸς μὲν γὰρ ἔσται καὶ ἄνευ τούτων, ἀπόδειξις δ’ οὐκ ἔσται· οὐ γὰρ ποιήσει ἐπιστήμην.” This sentence includes all three terms among which the identity is being sought and explicitly equates demonstrative science with demonstration on the one hand, and explicitly distinguishes these from syllogism, on the other. Other passages where Aristotle speaks of demonstrative science include *Post An* I.4, 73a 21-22; I.6, 74b 5-10; and, I.30, 87b 19.

3 Brunschwig (“L’objet et la structure,” p.71) notes that several Greek commentators propose this interpretation, among whom Eustratius (*Post An Comm*, p.255, 1-17) who says that demonstrative science and demonstration are the same but differ in λόγος respectively as habit to the activity (ἐνέργεια) proceeding from it.

wishes to distinguish between two kinds of science, one demonstrative because demonstrable and another, indemonstrable? This intention is apparently revealed when Aristotle, immediately after having defined science, contemplates another mode of knowing to be discussed later.¹ Also, in his examination of demonstration as the only way of knowing, does he not object to circular or infinitely regressing demonstrations? To which he affirms that he himself avoids the difficulty of having to demonstrate everything because he accepts another form of cognition upon which demonstration is grounded, namely, an “indemonstrable immediate,” and adds that there is not only science but also the “principle of science by which one knows the terms.”² The description of the principle of demonstration as being an indemonstrable immediate more than likely signifies an immediate proposition used as a premiss in the demonstration³; and the remark that knowledge of the terms is the principle of science could then be understood as knowing the terms composing an indemonstrable premiss. In this way, the expression *demonstrative science* would seem to refer to the scientific knowledge acquired in the conclusion of the demonstration and would be distinguishable from the scientific knowledge of the principles of demonstration, the indemonstrable immediate premisses. The notion that the principles

1 *Post An* I.2, 71b 16. At this point in his translation, Mure (Oxford ed.) adds a note stating that the later discussion alluded to by Aristotle takes place both in the subsequent chapter (I.3) where it is proven that there cannot be a demonstration of everything and in II.19 where the knowledge of the principles of science is stated not to be the same as scientific knowledge. Kosman (“Understanding, Explanation,” pp.382-84) notes the ambiguity of the phrase, “ἕτερός ἐστι τοῦ ἐπίστασθαι τρόπος,” which could mean another form of or *than* ἐπίστασθαι. He also notes several difficulties in Aristotle’s ways of expressing what is ἐπιστήμη and what is not but is instead knowledge of the principles of ἐπιστήμη.

2 *Post An* I.3, 72b 19-24: “Ἡμεῖς δὲ φάμεν οὔτε πᾶσαν ἐπιστήμην ἀποδεικτικὴν εἶναι, ἀλλὰ τὴν τῶν ἀμέσων ἀναπόδεικτον. καὶ τοῦθ’ ὅτι ἀναγκαῖον, φανερόν· εἰ γὰρ ἀνάγκη μὲν ἐπίστασθαι τὰ πρότερα καὶ ἐξ ὧν ἡ ἀπόδειξις, ἴσταται δὲ ποτε τὰ ἄμεσα, ταῦτ’ ἀναπόδεικτα ἀνάγκη εἶναι. ταῦτά τ’ οὖν οὕτω λέγομεν, καὶ οὐ μόνον ἐπιστήμην, ἀλλὰ καὶ ἀρχὴν ἐπιστήμης εἶναί τινά φάμεν, ἢ τοὺς ὅρους γνωρίζομεν.” Mure (Oxford ed.), following Zabarella’s commentary, translates “τοὺς ὅρους” by “the definitions.” Recall that Aristotle calls the proper signifying the essence a τὸν which may be a definition of an essence or even just a part of one. Inasmuch as a definition (or a part of one) in the context of demonstration must be one term in a premiss, one can translate “the terms,” leaving open the issue of the exact nature and content of the terms.

3 See *Post An* I.2, 72a 7-9: “Ἀρχὴ δ’ ἐστὶν ἀποδείξεως πρότασις ἄμεσος;” and, I.3, 88b 37: “τοῦτο [i.e. ἐπιστήμη ἀναπόδεικτος] δ’ ἐστὶν ὑπόληψις τῆς ἀμέσου προτάσεως.”

of the demonstrated conclusion are scientific is suggested by the injunction that science rest on principles that are just as, if not more, convincing than the demonstrated conclusion because these principles are the cause of the scientific knowledge gained through demonstration.¹ As a result, science understood as the possession of a demonstration would actually consist in the possession of both demonstrative and indemonstrable scientific knowledge, while the principle of science thus understood would be the knowledge of the terms making up the indemonstrable immediate premisses from which comes demonstrative science.²

2.3 Principles of Science

The remarks on the nature of science as being a demonstration in which can be distinguished demonstrative science of the conclusion and indemonstrable science of its principles, the immediate premisses, is based on Aristotle's objection to all knowledge being demonstrative and demonstrable. Due to the imperative that a demonstrated conclusion must come from principles that are just as or more scientific than the knowledge it provides, certain thinkers figure that this means that the premisses composing the antecedent must therefore be demonstrable and demonstrated since, according to them, this is the nature of science. Aristotle, on the contrary, admits that there can be an indemonstrable form of science which is absolutely indemonstrable and not relatively indemonstrable, that is, there exists a form of science that, by its very nature, can never be demonstrated. Nothing prevents some premisses used in a demonstration from being the conclusions of other demonstrations. These premisses are only indemonstrable relative to the demonstration in which they are simply posited as its premisses. The fact that they were or may be demonstrated in other demonstrations does not take away their character of being indemonstrable for the purposes of the given demonstration in which they serve as its premisses. In this relative sense, all premisses can be said to be indemonstrable; however, such premisses are not absolutely indemonstrable because they are really demonstrated or demonstrable propositions. Aristotle maintains that there are some propositions, apparently

¹ *Post Art* I.2, 72a 25-b 4.

² Cf. Brunschwig ("L'objet et la structure," p. 75): "L'expression de 'science démonstrative' n'est donc recevable que dans un réseau conceptuel où la connaissance des principes indémonstrables, sous le nom δέπιστήμη ἀναπόδεικτος fait elle-même partie du genre ἐπιστήμη." Although Brunschwig makes this observation, he encounters several difficulties in explaining it and leaves it unresolved.

called immediate propositions, that are absolutely indemonstrable because they can never be concluded through a demonstration. Why does Aristotle posit such propositions?

The reason for the necessity of such propositions lies in the nature of demonstration itself.¹ Beginning from the hypothesis that the premisses of demonstration are only relatively indemonstrable, demonstrative knowledge would thereby be the only form of scientific knowing, such that perfect knowledge would be obtainable only if it is demonstrable and demonstrated. From this starting-point one would arrive at two possibilities, both of which would be absurd and would actually render science impossible. The first possibility would involve an infinite regress in the order of demonstrations. For any given demonstration, in laying down or positing that from which the conclusion will follow, the conclusion may be rightly demonstrated; but the premisses used in the proof of the conclusion would simply be assumed and not at all demonstrated in the demonstration itself. This consequence would necessitate an anterior demonstration of these premisses; yet, this anterior demonstration would also proceed in the same fashion and merely lay down its premisses without demonstrating them in the course of the demonstration. To demonstrate these, one would be obliged to produce yet another demonstration prior to this. The result would be that the process of demonstrating assumed premisses would continue indefinitely since there would always remain premisses not yet demonstrated. If, however, in order to put an end to the infinite regress, one simply posits primary premisses, these would be unknowable as science or scientific knowledge *ex hypothesi* since, being simply posited, they would never be demonstrated nor capable of ever being demonstrated. The obvious consequence would be that scientific knowledge would never be obtained as there would always remain at least one undemonstrated premiss upon which all consequent demonstrated knowledge would depend.

The second possibility would attempt to end the infinite regress by claiming that all knowledge can be demonstrated through the manner of circular and reciprocal demonstration. This too, however, would turn out to be impossible as it would entail knowing simultaneously the prior knowledge contained in the antecedent and the posterior

¹ The following arguments paraphrase those given by Aristotle in *Post An* I.3. Observe that what is said here about demonstration is also valid for all syllogistic arguments since the analysis is of the common syllogistic form: antecedent necessarily producing consequent.

knowledge contained in the conclusion.¹ As well, circular and reciprocal demonstration would ultimately be reduced to the mere statement, "If a thing is, then it must be." For, given the antecedent A, then the consequent B must be; and, reciprocally, given the consequent B, the antecedent A must be. One can then legitimately replace the consequent B in the first demonstration by the antecedent A shown to follow it in the second demonstration which would result in the demonstration: given the antecedent A, then the antecedent A must be. Demonstrating in this way would be a mere stating of truths (that is, something as true, whether it is or not) and would not truly be demonstration producing a conclusion following from an antecedent which is other than it because the conclusion, by reciprocal substitution, would actually be assumed in the premisses and follow from itself instead of from something other than itself.

As a result of the elimination of these possibilities, one sees that demonstrated knowledge by its very nature requires an indemonstrable form of knowledge whose indemonstrable nature is absolute and not merely relative to a given demonstration. This indemonstrable knowledge must be of an indemonstrable proposition serving as a premiss of demonstration. Aristotle calls this an immediate proposition where immediate means that which has no prior, that is, it is a proposition or premiss depending on no prior proposition. But this does not seem to be the only meaning possible for the term *immediate*.² According to one sense, syllogistic premisses are said to be immediate if they do not allow for interpolation, that is, "premisses between the terms of which no further terms can be interpolated." According to a second sense, syllogistic premisses (as well as other basic assumptions) are immediate if they are not obtained by prior arguments. It may be seen that the second meaning, in defining the immediate premiss, expresses the notion of no prior proposition (since arguments are composed of propositions). The first signification of immediate, on the other hand, refers to the absence of intermediate or middle terms and defines an indivisible or inseparable (*atomos*) relation between terms, that is, the act of belonging or not belonging is accomplished without a middle term; hence, the

¹ Recall that these arguments take both premisses of the antecedent together as a whole. We are well aware that if one simply inverts the propositions involved to demonstrate the premisses (or one of them at a time) through the conclusion serving as a premiss, this would only work in the case of terms having equal extension; otherwise, the inversion would lead to an invalid syllogism because of an infringement of the rules concerning the distribution (extension) of the terms.

² On this point, we follow Hintikka ("On Ingredients of Science," pp.60-61) who explains "two different kinds of immediacy and non-immediacy in Aristotle."

belonging or not belonging is not in virtue of another term but is in virtue of the two terms themselves.¹ Yet these two meanings of *immediate* are actually intimately linked: an immediate proposition cannot be the result of a syllogism, for there would then be propositions prior to it; as a result, the two terms in such a proposition cannot be joined through a middle term but must instead be united in virtue of themselves.² An immediate proposition is thus opposed to the mediate proposition concluded in a syllogism in which the two terms are joined through an interpolated middle term found in the antecedent's premisses. For scientific knowledge, this means that immediate is identical to indemonstrable. It is to be observed that in every science there must be at least one indemonstrable immediate proposition (and maybe even two) that can serve as premiss to which may be reduced the chain of demonstrations and propositions contained in it; otherwise, the demonstrations of that science would be groundless and the knowledge unscientific.³

Besides the indemonstrable immediate (premiss), Aristotle lists other properties that the principles of science and demonstration are said to have. In II.19, the following descriptions can be found: primary or primitive; immediate; more accurate or exact than demonstration; universal (in the soul); always true; better or more known; not according to

1 According to Hintikka, Aristotle uses ἄμεσος both as a general term covering the two meanings and as a narrow, more specific term emphasizing the second meaning of no prior (proposition) in contrast to the first meaning of no middle or intermediate (term) which is then sometimes designated by ἄτομον as seen in the definition of ἄτομον given in *Post An* I.15, 79a 33-35: "λέγω δὲ τὸ ἀτόμως ὑπάρχειν ἢ μὴ ὑπάρχειν τὸ μὴ εἶναι αὐτῶν μέσον." Sometimes (e.g., *Post An* I.22, 84a 35) Aristotle says that the immediate syllogistic premiss is not only immediate but also indivisible (ἀδιάρητον) and the context of the example shows that the latter term refers to the absence of intermediate terms; thus Hintikka concludes that, in this case, ἄτομον equals ἄμεσον plus ἀδιάρητον.

2 Cf. *Comm. Collegii Conimbri*, c.II, comment. (p.487): "*Principium (inquit) demonstrationis, est propositio vacans medioque sive ut plarius dicamus, est propositio ad demonstrandum idonea, qua non est alia prior, per quam ab priori ostendi possit.*"

3 *Post An* I.14, 79a 30. The reason that there may be two immediate propositions is the first demonstration in a science requires two premisses; however, one of these could possibly be demonstrated by another demonstration and so only one immediate proposition would suffice. An exception to this would be the case of subordinate sciences in which both of the first premisses of the subordinated science could possibly be conclusions demonstrated in the subordinating science. But here, too, the superior science would have to have at least one indemonstrable immediate proposition to end the regress in demonstrations.

reason or discourse; and, more true.¹ Another list of the properties is provided in *Posterior Analytics* I.2 where Aristotle says that for one to have demonstrative science, it is necessary that it come from that which is true, primary or primitive, immediate, and that this be better or more known than, prior to, and the cause of the demonstrated conclusion.² A quick comparison between the two passages reveals that certain properties appear in both places: primary or primitive, immediate, better or more known, and true (though truer does not). A complete list composed from the properties mentioned in the two passages would thus include the following: immediate; primitive or primary; better known than, prior to, and the cause of the conclusion; (always) true and more true or truer, universal; more accurate or exact than science and demonstration; and, finally, not according to reason or discourse. Insofar as the principle of science is identified in II.19 with an intellectual habit called *nous*, these properties would be predicable of it.³ According to Aristotle, at least, *nous* does have a place in science and demonstration; but, whether this noetic habit is intuitive or not is not clear at this point in our analysis.

The principles are fundamentally qualified as being *prōtas*, primary or primitive. This property appears to refer to the indemonstrable immediate proposition to which the premisses in a given science are reducible. Yet insofar as the principle of science is said to be a knowledge of terms, the terms used to form such primary indemonstrable immediate premisses could also be understood to be primary since all the terms used in a science would be reducible to these. In other words, these two senses of *primary* parallel the two senses of *immediate*. Primary could thus also refer to the antecedent of the very first demonstration in a science which would necessarily have to use primary terms and premisses. In a more general way, any antecedent whatsoever posited in a syllogism could be primary, and the word would thus mean that which is first and a principle from which a

1 Here is the list with references: τὰς πρῶτας ἀρχὰς τὰς ἀμέσους (99b 21); τῶν ἀμέσων (99b 22); ἀκριβεστέρας ἔχοντας γνώσεις ἀποδείξεως (99b 27); τοῦ καθόλου ἐν τῇ ψυχῇ [...] ἀρχὴ ἐπιστήμης (100a 6-8); τὰ πρῶτα (100b 4); τὸ καθόλου (100b 5); ἀληθῆ ἀεὶ (100b 7); ἐπιστήμης ἀκριβέστερον (100b 8); αἱ ἀρχαὶ τῶν ἀποδείξεων γνωριμώτεραι (100b 9); οὐκ μετὰ λόγου (100b 10-11); and, ἀληθέστερον (100b 11).

2 71b 20-22: “ἀνάγκη καὶ τὴν ἀποδεικτικὴν ἐπιστήμην ἐξ ἀληθῶν εἶναι καὶ πρῶτων καὶ ἀμέσων καὶ γνωριμωτέρων καὶ προτέρων καὶ αἰτίων τοῦ συμπεράσματος.”

3 See particularly 100b 8, 9, 12, and 15.

second follows; it would express the idea, announced in the introduction of *Posterior Analytics*¹, that all teaching and learning requires prior knowledge acting as an already known given. Be that as it may, in the realm of science, primary or primitive likely refers to the indemonstrable immediate premisses and/or its terms.

Of these primitives, it is necessary to know beforehand either all or some of them, and that one be more convinced of and know them better than the things demonstrated. Indeed, if somebody knows or is convinced of something because of or through the primitives, then one must know and be convinced of these more than what is posterior to them, the knowledge and conviction of the posterior being based on that of the anterior.²

Consequently, the principles of science are said to be better known than, prior to, and the cause of the conclusion.³ These qualities could refer to any antecedent composed of absolutely or relatively indemonstrable premisses. The principle must be the cause since scientific cognition consists in knowing a cause that is essential, thus necessary, to the being of a thing. As cause, the principle must be prior to the conclusion because science consists in the possession of a demonstration in which the conclusion is known to be something produced by the premisses. The priority of the principles therefore requires that they be more or better known than the conclusion resting upon them, as already mentioned. But there are two qualifications to be made concerning this. The first is that the prior knowledge must consist in not only understanding the meaning of what something is (said to be), but also that it is.⁴ In other words, one must possess at least a certain minimal kind of knowledge of both the essence and the existence of a thing before it can be fully known scientifically.⁵ The second clarification is concerned with the double meaning of prior and better known. Man can know things either relatively to himself or absolutely. In the first

¹ L1, 71a 1-11. See also *Post An* I.2, 72a 7-9.

² *Post An* I.2, 72a 25-72b 4.

³ These are described at *Post An* I.2, 71b 30-72a 5.

⁴ *Post An* I.2, 71b 33.

⁵ This seems to be the presupposition directing Aristotle's analysis in *Post An* II.7 where he tries to manifest that to prove the essence of something, one must already know that it exists; otherwise, the definition of the essence becomes merely a nominal definition. On the nature of the better known prior cognition, see also Albert (*In Post An Comm*, I.I, tr.I, c.4, (p.19)): "*cum nihil contingat secundum veritatem vel addiscere vel cognoscere, nisi per significationem nominum, ... necesse est de omnibus praecognoscere quid est quod dicitur per nomen.*" Cf. Aristotle (*Post An*, p. 76, n.1) where he, too, says that the learner must understand the expressions used by the teacher and some facts. On p.87, n.19 he remarks that the understanding of the meaning of a true statement or of an expression signifying an object precedes the belief of the statement as true or of the object as existing in the manner stated.

case, the measure is the human mode of cognition, that is, the manner in which man comes to know things; consequently, that which is prior and better known is that which is closer to sense cognition and further from intelligible knowledge of the universal. In the second case, the measure is the universal essence of the thing so that the prior and better knowledge would be according to the universal essence expressing the nature of a thing. According to this distinction, sensible singulars would be better known relatively to man while intelligible universals would be better known absolutely.¹ It appears as well that the difference between induction and demonstration (more precisely, inductive and deductive syllogisms) is founded upon this distinction in cognition, for induction is said to start from that which is clearer to man while demonstration must always begin from universal knowledge expressing the essence of things.²

Another property predicated of the principles of demonstrative science is that they must be true. As it was shown above, demonstration must proceed from true premisses, contrary to a dialectical argument which may proceed from probable premisses. The truth (or falsity or probability) of a proposition was seen to depend on predicating one term of another according to their respective comprehensions, with truth of science arising when the predicate-term necessarily belongs to the subject-term because it expresses something essential to it.³ When truth is said to signify being or existence, it is to be observed with

1 An example of the former would be the knowledge any person would have of circle by his capacity to point out individual circular things: this ashtray, that jar lid, a clock, and so on. The latter would occur when a person can provide the definition of circle: a line whose points are all equidistant from one point not in the line, i.e., the center.

2 Aristotle affirms (*Pr An* II.23, 68b 30-36) that syllogism in the proper sense takes place through the middle term acting as middle or medium of the syllogism, and it is prior and better known simply; the syllogism coming from induction is clearer to us because the medium or middle term is the minor, that is, the term with least extension, hence, relatively to us it is the closest and most knowable of the three terms. That induction can be considered to be a kind of demonstration is also admitted by Aristotle in *Post An* I.3, 72b 25-33 where he affirms that demonstration starts from that which is absolutely prior and better known while induction demonstrates from that which is prior and better known to us, although he does qualify it as being an improper sense of demonstration. Notice that this difference in the prior and better known also explains in part the difference between a demonstration of the fact ($\acute{\omicron} \tau \iota$ or *quia*) and a demonstration of the reasoned fact ($\delta \iota \acute{\omicron} \tau \iota$ or *propter quid*). See *Post An* I.13, 78a 26-30. From this, it may be concluded that demonstration in the most proper sense of being scientific would be the one whose middle term would be the cause explaining the essence and existence of a concluded fact and that all other demonstrations would be less scientific insofar as their middle terms do not consist in this essential and necessary cause but in something more knowable to us. More will be said on induction and its syllogism in chapter 6.

3 Cf. Grosseteste (*In Post An*, p.40,2): "*Apprehendentes verum solum sunt scientia et intellectus, quia apprehendunt res in puritate essentie, non cum admixtione conditionum materialium.*"

respect to scientific premisses that it is the logical being (expressed through the copula) of a predicate-term necessarily belonging to a subject-term. Thus, when it was stated above that prior cognition consists in knowing what something is and that it is, *that it is*, or its existence, must be understood in this sense of necessarily belonging and being true as it is expressed in a proposition.¹ Since the truth of science consists in the knowledge acquired in the conclusion of the existence of a per se property which has been demonstrated to inhere necessarily in its subject, it requires true principles, two true premisses in which the cause of the inherence is joined to both the subject and the property.

But Aristotle does not content himself with saying that the principles of science must always be true as is the case with scientific knowledge of the conclusion. He adds that they must be “truer” than science. How can something be truer than true? If truth is intended to signify the necessary inherence of a per se property in its subject, how, then, can it belong even more truly? This seems impossible and highly unlikely, not to mention that the word *alêthesteron* translated into English as *more true* or *truer* comes across as strange and puzzling.² What may help in coming to a better understanding of the thought being expressed by the term is to realize that in Greek it means *unhidden* or *unconcealed*. So, if truth is merely that which is unhidden, then it becomes possible to have various degrees of truth depending on how much of the “whole truth” “was uncovered,” as is said in English concerning a truth being sought.³ If that is the case, then it must be found out what can be truer than a true scientific proposition, particularly, the truth expressed in the conclusion of a per se property inhering in its subject. It seems unlikely that it could refer to the property

1 This is how we understand Aristotle's statement at *Post Art* I.2, 71b 25 that science must come from that which is true since there can be no science of that which is not (non-being). Although the judgment of the truth or falsity of an enunciation usually requires making a correspondence between thought and reality, propositional truth is, as Aristotle puts it, not in things but in thought. See *Meta* VI.4, 1027b 26.

2 The term ἀληθέστερον is translated thus: Mure, Barnes, and Ackrill- truer; Apostle- more true; Saint-Hilaire and Tricot- plus vrai que; and, *verius* by pretty well all Latin commentators, except Gerardi- *dignius intentione veritatis*. The difficulty caused by translating *truer* or *more true* is manifested by Warrington who does not translate the word at all and gives no idea of a comparison being made between science and νοῦς on this point. But Taylor's translation, “But since nothing can be more than science, except intellect” gives the reader the impression that a word is missing and incites one to ask: More what? What does it mean for intellect to be “more than science”?

3 This idea comes from Leshner (“Meaning of ΝΟΥΣ,” p.64, ft.52) who notes that the etymology of ἀ- ληθής, un-hidden or un-concealed, “may help explain why the comparative ‘truer’ makes better sense in Greek than it does in English. Some propositions may be more informative (disclose more information or conceal less) than others, and hence be ἀληθέστερον.” As will be seen in what follows, the assumption that the truth in this instance is that of a proposition is questionable.

since, as was already stated, its true inherence cannot be even more true: either it inheres necessarily and it is true or it does not and it is false or probable. There is no room here for degrees of inherence. If, then, it is not the truth of the property's existence, would it not have to refer to the truth and being of the subject itself? After all, as science consists in demonstrating the inherence of a per se property in its subject (the substance studied in a given science), a per se property that has its being in a subject because it necessarily belongs to it presupposes that the subject has its own form of being and exists and is therefore true. If propositional truth expresses the existence according to the (necessary) inherence of a property, then more truth would have to be accorded to the (necessary) being of the subject without which the property would not have its existence and truth. As cause of the per se property's being and truth, the subject could then be said to be truer.¹ That would mean that the subject's existence or being and truth would not consist in inhering in or belonging to another, as is the case with a property's truth. Its being would instead consist in being itself a subject because it is a substance, and its truth would appear to lie in the fact that it is somehow the cause of its own being; for in the case of substance, either the thing exists as what it is (that is, according to its essence) or else it does not exist at all.² Being a substance rather than a property could also clarify the usage and meaning of *truer* in the following way: the subject's essence is truer than its essential properties because more of the subject is unhidden or unconcealed or revealed by its essence rather than by any one of its essential properties. If that is so, then the definition of the subject of a science and the term expressing it would have to be placed among the principles of science and demonstration along with the indemonstrable immediate premiss. Notice that this notion could be admitted by respecting Aristotle's assertion that knowledge of the terms is a principle of science.

The property of being universal can confirm the inclusion of definition among the principles of science since every definition is always universal.³ According to Aristotle⁴,

¹ This argument is based on Lesher's observation ("Meaning of ΝΟΥΣ," pp.63-64) that Aristotle generally says that something is more of or to a greater degree an X or a better X when it is the reason why (αἰτία) other things possess the property of X.

² *Meta* IX.10, 1052a 1-2. Note that this chapter of *Meta* covers being in the sense of truth. Aristotle distinguishes between the truth and being appropriate to composites, that is, accidents joined to substances and those appropriate to incomposites, that is, (simple) substances. Other implications of this text will be brought forth during the examination of the indivisible noetic object in chapter 7.

³ *Post An* II.13, 97b 25.

⁴ *Post An* I.11, 77a 5-9.

there can be no middle term without a universal, which consequently means that there can be no demonstration since demonstration must conclude through a middle term. The universal in question is not to be understood as a form or species that can exist or be found apart from the many individuals; rather, it is enough if one can maintain that one thing holds of or belongs to many, that is, that there is one and the same thing unequivocally (or non-homonymously) predicable of a multiplicity. In other words, universal makes reference to intellectual knowledge, distinguishable from sense cognition, and the need to use univocal concepts in scientific endeavours, a point already made above with respect to the first operation by which the intellect defines things.¹

The principles must also be *akribesteron* than demonstrative science.² Like universal, it expresses a quality of the cognition one possesses, namely, the fact of its being exact, precise, and accurate. As the principles of science are universal concepts and/or propositions, their accuracy, precision, or exactness seems to come from being more abstract or general (concepts).³ The more general and universal a concept, the simpler is its knowledge because it has less comprehension and, as a consequence, there is less chance of making an error in its use.⁴ This may explain the idea of certitude or certainty mentioned in some translations.⁵ Also, the principles being logically prior to the demonstration itself

1 More will be said on the nature of the universal in chapter 5.

2 The term ἀκριβέστερον has been variously translated. At 100b 8, we have: Barnes- more exact; Mure, Apostle, Taylor, and Tejera- more accurate; Ackrill- more precise; Warrington- superior; Saint-Hilaire and Tricot- plus exacte; Didot, Iacobi, Ioannis, and Guillelmi- *certius*; Soto- *exactius*; and, Pacius- *exquisitius*. At 99b 27 ἀκριβεστέρας (ἔχοντας γνώσεις ἀποδείξεως) is translated identically by each author except Didot- *perfectiorem*, and Soto- *certiore*. At 99b 33, though the comparison is between the habit of νοῦν and the sense capacity, (τιμιωτέρα κατ' ἀκρίβειαν is again identically translated by each author (for the exceptions, it is identical to 100b 8). The fact that a few translators give more than one translation for the same word apparently manifests a difficulty in pinning down the exact sense to be given to this term.

3 Cf. Rodier (*Traité de l'âme*, p.2): “ἀκριβής signifie *exact, précis, qui est déterminé à la rigueur, qui est clair et distinct*. Le contraire de l'ἀκριβές est ce qui est vague, flottant, mou; ce qui n'est ébauché ou esquissé τύπῳ. Par suite, ce qui est plus général et plus simple est aussi plus ἀκριβές.” E.g., mathematics. See also Hicks (*De Anima*, pp.174-75) who remarks that ἀκριβής is similar in meaning to ἀπλοῦς when it signifies the general and abstract.

4 As an example, the concept *thing* or *a being* will result in few, if any, mistakes when it is being used; in this sense, it may be claimed to be very accurate and precise, although with respect to a detailed comprehension, it may be said to lack exactness or precision.

5 Cf. Zabarella (*Opera Logica*, l.266E): “*non solum certitudinem significat, sed cum perfectione. cognitio namque illa vocatur ἀκριβής, quae certa, et exquisita sit.*”

makes them more accurate because, in possessing the knowledge of the principles of demonstration, one may not automatically know everything that can necessarily follow from them, whereas the contrary would be impossible.¹ Finally, the term may simply indicate that the accuracy and exactness of science is caused by that of its principles which, being the cause of science, would possess the property to a greater degree.²

The final property to be considered is the affirmation that all science is *meta logou*, according to reason or rational discourse, whereas the principles of science are not *meta logou*. When syllogism was defined as being a *logos*, it was stated that this indicates the expression of a meaning or signification; however, syllogism can also be a *logos* in a second way, namely, as an activity of reasoning, a going from one concept to another. It is particularly with reference to this rational discourse involved in demonstration that science is said to be *meta logou*.³ Since all three intellectual operations indicated above express a signification, they can all be said to be *meta logou* in this sense; *logos* understood as the activity of reasoning present in syllogizing, on the contrary, is one that is not present in all three operations and therefore permits a distinction between science as being *meta logou* and the principles of science which are claimed not to be so. If, by science, only the demonstrative science of the conclusion is intended, then *logos* would signify the syllogistic activity of the intellect uniting two terms through the medium of a middle term which would produce the rational movement from antecedent to consequent. If science is intended to cover the indemonstrable science of the immediate premiss as well as

1 Apostle (*Post An.*, p.93, n.39): “[...] one is better disposed by having concepts or principles than by having demonstrated knowledge: for without concepts or principles one cannot have demonstrated knowledge, but without the latter one can still have the former. Thus the concepts or principles which we possess, and which Aristotle calls $\nu\omicron\hat{\upsilon}\varsigma$ (= ‘intellect’ or ‘intuition’), are more accurate and also prior to what is demonstrated, [...]”

2 Recall Leshner’s thoughts mentioned earlier in regards to ἀλεθέστερον that Aristotle generally says that something is more of a quality when it is the reason other things possess the quality in question.

3 The phrase (100b 10-11), “ἐπιστήμη δ’ ἅπασα μετὰ λόγου ἐστὶ, τῶν ἀρχῶν ἐπιστήμη μὲν οὐκ ἂν εἴη,” is translated by Barnes (Revised Oxford ed.) as: “and all understanding involves an account—there will not be understanding of the principles,” while Mure (Oxford ed.) writes: “and all scientific knowledge is discursive. From these considerations it follows that there will be no scientific knowledge of the primary premisses.” Other translations of μετὰ λόγου include: Warrington- involves the drawing of conclusions; Taylor- in conjunction with reason; Apostle- by means of reasoning; Ackrill- involves an account; Saint-Hilaire- accompagnée de raisonnement; and, Tricot- s’accompagne de raisonnement. Observe how most translations interpret λόγος in the sense of being an activity of reasoning.

demonstrative science of the conclusion, then saying that science is *meta logou* would just refer to the rational motion of going from one term to another, whether it be to unite two terms of an indemonstrable immediate proposition immediately through themselves or to unite syllogistically two terms through the mediation of a middle term. The latter interpretation would pose a problem, though; for an immediate proposition is the result of an act of knowing the two terms themselves, and this activity does not at all appear to be *meta logou* since Aristotle affirms that *nous* is the principle of science and that by which the terms are known.¹ Since *nous* in this context is being opposed to the intellect's rational discursive operation, then *nous* would have to signify a different intellectual operation, that is, *nous* taken in its strictest sense by which it signifies the intellectual activity distinct from the rational discursive one. As a result, the immediate proposition would actually be a product of the noetic operation of the intellect rather than of a rational discursive operation. In effect, knowing a term depends on the intellectual activity of defining the essence and nature of the thing signified by the term, or, at the very least, knowing what is being signified by the words or linguistic expression of the term. As shown above, apart from the discursive activity of dividing a generic concept, there is a perceptive understanding of the definition and its correspondence with the defined. This perceptive understanding would therefore be the activity of the intellect by which it would come to know any concept-term. In the case of indemonstrable immediate propositions, this would mean that once what each of the two terms signifies is known and understood, this understanding would permit one to further understand that they belong (or do not belong) together which, as seen above, is really another moment of perceptive understanding, this time in the operation of predicating. Notice, then, that it is the same intellectual operation of perceptive understanding by which the terms and indemonstrable immediate propositions would be known.² Also, the fact that these propositions are knowable through the two terms

1 The argumentation of II19 concludes (100b 15) "νοῦς ἄν εἴη ἐπιστήμης ἀρχή." Also, *Post An* I.33, 88b 36 states: "λέγω γὰρ νοῦν ἀρχὴν ἐπιστήμης." This affirmation taken together with the affirmation found in the already cited passage from I.3 that the principle of science is that by which the terms are known leads to the conclusion that νοῦς is that by which the terms are known. See also *Post An* I.23, 84b 36-85a 2 where Aristotle says the principle is that which is (a) simple (unit) and "οὕτως ἐν συλλογισμῶ τὸ ἐν πρότασις ἄμεσος, ἐν δ' ἀποδείξει καὶ ἐπιστήμη ὁ νοῦς."

2 So, in science, νοῦς would ultimately be responsible for the first and second operations of the intellect presupposed by the third operation of demonstrating, which parallels what was said above concerning syllogism in general. Cf. Cajetan (*Comm In Post An*, I, c.I (pp.6-7)) who says, concerning the pre-existent cognition required for demonstration, "*oportet praecognitionem omnem primae vel secundae*

themselves and not through a third term means that they are self-evident.¹ In fact, it is the quality of being self-evident that would make the indemonstrable immediate proposition suitable as a demonstrative premiss, for it commands, on the basis of itself, conviction in its knowledge.² Therefore, not only the terms, but also the indemonstrable immediate proposition would be principles of science that are not *meta logou*. They could instead be said to be *meta nou*.³

According to this analysis, science would first and foremost be the knowledge of a demonstrated conclusion accomplished by the intellect *meta logou*. The principles of science which are known by the intellect *meta nou* would be the terms and the indemonstrable immediate proposition used as a premiss in the demonstration. These two can be distinguished by saying that the immediate proposition is a principle of demonstrative science whereas the knowledge of terms is a principle of indemonstrable science.⁴ Also, insofar as the indemonstrable immediate premiss contains a knowledge of the necessity according to the syllogistic matter, it is a principle of science that is already a form of scientific knowledge which is of the necessary and the essence.⁵ However, before

operationis intellectus opus esse" and again (p.13) "*oportet dividere opus scientificum in intellectum, cuius est cognoscere quod quid est et per se nota, [...] et scientiam proprie dictam, quae processu demonstrativo acquiritur.*"

1 Cajetan (*Comm In Post An*, I.I, c.III (p.50)) affirms that the per se nota proposition follows the dictum "*principia cognoscimus in quantum terminos cognoscimus [... et] principium immediatum ex propriis terminis cognitum.*" Cf. *Pr An* II.16, 64b 35-37 together with *Post An* I.23, 84b 19-23.

2 See *Top* I.1, 100a 30-32.

3 This is Mignucci's understanding of the immediate premiss (*L'Argomentazione Dimostrativa*, p.48 commenting on 72b18-25). He thinks that it must be both scientific, since the conclusion that is scientific must proceed only from scientific premisses, and yet not demonstrated; thus, there must be a form of non-demonstrable or immediate scientific knowledge about which he concludes: "Essa è un tipo di sapere che in Ad 19 verrà qualificato come noetico." So, too, Kal (*On Intuition and Discursive*, p.48, ft.43): "According to Aristotle, therefore, the πρότασις ἄμεσος too is simple and is a principle. And he calls the πρότασις ἄμεσος of the proof the object of νοῦς." Grosseteste (*In Post An*, p.40,2) implicitly expresses the same idea when he says: "*Voco autem hic intellectum virtutem anime apprehensivam rerum apprehensibilium receptarum absque medio. Scientiam vero apprehensivam rerum apprehensibilium receptarum per medium.*" Since the immediate premiss is formed without a middle term, it would therefore be known by the intellect's noetic capacity ("*intellectum virtutem anime*").

4 Besides *Post An* I.3, 72b 19-24, the passage I.23, 84b 35-85a 2 (quoted in part in a note of the previous paragraph) also suggests that the principles of science can be both; but, it is interesting to note that only νοῦς is mentioned in this passage as the unit of science and demonstration. This recalls the affirmation that the principle of science is the knowledge of terms which are known by νοῦς. See also *Post An* I.33, 88b 35-37.

5 Albert (*In Post An Comm*, I.I, tr. V, c.9 (p.210)) recognizes that not all immediate propositions are necessary. The principle of demonstration is an immediate proposition "*secundum veritatem*" which must be necessary; but topical considerations use immediate propositions as well, except that they are "*secundum*

making any further concluding remarks, it would be worthwhile to take a brief look at the different types of scientific principles mentioned throughout *Posterior Analytics*. Doing so will provide further information concerning the principles of science which in turn could help in coming to a better understanding of *nous* as a habit of these principles.

As Aristotle mentions many different candidates in the role of principle of science, it is not surprising to discover that this is an extremely contentious point among commentators. As an introduction, it would be useful to consider some of the views and difficulties raised by scholars. These can be focused around three main areas of discussion: the issue of which ones are to be accepted as principles; the issue of explaining the manner in which they are principles; and, the question of how they are acquired, which touches directly II.19. One position is to maintain that the principles are the premisses of demonstration. Many commentators understand the phrase, "first immediate principles," found in II.19 to signify the immediate premisses required for demonstration¹, and to further support this view, many among them side-step the example given here of perceiving Callias, turning instead to the example given in the parallel passage of *Metaphysics* taken from the experience of healing sick persons with the same medication and which leads to a universal knowledge and principle that is propositional in nature, such as, "This medicine heals man with this sickness."² As premisses are propositions, there arises the question as to whether the chapter is meant to show only how premisses proper to the given science are acquired, the proper principles, or if it is to include as well the acquisition of common axioms, which are often understood to be merely regulatory principles common to all or several sciences. Some will include among the principles the middle term found in both premisses, such as Mauro³ who affirms that *Posterior Analytics* Book II deals with the middle term; yet, in *opinionem*" and "*secundum quod accipitur, acceptio non est necessaria, sed probabilis.*"

¹ Mure, for example, translates "τὰς πρώτας ἀρχὰς τὰς ἀμέσους" at 99b 21 as "primary immediate premisses" and "τὰ πρώτα" at 100b 4 as "primary premisses" whereas Barnes respectively translates "primitive immediate principles" and "the primitives." Mure spontaneously assumes that the primary principle is a premiss whereas Barnes' translation respects the terminology of the original text. Observe that the words ἀρχή and ἄμεσος are used by Aristotle to qualify both the τί ἐστι of substances, which must be a definition expressed in one term of a premiss, (see *Post An* II.9, 93b 22) as well as the immediate proposition (*Post An* I.2, 72a 8). Apparently, then, immediate principle cannot automatically be assumed to indicate premisses alone.

² Barnes (*Post An*, pp.263-64) struggles with the ambiguity of the primary text since, according to him, the knowledge of experience, art, and science is apparently propositional, though the example provided is of a conceptual form of cognition. Cf. Cajetan (*Comm In Post An*, L.2, c.13 (p.199)): "*quoriam experimentum est cognitio complexa, cum sit collatio multorum particularium.*" Both commentators seek support from the example provided in the account given in the secondary text of *Meta*.

³ *Braevi paraph.*, c.XI, n.1.

agreement with the previous position, he excepts II.19, saying that it deals with immediate complex principles, that is, immediate premisses. The inclusion of the middle term as a principle carries with it the question of the place of definition in demonstration since the middle term is a definition of one of the other terms.¹ But to say that definitions are principles is not enough since Aristotle lists several types of definitions. Are all intended to be a principle as middle term? In answer to this, Brunschwig reasons that since Book I of *Posterior Analytics* leaves one with the impression that all definitions are principles and indemonstrable, the analysis of Book II, chs. 3-10 goes on to show that only some definitions are indemonstrable, namely, those of the essence, while others can indeed be demonstrated.² But definitions are conceptual in nature, and to claim that principles must be universal concepts appears to be supported by Aristotle's example in II.19 of the perception of Callias since that which is acquired are universal concepts like *man*, *animal*, and so on up to the most generic universals which can then be used to form definitions. If II.19 is meant to indicate the acquisition of definitions and concepts, Kahn³ figures that the real difficulty with the account provided consists in the "distinction between vulgar and scientific conceptualization," since he accuses Aristotle of rarely drawing, if ever, a clear distinction between ordinary concept-acquisition as achieved by any normal human being through language and the more elaborate, fully articulated concepts and complex knowledge required for science. Thus far, the process described in II.19 has been said to result in both propositional and conceptual forms of principles. This, for some, is cause for confusion and it is expressed by Barnes⁴ who writes, "most commentators have found a deep-seated ambiguity in B 19: its 'principles' vacillate between primitive propositions and primitive terms," and adds that Aristotle never makes explicit the distinction between them.

1 On the issue of why definition figures so prominently in Book II, Eustratius (*Post An Comm.*, p.255, 1-17) thinks that the treatment of definition within the study of demonstration is only secondary and accidental because the middle term of the demonstrative syllogism happens to be a definition. Thus, the definition is examined only insofar as it serves as middle term in a demonstration whereas the study of definition in itself is to be found elsewhere (he says *Meta VII*). This is contrary to Alexander who apparently maintains (see Moraux, *Commentaire d'Alexandre*, pp.81-85) that the definition is studied in itself and primarily in this book.

2 Brunschwig ("L'objet et la structure," pp.91-95). Again on the issue of definition's place in demonstration, he holds that the search into definitions apparently turns out to be an integral part of the program of the study of demonstration's nature. See also A. Mansion ("L'Origine du syllogisme") on the relationship between definition and demonstration.

3 "The Role of *nous*," pp.395-99.

4 *Post An*, p.259.

Ross¹, however, disagrees, maintaining that the chapter can lend itself to both interpretations because “Aristotle did not realize that he was vacillating between two stories.” Still others firmly hold instead that the chapter does not reveal any vacillation, conscious or unconscious, on Aristotle’s part—though it may exist in the reader’s mind—since it is not intended to concern itself with just one type of cognition to the exclusion of the other, but is about both at the same time because the acquisition of concepts is inseparably tied to the acquisition of (immediate) propositions.² Granger³ notes that the term *prōta*, primary or primitive, used to qualify the principles is ambivalent (as noted above) because of a reciprocity between concept and universal proposition, thus reinforcing the idea that this chapter may be intended to cover both kinds of principles because of some relationship between them. The likelihood that both kinds of cognition are being considered in II.19 is increased by the fact that throughout *Posterior Analytics* there is mention of several types of principles of science and demonstration, beginning with the knowledge of terms and indemonstrable immediates already proposed above which are conceptual and propositional.⁴ The more problematic of the issues are those concerned with the manner in which each type of principle is a principle of science and the determination of those principles that are to be acquired by the method given in II.19. It is particularly this last difficulty that will retain our attention as we turn to examine the different candidates.

After having examined the properties belonging to the principles, the most likely candidate to emerge would be the indemonstrable immediate proposition serving as premiss of a

1 *Pr and Post An*, p.271.

2 Kahn’s view (“The Role of *nous*,” p.393) is that “there is no room for any vacillation between a conceptual and a propositional account in II.19. For there could not be two distinct inductive processes, one by which we grasp the essences and another by which we come to recognize the existence of the entities so defined.” Also Sorabji (“Intentionality and Physiological Processes,” p.201): “The passage is sometimes taken as a treatment of our acquisition of universal concepts and sometimes as a treatment of our acquisition of universal truths. In fact there is no conflict: to acquire one is to acquire the other, as a preceding discussion in *APo.* 2. 8–11 shows. To acquire the universal truth that lunar eclipse is some kind of lunar loss of light, or that it is a lunar loss of light due to the earth’s screening of the sun, is to acquire an (increasingly scientific) concept of lunar eclipse.”

3 *Théorie de la science*, p.160.

4 Under the term ἀρχή, whose second meaning is to be a “*principia cognoscendi*,” Bonitz (*Index*, pp.111–12) catalogues the following principles mentioned in *Analytics*: ὑποθέσεις as principles (81b 14); θέσεις as an ἄμεσον principle (72a 15); the πρότασις as principle of the conclusion (43a 21); as principle of demonstration, there is the πρότασις ἄμεσον (84b 37) and the necessary πρότασις (74b 5) as well as the undemonstrated ὁρισμοί (90b 24); and, finally, the from which (common) and about which (proper) (88b 27).

demonstration.¹ Many commentators, in fact, do accord the immediate proposition the status of being a principle of science.² What seems to make the immediate proposition a principle is the fact that its immediacy enables it to become a simple unit of indemonstrable propositional knowledge from which can come demonstrations which are themselves composed of propositions. The necessity of such immediate propositions and premisses was already shown above to be due to the nature of demonstration itself since without such a form of indemonstrable knowledge serving as primary premisses of demonstration, demonstrative science would not be possible. Aristotle³ admits that new propositions may be formed by simply adding a term in order to generate different conclusions or that a different conclusion can be demonstrated by taking an additional immediate proposition; however, all new propositions acquired in these ways may be said to be mediated and dependent on the indemonstrable immediate propositions from which they are built and to which they can all once again be reduced.

Some qualify the immediate proposition as being complex to distinguish it from another incomplex or simple principle admitted by them, namely, the middle term of the demonstration.⁴ Since the middle term is the one through which the extremes are united in the conclusion of the demonstration, it is the cause and explanatory reason (*to hoti* or *to dioti*) of the being or truth of the inherence expressed in the conclusion. Also, without such a term common to both premisses, the premisses could never be unified to generate the inference producing the conclusion. So along with the immediate proposition, the middle term present in both premisses of a given demonstration would possess the rank of being a scientific principle; and, to differentiate the two, reference could be made to the number of

1 Mure is not the only translator who assumes that the word ἀρχή in II.19 can be correctly rendered by premiss. See Gerardi (in Minio-Paluello and Dod, eds. *Latinus An Post*) who (at 99b 17) writes, “*principia que sunt propositiones immediate*,” and Apostle (*Post An*) who tentatively interprets τὸν ἀμέσων (99b 22) as “immediate [premisses]” (although he translates “immediate primary principles” for τὰς πρώτας ἀρχὰς τὰς ἀμέσους in the preceding line and at 100b 4 he tentatively qualifies τὰ πρῶτα as “primary [universals]”). Cf. *Post An* I.25, 86b 30.

2 Among others, see Philoponus (*In Post An Comm*, p.432,30-32) and also Anonymous (p.603,5-6); and, Averroes (*De Demonstratione Expos*, p.564).

3 *Post An* I.32, 88b 5 and 19.

4 See, for example, Mauro (*Braevi paraph*, c.XI, n.1 (p.386)) for whom the principles are the “*medium, quod est principium incomplexum demonstrationis, et reducitur ad quid, et propter quid*” and the “*principia complexa immediata, adeoque indemonstrabilia per medium*.” Similarly Soto (*de Demonstratione Comm*, p.492). Note that both contend that *Post An* II studies both of these with chs.1-18 covering the incomplex principle and ch.19 the complex.

terms needed to form them: the immediate proposition would be complex because it is made up of two terms while the middle term, being just one term, would be an incomplex principle.

Concerning the middle term, Aristotle says that it is actually a definition of the major term, which is the reason why all sciences are said to come about through definitions.¹ As a result, definitions too may be considered to be principles of demonstrative science. Aristotle recognizes four types of definitions, among which two cannot possibly be principles of demonstration since one of them is actually a demonstration, but one whose terms are in a different position or order than that appropriate to demonstration, and the other, a conclusion of a demonstration.² The other two sorts of definitions, however, could serve as principles of demonstration because they are definitions of the *per se* property and the subject whose essence or whatness must be assumed in any demonstration. In the case of the property, as its essence is to exist or be in a subject, and this is not known until the conclusion is had, the definition given of it in the major premiss can only be nominal and not properly essential.³ With respect to the subject whose substance and essence is expressed in its definition, all demonstrations within a given science can only suppose and assume its essence and existence.⁴ As science consists in demonstrating the inherence of an essential property in its subject through a middle term, it is therefore not surprising that the terms involved must first be defined as to what they are, or that the middle term itself turns

1 *Post An* II.17, 99a 23: “ἔστι δὲ τὸ μέσον λόγος τοῦ πρώτου ἄκρου· διὸ πᾶσαι αἱ ἐπιστήμαι δι’ ὀρισμοῦ γίνονται.” Cf. *Post An* II.13, 96b 22-24.

2 Aristotle lists the kinds of definitions in *Post An* II.10, the one like a demonstration but differing in the ordering of the terms being described at 94a 1-6 while 94a 7-9 mentions the definition as a conclusion of a demonstration. We realize that this chapter has caused much difficulty for many commentators from the Greeks on. In fact, some recognize only three types of definitions instead of four. To avoid an unduly long digression which substantiating this interpretation would admittedly require, we simply state that four types of definition can be found; however, since the first is really a nominal one, it may not qualify as a definition in the strict sense, namely, something manifesting the essence of an existing thing. This may explain why it is not repeated in the chapter’s concluding inventory at 94a 11-12. Be that as it may, the fact that definition is said to be a principle is enough to satisfy our purpose here. See also *Post An* I.8, 75b 30. For other definitions of definition, see *Top* I.5, 101b 34-102a 5 and *Poet* 20, 1457a 24-30.

3 *Post An* II.10, 93b 29-31 indicates the nominal definition of the property.

4 This would be the definition noted at 94a 10 which is said to be an immediate and an indemonstrable positing of what it is: “ὁ δὲ τῶν ἀμέσων ὀρισμὸς θέσις ἐστὶ τοῦ τί ἐστὶν ἀναπόδεικτος.” Notice that as the subject is a term and not a proposition, the modifier *immediate* would apparently have to signify no prior term rather than no prior proposition. See also, II.9, 93b 23: “ὅτι καὶ τῶν τί ἐστὶ τὰ μὲν ἄμεσα καὶ ἀρχαί εἰσιν κτλ.” On the necessity of assuming the being of the subject see also *Post An* II.3, 90b 25-30. Cf. also *Meta* XIII.4, 1078b 16-30.

out to be a definition of the major extreme, placing in the process definition among the principles of science.¹

One consequence following from ranking definition among the principles is that the elements which go into forming a definition are likewise admitted to be principles. In effect, in almost every definition (in the strict sense) a specific difference is predicated of and qualifies a genus like a form of matter; hence, a definition may be decomposed into its definitory parts which are themselves simple and cannot be defined.² It is with this in mind, it would seem, that several commentators accept as principles of science the highest universals or the categories since these form the highest genera from which definitions can be constructed through analysing or dividing them with appropriate specific differences.³ Another related consequence is that the genus-subject (that is, the subject) of each science turns out to be a principle because it acts as the highest universal from which are deduced its essential properties.⁴ As a result, since demonstrations particular to one science must remain within the confines of the subject-matter circumscribed by its genus, there arises a distinction between proper and common principles.⁵ Demonstrations must always come from principles which are proper and appropriate to the subject-genus so that they can prove and reveal something essential to it.⁶ In fact, it is impossible for all deductions and demonstrations to have the same principles since principles not depending on the same

1 Observe that there are not three definitions serving as principles of demonstrations, namely, that of the middle term, that of the property, and that of the subject. The middle term must be a definition of either one of these.

2 Aristotle (*Meta VIII.3*, 1043b 25-32) recognizes that composite substance, whether perceptible or intelligible, can be defined and formulated, but its primary parts cannot since a definition predicates something of something such that one part is matter and the other, form. In the following sentences, he affirms that a definition is a sort of number for it is divisible into indivisible parts. See also Aristotle (*Post An*, p.293, n.9) who states that indefinables, i.e., indefinable terms or concepts, are elements of definition.

3 See, among others, Patzig (*Theory of Syllogism*, pp.5-6) who claims that the categories are included as first principles and are known by $\nu \theta \hat{\cup} \varsigma$.

4 According to Hintikka ("On Ingredients of Science," p.62), the widest term, the first or primitive major term is the genus giving each science its particular subject-matter. He says that this genus plays the role of the widest term in the ascending sequence of immediate syllogistic premisses and that the topmost premiss is "a kind of definition of its subject term. He adds that these "generic premisses," as he calls them, do not contribute much to specifying all the different elements that would go into the full (essential) definition of the genus and claims that they are one of the basic assumptions of science, namely, the definition of immediate terms (indicated at *PostAn* 94a 9-10).

5 *Post An* I.32, 88b 29.

6 This is reiterated in many places. See, e.g., *Post An* I.6, 22-25; I.9, 75b 36-76a 2, 76a 5, 14-16, and 26-30.

subject-matter could not have the same primitives from which would start the various demonstrations.¹ So principles must be proper to the subject-genus of a given science. Nevertheless, there are some principles that can transcend the limits defined by the subject-matter because they are common to all or several sciences, such as the principle of contradiction or the mathematical principle that an equal remainder results when equal quantities are taken away from equal quantities.² The application of these common principles or axioms is therefore tailored to suit the subject-genus and they are used only insofar as they help in demonstrations proper to the subject; but, this does not prevent its use in other sciences.³ This last differentiation between proper and common principles does not seem to indicate a specific kind of principle so much as to merely qualify them: principles such as the subject-genus and its definition as well as definitions of properties would be qualified as proper or appropriate to a given science, whereas those like the principle of contradiction would be qualified as common because they are not restricted to the subject-matter of a given science but applicable to many or all subject-matters. This may explain why the proper are said to be “those about which” because they are directly concerned with the subject-genus giving a science its particular object of study whereas the common are said to be “those from which.”

One final candidate for the role of principle of science is the hypothesis which is a kind of thesis or posit assuming that something either is or is not. It is opposed to the other kind of thesis, the definitional term, which is a syllogistic term consisting in a definition of

1 *Post An* I.28, 87a 37-39. See *Post An* I.32 which shows that it is impossible for all deductions to have the same principles.

2 *Post An* I.11, 77a 26-35.

3 *Post An* I.10, 76a 37-b 2 and I.32, 88b 1. Aristotle (*Post An* I.2, 72a 15-24) defines the axiom (ἀξίωμα) as an immediate syllogistic principle (ἀμέσου ἀρχῆς συλλογιστικῆς) that cannot be demonstrated. It differs from another immediate syllogistic principle called the thesis (θέσις) in that it is not necessary to have a thesis to learn through demonstration whereas an axiom is always necessary to do so. This appears to be the difference between proper and common principles. Cf. Granger (*Théorie de la science*, pp.76-77): “Seuls les principes propres à une science peuvent jouer, pour cette science, leur rôle de points de départ. Pour les principes communs, leur fonction est autre; ils jouent le rôle d’instruments méta-théoriques [et] fonctionnent comme outils méta-théoriques de la science.” The view that the common axioms are general principles or rules guiding any demonstration whatever is prevalent. Kahn (“The Role of nous,” p.391), for instance, calls them “meta-theoretical or extra-systematic axioms,” and though he thinks that the inductive account of II.19 is intended to cover the proper principles, he leaves open the possibility that these may be intended as well. Romanus (*Post An*, cols.1-2) thinks that II.19 is intended to show how only these common axioms are acquired, which are present “*secundum virtutem*” in each science.

whatness (what a thing is).¹ In reality, both types of theses seem to be concerned with the subject-genus of a science, for it was seen that demonstrations of their essential properties must assume both what the subject is, the definitional term, and that it is, the hypothesis. Therefore, saying that the genus-subject is a principle of science would turn out to include both the hypothesis and the definitional term.² Since the hypothesis posits that something is or is not, that is, makes a claim concerning existence or being, it is usually understood to be propositional in form. Also, since the definition of the genus-subject must be of an essence assumed to exist (otherwise the definition would just be nominal), it must always be expressed in a proposition making the claim of being, a hypothesis.³ Consequently, it appears that all scientific principles must be propositions and not just terms, for definitional terms must be expressed in propositional form.⁴ Inasmuch as demonstrative science requires that the terms be joined to form the premisses of a demonstration, this conclusion has merit. Nevertheless, since some terms are definitional terms necessitating indefinable

1 At *Post An* L2, 72a 15-24, Aristotle defines the thesis as an immediate syllogistic principle that cannot be demonstrated (as is the case with the axiom) and divides it into the hypothesis (ὑπόθεσις) and the definitional term (ὀρισμός), an expression we use to signify this kind of term and to distinguish it from terms which do not express a definition of whatness. See also L10, 76b 27 where there is mention of a hypothesis relative to the pupil and 76b 35-77a 2 where hypothesis and (definitional) term are further differentiated from each other.

2 According to *Comm Collegii Conimbri* (c.VIII, comment. (p.615)), the genus is a principle that includes the incomplex subject for which one must suppose "*ea posse in rerum natura existere*" as well as complex principles formed "*per copulam verbalem*" and for which one must suppose "*esse vera*." According to Le Blond (*Logique et méthode*, pp.113-15) the genus-subject is a principle of science and the ultimate hypothesis of science. Concerning the hypothesis he (p.115, ft.1) notes: "Ce sont là les définitions au sens propre, qui ne sont pas purement nominales, mais consistent dans la connaissance et l'expression d'une essence réelle: pour Aristote, en dernière analyse, la connaissance de l'essence ne se conçoit pas séparée de l'affirmation de l'existence." Cf. Kahn ("The Role of *nous*," pp.385-97).

3 This view finds some support in *Post An* L10, 76b 35-39: "Οἱ μὲν οὖν ὅροι οὐκ εἰσὶν ὑποθέσεις (οὐδὲ γὰρ εἶναι ἢ μὴ λέγονται), ἀλλ' ἐν ταῖς προτάσεσιν αἱ ὑποθέσεις. Τοὺς δ' ὅρους μόνον ξυνίεσθαι δεῖ· τοῦτο δ' οὐχ ὑπόθεσις κτλ." It seems possible to consider the nominal definition of the property as a definitional term, too; however, the premiss in which this term would be found could not be a hypothesis since the claim of a property's existence is only made in the conclusion.

4 S. Mansion (*Le Jugement*, p.137, ft.18): "Il n'y a pas lieu par conséquent de diviser, avec certains auteurs, les principes aristotéliciens en deux classes, les propositions et les termes, les principes 'complexes' et les principes 'incomplexes'. En théorie toute ἀρχή est un jugement et non une simple notion." On pp.206-12 Mansion explains how the proper principle is the ὀρισμός τοῦ τί ἐστίν, a definition that is not merely nominal but essential because it implies the existence of something real. Therefore, according to her, the principle of science is the definitional term and the hypothesis together in "une proposition dans laquelle la définition-terme est le prédicat et le défini, le sujet" (p.208) and "cette prémisses n'est autre que la définition réelle" (p.210). Ross (*Pr and Post An*, pp.675-76), too, maintains that all principles are propositions and premisses from which science starts.

elements to form definitions, the activity of defining these terms is a necessary condition to the formation of scientific premisses.

In conclusion, there are many principles of science, some of which seem to be identical but viewed from different perspectives and considered according to the different functions they could perform within a demonstration.¹ One manner of classifying them would be into propositional and conceptual principles. The premisses of demonstration are obviously propositional and could be called the proximate principles of demonstration, for once they are laid down, it would be a matter of making the inference through the middle term to draw the conclusion. The terms are conceptual and could be called remote principles of demonstration because they first have to be united to form premisses and are thus one step removed from demonstration. Another way of saying this would be to call premisses the principles of demonstrative science of the conclusion, and the (knowledge of) terms, the principles of indemonstrable science of the premisses of the demonstration. This, however, is more properly restricted to the immediate premiss which is absolutely indemonstrable and can only be formed through the terms themselves. The hypothesis, in which the definitional term of the subject is predicated of the subject of a science, seems to be one kind of immediate premiss since a definition is always immediately predicable of the defined. It is also primitive since the subject of a science must first be posited before there can be a demonstration of any one of its per se properties. The definitional term of the subject can also be viewed as a subject-genus, the most universal concept under which all the per se properties demonstrated of it would be contained. There is also the nominal definition of the property and the indefinable elements which go into the definition of the subject. These, too, are conceptual, and the indefinable elements could be understood as the matter from which comes the definition of the subject-genus. Finally, the middle term is conceptual and is usually a definition of the major. However, inasmuch as the syllogistic inference from antecedent to conclusion depends on the middle term functioning as a middle or intermediary joining the extremes, it fulfills the role of axiom. In effect, if an axiom is stated to be an indemonstrable immediate syllogistic principle that one must necessarily have to demonstrate, then the middle term in its function of intermediary is that which is present in every demonstration and that without which there would be no

¹ It is generally affirmed that the principles of science are, in fact, many. See, e.g., Apostle (*Post Art.* p.292, n.3 and p.293, n.9) who admits axioms, hypotheses, immediate definitions, and possibly indefinables used to form definitions.

demonstration since the two premisses would remain two separate propositions.¹

As a consequence, *nous*, signifying the habit of the principles of science, would refer to the intellectual faculty and the activity by which all the principles would be acquired (the habit being the state of possessing them), and II.19 would be the account for the acquisition of them all. The knowledge of terms and premisses would be acquired through an operation *meta nou* of the intellect while the demonstrative science of the conclusion would be had through an operation *meta logou* of the intellect. The activity *meta nou* would especially be required in acquiring immediate premisses which are absolutely indemonstrable, in particular, the hypothesis, and the definitional term of the subject contained in the hypothesis. Together they form the foundation of the demonstrations in a science. Both of these can only be known by the intellect's noetic activity because they consist in a knowledge of concept-terms, which Aristotle says is the proper activity of *nous*, and which we understand as meaning the intellect acting noetically. Aristotle clearly maintains that *nous*, the intellect acting noetically, does indeed have two objects, or is double in nature, in two other passages. In the introductory chapter of *On Interpretation*² he remarks that the types of spoken sounds follow the kinds of thoughts and the latter are divided into those which are neither true nor false and those which are necessarily true or false. The difference between the two is that the first kind of thought is without synthesis or separation whereas the second involves a combination or division. A similar idea is stated in *On the Soul* when

1 As we understand it, the common axiom is said to be a true proposition that is not explicitly stated as one of the premisses of the demonstration but is instead an implicitly known rule guiding the activity of demonstrating the inherence of a *per se* property in its subject. The principle of contradiction, e.g., would not be laid down as a premiss in the demonstration proving that man is mortal. Rather, when the terms of the premisses are joined together and then the extremes joined in the conclusion through the middle, one assumes that it is not permitted to simultaneously affirm and deny that mortal belongs to man. Thus, the principle of contradiction is being used in the demonstration because in predicating terms one is acting according to it and implicitly assuming that it is valid and true to think in such a manner. It is in the act of making a rational inference through a middle term that the axiom can be present in all demonstrations. The axiom is, therefore, necessarily present in demonstration because it is really an expression of some property inherent in the activity of (syllogistic) thinking itself, no matter what the matter being thought about. Even axioms that are common only to several sciences are actually concerned with logical structures of thinking, and not with the subject-matter, e.g., the axioms common to all mathematical sciences, such as, *the whole is greater than its parts and equal to the sum of its parts*, express principles regulating all thinking about the category or genus of quantity regardless of the species of quantity, discrete or continuous, and whether it is applied to non-sensible or sensible quantities, like numbers or musical notes.

216a 10-11: "ἔστι δ', ὡς περ ἐν τῇ ψυχῇ ὅτε μὲν νόημα ἄνευ τοῦ ἀληθεύειν ἢ ψεύδεσθαι, ὅτε δὲ ἤδη ᾧ ἀνάγκη τούτων ὑπάρχειν θάτερον, οὕτω καὶ ἐν τῇ φωνῇ."

Aristotle affirms that there is an indivisible thought about which there can be no falsehood and a synthetic thought unified into a quasi-unity which does express truth or falsity.¹ The first noetic object in both passages is a concept expressing one definite signification and the second, an enunciation joining two terms by which truth or falsity can be expressed.² In other words, the intellect *meta nou*, *nous*-intellect as itself and performing its proper activity of knowing terms, would be in charge of the first two operations of the intellect, those of defining concept-terms and enunciating propositions, whereas the intellect *meta logou*, *nous*-intellect operating as *dianoia* and moving from one term to another, would be in charge of the third operation of demonstrating and syllogizing in general. This could illuminate Aristotle's remark concerning a noetic perception of the middle term, which is, after all, the knowledge of a term. It would seem that the intellect *meta nou* perceives the middle term, which then makes the syllogism or demonstration possible by grounding or anchoring the intellect's activity *meta logou*, the activity of reason, consisting in moving from the antecedent to the conclusion with necessity. Thus, *nous*, the intellect acting noetically, would necessarily be presupposed even in the third operation of the intellect. As well, there would be a perception of a unity in all three acts: conceptual or predicative, when *nous*-intellect performs its act of knowing terms, and syllogistic, when it performs its rational act of inferring.³ If that is so, Aristotelian logic and science could be held to be fundamentally noetic; and, since every habit is formed by repeating an activity of which a

1 III.6, 430a 27-29: "Ἡ μὲν οὖν τῶν ἀδιαίρετων νόησις ἐν τούτοις, περὶ ἧ οὐκ ἔστι τὸ ψεῦδος· ἐν οἷς δὲ καὶ τὸ ἀληθές, σύνθεσις τις ἤδη νοημάτων ὡσπερ ἐν ὄντων." Cf. *Top* VIII.14, 164b 3-5.

2 This is Mignucci's ("Vérité et pensée," pp.405-22) understanding. He compares the two texts cited in the light of *Meta* IX.10, the chapter covering being as truth. According to him, the truth related to concept-terms is not the same as the truth related to propositions, for the former's truth consists in forming a concept-term having a certain signification. If a concept-term is not formed and does not have a signification, then there simply is no concept-term and one cannot conclude that one has arrived at something not conforming to reality, hence, false. Thus, an indivisible thought, a concept-term, has no falsehood and can be said to be true insofar as it just has a certain signification, even if there is no referent in reality corresponding to what is signified by the concept (e.g., goat-stag). However, insofar as it is simple and not joined to another concept-term in an enunciation, it can be said to be neither true nor false in opposition to the complex of predication which is necessarily either true or false. Now, could the parallel be pushed one step further: thoughts without combination neither true or false : combined thoughts necessarily true or false :: indivisible thought no falsehood : synthetic quasi-unity thought true or false :: being of subject of science truer : demonstrated being of property in subject true? These texts and their implications will be studied further in chapter 7.

3 The first two types of unity are admitted by Aristotle in *DA* III.6, 430a 26- b 5. The third unity is suggested by the etymology and meaning of the word *syllogism*: συλλογίζω and συλλέγω signify, in fact, assembling or unifying (by thought) a plurality.

cognitive capacity is capable, it now remains to determine in more detail how the noetic habit is acquired and, especially, whether the operation of the intellect *meta nou* can be understood as being an intuitive operation.

CHAPTER III

SENSE-PERCEPTION

Our examination of *nous*, thus far, reveals that the intellect acquires the principles of science by operating noetically. This operation can be seen to have, so far, two characteristics: it consists in a knowledge of concept-terms; and, it is not demonstrative, not syllogistic, in short, not discursive. The habit of *nous*, which develops as a result of this noetic activity, is held by Aristotle to come from sense, in conformity with the requirement of pre-existing cognition. Thus, the non-discursive intellectual knowledge of the principles of science is to be acquired from the non-discursive cognition of sense. It is imperative, consequently, that we first gain a clear conception of the senses and the cognition that can be gained through them: the line to be drawn between sense cognition and intellectual knowledge depends on it, as does the demonstration of *nous* signifying an intellectual habit (as opposed to a sense habit) of the principles of science. The goal of the next two chapters, then, is to determine the nature of the cognitive object acquired in sense-perception, particularly its highest, most complex and perfected form.

3.1 Sense: An Innate Critical Capacity

Sense-perception is said to be a “*critical capacity*.”¹ As T. De Koninck observes, the

¹ Here is a list of several translations of “*δύναμιν σύμφυτον κριτικήν [...] αἴσθησιν*” (99b35): Mure- congenital discriminative capacity, sense-perception; Barnes- connate discriminating capacity, perception; Apostle- innate discriminating power, power of sensation; Warrington- innate faculty of discernment, perception; Taylor- connate judicial power, sense; Tejera- congenital power of responding selectively, sensing; St-Hilaire- cette puissance innée de juger, sensibilité; Tricot- une puissance innée de discrimination, perception sensible; Didot- *connatam vim iudicandi, sensum*; Soto- *vim erim quandam insitam discernendi*; Mauro- *vim congenitam iudicativam, sensum*; Iacobi- *potentiam naturalem*

etymology of the term *kritikê*, made evident by the fact that the first uses of the word in modern languages are related to medicine, possesses a concrete and physiological reference before referring to the senses or the mind. *Kritikê* signifies separation, distinction, decision, judgment, or choice, which applied to the medical field refers to the determinate point at which life is separated from death, or the moment at which occurs the turn for the better or for the worse in the course of an illness.¹ With respect to the term's cognitive significations, Hicks acknowledges that the idea of discrimination, discernment, or judgment, expressed by the term *kritikê* is common to both sense and intellect, and, as a consequence, "it is not always easy to determine to which faculty a given judgment should be referred."² Although it may be held that "our soul distinguishes and recognizes things" through both capacities of sense and intellect, the two modes of distinguishing need only be similar without necessarily being identical.³ Barnes clarifies that although *krinein* may certainly mean either to judge or to discriminate, it must be realized that the capacity of judging presupposes some conceptual mastery while that of discriminating does not; hence, discrimination would be the form of *kritikê* appropriate to sense.⁴ The notion that the discrimination of sense is not an intellectual judgment incorporating concepts--thereby distinguishing the *kritikê* of sense from that of intellect--is sometimes expressed with

judicativam; Ioannis- potentiam connaturalem judicativam; Gerardi- virtus per naturam qua comprehendit res, sensibilis; and, Averroes- congenitam potentiam judicativam.

1 *Dignité humaine*, pp.57-58. To show the parallel between the physiological and cognitive meanings of the word, he writes: "Pour peu que le discernement qu'effectuent nos reins, par exemple, devienne déficient, notre organisme s'empoisonne et nous en mourons. L'analogie est claire : le jugement critique est tout aussi essentiel à la vie de l'esprit, à la vie dans ce qu'elle a de plus proprement humain, que l'est pour l'organisme le rejet de ce qui est toxique."

2 *De Anima*, p.448. On p.454, he states that, "This power of judging is obviously the common element in sense and thought. Whether we perceive or whether we think, we of necessity discriminate: we judge the thing known to be different from all other things and to be the same with itself." Hicks (p.445) makes the interesting observation that in *DA* Bk.II sense is described more as alteration, passion, and energy, but in Bk.III its discriminating and intellectual side is brought out, emphasizing its relationship to thought and knowledge, from which he concludes that "The same process may be viewed in one aspect as $\pi \acute{\alpha} \theta \omicron \varsigma$, in another as $\kappa \rho \acute{\iota} \sigma \iota \varsigma$."

3 So Brentano (*Psychology*, p.224). In Aristotle, see *DA* III.3, 427a 20-22 where he remarks that $\nu \omicron \epsilon \hat{\iota} \nu$ and $\varphi \rho \omicron \nu \epsilon \hat{\iota} \nu$ are like sensing because the soul $\kappa \rho \acute{\iota} \nu \epsilon \iota$ in both and knows beings; and, *DA* III.9, 432a 15-16 where it is stated that the soul is characterized by two capacities, one of which is $\kappa \rho \iota \tau \iota \kappa \acute{\eta}$ which is a function of both thought and sense.

4 *Post An.*, pp.262-63. D. Frede ("The Cognitive Role," p.283) similarly maintains that $\kappa \rho \iota \nu \epsilon \hat{\iota} \nu$ cannot mean to judge in the sense of explicit predication; rather, it signifies a discernment or an "implicit recognition" (p.287, ft.28). Cf. De Corte (*La Doctrina*, p.88, ft.3) who refers the reader to *DA* III.3, 428a 3, " $\omicron \upsilon \kappa \rho \iota \nu \epsilon \hat{\iota} \nu$ en tant qu'opération directe et intuitive est opposé à l'opération compositive ($\acute{\alpha} \lambda \eta \theta \epsilon \upsilon \epsilon \hat{\iota} \nu \ \eta \ \psi \epsilon \upsilon \delta \acute{\epsilon} \sigma \theta \alpha \iota$) du jugement," an operation that, according to him, is common to both sense and intellect, unlike that of predicational judgment which belongs only to intellect.

reference to the cognition provided by sense-perception, such as saying that it can provide knowledge of particulars but not of universal causes, or that it can know a fact but not the reason of the fact. Touch, for example, can know that this fire here is hot but it cannot say why it is so or what the cause of this sensible property is.¹ However, the discrimination of the powers of sense perhaps simply means that “the sense-organs are *completely passive and highly selective*. Nature has so constructed sense-organs that they passively take in the appropriate forms when acted upon by the sensible qualities of objects in the environment.” Thus the organs of touch are so constituted that they fail to detect - and they consequently automatically eliminate - such things as colours, sounds and odours as means of discriminating objects.”² Sense discrimination would thus appear as a screening or filtering process quite mechanical in nature. The fact that the tactile faculty is limited in its range of perception to receive only certain sensible qualities means that it can never know other sensible qualities; therefore, it is a form of separating, discriminating, or selecting something from the surroundings, even if it is achieved in a rather negative fashion. That is, because it cannot perceive the visible or the audible object, it does not consequently “select” them as knowable objects. In this manner, the selective nature of the sense powers gives them the quality of being discriminative or *critical* without implying an intellectual form of judgment, discernment, decision, or choice.

The “discrimination of many differences”³ appropriate to sense does not seem to be limited to the perception of sensible qualities, or to these as such. Sense is also claimed to be capable of discriminating between that which is useful and harmful to an animal, such as helping it in selecting that which may serve as food and fleeing that which is destructive of it.⁴ If the purpose of the vegetative capacities of a living being is to maintain it in being or existence—both as an individual and as a species—through the capacities of nutrition,

1 Aquinas, *In Meta Comm*, I, 11, n.30. Cf. Alexander (*In Meta Comm*, p.6,9-12): “ὅτι δὲ καὶ ἡ τῆς αἰτίας γνῶσις ἐπιστήμη τέ ἐστὶ καὶ σοφία, καὶ ἀπὸ τῶν αἰσθήσεων ἐωαργῶς παρέστησεν, ἅς καίτοι τῶν καθ’ ἕκαστα γνωστικωτέρας οὔσας οὐ λέγομεν σοφίας, ὅτι μὴ τῶν αἰτίων εἰσὶ γνωστικά.”

2 Bynum (“A New Look,” p.103).

3 Eustratius (*Post An Comm*, p.262,22): “ἥτις κριτικὴ ἐστὶ πλείστων ὄσων διαφορῶν.”

4 SS I, 436b 19-21. See also Soto (*de Demonstratione Comm*, p.493): “*qua discernunt obiecta quibus nutriuntur. Cum enim omne animal alimento aliquo nutriatur, datus est illi sensus quo nutrimentum percipiat.*” And Averroes (*De Demonstratione Expos*, p.562): “*per quam distinguit utile ab nocivo.*”

growth, and reproduction, then the primary purpose of the sense powers would seem to serve this purpose of maintaining life but in a different way or on another level. In effect, sense perception is the means by which an animal can make cognitive contact with sensible, corporeal reality external to its body, thereby establishing a cognitive relationship with its environment. The power of sense would be the means by which the animal could adjust and adapt to its surroundings, especially with respect to directing its local motion through it (most animals being endowed with the ability to move). It would also inform the animal of its subjective state of being because it is the means by which it knows whether or not its body is in a homeostatic state and the affect or influence of the surroundings on this state of physiological equilibrium. The cognition provided by the senses would thus be relative to the animal itself, and its pragmatic and practical nature shows that sense discrimination remains close to the physiological meaning of *kritikê*, for it is useful in maintaining the life of the organism by enabling the animal to search for food, avoid whatever may harm it, and make crucial distinctions (relative to the animal) in its environment, all of which help it survive in its setting.¹ Finally, being essential to all animals, sense is therefore said to be *sumphutos* or innate or naturally present in an animal.² This means that the power of sense, being an innate active capacity, is always ready to act, and is actualized as soon as the proper sensible object presents itself and makes contact with it. As soon as one opens one's eyes, for example, the power of sight is instantaneously activated by its proper object colour, provided that the necessary conditions for seeing are fulfilled.³ Another sign of the innateness of sense is that among different animals possessing the same sense power, there can be found varying degrees of selectivity in the power: dogs have a much better sense of

1 *DA* III.12, 434a 30-b 9. Care must be taken to avoid interpreting the relative nature of sense cognition in the sense of subjective relativism, i.e., things are as they appear to each individual cognitive subject. Aristotle (see *Meta* IV.5, 1010b 2-26 and XI.6, 1062b 34-63a 10) distinguishes sensation from appearance saying that the former is not entirely relative. As an example, sweetness is always sensed as sweetness, though a change in the sweet thing or an injury to the organ of taste may make honey or that to which the sweetness is attributed sweet at one time and not so at another. Also, one is to judge with the appropriate sense, e.g., sight is the authoritative sense to judge colour and not some other power like taste or hearing.

2 Bonitz (*Index*, p.720) defines *σὺμφυτος* as "*insitus a natura, opp* ἐπακτός, ἐπίκτητος, ὕστερογενής." Hicks (*De Anima*, p.357) remarks that sense is a *δύναμις συγγενής* that "comes neither by habit nor by instruction."

3 *DA* II.5, 417b 17-26. *SI* I, 454a1-6 states that an animal exercising sense-perception is awake and anything that is awake perceives an external or internal movement, i.e., something in the environment or in its own body.

smell than man, and man has a more refined tactile sense than all other animals.¹ One could equally differentiate between the degrees of discrimination involved among the diverse sense powers found in one sentient being.² All these differences not only manifest how sense incorporates a diversity in the kinds of sensible qualities it can receive and the extent to which it can do so, but also that the discriminative character of sense is innate since these differences are given according to the species and essence of each animal.

3.2 Sensible Objects

What kinds of things does sense discriminate or select? If a cognitive subject's sense powers (in potency) are passive in their selection, it is then capable of sensing only those things which can activate any one of its powers. Generally speaking, sense can only know that which is sensible, and one can thus say that any sensible quality of a cognizable subject is that which activates, or can be discriminated by, a sense power. Most of these sensible qualities are familiar to us and are commonly divided according to the five external senses of sight, hearing, smell, taste, and touch: sight sees colours, hearing hears sounds, touch feels tangible qualities, and so on.³ The five external senses taken together are distinguishable from the internal senses whose operations must be activated by sensible objects resulting from sense-impressions already present in the cognitive subject (having been previously acquired in actual acts of sensation performed by the external senses), such as, memories, images or phantasms of imagination, and dreams. There is, however, another way of determining the kinds of sensible objects by defining them relative to the external senses according to whether they are perceptible to them or not. According to this method of analysis, an object which is in itself perceptible to any external sense power is

1 Aristotle (*DA* II.9, 421a 17-25) even claims that the reason man is the most intelligent of all animals is precisely to be found in his possessing a power of touch excelling all other animals in its discriminative capacity.

2 Siwek (*De Anima*, p.294) affirms that though sense in general is a "*facultas 'critica' ('iudicat')*" [...] *Quare vox κριτική tartum secundum analogiam quandam sensibus propriis et sensui communi applicatur*" because of a difference in discrimination.

3 Although the common way of dividing the sensibles according to the five external senses will be referred to throughout the text, it is to be noted that these are more exactly collective terms signifying several different related powers. Sight, e.g., really has at least two different objects, visible colour and light/shade, for which there are two different organs or instruments, cones and rods, perceptive of each separately. If, as Aristotle (*DA* II.4, 415a 14-22) says, a capacity is known through its activity and this through its object, then sight would have to signify both these collectively, for there are really two distinct, though related, powers corresponding to these objects.

said to be sensible *per se* (*kath' auto*) while one which is not itself perceptible to an external sense but nonetheless accompanies or is a concomitant of a *per se* sensible object is said to be sensible *per accidens* (*kata sumbebêkos*).¹ One may be tempted to conclude from this that any accident that is a sensible quality of a cognizable subject would therefore be a *per se* sensible object whereas its substance would be a *per accidens* sensible object; however, this quick response overlooks some important distinctions that need to be made.

A *per se* sensible object consists in any one of those which are proper or special to only one external sense, for example, the visible is proper only to sight, the audible to hearing, and so on. There is a relationship of reciprocal exclusion between object and power, that is, the sense power is such that it can only perceive this object and the object is such that it can only be sensed by this power--this information can only come in here and it is the only information that can come in here. This is due to the nature and structure (or form) of the power, which is consequently defined by the sensible object exclusive to it.² As a result, the power never makes an error in perceiving its object, unless there is a defect in the organ or instrument, such as occurs with people who are colour-blind. This is due not to the power of sight itself, for these people can see and discern colours, but to a physiological defect in the eyes which malfunction in their reception of certain specific colours.

A *per accidens* sensible object signifies the substance accompanying the sensible quality perceived *per se* or essentially, for example, Diaries, the man, is accidentally seen through seeing the white colour belonging to him. Saying that something is accidentally sensible really means that it is not at all sensible; hence, it is completely imperceptible to the external senses which can only be said to perceive the *per accidens* sensible object insofar as it accompanies a *per se* sensible object.³ Hicks⁴ notices that *sumbebêkos* bears a different meaning in this context since *sumbebêkos* usually signifies a quality or attribute that is said to be an accident of a substance, as white is said to be an accident of the individual man

1 *DA* II.6, *in toto* covers the topic of the sensible objects.

2 Sorabji ("Intentionality and Physiological Processes," p.197): "the reason why colour is said to be essential to sight is that sight is *defined* as the perception of light, shade, and colour."

3 Siwek (*De Anima*, p.293) explains it thus: The individual man is seen "*in quantum est quid 'albi'. Non percipitur igitur in sua propria forma (substantiali) sed in forma, quae huic formae associatur tanquam accidens (color).*"

4 *De Anima*, p.360. This also applies when accident and substance are taken universally, i.e., whiteness is said to be an accident of the species man.

Diareis, a substance. With respect to sensation, however, Hicks thinks that *sumbebêkos* means *sumbainein* (to go with or accompany something) and is used to denote the thing or substance which “goes with or accompanies” its attribute or sensible quality essentially perceived: Diareis the man goes with the whiteness seen. Perhaps the term *sumbebêkos* expresses the same core idea in both cases, namely, to go with or accompany something; but, that which is taken to be the primary subject or the referent to which another thing belongs concomitantly is different. Thus, in the usual and more proper sense, accident signifies an attribute accompanying a substance, the subject without which it cannot exist. But in the context of sensation, since sense powers perceive sensible qualities, then the sensible quality rather than the substance becomes the primary subject of reference to which all other things that may be sensed are referred as accidents accompanying it. Hence, Diareis the man (a substance) is an accident of, in the sense of accompanies, the white (a sensible quality and accident of the substance) that is essentially perceived in the act of seeing.

The fact that something which is non-sensible, namely, substance, is classified under the heading of sensible objects, even though it only be per accidens, seems at the very least to suggest that this object somehow passes through the external senses. If a sentence like, *I see Diareis and I hear him talking*, is to have any meaning and make any sense, it would seem that while the non-sensible substance Diareis is not at all sensed by any of the external senses, it would nonetheless have to pass through them so that it could then be perceived by another superior cognitive capacity, such as, imagination or intellect. Otherwise, where else could knowledge of substances come, if not from sense cognition? An explanation of the sort would seem to be required if one is to make any sense of the possibility of mistaking the substance to which belongs the white that is seen--the white seen is not Diareis but Socrates--because this error requires that the white and the substance be simultaneously perceived by two different capacities (as the external senses cannot perceive both of them). There has to be some unity in the cognitive subject's act of perceiving an essential sensible quality (white) together with an accidental sensible quality (the individual substance Diareis). This unity could be effected either by two capacities working in conjunction, the external senses sensing the per se sensible with another cognitive capacity perceiving the per accidens sensible, or by a superior capacity working on the cognition acquired through the external senses, whose activity only perceived that which it is capable of sensing but still let pass by other aspects of the cognizable subject which the superior capacity can perceive. Some explanation along these lines is needed in order to explain the

perception of *per se* and *per accidens* sensible (or sensible and non-sensible) objects found in numerically one cognizable subject. In short, it must be realized that the expression *sensible object* does not necessarily signify an individual substance or cognizable subject, but, rather, some aspect of one such subject with reference to whether or not it is perceptible to the external senses.

All the sensible objects are not yet exhausted. Besides substance and sensible qualities that are properly qualitative, there remains a class of sensible qualities taken from the quantitative aspect of the cognizable subject, namely, the common sensibles which include motion, rest, number, unity, figure, and magnitude. All of them being based on the genus of quantity, they may also be referred to as mathematical sensibles.¹ This sensible object is denominated "common" because it is perceptible to more than one external sense or to at least two of them, albeit to various degrees. The powers of sight and touch seem to be most receptive of and attentive to these sensibles.² The fact that these sensible qualities are common to a minimum of two external senses and not proper to any one means that they do not correspond to any one of these powers according to its structure or nature; as a result, there is room for error in the perception of them.³ They are also more subject to circumstances: as one approaches a patch of green that is seen from a distance, it will appear to become larger in size and its shape may alter and become more definite.⁴ At this point, however, there seems to be a problem with maintaining that the common sensibles

1 As each science is differentiated by the subject-genus it studies, quantity is that of the mathematical sciences; hence, the statement that quantity is a mathematical sensible. Magnitude, figure, and motion belong to the species of continuous quantity which is studied in geometry and its subordinate sciences while number and unity, which is the measure of number, fall under that of discrete quantity and are studied in arithmetic. As for rest, it is the privation of motion, and as a form of non-being, it does not seem to be in itself any form of quantity but may possess one relative to motion, i.e., rest is perceived as a lack of motion whose quantity can be known by measuring the time between two motions, one ending at rest and the other starting from it.

2 *SS* 4, 442b 3-14. In the case of man, sight seems to be particularly relied upon to provide knowledge not only of the common sensibles, but also of many various kinds of sensory information. See *SS* 1, 437a 6-9 and *Meta* I.1, 980a 25-27.

3 *SS* 4, 442b 3-14.

4 Aristotle (*DA* III.3, 428b 17-25) says that these sensibles are the source of most errors in perception. Interestingly enough, though man relies mostly on sight in his perception of the common sensibles, it is this same power that is most easily deceived by illusions of all sorts concerning them, the example of a straight stick seen to be bent when placed in water being an obvious manifestation of this. Also notice that the quantitative property of these sensibles makes them well-suited to the mode of perception aided by the use of measuring instruments, not to mention the fact that it may very well be due to their being the greatest source of perceptual error that arises in man the desire or need to use instruments in the first place.

are sensed by the external senses. If each of the external senses is said to have a relationship of reciprocal exclusion between power and object, then how could a sense power which is so structured that it can only perceive its proper object perceive any other object?

It would appear that the common sensibles could not be sensed at all by the external senses, which would imply that they could only be accidentally sensed by them and per se by some other power, as it was said regarding non-sensible substance. Now Aristotle does sometimes give the impression that the common sensibles are indeed per accidens sensible.¹ Rodier, for example, follows this lead and considers the common sensible to be simply another kind of per accidens sensible object.² Though the common sensible is always given and perceived along with a proper or special sensible object, it merely accompanies and follows from it, somewhat like the substance Diaphanes is said to accompany the white that is properly and essentially seen. According to Rodier, a sign of the correctness of this interpretation is to be found in the fact that there is a possibility for error in the judgment of a common sensible, which is possible in the case of the sensible per accidens but not in that of the sensible per se. Just as one could be mistaken that the white seen is Diaphanes, one could similarly be mistaken in going from the white seen to the size or shape of the surface it covers. The obstacle, though, with holding the common sensible to be sensible per accidens is that the common sensible becomes non-sensible, for that is the kind of object per accidens signifies. But being the corporeal aspect of a cognizable subject, quantity is truly sensible and not non-sensible like substance is. In one instance, Aristotle admits as much when he clearly states that the common sensibles are to be classed under the heading of the per se sensible object.³ Wheelwright adheres to this view claiming that the common sensible is essentially sensible because, being common to all the external senses, it is thus directly perceptible to them, albeit to no one in particular as are the proper

1 *DA* III.1, 425a 15-16: "ἀλλὰ μὴν οὐδὲ τῶν κοινῶν οἷόν τ' εἶναι αἰσθητήριόν τι ἴδιον, ὧν ἐκάστη αἰσθήσει αἰσθανόμεθα κατὰ συμβεβηκός, οἷον κινήσεως, κτλ."

2 *Traité de l'âme*, p.268: "Il y a analogie sur ce point entre le sensible commun et le sensible par accident, ou plutôt le sensible commun n'est, à proprement parler, qu'une sorte de sensible par accident."

3 *DA* II.6, 418a 7-11: "λέγεται δὲ τὸ αἰσθητὸν τριχῶς, ὧν δύο μὲν καθ' αὐτά φαμεν αἰσθάνεσθαι, τὸ δ' εἶν κατὰ συμβεβηκός· τῶν δὲ δύο τὸ μὲν ἴδιόν ἐστιν ἐκάστης αἰσθήσεως, τὸ δὲ κινόν πασῶν."

sensibles.¹ Calling these essentially sensible objects common is therefore intended to indicate that these sensible qualities are not proper to any one external sense, and not that they are not at all sensed by any of them. This may be shown through the following example. By sight, I see the colour blue, and by letting my sight follow the contour of the surface covered by the blue colour, I can also see the rectangular shape covered and formed by the blue surface; yet, since I could also sense the rectangular shape by running my hand along the contour of the surface, the common sensible is not essential to just sight or touch alone. On the other hand, the fact that this rectangular surface is a book or has the essence *bookness* can be neither seen nor felt at all. It appears from this analysis that the common sensible is both *per accidens* and *per se* sensible since it possesses qualities of both objects: like the *per se* sensible object, it is sensible to the external senses, but it is unlike it because it is not proper to one sense alone. This characteristic makes it similar to the sensible *per accidens* because it seems to merely accompany the *per se* sensible, yet it is unlike the accidentally sensible in being sensible rather than non-sensible.

If that is so, it appears that the meanings of *per se* and *per accidens* would have to be modified when dealing with the common sensible object.² When Aristotle states that the common sensibles are sensed by the external senses *per accidens*³, he clarifies this by affirming that all of the common sensibles are perceived by movement and the special or proper sensible objects which are essentially perceptible to their respective external senses. From this he concludes that there cannot be a special sense for any of the common sensibles. Instead, there is a common sense which can perceive them such that the common sensible is not a sensible object *per accidens*, that is, it is not a substance like Cleon's son which is completely imperceptible to the external senses.⁴ These affirmations are supported by the following argument: if there is a special sense with respect to the common sensibles, then the perception of them would be similar to the case of perceiving sweetness by sight.

1 Aristotle, pp. 133-34. It does not seem necessary to say that common refers to a sensible quality that is sensible to all the external senses, as Wheelwright claims, but merely that it is sensible to at least two. In fact, one can see and feel a magnitude, but can it be tasted or smelled? Common therefore signifies a sensible quality that is not proper to one sense and which can consequently be distinguished from those that are proper only to one.

2 Hicks (*De Anima*, p.364) does notice that *perception per accidens* and *common sensibles* may have extended meanings in *DA* III chs. 1-2 as compared to those given in II.6, although he does not seem to manifest clearly enough what the differences in meaning may be.

3 *DA* III.1, 425a 14-20.

4 *DA* III.1, 425a 20 and 28-29.

This latter occurs because we perceive both through specific external senses (sweetness by taste and visible subject of sweetness by sight) and we come to know or be aware of both simultaneously. If it is not like this, then our perception of them would be per accidens like the case of perceiving Cleon's son as white in which the white directly seen happens to be Cleon's son.¹ As far as we understand Aristotle's reasoning, sight can see sweetness because, though sweetness is not at all seen, it is nonetheless sensed by another external sense power, and the simultaneous activity of sight and taste on numerically one cognizable subject in some way permits the transfer, so to speak, of the proper object of taste to sight. Thus, it may be correctly said that sight only sees sweetness per accidens because sweetness is not at all seen. But this is not the same meaning of per accidens given in the case of sight seeing Cleon's son per accidens through seeing white since in this instance the substance, unlike sweetness which can be known by taste, is not at all sensed by any of the external senses. Aristotle is, therefore, apparently presenting two different cases of per accidens perception that are to be eliminated as explanations of the perception of common sensibles.² Consequently, when it is stated that the common sensible is perceived per accidens by the external senses through sensing its special object and motion, per accidens must have yet another meaning, a meaning which apparently makes reference to a common sense power. What could this meaning be?

Firstly, it must be seen that if the common sensible is to be perceived by motion and the per se sensible object, it is then somehow dependent on the per se sensible object and can consequently be sensed by the external senses. As such, it is truly a sensible object and not non-sensible like the per accidens sensible nature of substance. Secondly, although it is dependent on the per se sensible, it is not proper to any one of the external senses but common to at least two of them; therefore, it apparently cannot be sensed per accidens like sight sees sweetness.³ Thirdly, as it requires motion and the per se sensible to be sensed, and since all motion occurs in a mobile subject, then it may be maintained that the per se

¹ Aristotle provides this argument, which is admittedly difficult to comprehend, at 425a 20-27.

² The two cases of per accidens perception presented here would be: 1) one external sense perceives the per se sensible of another external sense through simultaneous activity of both senses on their respective objects (present together in one cognizable subject); and, 2) an external sense perceives the substance, not sensed by any external sense, accompanying its per se sensible object.

³ The exception to this would apparently be a case like magnitude which cannot be at all sensed by taste but for which taste could be said to sense per accidens because sight sees it as a common, though not proper, sensible object. But this presupposes that sight does not already sense magnitude in some per accidens way, which still must be determined.

sensible is the mobile subject of the motion such that the common sensible is really a quality or modality of the being of the per se sensible object when moving. Sight, for example, can not only see its proper object colour, but it can also see its motion (if the patch of colour happens to be moving) by continuously fixing its sight on the colour. If the patch of colour happens to make a sound as it moves, then hearing would not only hear its proper object sound, but it could also hear a change in frequency or volume as the sound nears or fades away, thus perceiving motion. In this manner, the motion of the patch of colour could now be sensed by two external senses whereas the proper objects of colour and sound would only be sensed by their respective powers. Another example would be the one given above about seeing the rectangular surface of a book's cover and feeling it as well. The magnitude and figure of the book's cover can be sensed by both of these external senses whereas the colour can only be seen and the texture can only be felt. These examples help to show how the common sensibles must always accompany the per se sensibles proper to an external sense, for they are qualities or modalities of them.¹ As a result, the external senses would always receive both their proper object and the common sensible object at the same time.² This simultaneity in perception, besides the point that the common sensible is not proper to any one external sense and does not correspond perfectly to its structure, may explain why the external senses often err in sensing them. It would appear that each external sense by itself is unable to properly separate the proper from the common sensible that always accompanies it and unable to correctly discriminate the common sensibles in themselves. It may be for these reasons that another power, which

¹ In the first example given here, it is the local motion of the per se sensible object that enables sight to see motion. In the second example, although it is the motion of the cognitive subject which enables it to see (or feel) the magnitude and figure, the perception of these latter qualities is still dependent on the proper sensible itself since the cognitive subject stops moving its eyes (or hand) across the surface once the limits of the colour (or edge) are perceived. Hicks (*De Anima*, pp.428-29) provides a summary of how the Greek commentators interpret the perception of motion and the common sensibles: they hold that we perceive motion through the movement which the sensible sets up in any one of the sense-organs. The problem with this, as Hicks remarks, is that motion no longer becomes a property of the external object but merely something within the percipient. Our explanation seems to fare better on this point because the common sensible, being a modality or quality of the per se sensible's being, accompanies and is dependent on it, a point noted by Hicks (p.433) who says that the common sensibles are fittingly called

ἀκο λου θο ὕ ν τ α because the special sensibles are always accompanied by one or more of them.

Observe that in the case of contraries, such as motion and rest, only one common sensible can be present with a per se sensible object and sensed at any given moment.

² Alexander (*DA cum Mantissa*, p.83,16-22) gives the following reason for the simultaneous perception of common and proper sensibles: since sensation perceives forms not as matter but as existing in matter, whenever we perceive the proper sensibles, we therefore also perceive simultaneously the common sensibles which form their subject under its material conditions.

Aristotle calls the common sense, is said to perceive the common sensibles.¹ Even though the common sensible is sensible and perceptible to the external senses along with the per se or proper sensible, the fact that another sense (and internal at that) is usually required to correctly perceive it may explain why the common sensible is said to be perceived per accidens by the external senses. However, since in the two cases of per accidens noted previously, the external sense does not sense or perceive at all the other object accompanying its proper sensible (sight does not at all see Diaphanous or sweetness) while it does sense the common sensible, albeit as a modality of its proper object (sight does see motion, magnitude, and figure through seeing colour), then it would perhaps be more accurate to say that the common sensible is sensible per incidens to the external senses because it is incidental to the per se sensible.² The distinction between per accidens and per incidens is of capital importance in differentiating between the common sensible, which is sensible to an external sense when it is sensing its proper object, and the two cases of accidentally sensible, during which time an external sense does not sense the accidental object when sensing its proper object. In other words, unlike the two cases of per accidens in which a given external sense accidentally perceives an object known through a capacity other than itself, the common sensible is incidentally perceived by the same sense power when perceiving its proper object. In this way, the relationship of reciprocal exclusion existing between object and power with regard to the external senses is still respected since the common sensible is merely one modality or way of being of the proper and essentially sensible itself. But being only incidentally perceptible, the perception of this sensible object by the external senses is often erroneous and would thus require the aid of another power, the common sense, to rectify the perception.

¹ Hicks (*De Anima*, p.427) explains that "the content of sensation by any special sense is a confused whole, out of which that special sense itself cannot separate and abstract τὸ κοινόν. To do so is the task of *sensus communis*." More will be said about the common sense, which is in fact an internal sense power, in the following chapter.

² Unlike many contemporary commentators and (English) translators who consider accidental and incidental to be synonymous, the difference between incidental and accidental may be proposed thus: incidental or per incidens connotes something that is not essential but necessarily happens to or accompanies another whereas accidental or per accidens connotes something happening to or accompanying another that is neither essential nor necessary.

3.3 The Act of Sensation

Aristotle¹ compares the act of sensation to the property of combustibility. Just as that which is combustible cannot set itself on fire but needs to make contact with an actual fire or some other source of ignition, similarly, the power of sense only becomes activated through the agency of a sensible subject making contact with the sense-organs. Before this event, the natural sense power possessed by animals from birth is in a potential state and is not actually sensing.² As long as a sensible subject continues making contact with the power, the latter remains activated and actualized. Once, however, the cognizable subject is no longer present and there is no longer any contact--it is no longer within the limits of the sentient being's perceptive range--, the actual sensation then stops due to a lack of an activating agent. This means that the act of sensation is always of a present sensible subject; that the sensible subject is external to the perceiver, hence, is not under its control or voluntary power; and, that the knowledge provided in the act of sensation is limited to the here and now, that is, to the moment when the sensible subject is present.³

Once a cognitive subject's sense power is activated by a sensible subject, the sensible object received from the latter sets up a movement in an organ of the former, and the sense power in potency is actualized. Aristotle attempts to describe and explain what occurs in sensation through concepts and expressions such as "mean," "receiving sensible forms without their matter," and "becoming like the object with respect to its sensible form."⁴ It is not always easy to discover what is intended by these formulas, but apparently there are three possible interpretations. According to one interpretation, the motion is strictly physiological, where "perception is simply the movement which occurs in the sense-

1 DA II.5, 417a 6-9.

2 DA II.5, 417b 17-19.

3 Throughout the present examination, the focus will be mainly on sense "*communiter loquentes*" (Albert, *In Post Ar Comm* II, tr. V, c.1 (pp.100-01)) signifying the soul or animate power which defines all animals and gives them the power, to varying degrees, to apprehend, discern, and know the present sensible object. Hence, the internal senses can fall under the present analysis of the act of sensation insofar as they are sense powers; but, insofar as they do not depend on an external sensible subject for their respective sensible objects, their acts will differ from external sensation in general. See Apostle (*Post Ar*, p.292, n.8): "The term [α ἴσθησις in II.19] is used generically. Specifically, the particular powers are meant, those of the proper sensibles, i.e., vision, the power to hear, and the rest. Not all these powers need be present in an animal."

4 See, e.g., DA II.12, 424a 17-24; and, III.2, 425b 23-25.

organs, not some psychic process in addition to the movement in the organs."¹ The discernment of sense is therefore claimed to lie simply in this capacity to change, for example, the power to discern temperature is simply the power of the sense organ to change in temperature and nothing more. Thus, since sense-perception is merely the change produced in the organ by the sensible object, it would be a mistake to think, "that in some vague way the effect on the sense-organs is identical with perception and therefore that the organ becoming, for example, hot can explain the perception of heat."² If sensation is merely reduced to a physiological activity, merely the change occurring in the organ of sense, then this last objection would appear to be valid. But is that all there is to the act of sensation? Another interpretation, contrary to the one just presented, denies any physiological change whatsoever and considers sensation to consist in "a becoming aware of some sensible quality in the environment."³ The idea of awareness in sensation, completely denied in the previous case, may be somewhat problematic because this is not really possible to the external senses alone--as will be shown in the next chapter--but only to the internal common sense (toward which all the external senses converge), which perceives the act of sensation performed by the external senses. If, however, awareness just signifies the fact of sensing, for example, the eye sees the red in the apple, then this problem can be avoided. This position seems to ignore that the power of sense is the form of a bodily organ and, as such, has a physiological component. The third position states that the act of sensation must somehow incorporate aspects coming from both of the previous contrary interpretations. Brentano, for example, admits that the hand becomes warm when touching something warm, and thus there is an actual physical and material alteration; but, sensation is not to be found in this change from cold to warm body. Though this alteration is included in the act of sensation, sensation occurs when the warm exists in

1 The position presented here is that of Slakey ("Sense-Perception," p.77).

2 Slakey ("Sense-Perception," p.85) objects to the above-mentioned formulas employed by Aristotle, judging that they do not explain perception.

3 Burnyeat ("Is an Aristotelian?," pp.21-22) maintains this thesis: "the organ's becoming like the object is not its literally and physiologically becoming hard or warm but a noticing or becoming aware of hardness or warmth. All these physical-seeming descriptions - the organ's becoming like the object, its being affected, acted on, or altered by sensible qualities, its taking on sensible form without the matter - all these are referring to what Aquinas calls a 'spiritual' change. [... Consequently,] no physiological change is needed for the eye or the organ of touch to become aware of the appropriate perceptual objects. The model says: the effect on the organ is the awareness, no more and no less."

the percipient “objectively, i.e., as cognized object within us.”¹ Lear² describes what happens during sensation thus: “It is just that for any *logos* which in a rose makes it such as to look red, that very *logos* is instantiated in the eye when the person sees the red rose.” But the sense organ’s “taking on a certain *logos*, or order” is only one part of the act of sensation, and he adds that there must also be included the notion of perceptual awareness. Finally, Sorabji differentiates between the two aspects involved in sensation by affirming: “Aristotle normally postulates only that we *receive* forms in our sense-organs, not that we *perceive* them there.”³ This suggests that the act of sensation is proper to the sense power alone and that the role of the organ is to receive the object without which the sense power cannot be actualized. To judge which of these lines of explanation of the act of sensation seems likely, an understanding is required of the relationship between a sense power and its bodily organ, or, in more general terms, between soul and body, since it is only a body possessed with a sensitive soul that can possess the power to sense. Without going into too long a digression on the relationship between body and soul, let us simply recall some of Aristotle’s thoughts on this subject.⁴

Aristotle’s analysis of the body-soul union is rooted in the concept of substance, which he claims can have three different significations: as matter, as form, and as a composite or synthesis of matter and form.⁵ He then says that matter signifies potentiality and form, actuality, and this, in two senses: as science and as contemplation (that is, as a possession of an active capacity and as an operation of the active capacity).⁶ Having made these distinctions, Aristotle then proposes that bodies, and especially natural ones, are considered to be substances. Now natural bodies can be divided into those which do not possess a

1 *Psychology*, pp.54-55. He explains: “It [the sentient body] *feels* something warm, i.e., it has a warmth objectively within itself; it *is* warm, i.e., it has warmth physically, materially within itself.”

2 *Desire to understand*, p.116.

3 “Intentionality and Physiological Processes,” p.213. Sorabji thinks that most of the expressions such as “receiving (perceptible) form (without matter)” or “being potentially such as the sensible is actually” refer primarily to the physiological change occurring in the sense organ, and not to the sense power.

4 In reading what follows, the reader is reminded to first look at our remarks, made in chapter 1, concerning the meaning given to terms like ‘soul’ and ‘psychological’.

5 The following is a summary paraphrase of *DA II*, chs. 1-2 where Aristotle presents his ideas on the body-soul union. We are well aware that the key metaphysical concepts expressed in the relation of matter-form, or potentiality-actuality, are difficult to grasp in themselves, such that one’s understanding (or misunderstanding) of these will necessarily orient one’s explanation of the soul-body unity. Thus, the view presented here is our own, but will nonetheless seek some justification by providing some references taken from the Aristotelian corpus where we think the point being made is expressed.

6 Recall the distinctions made in chapter 1 between active and passive capacities.

soul and those which do, that is, the inanimate and animate, or the inorganic and organic. Then he remarks that the natural body having life is a substance understood as a composite because it is a natural body of a certain kind, namely, one having life. From the given that the animate body is one of a certain kind, he announces that the body cannot be the soul and that the body is substrate and matter since the soul is attributed to it, thus concluding that the soul must be a substance in the sense of form within the composite substance animate natural body. This means that the body as matter is potentiality, as it can only be a potentially animate body, or a natural body potentially having life within it, while soul, as form, is actuality. The form as actuality of an animate natural body is so in the first sense of actuality, that is, as possession of an active capacity, and not as the operation or activity of one; for, a natural body potentially having life can only be an actually living natural body in possession of a soul, the principle of life. The ensouled body thus possesses the capacity to live and perform vital functions, and the performance of any one of these vital functions would be its actuality as exercising the vital capacity. That is why Aristotle defines the soul as the first grade of actuality of a natural body potentially having life within it, and then later on, as that by which living beings perform their vital activities. These two definitions correspond respectively to the first and second meanings of substance as actuality.¹

In this analysis, it must be kept in mind from the outset that soul and body form one entity and signify a unity of being bearing, nonetheless, a duality of principles.² This means that the analysis starts with the ensouled body given as one substantial being which is then divided into its component principles, principles which cannot exist separately from each other in reality but which can be analyzed and studied separately.³ The natural body which

¹ To be more precise, the soul itself is not the second actuality, the activity of a capacity, but merely the principle, the *that by which*, of this activity performed by the composite individual animate being (see *DA* I.4, 408b 1-17). Cf., however, Aquinas (*In DA Comm*, II, l.5, n.281): "*quod cum omnis potentia dicatur ad actum proprium, potentia operativa dicitur ad actum qui est operatio. Potentiae autem animae sunt operativae, talis enim est potentia formae.*"

² Siwek (*De Anima*, p.250): "*Corpus et anima constituunt unam ens, unam naturam. Haec natura nec est pure physica (materialis) nec pure psychica, sed psycho-physica.*"

³ Hicks (*De Anima*, p.314): "The analysis began with concrete things (οὐ σίματα), which A. calls individuals (ἄτομα), implying that they cannot be further divided except in thought. We cannot be too often reminded that matter and form are not things, but "causes" or "principles" of things, distinguishable in thought or reasoning and in rational description (λογος), but not by sense." Lear (*Desire to understand*, p.97): "Form and matter are not two distinct ingredients which, when mixed, constitute a living organism. An organism is itself a unity which, in philosophical reflection, can be seen to have formal and material aspects. [...] Soul is not a special ingredient which breathes life into a lifeless body; it is a certain aspect of a living organism, and a living organism is a paradigm of a functioning unity. [...] the organism itself

is the seat of the animate principle is said to have life potentially in it. Now this is only possible for those bodies already possessing a soul, for if it does not possess a soul, the body in question could not have the potentiality to live. An inanimate body can never have the potentiality to live whereas an animate body as such, that is, as a body of the animate kind yet considered in itself only as body, is one that is in potency to the soul, hence, to life.¹ In other words, the definition of the natural body that qualifies itself as being animate is obtained by analyzing the unity which is given in the entity "animate natural body" and then abstracting the qualification of vitality from this body. Consequently, the analysis of composite substance into form and matter is just that, an analysis, a dividing of a substantial unity, which is then followed by the synthesis of form and matter putting together again into one what was already so before analysis. This is why Aristotle² remarks that the question of whether the body and soul are one or not can be entirely dismissed, something that would be unthinkable for a Cartesian who posits body as an actual material substance and mind as an actual immaterial substance both capable of existing separately prior to the actual composite substance of body-soul.

If one can speak of a body-soul "dualism," it must be seen in this unified way; however, a hierarchical distinction can be made. Inasmuch as the soul plays the role of the principle by which an animate being performs its various animate activities, the body can be said to be an *organon*, an instrument, in the service of the soul.³ The animate operation or function, performed through the soul as principle, defines and determines the bodily organ; and if the organ, or the organic body as a whole, is unable to do its appropriate vital activities, it is no

provides a locus of reality."

1 Hicks (*De Anima*, p.311): "If the living body, *quæ* body, is the substratum or matter, soul is the form." Irwin (in part II, in particular, chs. 11-12 of *First Principles*) develops rather well the different levels of matter and form, act and potency. In applying his meticulous distinctions to the body-soul unity, he writes (pp. 285-86): "It follows that only the body of an actual living organism is potentially alive; for if the organism does not exist, the right potentialities do not exist either. For similar reasons this organic body does not outlive the soul; for a dead body lacks the potentialities of the organic body, and so can no longer be the matter of a living organism. [...] The body that is the proximate matter of a living organism is not just a collection of chemical stuffs, not even a collection of compounds of them; and this body does not outlive the soul. The remote matter - the chemical stuffs and the lumps composed of them - survives the body. When Callias perishes into flesh and bone, these must be his remote matter; correspondingly, the whole remote body survives the perishing of the soul and proximate body."

2 *DA* II.1, 412b 5-9.

3 See *PA* I.5, 645b 15-20; *Prp* B8, B17, and, B23.

longer an animate being, except in name.¹ Thus, an animate being's essence is mostly identified with its soul², which is the origin and principle by which the composite animate being performs its activities. In other words, inasmuch as an animate being is composed of body and soul, it itself is said to perform its vital activities through its soul as the principle by which; but the soul, in turn, uses the body as an instrument. In this manner, the soul can truly be claimed to be something of an organic natural body, although saying the converse would more accurately reflect the hierarchical nature of the body-soul duality. In effect, if it can be said that the soul is in the body as in a subject, it is only because the body is in the soul as in the cause of its being alive.

Thus, the sense organ, or matter, and the sense power, or form, are one entity; and the act of sensation requires this synthetic unity, with the sense power acting as the principle by which the act of sensation becomes actualized. In this way, the act of sensation can also be said to be primarily an activity of the soul occurring by means of the body, which would still indicate an activity of the composite.³ The same can be said about the sense organ and its power.⁴ Of the three possible explanations made above, the third seems, therefore, the most likely insofar as it respects the dual nature of the power of sense. Continuing along this line of reasoning, then, the act of sensation itself can be said to consist of three stages: reception of a sensible object in an organ; transmission of an impulse set up in the organ by the sensible object; and, interpretation, by which is intended the ability of the sense power

1 See *DA* II.4, 416a 5: "εἰ χρὴ τὰ ὄργανα λέγειν ἕτερα καὶ ταῦτὰ τοῖς ἔργοις." *DA* II.1, 412b 10-23; *DC* II.3, 286a 8; and especially, *M* IV.12, 390a 10-13: "Ἄπαντα δ' ἐστὶν ὠρισμένα τῷ ἔργῳ· τὰ μὲν γὰρ δυνάμενα ποιεῖν τὸ αὐτῶν ἔργον ἀληθῶς ἐστὶν ἕκαστα, οἷον ὁ ὀφθαλμὸς εἰ ὄρα, τὸ δὲ μὴ δυνάμενον ὁμωνύμως."

2 Cf. Charles De Koninck ("Introduction à l'étude," p.10) who observes that *DA* studies, "non pas le mobile animé, le corps vivant, mais résolument ce qui n'est en somme qu'un principe des vivants naturels: leur principe propre et intrinsèque que nous convenons d'appeler l'âme." Quoting Aquinas, he adds that among natural things, "il en est qui *sont* simplement corps et grandeurs, comme les pierres et les autres choses inanimées; d'autres *ont* corps et grandeur, comme les plantes et les animaux, et leur partie principale est l'âme—aussi, est-ce davantage selon l'âme que selon le corps que ces choses sont ce qu'elles sont."

3 In the introductory paragraphs of *SS* (I, 436a 1-9), Aristotle remarks that the animate capacities examined in the *DA* belong exclusively to the soul and that it is with this treatise that he will begin to examine the attributes of soul and body in conjunction. All these attributes are based on sensation which is said to be a certain motion of the soul through the body or generated in the soul through the body. See *SS* I, 436b 1-7; *SI* I, 454a 7-10; and, *Prtp* B75.

4 Shute (*The Psychology*, p.86) observes: "Sensation is an activity by means of sense organs, rather than an activity merely of the sense organs. Sensation is a movement which penetrates to the soul." *DA* II.12, 424a 24-b 3 describes the organ-power unity.

to decode or convert the impulse in the organ so that it signify the sensible quality causing the presence of the sensible object and its impulse in the organ. It is in the third stage that the intentional act involved in sensation occurs and (the cognitive subject by means of) the power has cognition of the sensible quality through the object present in the organ.¹

Whereas the reception and transmission of the impulse is due to the cognizable sensible quality, the interpretation of the impulse or sensible object is due to the sensitive soul in the organ acting as the principle of sensation.² This can be made manifest by comparing the reception of odour by air and by the nose. Although both can receive the odorous, only the nose can be said to smell the odour it has received because of the presence of the sensitive soul acting as the principle by which the nose smells. Although both air and the olfactory organ can become sensible (as a quality), only the latter can be sensitive, a sentient being capable of sensing the sensible object it has received.³

Due to this duality of reception and activity in the act of sensation, Aristotle sometimes describes sensation as being a motion, or imperfect activity, and sometimes as being an activity, or perfect motion.⁴ Insofar as the sense power needs to be stimulated by one of its proper sensible qualities, the sense can be conceived of as a patient receiving a motion from, or being altered by, an agent. To indicate this initial stage of the sensible process, the terms passion (*pathos*), alteration (*alloiôsis*), and movement (*kinêsis*) would be somewhat appropriate.⁵ But insofar as the sense power, through the sensitive soul acting as principle by which, performs the actual activity of sensing, the sense power does not appear completely passive. Rather the soul, which is a form and an active capacity, seems to

1 See chapter 1 for our understanding of an intentional act.

2 *DA* II.4, 415b 22-25.

3 This is how we understand *DA* II.12, 424b 3-19.

4 The difference between activity and motion is that the former has the end within itself, for example, the end of seeing is in the act of seeing itself, whereas the latter has the end outside itself, such as the act of losing weight ending in the state of being healthy, which once attained, terminates the motion of losing weight (See, *Meta* IX.6, 1048b 19-34). This is why, on the one hand, motion is said to be an imperfect act or activity and, on the other, activity is said to be a perfect motion.

5 Barbotin (*La théorie de l'intellect*, p.106) states that π ἄ θ ο ς and ἀ λ λ ο ί ω σ ι ς “évoquent alors le stade initial du processus sensoriel: l'impression sensible, la modification du sens par l'objet, bref, «l'excitation» au sens moderne du mot.” Note that Aristotle usually qualifies these terms by adding τ ι ς, “a sort of,” and warns the reader at *DA* II.5, 418a 1-3 to be aware of the improper uses of these terms when applied to the case of sensation (and also intellection). See, e.g., *DA* II.5, 416b 34: “δο κε ἴ γ ἄ ρ ἀ λ λ ο ί ω σ ί ς τ ι ς ε ἶ ν α ι.” and again at II.4, 415b 24. For the proper and strict senses of passion and alteration, see *GC* I, chs.7-9.

actively actualize itself by simply going from the state of possessing its power to exercising it. So, Nussbaum and Putnam claim that since sensation is really the actualization of a potentiality, it does not involve a motion (*kinēsis*) in the strict sense, and they prefer calling what happens a “transition” instead of a “change.”¹ The two ways of speaking manifest the distinction between sensation in potency, or the sense power in potency, and sensation in act, or the power in activity, a distinction that leads Aristotle to recognize that the sense power brought to exercise by the sensible object is not exactly a passive alteration.² As a result, the sensible qualities external to the sense power are not really the agents of actual sensation, a point clarified by Rodier who maintains that the sensible object only realizes in the sense organ the conditions permitting the sense power to operate.³ In other words, the difference is that between activity on the one hand, which has the end within the activity itself and is therefore complete or perfect throughout its duration, and motion on the other, which tends toward an end that is other than the motion itself and so finds its perfection in this other. Since the end of seeing is seeing itself, and, generally, the end of sensing is the act of sensing itself, there is an activity going on of which the sensitive soul is the principle; however, since the soul cannot activate or actualize itself but needs the instrumental causality of body, the impulse set up in the organ by the sensible quality and its transmission to the sensitive soul is like a motion whose end is the activity of sensation. This is why the reception of a sensible object is not really the (efficient) cause of the act of sensation but nonetheless a necessary condition of its realization.⁴

Therefore, the reception of a sensible object on the part of the sense power is not really, or not only, a passivity it undergoes, but also an activity it performs. It may be claimed that

1 “Changing,” pp.36-7. See also De Corte (*La Doctrine*, p.149): “Il ne s’agit pas d’une réception au sens passif du mot: il s’agit au contraire d’un acte vitalisant de perfection qui couronne une faculté toute pleine d’actualité en tant que forme de tel organe ou tel être, mais vide d’actualité en tant qu’apte à la connaissance.”

2 So Moreau (“Vérité antéprédicative,” p.25) who affirms, “La sensation ne se réduit pas pour lui à un pâtir (πασχεῖν); elle enveloppe une activité (ἐνεργεῖα).”

3 *Traité de l’âme*, p.261: “Les sensibles ne sont pas, à proprement parler, les agents de la sensation, puisque celle-ci n’est point une passion, mais le passage à l’acte des facultés du sujet. Le sensible ne fait que réaliser dans le sensorium les conditions qui permettront à la sensibilité de s’exercer.” He cites Simplicius (*In DA Comm.*, p.124,3) and Themistius (*DA Paraph.*, p.104,9) in support of this view.

4 On the idea that sensation is an activity, see also *SS* 6, 446b 3-5; *NEX*.4, 1174a 15-16; and, especially *NEX*.4, 1174b 15 where Aristotle asserts that every sense is active in relation to its object.

the activity proper to sense is simply to receive a sensible object.¹ In other words, if a capacity's capacity or ability is to receive, then it is in receiving that it exercises its capacity and the act of reception becomes an active operation of the capacity in question.² Expressing the activity of sense as a receptivity brings out the fact of habituation since a sense power will only be actualized according to the determinations given to it by the various objects it has received.³ The more often a power receives an object, the more engrained will the activity be according to the determination given by that object. Yet if one is to be more precise, habits are really formed through the repetition of acts done by the power itself. Habits developed in a sense power are, after all, habits of the power. For habits to belong to a power, it means that the sensible objects it had originally received from another have somehow become a part of the power's own being. As Hegel puts it, if sensation is a passivity because of its receiving an object, "it is just as much spontaneity [... because] there follows the activity of making this passive content one's own."⁴ In effect, the sensible object in the organ is still only sensible in potency, or potentially sensible, and only becomes actually sensible when the sensitive soul, as actuality and principle by which, acts on it. The object, insofar as it is something other than the power, can only determine the mode according to which the power can act, but it cannot be that by which the power can act since this must come from the power itself. Habits formed in the organ through the reception of sensible objects are each an actuality that is in potency to act, and indicates the transition from the potency of matter (the organ's capacity to receive) to the first level actuality of form (the organ's possession of the capacity to sense) inasmuch as the power has acquired determinate ways of acting according to the habits formed.⁵ But,

1 Wedin (*Mind and Imagination*, p.13) identifies the reception of the sensible with the activity of the sense when explaining Aristotle's condition that a faculty (capacity) must be defined in terms of its function which in turn must be defined in terms of its object—which Wedin calls the faculty, function, object condition or FFO. He states: "The general picture here is that a faculty of the soul is a capacity to (cognitively) receive objects. The exercise or functioning of the faculty is simply the receiving of the object." According to Wedin, this is equally valid for the intellect and its object, the intelligible.

2 This recalls Grosseteste's (*In Post An*, p.39.4) denomination of the sense power as a "*potentia receptiva*," as well as Philoponus' (*In Post An Comm*, p.434,5-6) description of sense: "τὴν δύναμιν [...] ἀντιληπτικὴν τῶν αἰσθητῶν."

3 Recall (chapter 1) that habits are specific in nature.

4 *Lectures*, p.187. Hegel (p.189) goes on to say that the act of sensation "consists therefore in this active receiving into itself of that which is perceived; but this is simple activity in passivity, the spontaneity which abrogates the receptivity in sense-perception."

5 We are following the three levels of potentiality and actuality outlined by Aristotle in *DA II.5*, 417a 21-b 1.

this first transition as well as the transition from the possession of the capacity to its actually acting can only occur through the sensitive soul actualizing the sensible object received, either through the object itself or according to the corresponding habit.¹ Only then, when the actualization of the sensible object is performed by the sensitive soul, does the sense power fully appropriate the object into its actual being in activity. At this stage of full actuality and activity, since the sensible object originally came from something other than the soul itself, the sense power has the ability to know, through the otherness, the objectivity, of the actualized object, the cognizable sensible quality from which came the object, that is, the sensitive soul knows and tends toward the other through that which at first did not come from its being but which is now a part of its being. This is the active element of interpretation involved in sensation and the moment at which is decoded the impulse. It is the act of intentionality resulting from the sensitive soul acting on the sensible object it has received and appropriated into its being.² Thus, the presence of sensitive soul in sense remains the principle by which of the act of sensation, but the sensible objects and the habits formed according to them in the organ provide the determination and singularity required by the soul to act. Otherwise said, the reception of an object merely gives a specific mode of acting to the activity of sensation, but soul remains the principle of this activity, the cause of the fact of sensing in general.

The importance of briefly examining the act of sensation lies in the analogy Aristotle draws between this act and the act of intellection.³ In both acts, the cognitive capacity is potentially its object before it receives it in an actualized act of cognition. The difference, however, lies in the bodily organ: whereas sense uses one to receive the sensible object, the intellect does not operate by using a bodily organ. It must therefore receive its intelligible object in a somewhat different, though analogous, manner: the intellect must receive its intelligible object from an image, the product of sense-perception. It is in the acquisition, and particularly the retention, of images that the internal senses find their importance.

¹ Acting through the object itself would roughly correspond to the dispositional stage of a capacity. Once enough similar objects have been acted on, a habit forms and the capacity would act through it.

² For a somewhat similar view, cf. Rodier (*Traité de l'âme*, p.265): "La sensation est, en effet, l'acte commun du sensible et du sentant; le sentant en est, plus éminemment encore que le sensible, un élément nécessaire. En actualisant le sensible en tant que tel, le sentant ne fait, à certains égards, que réaliser ses propres puissances; la forme sensible saisie par la sensation est quelque chose de lui-même."

³ See *DA* III.4, 429a 12-16

CHAPTER IV

INTERNAL SENSES

Sense-perception is merely the first cognitive act belonging to animals. When any external sense power is activated by a sensible object, at that moment, there is present in the organ a sensation or sense-impression enabling the percipient subject to know the cognizable subject under one or several of its sensible qualities. The knowledge procured in the act of sensation, though, lasts only as long as the sensation remains present in the sense organ or power. Usually this lasts as long as the sensible quality is present to the external senses such that its sensible motion can still be captured by the percipient subject. Once the cognizable subject, for whatever reason, goes out of the range of the percipient's powers, the knowledge provided in sensation terminates as well. There are some cases, however, in which a sensation leaves an impression in the organ for some indeterminate, usually brief, period of time before eventually fading away.¹ This is usually the result of the sensation itself because it is quite strong and the movement it sets up in the power remains even when it is no longer present, as the temporary blindness that occurs after seeing a bright light.² Sometimes the sense-impression remains, and can do so for even longer periods of time, because the percipient animal itself has the capacity to retain it. It is this ability to retain the sense-impression "in the soul" that introduces the sense powers known as the internal senses, which include the common sense, imagination, memory, and estimation or the

¹ *Dr 2*, 459a 25ff. suggests as being a normal occurrence the lingering presence of sense-impressions in sense organs after the sensible has departed.

² Aristotle (*Mem 1*, 450a 30-b 12) also indicates conditions under which sense-impressions are poorly received because of a deficiency on the part of the organ.

estimative sense.¹

Before turning to the first internal sense, the common sense, it would be useful to explain the division of the senses into external and internal. The more familiar external senses of sight, hearing, smell, taste, and touch, are generally said to be stimulated by things belonging to sensible reality which do not fall under the control of the senses because they are found outside the sense powers. This group of sensible qualities usually includes all sensible reality not belonging to the body of a cognitive subject as well as the cognitive subject's own body insofar as it is outside the sense powers as powers and is sensible to the external senses, such as seeing the colour of one's own eyes. The internal senses, on the other hand, sense all sensible qualities that are found inside the sense powers, that is, once the external senses have received sense-impressions, they contain sensible objects which may remain and could be perceived in turn by other senses.² A sense power capable of doing this perceives the activity of another sense power, and especially the sensible objects contained in it, and is thus said to be internal.³ Since all sense powers are within the cognitive subject itself, its perception of one power by another remains within the limits of the powers of sense belonging to the subject.⁴ Thus, whereas the internal senses will know external sensible reality indirectly through the sense-impressions remaining in the powers of the cognitive subject, the external senses will know it directly. This difference could be marked out by saying that the activity of the external senses is an act of sensation because it acts on the sensible quality itself, while that of the internal senses is an act of perception because it acts on a percept, that is, a sense-impression remaining in a sense organ. This leads to another difference. While external sensation can only be of an actually present sensible quality, internal perception can be of a sensible quality that is either present or absent. This is possible because sensation is entirely dependent on the actual presence of a

¹ Though there has always been throughout the history of Aristotelian commentary cause for debate as to the exact number and nature of the internal senses, we accept these four as being sufficient to explain sense cognition.

² *Dr* 2, 460b 1-2.

³ This function, as will be seen, is analogously common to all the internal senses inasmuch as they all perceive, if not the activity of another sense power (for it may not necessarily be actually operating at the time), then at least the sensible objects contained in it.

⁴ Kahn ("Sensation and Consciousness," p.15) explains: " 'internal' refers simply to the fact that these activities are exercised by the central faculty [i.e., common sense] directly, without the need for simultaneous contact with the outside world through an external organ." As will be seen shortly, the common sense, to give one example, acts on the sensible objects found within the external senses by perceiving their activity and whatever sense-impressions result from this activity.

sensible quality whereas perception is dependent on percepts found in sense organs that may either be actually sensing or no longer sensing but still retaining impressions that once came from actual sensation. During an actual perception, the cognitive subject can sometimes manipulate percepts and control the activity of the internal senses, as happens when actively imagining something, while at other times an internal sense is activated spontaneously, like the occurrence of dreams during sleep.¹

4.1 The Common Sense

The link between the external and internal senses is provided by the common sense (*koinê aisthêsis*), which Aristotle considers as being the principal, controlling organ belonging simultaneously with to touch.² The external sense powers can therefore be said not only to have something proper or special to each one of them, but also something in common insofar as they are all linked to the single common sense as principal organ of sense.³ Kahn⁴ conceives this union of external and internal sense powers as a unified whole of which the special external senses are parts, a view which “unmistakably implies that the individual organs also combine to form a unit, a physiological system, which can serve as instrument for the sense faculty as a whole.” According to Aristotle⁵, the central organ in this “physiological system,” the common sense, has its seat in the heart serving as the principle from which the power of sense informs the entire sense apparatus. Now this judgment is obviously antiquated; however, as Kahn remarks, the obstacle can easily be overcome by substituting *nerves* wherever Aristotle says *veins* or *channels*, and *brain* wherever he has *heart* because Aristotle, despite the error in material substrate, is expressing the same notion as the one promoted in contemporary physiology, namely, “the notion of a central organ serving as sensorium proper, the point at which all stimuli from the external organs converge and in which they must appear for any genuine sensation to

1 *Dr* 3, 461b 11ff.

2 *SI* 2, 455a 12-22. The reason for this close link is that touch is the external sense by which an animal can maintain its sensible corporeal integrity, and destruction of this sense which is present throughout the entire body can cause death, unlike the destruction of the other external senses which are localized in one part of the body. See *DA* III.13. Note that touch is the only sense an animal cannot not have, and, as such, is necessary to the essence of being an animal. See also *DA* II.2, 413b 4-6.

3 *SI* 2, 455a 12-22.

4 “Sensation and Consciousness,” p.20.

5 *SI* 2, 456a 4-6.

occur.”¹ This suggests to Kahn that the animate power of an external sense is the realization of the specific possibilities offered by its organ, for example, the power of vision is due to the eye, “although the possibility of *sensation as such* is not offered by the eye alone, but only by the central organ with which it is connected.”² Perhaps, though, these statements can be qualified somewhat by saying, in keeping with the distinction made above between sensation and perception, that the external senses can always have a sensation, but for the act of sense-perception to occur, the acts of sensation must be perceived by the common sense. For the eye can see colour by itself through its own organ and power, but a cognitive subject may not perceive that it is seeing a coloured thing until the common sense perceives the act of seeing.³ The existence of some type of dependence of the external senses on the internal common sense can be seen in that when one external sense is affected, the central sense usually remains unaffected, for example, blindness affects the power of sight, but it does not affect the power to sense as a whole which is present in the remaining functioning organs of sense. However, if the contrary occurs, that is, the central sense is affected, as occurs in sleep, then all the external senses are equally affected.⁴ The important point to realize is that all the external senses tend toward and are rooted in a controlling organ called the common sense.

Not only are all the external senses rooted in the common sense, but as the first of the internal senses, the common sense also serves as the base of the other internal senses. Thus, the common sense can serve as a bridge between the external and internal powers, and as a pivot, by being both a converging point toward which go sensible objects gathered through the external senses and a diffusing point from which the other internal senses can take percepts necessary for their activities. Due to its central location in the sense apparatus, and its consequent multiplicity of relationships with the other sense powers, Aristotle often describes it as being “numerically one but many in being,” implying that there is one physiological subject having several sense capacities dealing with different sensible objects

1 “Sensation and Consciousness,” p.21.

2 “Sensation and Consciousness,” p.21. Aristotle expresses the idea of stimuli needing to reach the central organ for sensation to occur throughout the *Parva Naturalia* (hereafter, *PN*): 455a 12ff., 455b 11, 459b 5, 461a 30ff., 467b 28-9, and 469a 12.

3 In regard to Aristotle’s views on the common sense, Kahn (“Sensation and Consciousness,” p.21) himself observes that “the central faculty lodged in this organ obviously exercises many of the functions which we now refer to ‘consciousness’, and which modern physiology connects with the cerebral cortex.” More will be said on the common sense’s perception of the act of sensation below.

4 *S12*, 455a 28-b 13.

or percepts in various ways.¹ As a result, Aristotle designates the common sense by several different names and expressions to indicate these different relationships. Insofar as all sensible objects acquired by the external senses can be percepts of the common sense, it can be called “that which senses all sensible objects,” or “the organ of all sensibles,” and can be distinguished (in being) according to the genus of sensible objects it happens to be acting on at a given time.² Insofar as these sensible objects sensed by the external senses need to be perceived by the common sense in order for sense-perception to take place, the common sense plays a more principal and controlling role in the act of sense-perception and may be called the “first or primary sense (organ)” or “the master or principal sense.”³ The fact that the common sense has for its object all sensible objects suggests that there is one capacity corresponding to this one genus of objects; however, the fact that several different activities can be performed with the same percepts suggests a diversity in powers. This may explain Aristotle’s claims that the power of imagination belongs to the same organ and power as that of sensation, differing from it only in being, and that memory belongs to the same power as the one dealing with percepts in general.⁴ This sometimes leaves one with the impression that the activities of sensing, imagining, and remembering, can all belong to the central common sense and perhaps even to the entire sense apparatus. Yet, the fact that not all animals have all these powers, although they all have the capacity to sense, suggests that there are really distinct organs and powers for each of these activities, even if they are all concerned with sensible objects. Recalling that the common sense as described by Aristotle can refer to the cerebral cortex, one could probably differentiate between a more specific and a more general meaning of common sense. Thus, as the point of convergence uniting the external senses and gathering together all sensible objects, the common sense can signify one specific power of sense performing this and related functions. Inasmuch as

1 On the description “numerically one but many in being,” see, e.g., *SS* 7, 449a 5-20: “τὸ αὐτὸ καὶ εἶναι ἀριθμῶ τὸ αἰσθητικὸν πάντων, τῶ μέντοι εἶναι ἕτερον [...] ὥστε καὶ αἰσθάνοιτ’ ἄν ἅμα τῶ αὐτῶ καὶ ἐνὶ, λόγῳ δ’ οὐ τῶ αὐτῶ.” And *Dr* 1, 459a 15-16. On the unity of the common sense, see *DA* III. 2, 426b 10ff. and III. 7, 431a 19-29; and, *PN* 449a 5ff., 455a 20-25, and 467b 28-9.

2 In *SS* 7, 449a 5-20, we have “ᾧ ἅπαντα αἰσθάνεται” and “τὸ αἰσθητικὸν πάντων.”

3 For such expressions as “τὸ κυρίον αἰσθητήριον,” “τὸ πρῶτον αἰσθητήριον,” and “τὸ κύριον καὶ ἐπικρῖνον,” see *DA* III.2, 426b 16; *PN* 449a 17, 455a 34, 455b 10, 456a 5 and 21-23, 458a 28, and 461b 6 and 25; and, *PA* III.4, 666a 34.

4 For imagination, see *Mem* 1, 450a 12 and *Dr* 1, 459a 15-16. For memory, see *Mem* 1, 450a 10-13 and 21-25.

the other internal senses use the sensible objects gathered by the common sense, the common sense taken in a general signification can be said to perform the other activities of imagining, remembering, and estimating, though it is likely, especially in more evolved animals, that specific localized parts and organs within the cerebral cortex are responsible for each function. In short, the expression *common² sense* seems to indicate that this first internal sense, uniting both the external and internal senses somewhat as a point in the middle of a line, is directly in contact with all the other senses and, in this way, can be said to be common to them all.¹

Everyday experience shows us that sensible reality is not perceived as discrete bits of sensible qualities, but as a whole sensible image or appearance. This implies that the knowledge gained separately through each of the actualized external senses is continuously (and quasi-instantaneously) being unified by some other power of sense. This unification is accomplished by the common sense, the first of the internal senses, which acts on the simultaneous activity of the external senses during the entire time that they are acting. By doing this, the common sense can receive sensible objects present in the external senses, whose activities are identical to their objects, to join them together more or less in correspondence with the sensible reality being sensed at that moment. If that be so, the primary function of common sense would consist in gathering sensible objects received through the external senses to form a composite, unified appearance or presentation of the sensible reality constituting the field of actual sensation at any given moment.² To carry this out, the common sense must have the capacity to identify the sense-impressions found in each of the external senses and to distinguish between them.³ How the common sense

1 As Aristotle seems to assign quite a diversity of functions to this "primary sense," it is not always easy to see how this one subject, though many in being, could accomplish everything assigned to it. The idea of distinguishing a specific and general meaning is one way of trying to put some order in this. Another analogous approach will be examined when dealing with imagination, another obscure topic of Aristotelian thought on the internal senses.

2 According to D. Frede ("The Cognitive Role," pp.285-86), φ α ν τ α σ ί α, i.e., imagination, "gives us the sensory representation of a state of affairs that goes beyond the mere simultaneous reports by the different senses [... And, consequently, gives] a coherent picture of a situation that transcends the immediate perception." Though we agree with her that some sense power is required to unify information gathered through the different external senses, we do not agree that this is a function of imagination. Whereas Frede (p.282) thinks that imagination plays a "role in the *synthesis* and retention of sense-perceptions," we would delegate the first-mentioned function to the common sense and the second to imagination.

3 Kahn ("Sensation and Consciousness," p.15) says of the common sense that it is "the point of convergence - of recognition and discrimination - between the special channels of external sensation."

performs this discriminative activity may be better revealed through the following examples.

When by sight I see the whiteness of sugar and by taste I sense its sweetness, I also have the knowledge that both sensible qualities simultaneously sensed belong to numerically one subject, say, sugar.¹ Neither sight alone nor taste alone can discriminate that both belong to one subject because neither one can sense the other's object nor possess the cognition acquired by the other. It is only a power that can possess the cognition furnished through both sight and taste that can discern that both sensible qualities belong to one and the same thing. Since the common sense unites both of these powers, it is able to unify the cognition acquired through them as well and thereby effect the discrimination that the whiteness seen and the sweetness tasted both belong to one subject, which is a new piece of sense cognition.² It is also due to the common sense that one can be said "to see the sweetness" of sugar, obviously only in an accidental sense, because the presence of both sensible objects in the common sense permits a sort of transfer in cognition from one external sense to the other. This is not only possible with respect to the discrimination of the proper sensibles essentially sensed by the external senses but also with respect to the common sensibles incidentally sensed through them. When sight sees the length of a stick and my hand feels it, I also have the sense knowledge that it is the same subject and the same length that is both seen and felt. Again, as in the previous case, neither external sense alone can provide this knowledge of one and the same subject despite the fact that both perceive length. Only the common sense, to which both of these senses are joined, can discriminate that the length both seen and felt is numerically one and the same thing. Obviously, the common sense can identify and differentiate between a common and a proper sensible, too, for it can act on all the sensible objects coming through the external senses to unite them into one appearance corresponding to the real subject to which they belong.

Note that the composite appearance formed by the common sense first consists in an indiscriminately composed presentation of all the sensible qualities present in the perceptual field known during actual sensation. From this initial confused composite appearance, the common sense will gradually (by comparison and association) identify and distinguish with more definition, or precision, those qualities sticking or moving together as belonging to

¹ DA III.1, 425a 30-b 3.

² DA III.2, 426b 8-29.

one subject. In fact, since the incidentally sensed common sensibles and the accidentally sensed substance are not proper to any given external sense, there arises the possibility for error in the common sense's reception of them. Thus, the first presentations formed by the common sense may not necessarily correspond exactly and perfectly to sensible reality as it is; it must therefore correct and refine its perception of these sensible qualities.¹ When a stick is immersed in water, for example, its length, a common sensible, is seen to be bent but felt to be straight such that the information provided by the external senses is contradictory. One may even wonder whether it is still the same stick in question. Over time and through continued sense-perception, not only will the common sense come to know that the sensible qualities perceived always belong to the same subject, it will also discern that its true shape is that as sensed by touch and not that as sensed by sight.² This may explain why Aristotle sometimes gives the impression that the common sensibles are sensed per se by the common sense, although they are truly sensed, albeit incidentally, by the external senses.³ With respect to the accidentally sensible, sight, upon seeing something white, may incite someone (based on past associations of white with sweet) to judge spontaneously that it is sweet and that these sensible qualities belong to sugar. But the common sense, in collaboration with a second external sense, taste, will be able to discriminate that the white is in fact salty, thus correcting the judgment concerning the subject or substance to which these sensible qualities belong. Though the common sense cannot really perceive the substance, it does at least discriminate that white belongs to salty (rather than to sweet), which sense cognition can then be used by a higher cognitive power to judge the substance that would be the true subject of these qualities, namely, salt. Discriminating in these and similar ways, the common sense can eventually obtain a more accurate presentation of sensible reality.

To continue with the topic of sensing and perceiving substance, it does appear that the common sense can indeed sense substance in a way that makes the substance a sensible, rather than non-sensible, object. Whereas the external senses are said to sense substance

1 *Dr* 2, 460b 23-27 notes that errors in the discrimination of sense appearance are sometimes due to a motion in the organ being stimulated or caused by the organ itself that is similar to one caused by the actual external sensible.

2 *Dr* 3, 461b 3-4 states that the principal sense affirms what comes from a particular external sense unless another more authoritative sense contradicts it, thereby suggesting a hierarchy in the cognitive value of the different external senses, with the common topping them all.

3 See, e.g., *DA* III.1, 425a 27-29.

per accidens because it is completely imperceptible to them, the common sense can be said to sense substance per incidens because the unified appearance it composes from the sensible qualities captured through the external senses can be a presentation of a singular substance in its sensible integrity or wholeness. The common sense can, for example, sense an individual tree with a person standing next to it by identifying the sensible qualities belonging to each subject and distinguishing the two coherent sensible wholes from each other, as well as from those sensible qualities making up the background of the perceptual field. In this manner, the common sense can know, not that this thing is a tree in substance, or is an instance of treeness, or that this is a man (in short, universal substance), but that each is a coherent or consistent cluster of sensible qualities distinguishable from other clusters of sensible qualities belonging to other subjects found in the perceptual field. Through the common sense's ability to identify, differentiate, and unite sensible qualities in a way that corresponds more or less to external sensible reality, the sensible singular substance, which is a per accidens non-sensible object for the external senses, can now become an incidentally perceived sensible object of the common sense. While the external senses cannot know substance at all because each one only senses scattered and separated sensible qualities which may or may not be parts belonging to numerically one subject, the common sense can know a singular substance incidentally through perceiving the sensible qualities belonging to one subject as parts of a whole. The fact that a sensible singular substance is sensed per incidens means that the common sense, as in the case of the external senses perceiving common sensibles incidentally, is open to many errors concerning it; hence, this cognition of a singular substance would not be instantaneous, but would only come over time gradually after the common sense has sufficiently discriminated among sensible objects to be able to identify those qualities hanging together and which are perceived to be separable from others. This may be the full significance both of Kahn's statement that there is no real sensation unless the stimulation or impulse in the external senses goes all the way to the controlling common sense, and our distinction between sensation and perception; for, the recognition of a subject in sensible reality, a singular substance, can only come once the common sense has united the sensible qualities with sufficient detail and definition into a whole presentation of the different things found in the field of perception. Thus, whereas sensation could designate the reception of separate sensible qualities by the external senses, sense-perception could designate the reception of sensible things by the common sense more or less as they exist in external reality; and, whereas sensation can connote the fact of being stimulated or excited by a present sensible

quality, perception can connote the cognitive content acquired by an animal about the cognizable subject causing this stimulation.

The common sense, then, has the capacity to perform other acts of sense discrimination based on the cognition provided through the external senses. It expands the cognitive subject's knowledge of sensible reality by providing a unified appearance while the external senses are actualized in actual sensation. But not only can it form this presentation, the common sense apparently has the capacity to know whether the presentation corresponds to sensible reality or not.¹ This is already implied in its ability to correct and refine the perception of certain sensible objects. In effect, how could the common sense know what corrections need to be made if an initial presentation it forms from the errors of the external senses will be mistaken and its knowledge of sensible reality is limited to this mistaken appearance as the medium through which it is known? Even more significantly, how can common sense unite the disparate sensible qualities received separately through the external senses into a whole corresponding to the sensible reality from which they came unless it somehow perceive this sensible unity in reality? Aristotle² affirms that even though something may always appear to the senses, it is not always accepted as a presentation of external sensible reality, unless the principal common sense is inhibited, in which case, it is unable to distinguish between a presentation corresponding to something in reality and one not doing so. An example of this occurs while dreaming. The dreamed appearance of a loved one standing "before one's eyes" will be known to be just an appearance without the real person standing there if the common sense is sufficiently awake. It is only if the power is sufficiently inoperative due to sleep that the common sense will fail to discriminate this and consequently take the presentation for the reality.³ However, if that is so, the

1 Aristotle (*Dr* 2, 460b 16-26) affirms that the controlling discriminative capacity ($\delta\acute{\upsilon}\nu\alpha\mu\iota\varsigma$ κρίνειν τό τε κύριον) is not the same as that by which the appearances come. This is another example of the confusion that Aristotle's presentation on common sense can cause because it is difficult to know if this is another mode of being of the same subject or, instead, a reference to two organs and powers. Even the capacity by which appearances come, as will be seen below, can ambiguously refer to the external and common senses having appearances during actual sensation and/or imagination which can have appearances outside moments of actual sensation. Perhaps, though, the confusion may be minimized by realizing that a capacity can not only receive its objects but can also discriminate among them.

2 *Dr* 3, 461b 5-6: "φαίνεται μὲν οὖν πάντως, δοκεῖ δ' οὐ πάντως τὸ φαινόμενον, ἀλλ' ἔαν τὸ ἐπικρῖνον κατέχηται, ἢ μὴ κινῆται τὴν οἰκείαν κίνησιν."

3 *Dr* 3, 461 b 21-30.

implication is that the common sense would not be internal, or not exclusively internal, but also external, for it could only perceive external reality if it was itself, in whole or in part, an external organ and power. Is it possible for this internal sense to be external in some way?

An answer could be found in the possibility of admitting the participation of the common sense in each of the external senses since the common sense itself, to the extent that it participates in them, would then have access to external reality. Now, would not such a participation be made possible in the already admitted position that the common sense is a common root of the external senses? Insofar as the external and common senses form a unified sensory apparatus, would they not all share in that which is common to all senses? It would seem that everything which has been said thus far concerning the common sense and the perception of the different sensible objects could be explained by maintaining both that the common sense is a distinct power joining together and rooting the external senses, and that the common sense's capacities participate to a degree in each of the external senses, although saying that the external senses participate in the common sense may be more precise since the latter is the root and source of the former.¹ The fact that the common sensibles are perceived incidentally by the external senses means, on the one hand, that they transcend the perceptive capacities of the external senses to a certain extent and, on the other, that they do not surpass their perceptive capacities completely (otherwise they would be accidentally sensible). Where, then, does the difference in capacity come from? It must be from the common sense insofar as each of the external senses are rooted in and participate in it. The fact that the common sense can discriminate and correct the unified appearances it forms signifies that it has access to external reality as a unified presentation

¹ There is much debate on the status of the common sense and how it is related to the external senses, and to go through all the literature would be inappropriate in this context. In presenting the views of Neoplatonic commentators, Blumenthal (*Aristotle and Neoplatonism*, p.137) remarks that the common sense in *DA* is a function of the external senses themselves while in *PN* it is a power on a level above them somewhere in the area of imagination. Rodier (*Traité de l'âme*, pp.265-68), who also presents several views, follows the majority of Greek commentators in thinking that the common sense does not signify a distinct power but refers merely to the common character of sensibility present in each of the external senses. See also Brunschwig ("En quel sens?," pp.189-218) who, from an analysis of the perception of just the common sensibles, reaches the same conclusion inasmuch as he considers superfluous for their perception a unique separate common sense because they are perceptible to each and all of the external senses "en commun" with their proper sensible objects. This differs from D. Modrak's position (see *Power of Perception*, pp.62ff.) which maintains that the common sensibles are only perceived through the joint exercise of the external senses without, however, implying by this a separate common sense power.

and this could be done by its participating in their activity. Not only that, this unified presentation, and particularly the distinction between the different things in it, is formed mainly by the use of the common sensibles. It is the shape or figure of the tree that will separate it the most from the figure of the man standing beside it, and it is the magnitude of each thing that will act as a sensible, hence perceptible, subject uniting the other sensible qualities belonging to each subject, such as colours, textures, sounds, and so on. Movement, too, can greatly help in giving a thing its unity, for a cluster of sensible qualities perceived to be moving together will make it stand out from the relatively resting background. This is the source of the *per incidens* perception by the common sense of a singular substance as a sensible (rather than non-sensible) object outlined above, for the composite presentation of a substance in its sensible wholeness means that it is perceived by the common sense as a whole in external reality. In short, the participation of the external senses in the common sense and the latter's *per se* perception of the common sensibles is able to explain the non-essential forms of perception (that is, *per incidens* and *per accidens* with respect to the external senses) as well as how the internal common sense can have access to external reality.¹

The common sense, as participating in the activity of the external senses, can explain its ability to perceive external sensible reality; however, the activity of discriminating among its objects, and correcting the appearances it composes, can only be accomplished by the common sense as a distinct power, which perceives the activity of the external senses (including its own participatory activity in them). Insofar as the common sense is present in the external senses, it performs the act of sensation; but insofar as it is a distinct power, it performs the act of sense-perception and discriminates among sensible objects and things perceived by perceiving the act of sensation.² In effect, the common sense, in acting on the sensible objects found in the external senses to form a presentation, is also able to discriminate whether the external senses are in activity or not at that time. If the presentation it forms comes from the external senses while they are in activity, the common sense will

¹ Even the case of sight tasting sweetness, which is the other form of accidental perception looked at, can be explained by the fact that both the object of sight and sweetness can be perceived as being in one magnitude, a common sensible essentially perceptible to common sense.

² Aristotle's thoughts on the perception of the act or fact of sensation are found at *DA* III.2, 425b 10-426a 25. Cf. Aquinas (*Summa*, Ia, q.78, a.4, ad 2) who describes it thus: "*Hoc enim non potest fieri per sensum proprium, qui non cognoscit nisi formam sensibilis a quo immutatur; in qua immutatione perficitur visio, et ex qua immutatione sequitur alia immutatio in sensu communi, qui visionem percipit.*"

know that the presentation comes from external reality because the external senses cannot actualize themselves but require something to be present in external sensible reality. If the external senses are not in activity, then the common sense will know that the presentation comes from the percepts remaining within the external senses now in potency to act.¹ As well, whenever there is contradictory or erroneous information, it would seem to be through the perception of the activity of sensation that the common sense could discriminate which sense has properly received a sensible quality and which is mistaken. Thus, through its perception of the act of sensation, the common sense can be said to have its power oriented toward external sensible reality by discriminating how the external sense powers react to the sensible qualities received, thereby aiding it to form a presentation that will gradually correspond more truly to reality. It is in this manner, too, through the common sense's activity of perceiving the state of the external senses, that sense cognition can be said to have an element of awareness or consciousness since the common sense can inform the animal both about external reality and its own bodily state.²

4.2 Imagination

If the common sense's primary function is to provide a unified presentation of external sensible reality during actual sensation, the appearance thus formed need not necessarily last longer than the activity of the external senses. However, if an animal has another sense capable of conserving the presentation formed by the common sense during actual

¹ The common sense's perception of external senses in potency to act can still provide some information about external sensible reality, such as seeing darkness which, in the exact sense, is really a state of not seeing. In fact, as there is no coloured object activating the power of sight, it is only in a potential, not actual, state of seeing; hence, it is not seeing anything at all. But the common sense, in perceiving the potential state of the visual power, is then able to discriminate that it is now actually dark.

² Kahn ("Sensation and Consciousness," pp. 23-24) notes that the term αἴσθησις and the verb αἰσθάνεσθαι "can indeed cover the whole range of meaning of thought, feeling, and perception, including the affective feelings of pleasure, pain, desire, and the like." He admits that Aristotle tends to restrict it to the precise meaning of objective perception via the external senses and to avoid using it for 'subjective' experience such as pleasure and pain, yet Aristotle insists on a close and necessary link between αἴσθησις on the one hand and pleasure, pain, desire on the other, thus maintaining the wider meaning of the term in non-technical Greek. He also notes that the Greek terms do not permit one to distinguish "between the cognitive or objective aspect of sensation, on the one hand - receiving information concerning the outside world - and the subjective or affective aspect of felt awareness, where sensation merges with other 'raw feels' such as pleasure, desire, impatience, and the like. In this ambiguity the Greek usage is parallel to that of our own verbs 'sensing' and 'perceiving'." The distinction made earlier between sensation and perception may be helpful in reducing some of the ambiguity of these terms in English.

sensation to reproduce or represent them on later occasions, then the animal will no longer be limited by the presence of sensible reality for the production of appearances within it. This new power which acts on the appearance present in the common sense to conserve and reproduce it is called imagination. Two major obstacles in coming to a clear understanding of the power of imagination as presented by Aristotle are the difficulty in figuring out which uses of the words *phantasia*, *phainesthai*, and their cognates, refer to this sense power and its appearances, as opposed to the appearances of the senses in actual sensation, and, as previously mentioned, whether these uses call for a power distinct from the external-common sense complex.¹

Aristotle², it would seem, states that the organ and power of imagination are actually the same as those of sensation but different in its being, that is, the one subject, the external-common sense complex, has two modes of being. One difficulty in coming to understand this is that since Aristotle does not here make any qualification as to a specific part of the sense apparatus (*ton aisthêtikon*), imagination would therefore seem to be present throughout the entire sense complex, such that there would be an imagination in each of the external senses as well as in the common sense. Brentano's³ understanding of appearances would support such a view since, according to him, "Images [i.e. appearances] considered in and by themselves differ in no way from the pictures that are present in us during sensory perception;" and he adds, that just as the presentations of sensation are divisible into several genera according to sense powers and sensibles, the images are also divisible into corresponding genera, for example, images in which colour or tone is the basic determination. He concludes that, "since the images and sensations are altogether alike, they are in the same powers and in the same subject. Hence the images are also in the senses and in the first sensory organ as such."⁴ Even some of the conditions laid down by

1 Wedin (*Mind and Imagination*), e.g., argues that imagination is not a standard faculty (power) at all but a "functionally incomplete faculty," and, "that in its [re]presentational role imagination subserves full faculties in the sense that images are the devices by which such faculties [re]present the objects toward which they are directed." (p.24) The square brackets are Wedin's who wishes to indicate by them the presence of images of imagination both during actual sensation (presentation) and outside actual sensation when the thing is not there (representation).

2 *Dr* 1, 459a 15-16.

3 *Psychology*, pp.67-68.

4 *Ibid*. According to Schofield ("Aristotle on the Imagination," pp.249-50), even the appearances allocated to the power of imagination seem to include cases which are not instances of mental imagery, but are more like direct sensory experiences, thus suggesting the possibility of the presence of imagination in all or part of the sense complex.

Aristotle for the existence of an appearance of imagination, namely, that it is a movement impossible without sensation and that it can be (simultaneously) present when an animal is actually sensing, imply that it is not so much a separate sense power as it is a mode of being of the power of sense; or, rather, “imagination” and sensations would be the two modes of being of the (selfsame) appearances found in the senses.¹ Sometimes, though, Aristotle, by calling the appearance “an affection of the common sense”², seems to give the impression that appearances only belong to one part of the sense complex. Yet, whether appearances belong to the entire external-common sense complex or only to the common sense--which would include the sense-impressions proper to the external senses in any case--, imagination would still seem to be just a mode of being of the appearances found in the sense powers, and not a new and separate power. Also, if the common sense is affirmed by Aristotle to be the principal sense capacity discriminative of all the sensible objects and the appearances made from them, then would this not have to include those of imagination, too?³ Sensation and imagination would be, therefore, two modes of being of the external-common sense apparatus, and the appearances present in it, such that both would be under the discriminative capacity of common sense as principal power of sense. Consequently, imagination would seem to be the capacity of sense to conserve appearances without necessarily being an active power separable from the external and common senses.

On the other hand, Aristotle uses *phantasia*, *phainesthai*, and their cognates in ways that sometimes suggest the existence of a separate power of imagination actively calling up appearances, such as remarking that imagination lies within our control because we can call up appearances whenever we wish and that it seems to be either a capacity (*dunamis*) or a habit (*hexis*) of appearances through which we can discriminate truth and falsity.⁴

Schofield observes that although *phantasma*, *phantazô*, and *phantasia* have a natural

1 DA III.3, 428b 10-18 outlines the conditions under which imagination occurs.

2 Mem 1, 450a 12: “τὸ φάντασμα τῆς κοινῆς αἰσθησεως πάθος ἐστίν.”

3 Dr 2, 460b 16-26.

4 DA III.3, 427b 17-18, and 428a 1-4. Although there is a debate as to the metaphorical meaning of the expression “an image arises for us” (ἡ φαντασία καθ’ ἣν λέγομεν φάντασμα τι ἡμῶν γίνεσθαι) that Aristotle wishes to exclude from his considerations in this chapter on imagination--is it the passive or active sense of arising?--, it does seem likely that an active power is accepted for consideration because, earlier in the passage, imagination was said to be a capacity under our control. Also, the context of the remark compares imagination to thinking and judging, with which it is identified by some of Aristotle’s predecessors, and these are more clearly capacities within our control. See Hicks (*De Anima*, pp.460-66) who interprets similarly.

passive tendency in Greek signifying how things appear (*phainetai*) to a mind that does not actively imagine them, Aristotle forces *phantasia* into a more active sense to name a mental disposition or act comparable with thinking and perceiving.¹ D. Frede also admits that *phantasia* can not only have a passive signification, but also an active one.² Even if imagination is thought never to be used alone as an active power in its own right but is always subordinated to other capacities and activities, such as in speculative thinking or directing an animal's local motion, the fact that these other activities are under the control of the cognitive subject suggests that imagination can still be under its control in some way. Nevertheless, human experience shows that one can imagine simply for the sake of imagining without subordinating this activity to some other cognitive capacity's activity. Also, if a conserved appearance is not the same object as an appearance of actual sensation, and the activity of conserving and reproducing conserved appearances is different from the activity of sensing actual appearances, then there must be a distinct power for each of these objects and activities. Thus it appears that imagination can signify an active power, too.

Perhaps the nature of imagination can be examined by distinguishing between different types of appearances or presentations, and clarifying how they come about in a cognitive subject.³ First of all, when the external senses are actualized by a cognizable subject, the

1 "Aristotle on the Imagination," p.251, ft.11. He adds that $\varphi\alpha\nu\tau\alpha\sigma\acute{\iota}\alpha$, the power, is sometimes referred to as $\tau\acute{o}\ \varphi\alpha\nu\tau\alpha\sigma\tau\iota\kappa\acute{o}\nu$ and signifies the capacity of "making (something) appear for oneself." This would be a middle usage of the verb predicable of persons with a force approximating that of "imagining."

2 "The Cognitive Role," p.279. She emphasizes that the ambiguity inherent in the term $\varphi\alpha\nu\tau\alpha\sigma\acute{\iota}\alpha$ is partly due to the fact that the one word designates the capacity, the activity or process, and the product or result in both a passive and active sense. Thus, she recommends that *fantasia* in the passive sense signify the capacity to experience an appearance, the on-going appearance itself, and what appears, while the active sense would signify the capacity to create appearances, the creating itself or "imagining," and the created appearance itself or what is imagined. She notes that Aristotle does not, however, use *fantasia* for poetic creativity but calls the poet an $\epsilon\acute{\iota}\kappa\omega\nu\acute{o}\pi\omicron\iota\omicron\varsigma$ (see P 1460b 9).

3 One must beware of the ambiguity of the terms used to designate appearances. Rodier (*Traité de l'âme*, p.27) observes that, "*Imagination n'est pas l'équivalent exact de $\varphi\alpha\nu\tau\alpha\sigma\acute{\iota}\alpha$. $\Phi\alpha\acute{\iota}\nu\epsilon\sigma\theta\alpha\iota$ désigne, en effet, non seulement la réapparition de l'image dans la conscience, mais aussi l'aperception sensible immédiate de cette image et, par suite, $\varphi\alpha\nu\tau\alpha\sigma\acute{\iota}\alpha$ s'applique aussi bien à la *présentation* qu'à la *représentation*." Sorabji ("Intentionality and Physiological Processes," p.197) affirms that $\varphi\alpha\nu\tau\alpha\sigma\acute{\iota}\alpha$ is explicitly connected by Aristotle with the verb $\varphi\alpha\acute{\iota}\nu\epsilon\sigma\theta\alpha\iota$, "to appear," and, like D. Frede, suggests translating it by 'appearance' (taken in a wide sense) in order to mark the connection of $\varphi\alpha\nu\tau\alpha\sigma\acute{\iota}\alpha$ with appearing, a recommendation which we follow. In fact, the words *appearance* and *presentation*, unlike the more commonly used term *image*, have the advantage of indicating a $\varphi\alpha\nu\tau\alpha\sigma\acute{\iota}\alpha$ that is reproduced by simply adding the prefix *re-*, thus revealing the close relationship between the first appearance or*

sensible object present in the organ is a sensation or sense-impression, which can be called an appearance of a present sensible quality and would only be a partial appearance of the cognizable subject. When the common sense is actualized by the activity of the external senses during actual sensation, the appearance it forms could be of the cognizable subject as a whole, whether the subject in question be the whole field of perception or a singular sensible substance within this field or some other composite appearance. These would constitute the appearances of actual sensation and belong to the external-common sense complex. After-images would be the momentary lingering of these appearances in the organs of sense immediately after the withdrawal of the external cognizable subject.¹ This temporary appearance would be due to the strength of the agent, the cognizable subject actualizing the sense(s), and/or the sensitivity of the patient, the affected sense organ(s). In animals without any other powers, these would be the only appearances possible for them to have. If an animal can retain these appearances within its organs, it could only be due to another power, imagination, and its capacity for retaining or conserving sense-impressions.² But this retentive power need not be in a subject that is other than the external-common sense apparatus itself, and it may be strictly passive. In fact, passive imagination may simply refer to the initial dispositions formed within the sense organs by the gradual accumulation of more and more similar appearances conserved in an organ, any one of which could themselves later appear, or rather, re-appear, in various ways. Thus imagination would signify an appearance of a sense-impression retained in one of the organs of sense and would constitute, whenever actualized, a reappearance of a sense-impression. Imagination could therefore be viewed as an appearance of a conserved appearance. This reappearance of imagination would likely occur each time a conserved appearance corresponding to a sense-impression received during actual sensation is actualized by the reception of a new sense-impression, for example, the sense-impression of this red would stimulate sight such that the power would actualize one of the conserved appearances of red acquired from previous receptions of red through which it would receive this instance of red. This would apparently explain Aristotle's description of imagination as a derived motion similar to the sense-impression and occurring during actual sensation.³ However, the appearances of imagination are not limited to actual sensation and

presentation in sensation and its later reappearance or representation in imagination.

1 D. Frede ("The Cognitive Role," p.282) describes them as "mere epiphenomena, the lingering after-images of sensation," and Kahn ("Sensation and Consciousness," pp.15-16) calls them forms of "decaying sense."

2 *Post An* II.19, 99b 36-39.

3 See *DA* III.3, 428b 10-16 and *Dr* I, 459a 15-23.

to appearances corresponding to sense-impressions. Since conserved appearances are located in the sense organs, they may reappear in other situations whenever the senses are stimulated in ways resembling actual sensations. Thus, dreams are appearances arising while the cognitive subject is asleep, and things like visions, hallucinations, delusions, and such like, may occur whenever the organism is sick or in some other state of physiological disturbance or imbalance.¹

Thus far, imagination would refer to the external-common sense apparatus insofar as it has the capacity for retaining sensible objects and which can then [re-]appear in different ways under different circumstances. This capacity would be distinct from the external and common senses not according to subject, but in contradistinction to their capacity for receiving sensible objects strictly at the moment of actual sensation. The primary function of imagination would then be to conserve and store appearances so that they remain in the senses in a more permanent manner. This would give a sense power dispositions, eventually leading to more definite and habitual ways of acting in ulterior acts of sensation. It would be ultimately for this end that imagination would also have the power to reproduce the conserved appearances: repetition of reproduction reinforces retention, hence, strengthening the capacity for acting in a determinate way.² In this manner, it may even be asserted that appearances retained after actual sensation are not decaying sensations so much as the contrary, namely, sensations that have embedded themselves within the sentient subject's sensitive apparatus.³ However, since the conserved appearance is within a sense organ, it can, unlike the appearance of actual sensation, be separated from the original appearance which is its cause, and, consequently, it may reappear at moments outside of actual sensation and in ways that do not necessarily correspond to anything in external reality. Therefore, "there is no need to assume any precise *correspondence* between *phantasma* [a conserved appearance] and that which it is a *phantasma* of."⁴ Whenever a conserved appearance reappears, it may do so in the same way as it was

¹ On dreams, see *Dr* 1, 459a 15-23 and *SI* 2, 456a 26. On imbalanced states, see *Dr* 2, 460b 1-27.

² This is not to deny the possibility of some habits being formed by one or few sensations if they are quite intense.

³ Contrary to Kahn ("Sensation and Consciousness," p. 16), e.g., who considers imagination, as well as memory, to be "activities of decaying sense." Appearances that are conserved in the senses could only decay out of lack of use, i.e., lack of being reproduced repeatedly. But if that is the case, then they are not really conserved appearances and do not truly follow the purpose of imagination, which is precisely to retain appearances for later reproduction.

⁴ D. Frede ("The Cognitive Role," p.285).

retained, or in another order (including a completely disorderly fashion). This is especially so in regard to the appearances formed by the common sense which, being composed of a multiplicity of different sense-impressions, can be quite complex and are open to being decomposed or rearranged. Since the common sense is constantly forming new appearances during actual sensation, if there is little or no repetition in the constant flux of appearances, the chances for retention of the appearances, and in exactly the same way as they first appeared, are greatly reduced. Thus if these fleeting appearances are conserved and reappear, they are likely to be different from the original appearance. Add to this the fact that these conserved appearances often reappear spontaneously and at almost any time, whether the animal is awake or asleep; it will be no wonder, then, that they do not correspond to the external sensible reality that is presently before the cognitive subject. This explains why Aristotle considers the appearances of imagination to be often, though not always, false and, in particular, those that appear during sleep.¹

Perhaps the difference between those conserved appearances that arise during actual sensation, and are true because they correspond to an appearance of actual sensation, can be distinguished from all the others that are false by calling the former a "real appearance" or phenomenon and the latter a "mere appearance" or phantom.² Hence, the repetition of actual sensations can be said to reinforce (by accumulation) the conserved appearances having the character of being phenomena, thus helping the common sense to discriminate and distinguish these from those that are more like phantoms. This has the added benefit of giving the animal the ability to interpret any new appearances received in actual sensation by comparison with, or in the light of, those conserved appearances that are more phenomenal in quality.³ The interpretative property of phenomena is especially noticeable in those instances where the appearance of sensation is not very clear and one is thereby obliged to exercise one's imagination to try to fill in the missing details, so to speak, in

1 *DA* III.3, 428a 5-15 and 428b 18; *Prtp* B101. Aristotle (*DA* III.3, 428 b 18-30) notes the conditions for error in imagination due to error in sensation according to the three sensible objects.

2 D. Frede ("The Cognitive Role," p.280) notes that $\phi\alpha\nu\tau\alpha\sigma\acute{\iota}\alpha$ can possess these two meanings in Greek as well as *appearance* in English. That these two meanings can be understood in this way is, however, an extrapolation from this observation.

3 This is how we understand Aristotle's remarks at *DA* III.3, 429a 2-6 that the name $\phi\alpha\nu\tau\alpha\sigma\acute{\iota}\alpha$ is derived from $\phi\acute{\alpha}\nu\omicron\varsigma$ (light) and guides animals in their actions.

order to perceive it more clearly and distinctly.¹ This interpretative activity may consist in a continual comparison, by association of appearances, between the appearance gained in actual sensation and the corresponding phenomenon it stimulates in the animal. As the poorly sensed appearance is interpreted in the light of a phenomenon that is vaguely similar to it, it becomes more clearly sensed which, in turn, stimulates the reappearance of another phenomenon resembling it even more and so on until the cognizable subject is clearly perceived through the appropriate phenomenon. According to Bynum², this interpretation of sensations through conserved appearances is a general rule of sense-perception, not just something that occurs in instances of inaccurate sensation. Following Nussbaum, he claims that whenever a sentient being is awake, it continually receives perceptual stimuli (*aisthēmata*); but it is only when “the *phantasia* aspect of *aisthēsis*” (that is, the power of imagination) comes into play that it actively focuses on some subject in the environment and separates it from the context as a certain thing. Thus the animal passively receives sensations, “But unless they are interpreted by *phantasia*, the perceptual stimuli are not seen as anything - they have no ‘meaning’ or significance to the animal who has them.” This constrains Bynum to conclude that since how something appears to an animal depends in part on the animal itself, the inclusion of *phantasia* in the process of perception means that this becomes a “fundamentally interpretative process.” The power of imagination and its capacity for retaining and reproducing appearances enables the animal to interpret subsequent appearances during actual sensation.

Although up until now imagination looks to be a strictly passive capacity co-extensive with the sense apparatus, there probably exists in animals with a more developed imaginative capacity, a separate and active power following upon the common sense.³ For these

1 Aristotle mentions this case at *DA* III.3, 428a 5-15, which Schofield (“Aristotle on the Imagination,” p.258) comments: “If we clearly see a man, we do not say: ‘It looks like a man’, since the caution, doubt, or non-committal [sic] implied by that form of words is out of place. It is when our eyes let us down that *phainetai* becomes an appropriate locution; and the judgement we make by employing it is not straightforwardly a report of what we perceive, but a more guarded statement of how what we perceive looks to us, how we interpret it.” Schofield maintains that φ α ἴ ν ε σ θ α τ ἰ is sometimes used “to express scepticism, caution, or non-committal about the veridical character of sensory or quasi-sensory experiences” (p.251), and that instances like these reveal that “in *phantasia* we consciously or unconsciously interpret the data of our senses” through the power of imagination (p.259).

2 “A New Look,” pp.100-01.

3 Thus, by analogy with a specific and general meaning of the common sense, we propose active and passive imagination, the first being specific and requiring a distinct organ and power while the second could be found throughout the external-common sense complex. Another analogy with the common sense might

animals, the conserved appearances do not only reappear (passively) after being stimulated by actual sensations somewhat resembling them, but may also reappear (actively) before actual sensation takes place so that the animal would have an appearance of something in its absence, which can then aid it in interpreting the things it encounters in its environment. This active power of imagining can be under the control of the animal because the conserved appearances, being within the animal itself, need only be reproduced by some sort of internal stimulation. It is at this point that reappearance or representation takes on its full significance, that is, the re-appearance is a re-presentation, a making present once again before the animal something that is actually absent at that time. The animal perceives the presence of the conserved appearance in place of an absent actual appearance being represented by the former. It is probably especially this operation of imagination that enables the cognitive subject to do and undergo many things according to it, such as guiding its actions and local movements and, in man, assisting the activity of thinking which Aristotle states cannot be done without appearances.¹ As an example, the hunger of an animal may stimulate it to reproduce the conserved appearance of its food, according to which it will search for and find it. The conserved appearance reproduced in an act of imagining, or imaging, would therefore provide the animal with the ability to interpret, discriminate, and recognize new instances of its food whenever an appearance similar to it presents itself in sensation.² This operation is probably at the core of perception in contradistinction to sensation. If sensation signifies the reception of a sensible object from external sensible reality, perception signifies the reception of a sensible object from external sensible reality in the light of a conserved appearance which gives the animal the ability to

be made by viewing passive imagination as the participation of this power in the external-common sense complex and active imagination as a distinct organ and power. Be that as it may, Aristotle (*DA* III.11, 434a 1-4) does note that imperfect animals have indefinite imagination. Thus, it could be that those animals having imagination in a limited form probably have it co-extensive, to different degrees, with the sense apparatus in the form of accumulated conserved appearances and dispositions without having a separate organ or seat of imagination, while those having the capacity to actively reproduce appearances likely have a separate organ and power of imagination to accomplish this act.

1 On the use of imagination to guide animal movement, see *DA* III.3, 429a 5-8 and III.10, 433a 9-12; and, *SS* 1, 436b 19-21. For imagination in thinking, see *DA* III.7, 431a 15-16, and 431b 2-9.

2 The recognition through imagination may be somewhat limited since recognition seems to be possible only through memory when the present appearance is perceived as a likeness of something else. More on this in the next section. Observe, as well, that active imagination need not be limited to reproducing things as they are in reality. See, Bynum ("A New Look," p.101) who grants $\phi \alpha \nu \tau \alpha \sigma \acute{\iota} \alpha$ three capacities: 1) "to interpret percepts and thereby perceive an object as an object of a certain sort;" 2) "to retain perceptual traces after the object of perception is no longer present, plus (in some animals, at least) the ability to manipulate and combine them in various ways;" and, 3) "to interpret perceptual traces and their combinations representing possible or actual objects and states of affairs."

interpret (and recognize to an extent), hence perceive, the sensible object because, in possessing a conserved appearance, it already knows to an extent what it is perceiving in actual sensation. Perception can therefore be described as the interpretation of a sensation in the light of an "imagination," which would bring to completion the act of sensation.¹

4.3 Memory

By means of the appearances retained through the imaginative power, the cognitive subject acquires the ability to interpret a new present appearance in the light of a conserved appearance similar to it. This is particularly so for animals that can actively reproduce the conserved appearances on later occasions to interpret a new present appearance. However, it is only through the power of memory that something sensed at the present moment is perceived and recognized as a likeness of something else sensed in the past. If imagination disposes the cognitive subject to an initial, limited form of perceptive recognition in the interpretation of a new present appearance, memory, by fully recognizing the present with reference to the past, situates the present appearance in time and begins to establish some continuity and order in sense cognition.

A memory and a conserved appearance of imagination are similar in that both are kinds of conserved appearances and, as such, are two ways by which an animal can retain that which was once present but is now absent.² De Corte notes the close link between memory and imagination by affirming that they are formally indistinguishable insofar as memory supposes imagination as a prior activity, only adding to the latter a reference to the thing which the conserved appearance of imagination represents.³ It is precisely this reference to the thing represented by the conserved appearance that distinguishes the conserved appearances of memory from those of imagination. This thing is, according to Aristotle,

¹ This seems to manifest the manner in which sense knowledge is acquired by comparison and association since the interpretation here is an association and comparison between appearances.

² Hicks (*De Anima*, p.457) considers memory to be one species of "phantasm" (appearance). Grosseteste (*In Post An.*, p.39,4) calls memory a "*potentia retentiva*" and admits that, "*Hic enim dicimus memoriam communiter ad imaginativam que retinet formas sensatas, et ad memoriam proprie dictam que retinet intentiones estimatas.*" What it is "*intentiones estimatas*" signifies, and how they differ from "*formas sensatas*," will be examined below.

³ *La Doctrine*, p.135. Cf. Bonitz (*Meta Comm.*, p.38): "*Itaque quum suspensa sit ab imaginatione memoria*."

past time since this is the proper object of memory.¹ The reference to past time requires that the cognitive subject be able to perceive the time that has elapsed between the moment when the external sensible thing was present at some time in the past and the actual present moment when this thing is actually absent though still present in the cognitive subject as an appearance conserved in memory. Since Aristotle² asserts that the perception of time belongs to the same sense power as that which perceives magnitude and motion--for time is a concomitant of motion and is its measure--, the power of memory would belong to the common sense. This could be understood as indicating a distinct organ and power of memory in the cerebral cortex consequent upon that of imagination, and acting on the appearances conserved by imagination.³

How does an animal add the aspect of past time to a conserved appearance so that it be perceived as a memory? Otherwise said, how does the conserved appearance make reference to the thing sensed in the past, thereby becoming a memory representative of it? If it is to refer to a moment in the past, then one condition for memory to occur is that there be a lapse of time; as a result, it obviously cannot arise at the moment the thing is being known for the first time in actual sensation.⁴ Instead, when the cognitive subject is actually remembering, it is as if it is saying to itself that it heard or sensed this before, which is only possible if the thing remembered was already sensed (at least) once before.⁵ The quintessence of memory is that feeling or sense of *déjà vu*, that although the present actually being sensed is new and different, one senses that it has already happened before.⁶ Thus memory seems to be an interpretation made of the appearance of the present thing

1 *Mem* 1, 449b 14. D. Frede ("The Cognitive Role," p.286), wondering why all "after-images" (i.e. conserved appearances) do not belong to memory answers that it is because memory "is always the act of remembering a past experience *qua* past."

2 *Mem* 1, 450a 10-13 and 451a 18.

3 Aristotle (*Mem* 1, 450a 21-25) remarks that memory belongs to the part of the soul to which φαῖτασία (appearance) belongs, which he designates as being the "primary sense organ" (τὸ ὑπὸ πρῶτου αἰσθητικοῦ). This may suggest that common sense is being used in a wide meaning. As will be seen, Aristotle defines memory as a habit of an appearance, which could imply that memories can be found throughout the entire external-common sense apparatus, as is the case with (passive) "imagination." Could this be yet another case of participation of a higher power in a lower?

4 *Mem* 1, 449b 25 and 2, 451a 20-30.

5 *Mem* 1, 449b 23-24 and 450a 19-20.

6 We do not intend to neglect the possibility of remembering something which is not actually present, such as remembering the birth of a child later in its life. But as this seems to be more an act of recalling, which is somewhat different from remembering (the act presently being studied), we leave it aside.

actually being sensed through a conserved appearance, such that the act of sensation somehow causes the present appearance to be known as representative of the original thing from which the conserved appearance came sometime in the past. This perception of the present appearance as a memory representative of the past origin of the conserved appearance seems to happen as a result of an incompatibility, despite there being some similarity, between the appearance of actual sensation and the conserved appearance. In fact, the incompatibility stimulates the cognition that the conserved appearance is not the same as the appearance present in actual sensation and must therefore be not present, that is, absent. In other words, whereas the perception of an actual appearance through a conserved appearance of imagination likely focuses on the similarity between the two appearances, thus engendering the perceptive [re-]cognition of the present appearance, the perception of an actual appearance through a conserved appearance of memory focuses on the difference between the two: the appearance now present is not the same as the now absent appearance conserved from the past. But what could the incompatibility be, especially since the conserved appearance must be similar to the present appearance in order that the latter be recognized in perception? Even if the two appearances, the present and the conserved, are completely identical in the sense that they are both of the same numerically one thing, there will still always remain at least one difference, namely, the time of actual sensation. The actual appearance of Socrates sensed now differs from his actual appearance sensed yesterday as to the time of actual sensation, and if this discrepancy stimulates the cognitive subject, then the appearance of Socrates now through the conserved appearance of him will be perceived as a memory representative of Socrates himself sensed in the past. Thus, memory seems to be generated from a perception of the cognitive subject's activity of sensation and the fact of an appearance being retained in it from the past. This stimulates the knowledge of a lapse of time and, with it, the temporal ordering of the two appearances: the present appearance sensed now comes after the conserved appearance sensed before.¹ Memory would, therefore, seem to consist in a temporal association or relation ordering two appearances according to before and after.²

¹ Aristotle (*Mem* 2, 452b 23-29) affirms that actual remembering occurs when the motion of the thing (actual sensation) and the motion of time are simultaneously generated in the cognitive subject.

² Aristotle (*Mem* 2, 451b 11-16) notes that one motion has another by nature following it, and sometimes only one experience is required to establish the order. Sometimes the order is by custom and for the most part while sometimes one motion follows the other of necessity. He notes, finally, that this succession is the basis of recollection. It is probably the association given along a temporal order that makes animals with the power of memory more intelligent than those without. See *Meta* 1.1, 980a 28 where Aristotle affirms that those animals having the power to remember are more intelligent and apt at learning.

If the discrepancy in time of actual sensation stimulates or generates the activity of remembering, the relation according to before and after characterizing memory is, nonetheless, known through the relata, that is, since the present appearance is perceived as being a likeness representative of the origin of the conserved appearance sensed in the past, there are really two distinct appearances in memory, one being the original and the other being a copy of it, which can then be related according to time.¹ In fact, an original always precedes any one of its copies or likenesses so that the perception of something now as being a likeness of something else will not only engender the representational relation of original and copy, but also the temporal relation of original coming before the copy. This ordering seems to occur when the power of memory is stimulated to retain an appearance for the first time, for at that moment of sensation the appearance conserved by memory is associated with the cause of the appearance and is therefore known to be like the original appearance present in sensation coming before it in time.² The association of conserved appearance with its origin in terms of original before copy constitutes a memory, and when this memory is stimulated on a later occasion, the appearance present in sensation will be perceived as a likeness because of the original-copy association made by memory. It is the perception of likeness that indicates that the perception has fully become recognition, that is, re-cognition, another cognition of (more or less) the same thing. The present appearance is interpreted in the light of the original of which it is a likeness, which is really an interpretation in the light of the past, for the cognitive subject senses the present as something having happened before by knowing or being aware that the original is something now absent and past. The sense of having happened before proper to remembering reveals how the present appearance is not interpreted through the conserved appearance in itself (since this is just as present to the animal as the appearance in actual sensation because it is retained and reproduced now), but, rather, through the original from which came the conserved appearance and with which it is associated in memory, including the lapse of time separating these two and which makes the original known as something coming before. The present appearance thus perceived can be said to be "coloured" by

¹ See *Mem* I, 450a 26-30 and 451a 15-18: "φαντάσματος, ὡς εἰκόνοσ οὐ φάντασμα, ἕξις."

² Aristotle (*Dr* 3, 461 b 21-30) states that when the true impression is gone, the remnant remaining from it can truly be said to be like the true impression Coniscus though not the true impression itself. In other words, a conserved appearance is like the present appearance but not the present appearance itself.

memory because it is situated in time and even in space, namely, the here and now of the actual sensation of the original which memory recalls as then and there. This may help clarify Aristotle's remarks¹ concerning the appearance which can be considered either in itself or in relation to something else. In the act of remembering, the present appearance is perceived through the appropriate conserved appearance as a likeness of the origin of the conserved appearance, which original is associated with the conserved appearance in a memory, and the present appearance is thus related to the absent original. In the act of perception, on the other hand, the present appearance is perceived just through the appropriate conserved appearance and is simply recognized in itself. So, whereas memory is composed of two distinct appearances, the present appearance perceived through the conserved appearance and the original with which the conserved appearance is associated, perception has just the present appearance perceived through the conserved appearance of imagination; consequently, whereas the first activity will make reference to an original coming before its likeness sensed in the present, the second will simply make reference to the present appearance as it is in itself. In the end, the perceptual interpretation and recognition of memory, interpreting the actual sensation in the light of another thing sensed in the past, expands on that of imagination which interprets sense-perception only in the light of imagination and reinforces the phenomenal character of a conserved appearance qualifying it as a real appearance because of its association with the original.

If imagination and memory are both powers by which appearances are conserved, why, then, does memory retain the origin of the appearance while imagination does not? Since both retain appearances coming from acts of actual sensation, then the answer to this question may lie in the answer to this other question: why do actual sensations sometimes stimulate an animal to retain a conserved appearance in imagination while at other times in memory?² The answer must indicate something about a sensation that makes the external sensible thing originating it important or significant enough for it to be retained along with the appearance conserving the sensation. Recalling that sense cognition serves the sentient being to help maintain it in existence, it would appear that any sensation perceived as either threatening or benefiting an animal's existence would certainly be worth remembering and

¹ *Mem* 1 450b 11-51a 3.

² Averroes (*De Demonstratione Expos.* p.563) notes: "*Quando enim non sentitur aliqua res, impossibile est recordari illius, et omnis memoria, quae fit, sequitur sensum, et non convertitur hoc, scilicet quod non ex omni sensu sequatur memoria.*"

stimulate the power of memory to retain the origin of the sensation. The principle of memory would therefore be a very relative and pragmatic one: whatever sensation is perceived to be beneficial or harmful, advantageous or disadvantageous, with respect to the survival of an animal would likely be remembered.¹ But how can an animal know through sense things like the harmful or advantageous or useful since these are not sensible qualities? After all, are they coloured or soft or moving? These things seem to be accidentally sensible to the external senses like substance is; however, they can become sensible insofar as sensations during the moment of actual sensation can also concomitantly produce pleasure or pain in an animal. The concomitant presence of pleasure or pain signals to the sentient being the physiological state of its own organism and how it is reacting to the thing originating the sensation.² Therefore, it can be affirmed that the pleasure or pain concomitant to actual sensation stimulates memory retention of a conserved appearance and its origin. Common human experience shows, in fact, that we retain and recall more easily moments of great pleasure or pain, and those events perceived to be life or death situations. Otherwise, if there is no significant pleasure or pain, memory will not be stimulated and the appearance of the external sensible thing may be retained by imagination.³ This difference between an appearance conserved by imagination and one conserved by memory may explain why Aristotle defines memory as being a habit of a (conserved) appearance while a

1 Aquinas (*Summa*, Ia, q. 78, a. 4): "*Cujus signum est, quod principium memorandi fit animalibus ex aliqua hujusmodi intentione, puta quod est nocivum vel conveniens.*" The harmful or beneficial "*intentione*" mentioned here by Aquinas is equivalent to the "*intentiones estimatas*" differing from the "*formas sensatas*" mentioned by Grosseteste quoted above. These intentions will be described shortly.

2 Kahn ("Sensation and Consciousness," p. 15, ft. 41) finds Aristotle's treatment of pleasure and pain ambiguous because they are sometimes described as being a sensation and sometimes as an accompaniment of sensation. He does, however, consider the latter to be the stricter significance. Mure (*Aristotle*, p. 122) describes the relationship between pleasure and that which is good for an animal thus: "And sense, like all conscious activity, is also feeling - that is pleasure and pain. Now Aristotle regards pleasure as inseparably accompanying, if not actually identical with, free unimpeded activity, and pain as similarly connected with the obstruction of activity. Hence the feeling which all sense-apprehension also is, qualifies the subject not as passive but as active; and, further, since successful self-maintenance is at once its proper function - its good - and its pleasure, a brute may be said to apprehend and pursue its end as something without distinction good and pleasant." As we understand it, pleasure and pain are sensations usually closely related to, or coming from, the sense of touch, the sense essential to all animals and present throughout the entire body. In this way, they can be, and often are, concomitant to the activity of sensing something.

3 Notice that not all sensations are necessarily retained by imagination either. A list of those that are not likely to be conserved would include: sensations so minor that they are for all practical purposes inexistant or leave the animal indifferent towards them; sensations that are not attended to and not formed into, or not included in, a composite appearance; those obscured by stronger sensations or other activities; and, sensations related to the proper functioning of the body which are only perceived when there is a malfunction.

(conserved) appearance is simply said to be an affection of the common sense. In fact, since the pleasure or pain present during actual sensation stimulates retention of the appearance in memory, and pleasure and pain are sensations within the animal itself indicating to it its physiological state, the conserved appearance of memory, by its association with the concomitant pleasure or pain, would be more deeply rooted in the animal, thereby fulfilling the nature of a habit as an appearance embedded with fixity within the cognitive subject and giving it a determinate way of acting.¹ However, once an appearance is associated with pleasure or pain, this association will not only give a determinate way of acting cognitively but will also give a determinate way of reacting to the cause of the pleasure or pain. With this is introduced the last internal sense, the estimative.

4.4 Estimative Sense

The examination of the power of sense and the cognition it provides began with a look at how it can be considered to be a “critical” capacity. It was stated then that sense serves the purpose of maintaining an animal’s existence by providing knowledge of both external sensible reality and the animal’s internal physiological state, especially with respect to how it reacts to influences coming from its environment. Common observation indeed shows that animals search for and respond to things in the environment not only with respect to their sensible qualities, but also with respect to their beneficial or harmful character, thus showing that sense ultimately furnishes a pragmatic type of knowledge relative to an animal’s being. This implies that animals are capable of perceiving these, which Aristotle² takes into account by claiming that almost all sense cognition is necessarily accompanied by pleasure or pain, inciting, in turn, a desirous response on the part of the animal experiencing these sensations: to seek or flee (or fight) the thing causing the pleasure or pain. Now although pleasure and pain may be the stimulus and principle of memory retention, it does not appear that memory could also perform the added activity of responding and reacting to a present sensible subject causing these sensations. Memory only enables the cognitive subject to interpret a present appearance in the light of its original in the past. To act in the present according to a past pleasure or pain is, however, a

¹ These thoughts continue the previously mentioned idea that appearances conserved by imagination are actually the opposite of decaying sense-impressions. Imagination and particularly memory interiorize external reality by developing an appearance that is phenomenal in character and will arise habitually in correspondence to the present reality being sensed.

² DA II.2, 413b 22-23.

different operation presupposing that of remembering. Thus, the activity of perceiving and reacting to pleasure or pain must belong to another sense, and though Aristotle himself apparently does not explicitly mention such a power, Aristotelians of the medieval period admitted the existence of the *vis aestimativa*, the estimative power, in an attempt to present more clearly Aristotle's ideas on the role of pleasure and pain as stimuli in animal behaviour.¹ It is with reference to this power of estimation, the last not only of the internal senses but of all the senses, that the pragmatic and "critical" nature of sense cognition manifests itself in the form of a reaction to a present sensible subject.

As both the senses of memory and estimation are stimulated by pleasure and pain, the difference between the two powers and their cognition may be shown by examining what it is that probably occurs the first time a cognitive subject encounters a cognizable subject causing these sensations. At the initial moment of actual sensation, a cognizable thing happens to stimulate a concomitant pleasure or pain in the percipient subject, thus making it something significant for the subject. This provokes memory to associate the present appearance with its origin so that it can conserve this appearance as a likeness of the original and establish the ability to recognize the original. But the sensation of pleasure or pain itself has not yet been accounted for; therefore, the estimative, which is also stimulated by the pleasure or pain, would account for this by associating the memory just formed with its concomitant pleasure or pain. Like memory, this appearance of estimation will also conserve the association according to a temporal order, namely, appearance of sensation (conserved in a memory) before pleasure or pain. An estimation, as it may be called, will thus be a conserved appearance incorporating two associations: one proper to memory of a copy linked to its original, and one proper to estimation associating the memory with its concomitant pleasure or pain. In this way, the original will be associated with the pleasure or pain it causes through the association of the concomitant sensation with the conserved

¹ Kahn ("On Thinking," p.367, ft.15), after remarking that the cognition furnished by sensation in the strictest sense, that is, the proper and common sensibles, is extremely limited and fragmentary, notes: "Even for animals much more is required, since they can perceive dangers of different sorts and react to their environments in complex ways. Apparently Aristotle thinks of such behaviour as the work of *phantasia*; the medievals introduce the *vis aestimativa* as a sub-rational form of intelligence, 'evaluating' the data of perception. Aristotle is much more concerned to mark out the gap between *nous* and *aisthêsis* strictly conceived than to fill it by an account of intermediate capacities."

appearance which is a copy of the original.¹ A sign showing that pleasure and pain are not a part of memory is that during an act of remembering, the cognitive subject merely interprets a present appearance as a likeness of an original sensed in the past and has the knowledge that this has happened before, without necessarily including the pleasure or pain that accompanied the original, and without necessarily inciting any sort of reaction on the part of the animal recalling the past.² As memory's object is the past and that which comes before, its activity would seem to be oriented toward the sensation coming before the pleasure or pain it causes, and not toward the pleasure or pain coming after, although its operation will be stimulated by its presence. Consequently, as that which comes after, pleasure and pain would be outside the scope of memory, and, at this point, the estimative would take over acting on the pleasure or pain coming after. The memory associated with pleasure or pain thus becomes an object of benefit or harm such that the thing originating both the sensation and its concomitant pleasure or pain will now be perceived in this light. This will incite an appropriate response on the part of the cognitive subject. Thus, the association established by the estimative turns out to be a kind of causal relation, namely, the principle of *post hoc ergo propter hoc*, providing the cognition that sensation causes pleasure or pain because it comes before.

The activity of estimation as separate from that of memory becomes even more evident when on a later occasion the cognizable subject is recognized through its appropriate memory. Upon the recognition that the cognizable subject is something that has been sensed before, the estimative takes into account the pleasure or pain by associating with the present appearance the aspect of pleasure or pain it conserved with the memory. This association will incite a response to the thing even before the concomitant pleasure or pain is actually sensed. It is this ability to perceive that which comes after before it actually takes place that characterizes the estimative power and distinguishes it from memory. If memory is of the past, estimation can be said to be of the future. If memory interprets the present appearance in the light of the past as a likeness of the original, estimation can be held to interpret the present appearance in the light of the future as a benefit to be desired or a harm

¹ This seems to be the nature of an "*intentiones estimatas*" said above (by Grosseteste and Aquinas) to be perceived by estimation: a composite appearance consisting in this association of appearance of a thing perceived as a likeness of an original, a memory, and its consequent pleasure or pain.

² Even if all acts of remembering have some degree of pleasure or pain, the fact that we do not always automatically or spontaneously react when remembering something seems to show that this is a different activity requiring another power.

to be avoided. If memory operates on the sensation and the cognizable subject originating it, the estimative operates on the concomitant sensations of pleasure or pain caused by the cognizable subject. Due to the presence of pleasure or pain in actual sensation, a cognitive subject is first stimulated to conserve the appearance as a phenomenon by associating the appearance with its origin in external sensible reality such that it is a copy of it (a memory). Once this cognition of external reality is established, the subject must then include itself in the picture, so to speak, by associating the pleasure or pain located within its own organism with the phenomenon (an estimation). In this manner, memory and estimation are seen to be complementary senses providing an animal with the ability to perceive the motion going from sensation to pleasure or pain in a temporal order, and to adapt and adjust itself to it. In a sense, it may be affirmed that just as a memory is a kind of conserved appearance (of imagination), similarly, the appearance of estimation is a kind of memory since both involve an association of appearances according to a temporal order. It may be said that memory (vaguely or partially) perceives the association from the perspective of the sensation coming before whereas estimation perceives it from the other relational term, the pleasure or pain coming after; however, in another sense, it is really the estimative that takes care of both sides of the relation because an estimation includes a memory and builds on it, just as memory builds on imagination's appearance. So, whenever an animal has such a memory of estimation stimulated during an actual sensation, not only does it perceive the present appearance to be a likeness of some sensation that happened before in the past, but it also recalls the concomitant pleasure or pain that came after that sensation and was associated with it. Thus the estimative memory recalled by estimation will interpret the present appearance, not just as a likeness of something sensed before, but either as something harmful, and therefore to be avoided, or as something beneficial, and therefore to be sought.

It is, therefore, the estimative's capacity to interpret the present appearance as harmful or beneficial that will enable an animal to react to the thing originating the present appearance. The presence of pleasure or pain in the cognitive subject acts as a sign acquired through its senses that the cognitive relationship established with the cognizable thing is or is not appropriate to it.¹ Thus, the association formed by the estimative between the organism's

¹ Aristotle (*DA* III.7, 431b 10-12) affirms that that which is good or bad imply a reference to a particular whereas true or false do not, which can be understood to mean that the beneficial or harmful is relative to each individual cognitive subject.

pleasurable or painful state and the thing sensed as causing this state will be an imprecise and vaguely known association made between the animal itself and the external sensible thing, such that it is a cognition giving rise to desire or appetite for what is beneficial and to avoid what is harmful.¹ The cognitive subject acting in accordance with the desire necessarily following upon pleasure and pain will then be able to adapt to the cause of these sensations in its surroundings. As mentioned, the utility of the power of estimation is that it enables an animal to react to the source of sensation before the consequent pleasure or pain comes because once an animal senses something on another occasion and recognizes it as a likeness of something sensed before, the subsequent pleasure or pain associated with this memory in an estimation can arise simultaneously with the likeness, and the present sensible will be interpreted as something harmful or beneficial. By establishing the causal relation of *post hoc ergo propter hoc* in its association of sensation before pleasure or pain, the estimative can use this association to carry out the reaction it effects because, acting on the pleasure or pain present in an estimation, it associates this with the present appearance which is perceived as coming before. In a very real sense, then, the pleasure or pain is already present in the animal through the conserved and reproduced estimation stimulated in the act of sensation and, as a result, it will react according to this appearance within it prior to actually sensing once again the concomitant pleasure or pain. In this manner, the sense of estimation performs its function of stimulating or provoking a reaction to the present sensible thing, thus perfecting the ultimate purpose of the sense powers: to aid the cognitive subject to adapt to and move through its environment.

4.5 Experience: The Sum of Sense Cognition

When an animal reacts to something in its environment through its estimative sense according to an estimation, the pragmatic cognition it acquires could be called an

¹ See Shute (*The Psychology*, pp.60-61): "This prime factor in causing movement - appetence - is described in terms of interaction between the organism and its environment. [...] Here [i.e. in *DA* 433b and *MA* 700b-703a] Aristotle deals with the way in which an environmental object, which itself is unmoved, sets the organism in motion. The total moving cause is immediately broken up into stimulus and response (response being considered in the wide sense of any actualization of a potentiality of the organism by stimulation of the environment), the stimulus-response relationship between the environment and the organism being in accordance with the nature of the organism, which nature itself may be defined in terms of determinate capacities to respond to environmental factors." Shute (p.57) defines appetite thus: "Appetence (ὄρεξις) [...] which may be considered in its potentiality as the power of the organism to be stimulated to desire by an object in the environment, or in its actuality as the desiring or craving of the organism for some satisfaction to be found in or through activity."

experience.¹ This affirmation requires, nevertheless, some qualification. Unlike other forms of cognition and the cognitive powers and acts which produce them, Aristotle does not provide any formal, orderly explanation of experience and the cognitive power and activity that produce it.² This could suggest the conclusion that, according to Aristotle, there is no need for an estimative power of sense--either this, or he left it out for reasons unknown--and that experience is not really a form of knowledge proper to any one sense but is rather an accumulation of sense knowledge acquired through all the senses. Now the estimative would be an unnecessary sense only if the act of responding to a sensation according to its concomitant pleasure or pain is possible simply by its stimulating a memory, that is, memory is not only stimulated by pleasure and pain to form the original-copy association, but it also forms the association of the concomitant pleasure or pain with the original-copy appearance. On the other hand, if memory can only provide cognition of the past and perform the activity of remembering, then the estimative sense, by acting on the pleasure or pain coming after, would be responsible for associating this with the memory and interpreting a present appearance as a future benefit or harm, hence, inciting the appropriate reaction to it. Note that in either case a memory would always be involved; but distinguishing between two separate and complementary powers both using memories does appear to provide a plausible explanation of the nature of sense perception. As for the cognition of experience, it is said to be the pragmatic knowledge gained after reacting to something according to an estimation. When an association is made for the first time by the estimative between an appearance and its subsequent pleasure or pain, it may be said to be an event rather than an experience because it is something of relative importance that happens to the cognitive subject without it being able to react through its power of estimation according to an estimation. An experience will occur when the cognitive subject encounters the thing, or something very much like it, on another occasion and is able to

1 Experience translates the Greek ἐμπειρία. In Latin, as Stromberg ("An Essay," pp.1-8) points out, both *experimentum* and *experientia* are used to translate the one Greek word. A quick survey of several Latin translations of II.19 reveals that *experimentum* appears in Iacobi (p.105), Ioannis (p.182), and Guillelmi (p.342) (for these, see Mimio-Paluella and Dod, eds., *Latinus An Post*) whereas Averroes (*De Demonstratione Expos*, p.563) has *experientia*.

2 In *DA* and the natural treatises subsequent to it, there can be found more or less complete discussions of the objects, acts, and powers involved in sense cognition according to the different external senses as well as the internal senses of the common sense, imagination, and memory. Even the intellect, despite the fact that its operation is said to take place without the use of a corporeal organ, finds a brief examination in these texts dealing with natural, i.e., physical, corporeal phenomena. But, of experience and the estimative power, there does not seem to be a word.

react according to the conserved estimation before the consequent pleasure or pain is sensed. Experience, as opposed to an or one experience, could then refer to the resultant cognition gained by the cognitive subject after having reacted to the same thing on several or many occasions. In this manner, experience can signify more of a habitual way of acting or reacting of the cognitive subject as a whole and not of any one specific capacity of sense.¹ But if experience signifies a cognitive subject's habitual way of reacting to something, rather than a cognition proper to the estimative sense, it would then be more accurate to consider an estimation as being a discriminative act performed with the aid of a memory rather than an appearance in itself.² Memory will therefore be the only appearance involved in experience which is rather to be understood as an action or reaction, single or habitual, to the environment effected by associating a pleasure or pain to a memory through a discrimination (of pleasures and pains) carried out by the estimative sense.

An experience would therefore be a complex form of cognition incorporating sense cognition acquired through the inferior powers. It would include not only the sensible qualities used to make a representation of something in sensible reality, but also the association of time and the causality of *post hoc ergo propter hoc*, such that the appearance is related to the cognitive subject through the sensations of pleasure and pain that the latter experiences during the act of sensation. An experience would thus incorporate a sensible (not intelligible or intellectual) awareness of time as well as an awareness of "subjects" perceived as "other than me," as "self," and of an "inter-subjective" relationship between the two. This would constitute another way of viewing experience as a sum of sense knowledge: each experience incorporates a single appearance gained through the operations of every level of sense beginning with the external senses and terminating with the estimative, which makes possible the essential purpose of the senses, namely, adaptation to the environment relative to an organism's physiological state to maintain or ameliorate its existence. The hierarchical unity of the senses in the sentient being enables it to gradually reestablish a greater unity of sensible reality as this presents itself to it. At each level, the

1 Cf. Stromberg ("An Essay," pp.4-8) who recognizes three meanings of experience: 1) In relation to the beginnings of human knowledge in which the knowledge of the external senses is referred to as "experimental," e.g., one act of hearing can be described as "experiencing the sound;" 2) The product of several experiences (sense 1) or observations made over a period of time which can be considered as a passive collection of sense data; and, 3) The ordering and organizing of experience (sense 2). Thus the last meaning would incorporate the first two as prior steps.

2 This may be why Aristotle has the "lacks" just mentioned concerning experience.

cognition acquired by the inferior power serves as the matter from which the superior power acquires its cognition, and the activity of the superior power on this matter gives the cognition a new form.¹ There is, as a result, an increasing unification in complexity of sense knowledge: disparate sensible qualities are united into one appearance conserved and reproduced for perceptive recognition, then ordered with the concomitant pleasure or pain according to before and after to interpret in the light of the past the beneficial or harmful character of the present appearance, thus provoking a reaction. Ultimately, that which is present to the sentient subject and sensed in an act of sensation is, through being interpreted in the light of experience, situated in a time transcending the present instant of sensation because experience makes use of the past to anticipate the future, that is, the present appearance in the act of sensation is situated as coming before the subsequent pleasure or pain which is perceived by the cognitive subject to already be there and present with the sensation.

Due to the complexity of experience, error is always a possibility.² In general, the types of possible errors can be divided into those related to the sensible qualities making up an appearance corresponding to the cognizable subject and those with reference to the association between sensation and pleasure or pain. Obviously, if the external-common sense complex errs with respect to both the incidental and accidental sensibles, then the appearances of things in external reality conserved by imagination, and especially memory, can lead to mistakes in recognition. The estimative, using such appearances, will consequently not react appropriately to things. The case of associating pleasures and pains to the sensations which are indeed the causes of them is also open to errors, such as when a sensation causes a pain on one occasion and then pleasure or nothing on another. A dog, for example, may associate boot with pain after being kicked by the postman. But if the postman's boot does not do this the following day, the dog will react wrongly if it flees or tries to bite it. As a consequence, there arises the need to repeat the cognitive acts involved to reduce or overcome errors on both fronts, an idea already hinted at in Aristotle's

1 Cf. Aristotle (*Post An.*, pp.293-94, n.10-11): "Many memories of the same thing are only the material cause of one experience, for in many animals they do not produce any experience; hence, such memories are necessary but not sufficient for one experience. Similarly, a sensation relative to a memory of it is a cause as matter only, for in some animals no memory results from a sensation. [...] a set of sense impressions is a necessary but not a sufficient condition for the formulation of a formula in the soul [i.e. an experience]." 2 *DA* III.1, 427b 1 notes that error is more intimately connected with animal existence and the soul continues longer in the state of error than in that of truth.

affirmation that one experience comes from not one, but many memories of the same thing.¹ Experience usually requires frequent repetition through trial and error, both to reinforce the appearances it conserves so that they correspond more faithfully to reality and to help the cognitive subject better discriminate pleasures and pains to establish an appropriate habitual response to a given thing or situation.² There is, however, one “error” that is actually essential to the survival of an animal. When the estimative sense associates the pleasure or pain to the memory stimulated during actual sensation with the present appearance so that it can react to it before actually sensing the pleasure or pain, this association of sensation before and pleasure or pain after does not correspond to the present appearance of sensation alone. The estimative’s interpretation of the present appearance as harmful or beneficial is an error or falsity in cognitive terms, but one making it possible for the cognitive subject to obtain or avoid the not yet present benefit or harm. The method of trial and error commonly associated with experience (and experimentation) thus acquires a positive significance since it seems to be an attempt made to see if this error really does work, hence, proving itself to be something useful and advantageous.³

Experience, both in the sense of an individual one arising from a discriminative act of the estimative and, to a greater extent, in the sense of the accumulation of all the individual experiences had by an animal, is the summum of sense knowledge furnishing a truly practical form of knowledge, a certain know-how, a savoir-faire, and not a “speculative knowledge of appearances.” Each attempt or trial promotes a reduction in errors in an animal’s actions/reactions and increases its ability to operate more easily and correctly with regard to things in sensible reality.⁴ The knowledge of experience consists more in an action or a habitual way of acting on the part of the cognitive subject rather than in cognitive

1 This is an implication we read into this statement (made at *Post An* II.19, 100a 4-5 and reiterated at *Meta* I.1, 980b 27).

2 Cf. De Corte (*La Doctrine*, p.135): “Une sensation bornée au moment présent doit se répéter. Cette répétition même l’assouplit [i.e. the sentient capacity], la rend plus susceptible de recevoir la diversité d’aspects des formes, la fait tourner à l’entour de l’objet pour en saisir la complexité, la modèle en quelque sorte sur son donné, de sorte que les chances d’erreurs subissent une réduction proportionnelle à cette répétition.” See also p.153.

3 Thus, the affirmation that animals are said to be more often in a state of error actually possesses some worth if one uses a pragmatic, rather than speculative or theoretical, criterion of truth. We follow the etymology proposed by Stromberg (“An Essay,” pp.4-8) who notes that the root of the word *experience*, $\pi \epsilon \rho \alpha$ in Greek and *peritus* in Latin, suggests a trial or attempt on, thus an activity performed by the knower to gain knowledge and put it to use.

4 Aquinas (*In Meta Comm*, I, 1.1, n.17).

habits of a sense power. As it is presented thus far, experience can be common to both man and beast (at least those having the capacities to acquire it) since it is still just sense knowledge.¹ Being formed from many memories and individual experiences, animals endowed with good memories and the power of estimation could easily acquire experience without the use of an intellect.² Human experience, on the other hand, is much more vast and complex than these rather simplistic associations made between things and their harmful or beneficial character. This suggests that human experience incorporates the use of intellect, which man alone among the animals possesses.³ A sign that experience is uniquely human can be found in that Aristotle mentions *logos* with reference to experience in II.19 (so that both come from or, at least, come after memories) and suggests that it is a principle of art and science.⁴ There does not seem to be any problem with maintaining that animals do have some experience; but the presence of the intellect in man increases his capacity to acquire a more complex form of experience, thus giving this knowledge the quality of being uniquely human. When it comes to man's intellectual endeavors, experience, as the sum of sense knowledge, can play a very important role; however, its practical and pragmatic nature must be subordinated to the intellect's theoretical activity of coming to know and understand the natures and essences of things. As a consequence, the treatment of human experience that will follow will focus on the cognitive element in experience, that is, the kind of knowledge experience gives us about things when it is understood as an accumulation of many memories about one thing; for, the association of pleasure and pain leading to action considers things relative to us whereas the conserved appearance is the closest knowledge we have of things in and for themselves because this is how they appear to us before any action takes place.⁵

1 Aristotle states as much at *Meta* I.1, 980b 25: animals live by experience "but slightly."

2 See *Mem* I, 450a 15-22 where memory is said not to be dependent on intellect and can therefore be found in many animals.

3 Ross (*Pr and Post An*, p.676) notes the ambiguity of Aristotle's thoughts on experience: "It is not easy to see what Aristotle wants to say about ἐμπειρία, the connecting link between memory and art or science. Animals have a little of it; on the other hand it involves thought."

4 100a 1-3. Cf. *Prtp* B28-29. Commentators such as Pacius (*Organum*, p.347, n.5), Philoponus (*In Post An Comm*, p.435,3-5), Eustratius (*Post An Comm*, p.263,23-27), and Themistius (*Post An Paraph*, p.63,13-14), all consider experience to be human because of the presence of λόγος, which is generally understood to refer to some kind of intellectual activity and universal knowledge. The signification of λόγος will be studied in the next chapter.

5 If the focus of this dissertation were the role of experience in art or human action, then experience as a habit of action would be just as relevant as the cognitive aspect since making and doing are actions.

CHAPTER V

THE HUMAN EXPERIENCE

The complexity and richness of human experience indicates that it differs in some way from experience in other animals. The source of this difference is likely to be found in the one cognitive capacity that only man among the animals possesses: the intellect. The term *logos* used by Aristotle to characterize the kind of knowledge following upon memory is, in effect, usually taken as signifying this intellectual capacity proper to man. Now the term *logos* is notoriously ambiguous because of the many meanings it can bear. Bonitz¹ classes all the various meanings of *logos* to be found in the Aristotelian corpus under four main ones: 1) voice, language, and the spoken word; 2) notions and thoughts signified by the spoken word (a meaning transferred from the first); 3) the faculty of thinking and reason(ing); and, 4) mathematical ratio or proportion. The dilemma is to determine which one(s) of these significations is intended by Aristotle so that what exactly is being revealed about the nature of human experience can be better known.² Except for the rather vague “power of systematizing” (Mure’s translation), all translations interpret *logos* as expressing something specific to the human intellect understood as reason and its rational activity or one of its various conceptual products. If one follows the translations cited, the second and

1 *Index*, pp.433-37.

2 As an introduction to the possible meanings it can have in this instance, here is a list of translations given of the word (γίνεσθαι) λόγον at 100a 2: Mure and Tejera- develop a power of systematizing; Barnes- come to have an account; Apostle- can form a formula; Warrington- the forming of a conception; Taylor- reason is produced; St-Hilaire- se forme la raison; Tricot- se forme une notion; Guillelmi- *ratiocinatio*; Gerardi- (*quedam*) *comprehendunt rem universalem*; Ioannis, Iacobi, Soto, and Zabarella- *ratio(nem)*. It may be readily seen that compared to the pretty well unanimous translation of λόγος as rational discourse in the expression μετὰ λόγου, there is much more variety here in interpretations, thereby signalling a difficulty in determining the significance of λόγος in human experience.

third meanings noted by Bonitz, thoughts signified by words and the faculty of thinking and reason(ing), are the most likely candidates. The mathematical meaning seems an unlikely candidate and can be put aside, while the reference to language remains a possibility. Wedin, in fact, figures that the “two most likely candidates” in this context are reason and language, and he even sets forth several ideas on how language could be used to explain concept acquisition, especially concepts of substances which are accidentally sensible.¹ The uncertainty as to whether the account of the cognitive process presented is meant to explain concept acquisition or the formation of propositions, or perhaps even both, further complicates the choice to be made when the focus is on *logos* as signifying the expression of thought. Though Barnes² translates “account,” which for him means a definition and suggests concept acquisition, he says that the distinction between skill (*texvê*) and understanding (*epistêmê*) is to be explained propositionally and not conceptually. Apostle³ is also uncertain as to what the term signifies and offers as possibilities a belief, a concept, or a combination of concepts. He explains that his translation by “formula” is meant to suggest a belief or combination of concepts, but if taken literally, would suggest a universal concept used in the formula, for example, *man* in “Callias is a man.” This would agree with the example provided in the primary text which makes reference to concepts. But, as stated in chapter 2, if the account is intended for all principles of science, conceptual and propositional, then *logos* would signify both types of thoughts. Since *logos* appears within Aristotle’s description of the cognitive process resulting in the habit of the first principles of science, that is, the different “dispositional” capacities required for its generation, it is quite probable that *logos* is intended to signify a cognitive capacity, namely, the intellect and its faculty of thinking and reason(ing). Still, this would not automatically exclude thoughts, whether conceptual or propositional, used in thinking, nor language by means of which rational discourse takes place.

But all this attention on *logos* may lead us to overlook that an experience is said to come from many memories of the same thing, “a coagulation of memories,” as Ross⁴ describes it, and, as such, seems to be a form of sense knowledge. The reference to memories implies that experience is primarily sensible, but the mention of *logos* indicates that the

1 *Mind and Imagination*, p.146. Wedin’s views will be examined later in the chapter.

2 *Post An*, p.264.

3 *Post An*, pp.292-93, n.9.

4 *Pr and Post An*, p.677.

intellect is involved in sense experience. How, then, can experience simultaneously be sensible and intellectual? One way to reconcile the two views would be to admit the possibility of an intellectual faculty working in concert with a sensitive power. Another would be to recognize the possibility of an intellectual activity whose knowledge and comprehension is still highly dependent on sense cognition rather than being properly intellectual and conceptual. Experience could then be a type of sense knowledge made from memories and a type of intellectual knowledge because of the presence of *logos*, whether this signify the activity of reasoning and thinking, language, or the thought being expressed through rational and linguistic discourse. *Logos* would thus signify this influence in general of the intellect on sense and could help explain the complexity and superiority of human experience over that of beasts. However, is such an influence possible? And if so, how?

5.1 *Logos* as Thinking and Reason(ing)

The notion of a higher capacity influencing a lower has already been presented in the previous chapter on several occasions. Inasmuch as the intellect is superior to the senses, its influence on them does not, therefore, seem impossible if both these capacities exist in an entity that is one and indivisible in being. Now with respect to the external senses, the influence of the intellect can be seen in several ways. Man has the ability to control, to a limited extent, the activity of sensation, such as being able to avoid distractions to direct his attention and concentrate on something when perceiving it. He can even refuse to see or listen if he chooses. Oddly enough, even the antagonism sometimes existing between sense and intellect--evident in man's experiencing contrary desires because sense desires that which is present while the mind, aware of the future, tells him to hold back--is a sign of the influence of intellect on the external senses.¹ If the external senses, which are farther from the intellect in the hierarchy of cognitive capacities, can be influenced by the intellect, then the internal senses, too, can be affected by the intellect. First of all, imagination is said by Aristotle to be either calculative (*logistikê*) or sensitive, and only man can possess the former whereas the latter is available to all animals endowed with imagination.² This

¹ On this antagonism, see *DA* III.10, 433b 5-12.

² *DA* III.10, 433b 28-30. See also Soto (*de Demonstratione Comm.*, p.493) who says: "*homines vero qui sunt virtutis intellectivae, possunt unum ad aliud singulare comparare, non solum in intellectu, sed quodam modo etiam per virtutem imaginativam, quae altior est quam in brutis.*"

participation of intellect in imagination may explain the creativity often conferred upon imagination. If imagination is simply considered to be the power to conserve and reproduce appearances, then, it would be only under the influence of the intellect that man could rearrange, order differently, in short, play with the appearances or images called up through imagination. Again, Aristotle¹ admits that though the power of memory may be found in most animals, the capacity to recollect is found only in man because recollection is a form of inference (*sullogismos tis*), and this latter is obviously a logical activity of the intellect which animals other than man, lacking intellect, could not accomplish. Finally, the medieval commentators who introduced the estimative as a separate sense power sometimes call it a *ratio particularis* or a *vis cogitativa* to show that this power in humans differs from that in other animals by its participating in or being influenced by the faculty of intellect.² What is the nature of this intellectual influence on the estimative and how does it affect the experiential cognition gained through the senses?

When *logos* signifies thinking and reason(ing), the intellectual activity being referred to is the movement proper to reason, that is, a movement from one thing to another, a going back and forth between two concepts, say, or a discourse from what is known to what is unknown. This was already mentioned and described when looking at the definition of the syllogism, which is one example of this rational operation performed by the intellect. However, this could not be the rational motion suitable to experience because there do not as yet seem to be any concepts involved in the appearances and associations gained in sense knowledge. Perhaps the influence of the intellect may transform experience into universal and conceptual knowledge, but as a collection of memories, experience gained through the senses alone cannot go beyond this state of sense cognition prior to intellectual activity. There is, however, another rational movement of going from one to another that can be appropriate to experience. It takes the form of collating or gathering together a multiplicity to compare them in one act.³ This "rational turning about" over a multiplicity can occur whenever the intellect turns, in a reflexive act, its rational activity toward the plurality of

¹ *Mem* 1, 450a 15-20 and 2, 453a 5-15.

² See Aquinas (*Summa*, Ia, q.78). Aquinas (*In Meta Comm.*, I, l.1, n.15) uses the expressions *ratio particularis* and *vis cogitativa* to name the estimative power and to name the power tied to experience. See also his *In DA Comm.*, II, l.13, n.397 where he asserts that the sensitive power in its highest aspect shares in the intellectual power in man "*in quo sensus intellectui coniungitur.*"

³ Mauro (*Braevi paraph.*, c.XI, n.6) and Pacius (*Organum*, p.346, n.5).

memories making up an experience.¹ Thus, the matter of this activity would be individual memories, and reason would move about from one memory to another, collecting and collating those that are similar in some way to form an experience by grouping, organizing, and ordering them according to perceived similarities. Since memory is only a power of retaining appearances as likenesses associated with its original, it does not appear that it could perform the added operation of ordering the conserved appearances according to similarities. Certainly, it is possible that the ordering of appearances takes place by the superimposition of appearances that are quite similar and which set up an impulse or movement in the sensitive powers that will often follow the same path in the sense apparatus; however, such habits of memory would be limited in number and would probably not be very precise or definite because of the variety in sensible qualities and the complexity of the appearances and associations involved, especially in the case of composite appearances formed by the common sense. All memories and experiences relating to human beings, for example, would probably form quite a jumbled mass if the senses were left to order the impulses set up in them solely by the sense-perceptions of humans in concrete situations. The diversity in the appearances of individual humans and the multiplicity of associations due to the complexity and variety of human activities would likely overwhelm the capacities of sense to organize reality according to appearances of "the same human" solely on the basis of sensible qualities received through the external senses and unified by the common. The presence of intellect could then aid in the ordering of memories according to many kinds of similarities, some of which may even transcend strictly sensible qualities. This would elucidate the medieval commentators' view that the *ratio particularis* deals with individual, and not universal, "intentions."² In effect, as a product of sense perception, memories are particular or singular appearances, such as, Socrates, Plato, and so on, and not universal intentions, such as, the species *man* or the genus *animal*. (Even if they involve associations, these are always between one singular appearance and another.) In this manner, a rational activity of the intellect working with memories, this "ratiocination about particulars"³, could form a unified cognition about one

1 Albert (*In Post An Comm*, II, tr.V, c.1 (p.102): "*a sensibili cognitione stante in anima, super quam est conversio rationis.*" Romanus (*Post An*, col.7): "*Cognitio experimentalis ad intellectum pertinet non ad intellectum ut cognoscit recto respectum vel aspectu et ut accipitur secundum se quia hoc modo intellectus non cognoscit particulare, sed universale. Sed experimentalis cognitio pertinet ad intellectum prout coniunctus sensui per reflexionem cognoscitur particulare et ratiocinatur de particularibus.*"

2 See, e.g., Aquinas (*Summa*, Ia, q.78, a.4).

3 Aquinas (*In Post An Expos*, II, l.20, n.592): "*Sed tamen experimentum indiget aliqua ratiocinatione circa particularia, per quam confertur unum ad aliud, quod est proprium rationis.*"

and the same thing, that is, an experience of that thing.

It may be wondered whether this collating and assembling of many memories into one experience about some one thing is actively done by the human subject or not. Is it a consciously willed act or an unconscious and innate operation of the cognitive capacities involved? Perhaps there is an element of both. On the one hand, since the matter of experience is a result of sense cognition, the percipient subject is passive and must undergo the acts of sensation that will then be retained in memory; on the other, since rational activity is a capacity of the intellect, which Aristotle¹ says is within our will power, man would seem to actively organize sense knowledge after it has been received. Maybe the influence of the intellective faculties on the sensitive powers is always occurring without being consciously willed such that the internal senses can operate "logically" or "intellectually" to some extent. Recollection, as was said, is a special act of human memory alone because a syllogistic inference and order between items being recollected can be established. Now common experience shows that we often recollect things even without having consciously ordered them when they were first experienced and stored in memory. The same argument can be used in the case of creative imagination, for again there are times when artistic or "poetic" products of imagination seem to arise without necessarily being willed by the artist. Similarly, then, memory under the influence of the intellect would be able to order and organize conserved appearances and associations along similarities, at least to a certain extent, without a conscious effort on the part of the cognitive subject.

Nevertheless, in the case of experience, conscious reflexion on different memories concerning one thing would certainly allow one to better find similarities and improve upon one's innately formed experiential cognition. Stromberg admits that the proper sense of the term experience in English is a cognition that is actively sought by man, as reflected in the expression "to learn from one's experience."² The proper sense of experience (as already mentioned with reference to its etymology: a trial or attempt on) is a uniting or putting together of knowledge to make a use of it, such as, knowledge gathered for the practical conduct of life, or the construction of things, or speculative judgments about things. As Stromberg affirms, experience is taken, not just received. This active meaning of experience may even eventually take the form of experiment or experimentation, and it

¹ *DA II.5*, 417b 21-25.

² "An Essay," p.6. The third meaning of experience cited in the prior chapter is intended here.

could be held that whereas experience would be acquired from a natural environment as it presents itself to simple observation, experiment would actively fabricate a controlled and artificial environment according to the dictates of reason and the hypotheses it forms to determine their validity or non-validity.¹ Consequently, though man may be dependent on and passive with respect to the things to be known, he must be active when organizing experiential cognition. Somewhat like the relationship between an inferior and superior sense, the sense cognition in memory plays the role of matter while the intellect gives it a new form by organizing the cognition found in it, and the more this systematizing is done consciously, the more man will be able to profit from his experience.

The influence of the intellect in all the internal senses would thus consist in an organization and ordering of appearances, the cognitive content of the powers.² Thus, *logos* could designate man's capacity to direct his intellect toward the sensible realm by influencing at least some operations carried out by the senses. With respect to experience, the rational collative capacity of the intellect would work in conjunction with memory to generate a better organized form of experiential knowledge. As well, just as many memories of one thing can be said to form one experience, many related experiences can be put together by the intellect to develop another kind of unity in sense knowledge. In this way, a relatively systematized sum of sense knowledge can gradually be formed in man, thereby helping him live pragmatically in the world. This would be why experience is said to be more properly human while animals only participate in it "but slightly." In fact, man possesses a greater capacity for trial and error because his intellect enables him to go beyond the knowledge acquired by sense, to imagine new situations, create new environments, order memories and experiences along similarities of all kinds, and to stretch the length of time knowable through sense giving him the ability to anticipate a more distant future. In short, with the help of the intellect, human experience can be greatly expanded.

1 Le Blond (*Logique et méthode*, p.433) apparently recognizes the presence of these meanings of experience in Aristotle when he states: "L'expérience hésite entre deux directions: en gros, sans doute, elle se caractérise au sens anglais de 'to experience', différent de 'to experiment': c'est 'la familiarité avec les phénomènes', plutôt que l'observation minutieuse et la mesure exacte, expérience personnelle qui se continue, par une transition naturelle, dans le recueil des opinions du grand nombre, et de la tradition des anciens; - mais, c'est aussi, parfois, au moins, la curiosité du rare, l'intérêt du collectionneur apporté aux particularités les plus minimes."

2 The translation of $\lambda\acute{o}\gamma\omicron\varsigma$ by "a power of systematizing" offered by Mure and Tejera could probably be understood in this way.

5.2 The Universal of Human Experience

Insofar as the intellect is turned toward sense knowledge, especially experience, it is subordinated to the pragmatic and practical purposes of sense. However, the senses and the cognition they furnish can also be used by the intellect in its speculative activity of knowing the essences and natures of things, and seeking an understanding of the reality encountered through the senses.¹ The importance of sense must not be underestimated, for, as Aristotle remarks, a lack of a sense power means a corresponding lack in intellectual knowledge--and not just sense knowledge--because things knowable only through the missing sense will no longer or never be known.² It is an acknowledgement of the principle that all human intellectual cognition must somehow originate in sense knowledge. Now due to the fact that experience is the highest form of sense knowledge, it is considered by some to have a certain kind of universality like intellectual knowledge has. This would especially seem to be the case because *logos* present in human experience indicates the presence of intellect. However, if *logos* can signify the collative activity of the intellect ordering the individual appearances making up experience, it does not thereby necessarily indicate any sort of universal cognition or thought transcending these singular appearances which remain in the senses, albeit in a more orderly and organized fashion. Does, then, the influence of the intellect also make experience a universal form of cognition? Or, is experience merely organized sense knowledge acting as the principle from which universal knowledge could come?

To determine whether experience is a universal kind of knowledge or not requires a comprehension of the nature of the universal itself. Once this is known, it will then be easier to judge whether or not experience is universal or not. First of all, *universal* signifies that which is predicable of many things because all of the things of which a given universal can be predicated have something in common, be it some property or quality, whether essential or accidental.³ Whiteness or the concept white is universal because it can be predicable of anything that is white in colour, which is the signification of this universal.

1 Aquinas (*In Meta Comm.*, I, 1.1, n.5): "*quia cum sensus ad duo nobis deserviant; scilicet ad cognitionem rerum, et ad utilitatem vitae; diliguntur a nobis propter seipso, in quantum cognoscitivi sunt, et etiam propter hoc, quod utilitatem ad vitam conferunt.*"

2 *Post An.* I.18.

3 *PA I.4*, 644a 26.

The universal is therefore linked to the universality of the mind and its act of signifying and expressing something definite. The universal, as such, is not limited by time or place in the sense that it must be predicable of all the instances falling under it, be it an instance in the past, present, or future, and presenting itself here, there, or wherever.¹ However, the term *universal* is not univocal in meaning nor proper only to the mind or intellect. According to Pacius, the term can have three meanings: 1) the universal at rest in the soul which contains or embraces the particulars sensed, remembered, and ordered through experience; 2) the one beyond the many; and, 3) the one in the many.² He then explains that the universal can be both *praeter multa* (beyond many) and *in multis* (in many) in the following manner: when the universal is in the intellect, it is said to be beyond the many; and when the universal is a species of a thing's nature, it is found or discovered in the many, that is, in each of the sensible singulars. Thus the same universal can be in the intellect and in the many; but, he warns that one beyond many signifies one after many (*post multa*), that is, after the intellect abstracts it from the many, and not before many (*ante multa*) as it would be for a Platonic Idea pre-existing all the singular copies participating in it.³ Although a universal can be both in the intellect and in the many singulars, Albert⁴ qualifies the universal in its proper nature as being one beyond many (in the intellect), but its being or existence is to be in the many inasmuch as the same essence is found in each singular and can come to rest in the intellect. In other words, the universal as existing in the plurality of sensible individuals (which, it must be remembered, are at the origin of all cognition) is a

1 Apostle (*Post An*, p.294, n.11): "the universal is not only of those things of which one has experiences but is of any other possible thing of the same kind, whether in the past or present or future, of which there may be an experience, for a universal is by its nature predicable of many things (in fact, of an indefinite number of things) having something in common and is not limited by time or place."

2 Orgarum, p.347, n.5: 1) "*quiescens in anima [...] quia sub se complectitur particularia;*" 2) "*urum praeter multa: quia ex multis particularibus colligitur, et abstrahitur per intellectum;*" and, 3) "*inquit esse urum et idem in illis multis.*"

3 That the universal is not a Platonic Idea or Form was a point already made in chapter 2. Cf. Philoponus (*In Post An Comm*, p.435,28-35) who gives these three meanings: 1) τὸ πρὸ τῶν πολλῶν - the universal coming before the many (of which it may be predicated and which is exemplified by Plato's Ideas); 2) τὸ ἐπὶ τοῖς πολλοῖς - the one on or above the many; and, 3) τὸ ἐν τοῖς πολλοῖς - the one in the many. Philoponus also claims that the one beside the many, τὸ παρὰ τὰ πολλὰ, found in II.19 is a universal in the second and third senses admitted by him, which, according to his commentary, means that there are universals not only in the intellect but also in sensible singulars. This agrees with Pacius.

4 *In Post An Comm*, II, tr.V, c.1 (p.102): "*Unde universale secundum sui naturam simplicem est urum praeter multa, quamvis secundum esse sit in multis ut similitudo essentialis in eis, quod scilicet quiescens in anima in omnibus acceptis per sensum, cum urum sit et simpliciter in essentia et effectum.*"

nature, a principle of the individual's motion and rest, and an essence, a principle of its being and cause of its existence, both of which refer to the form of an individual sensible substance. Once the nature and essence of the substantial form become known by the intellect, the form acquires intellectual universality and is seen to exist in a multiplicity of individuals possessing (specifically) the same nature and essence.¹ Therefore, that which is perceived to be common (or similar) to many individuals is only possible to an intellect that has conceived some type of universal cognition. This seems reasonable since the universal is said to be that which is predicable of many, which could only be possible if the universal were one beyond the many (in the intellect) as a predicate, yet still found in the many (in the singular instances) as subjects to which the universal predicate is attributed. Consequently, the universal would be predicable of many only when the intellect considers some specific substantial form that is present in a multiplicity of singulars apart from the singular instances in which it can be found.²

So, the universal (in one sense: in many) refers to a nature and essence present in a sensible individual which, once in the intellect, attains to its true nature of being universal (in

¹ Note that nature and essence are properly said of the species-form, which refers to substantial forms, like man or horse, and improperly of all other forms of being, like animal (part of a substance) or whiteness (an accident); for, the latter exist only in the former, which signifies the (specific) essence of individuals in sensible reality, this white man Socrates, in its entirety. Aristotle admits (in *Meta* XII.5, 1071a 28) that species-form can be of sensible individuals since each individual is said to have its own (numerically one) form and matter. On the metaphysical status of the similar and the universal, compare Aquinas (*In DA Comm.*, II, l.12, n.380): "*Sic igitur patet, quod naturae communi non potest attribui intentio universalitatis nisi secundum esse quod habet in intellectu: sic enim solum est unum de multis, prout intelligitur praeter principia, quibus unum in multa dividitur: unde relinquitur, quod universalis, secundum quod sunt universalis, non sunt nisi in anima. Ipsae autem naturae, quibus accidit intentio universalitatis, sunt in rebus.*" with Couloubaritsis ("Y a-t-il une intuition?," p.466): "[...] puisque la multiplicité des individus qui doivent apparaître à l'âme pour constituer l'universel, ne sera accueillie par l'âme que dans la mesure où les individus présentent entre eux une certaine identité. Ce qui veut dire que ce n'est pas à proprement parler la multiplicité des individus, en tant qu'ils provoquent une multiplicité d'expériences, qui rend possible la connaissance, mais le fait que les individus sont entre eux, par un certain biais, identiques. Cette identité préexiste, ontologiquement parlant, à la connaissance en tant que telle, comme l'ordre primitif de l'armée, on l'a vu, préexiste à sa reconstitution après la déroute. L'identité ainsi comprise constitue ici l'universel, le *catholou kath'auto*, et donc aussi l'intelligible; non seulement parce que cette identité représente quelque chose du réel, mais plutôt parce que cette identité constitutive de l'universel rend au réel son caractère suprasensible et intemporel, ainsi que sa possibilité d'être scientifiquement connaissable."

² Cf. Aquinas (*In Post An Expos.*, II, l.20, n.592): "*Quod etiam dicit esse unum praeter multa, non quidem secundum esse, sed secundum considerationem intellectus, qui considerat naturam aliquam, puta hominis, non respiciendo ad Socratem et Platonem. Quod etsi secundum considerationem intellectus sit unum praeter multa, tamen secundum esse est in omnibus singularibus unum et idem, non quidem numero, quasi sit eadem humanitas numero omnium hominum, sed secundum rationem speciei.*"

another sense: beyond many) because it is in this state of intellectual universality that it can be something common to many and predicable of all its instances. According to Pacius, neither of these meanings of universal apply to experience, which is instead said to be universal in a third sense, namely, the universal at rest in the soul which contains or embraces the singulars sensed and remembered and ordered through experience. The universality of experience is, therefore, that of a collection or grouping of singulars. It is worth noting that Pacius mentions the fact of ordering the singulars, an act which was seen above to be due in part to the influence of the intellect on the senses. However, he does not affirm that the universality of experience constitutes a universal in the sense of a one beside or beyond the many, another meaning of universal reserved only for the universal in the intellect. It would seem, then, that experience remains a form of sense cognition and that its universality merely refers to the fact of its being collated and ordered into groups based on various similarities. Being a group of similar memories, experience interprets the present in the light of a past composed of a collection of memories about the same thing rather than through just one memory. The similarity of many conserved appearances brought together thus seems to have a cumulative effect which gives experiential cognition a sort of universal quality without it ever attaining, though, the status of a universal in the intellect, a one beside the many.

The fact that universal is predicable of experience at all suggests, nevertheless, that this sense cognition is already somewhat akin to intellectual or intelligible presupposing a certain knowledge of the universal by the intellect. Alexander expresses this view when he observes that experience, in bringing together a plurality under one judgment or comprehension, is already a sort of rational knowledge and comprehension of the universal; however, since it does not give knowledge of the cause, it is not truly universal. Though experience may resemble art in that both unite a plurality based on similarities-- experience uniting similar memories and art, similar experiences--, only art is based on a knowledge of the cause, hence, universal.¹ De Corte echoes this in asserting that experience is the same as art insofar as both are a form of knowledge in which many things are reduced to one comprehension, but differ because the comprehension of experience is

¹ *In Meta Comm.*, p.4,20-5,13 and p.8,11-15. Cf. Granger (*Théorie de la science*, p.22): "L'art est donc un jugement subsumant sous un concept, l'expérience était un jugement associant des individus à une image générique." According to Granger, "image générique" signifies that experience's appearance, leaving out individual differences, consists in only that which is common to many memories.

only of the fact and turned toward the singulars collected and composing a given experience whereas art also knows the reason of the fact and is turned toward the universal.¹ Although the intellect orders and unifies sense cognition and similar memories into one experience, it would appear that it does not as yet perceive the unity itself as a one beside the many singulars collated. Experience can know that Socrates, when sick, was cured by this herb, then, Plato, when sick, was cured by this herb, and so on; however, although one may have a number of experiences, one may not necessarily unify them into the universal statement, "Every man, when sick, is (necessarily) cured by this herb."² Thus, predicating *universal* of experience ultimately signifies that the universal is known and knowable by the intellect as it is present in singular appearances being compared to each other, without it yet being considered apart from the particular instances. It is a meaning of universal that is in-between, and a sort of combination of, the other two meanings: the universal is known by the intellect, but as it is found in sensible singulars. Since the similar according to which the many memories are ordered is common to a plurality of singular sensible things, it can function like a concept or thought in being predicable of all those things possessing the similar trait.³ However, being limited to the many memories composing it, the unity of experience is unable to attain to a true form of universality, that is, one that contains potentially all cases: not just those of the past to interpret the present, but also those of the future. Hence, experience is said to be of the fact but not of the cause, or to be turned toward the singular and not toward the universal. The universality of experience is thus that of a pseudo-universal or a "confused universal": one that is not yet clearly defined or

1 *La Doctrine*, p.178: "l'expérience, liée à la mémoire et à la sensibilité générale, tout en se surelevant jusqu'à une certaine abstraction, reste néanmoins tributaire du particulier et penchée en quelque sorte sur lui, sans qu'il lui soit jamais possible de se détacher du fait (τὸ ὄν) pour saisir l'universalité de la cause (τὸ δὲ λόγον)." What is affirmed here about art is also valid for science. See Aquinas (*In Meta Comm.*, I, l.1, n.17-22).

2 Apostle (*Post Art*, pp.295-96, n.15) insists on the need to grasp the unity itself in order to possess universal knowledge. He mentions that the universal statement goes beyond experience in two ways: 1) "It includes potentially all other experiences of the same kind;" and, 2) "it leaves out those attributes of the corresponding experiences or sense impressions which are not relevant and so do not contribute to the effect." Cf. Barnes (*Post Art*, pp.263-64) who affirms that experiential cognition "grasps the constituents of a unity but not the unity itself."

3 Observe that Aristotle (*Meta*, l.1, 981a 5) does appear to accord experiential knowledge a degree of intelligibility when he states that a universal judgment of art comes from "many notions gained by experience" (ἐκ πολλῶν τῆς ἐμπειρίας ἐννοημάτων μία καθόλου γένηται). The word ἐννοημάτων seems to suggest the idea of an initial entry into thought: all similar singulars collected and fenced in by a first vague notion known as a similarity predicable of many singulars.

determined by the intellect because its comprehension is still fundamentally based on sense cognition.¹ Although experience is not yet a truly intellectual or conceptual universal, a one beside the many being an identity in them all, it is nonetheless a pseudo-intellectual universal of similarity, a one in the many appearances as a similarity known to be predicable of them all.

Experience could therefore be a potential universal from which would come the actual universal in the intellect capable of being used as a principle of science.² However, affirming that the universal comes from the pseudo-universal of experience presents an obstacle since Aristotle seems to equate, rather than differentiate, the universal gained in experience, "the universal now stabilized in its entirety within the soul" (as it is apparently described by him), with the universal serving as principle of science.³ Now this is no minor issue. If experience can also provide the same kind of universal knowledge as the principle of science and art, that is, universal in the sense of being a one beside the many, then experience itself can be this principle rather than merely being a pseudo-universal from which the principle would come. Not only would this contradict what has just been concluded about experience, if the universal as principle of science is identified with experience, it would then carry with it the important consequence of identifying the noetic habit stated by Aristotle to be of the principle of science with experience.⁴ Now commentators like Le Blond and Barnes who see a strictly empirical process (that is, no influence whatsoever of the intellect) in the development of the noetic habit formed from sense must and do make this identification between experience and the universal serving as principle of science and art. Once this is done, however, the gap between sense and the noetic habit ends up being eliminated because the noetic habit is reduced to the sensible

1 See Cajetan (*Comm In Post Art*, L2, c.13 (p.201) who explains how the universal in sensible particulars is gradually made known by the activity of the intellect by passing from the first stage of remotely intelligible to the proximately actual intelligible universal of experience, "*quod univrsale confusum possumus appellare*," and which is the last stage before the universal existing truly as a universal in the intellect.

2 Tricot (*Seconds an*, p.244, ft.5) says that experience "fourmit le point de départ de la notion universelle," and that "la notion elle-même, dégagée de la multiplicité des cas particuliers," is the principle of art and science. Cf. Waitz (*Organon*, p.431).

3 100a 6-9.

4 Another significant consequence would be the contradiction between this passage and the parallel passage in *Meta* (980b 26-981b 9) where Aristotle clearly and unambiguously states that experience is of singulars and the fact, and is that through which come both art and science which are of the universal and the reason (or cause) of the fact.

cognition of experience, and the intellect is either evacuated altogether or forever cut from this habit. As this would annihilate our subject, *nous* understood as an intuitive operation of the intellect, it is crucial that the universality proper to experience be well defined; therefore, an examination of this crucial passage along with a look at several interpretations will hopefully clarify the nature of experience and keep the door open to the existence of *nous*.¹

The major obstacle in determining whether experience is universal or not revolves around interpreting the description Aristotle gives of the universal. Depending on how one interprets and identifies experience with the description given of the universal, the passage could be given quite different, even contrary, interpretations. Now according to most interpretations the sentence seems to be divisible into three parts: experience; the all resting universal in the soul; and, the one beside the many which is a principle of science.² It is the identities established between these parts that determines one's understanding of the passage and, consequently, the relationship between experience and the universal.

The first possible interpretation would be to simply read the text as describing one thing, experience, and identify each of these parts so that experience is the all resting universal in

1 Le Blond (*Logique et méthode*, p.129, ft.1) provides a brief presentation of several interpretations of this passage, which we will look at more closely now. For the purposes of this analysis we tentatively translate the passage at issue quite literally as: "from experience, that is, from all resting the universal in the soul, the one beside the many, which in all one being for each the same, of art principle and of science."

2 The proponents of an empirical account of the formation of the noetic habit would likely object to the three parts proposed here and would probably demand that the last part be divided into the description of the universal as one beside the many and being the same in all, on the one hand, and the principle of science, on the other. It would then be possible to keep this description of the universal together with the one indicated in the second part of our division such that the three parts would be experience, the universal with all the attributes indicated by Aristotle, and principle of science. The translations of Mure, Bames, and Le Blond bear this out because they all insert right before the phrase, "τέχνης ἀρχὴ καὶ ἐπιστήμη," an implicitly understood verb left out in the original Greek (likely γιγνεται) and then attribute to experience the entire description of the universal. In this, they are in agreement with the latin translation accompanying Bonitz' text (Didot, ed. *Aristotelis Opera Omnia*) which inserts the verb "*oritur*" (in italics to indicate that it is not in the Greek) at this point. This view seems well-founded since the insertion of an implicitly understood verb is certainly justifiable and helps make better sense of the confusing passage. However, since some interpretations separate the description in the way proposed, it seems better to make room for this possibility. Besides, even the proponents of an empirical account do not deny that the principle of science is to be a universal one beside the many, hence, keeping these together is not really problematic. They just deny that this universal is something other than the sense cognition of experience, i.e., a universal one beside many, which interpretation is still possible with the parts listed here.

the soul and the one beside the many which is principle of science. This is Le Blond's view who says that experience is not other than the universal at rest in the soul and is not to be distinguished from the universal serving as principle of science and art. He takes $\hat{\epsilon}$ to be an explicative *kai* (*that is*) introducing the all resting universal in the soul as a clarification of experience, and then identifies this unit with the universal said to be the one beside the many and principle of science. This would provide an empirical understanding of the principle of science which is identified with experience, and whose universal would be strictly the accumulation of similar appearances.¹ Now if experience can be a single appearance resulting from the reinforcement of that which is similar and common to many memories coming to rest in the sensitive soul, then what would it mean for it to be a universal? What would be the nature of its universality? Firstly, the universality of this "residual image" (to use Le Blond's words) of experience would be like that of any habit formed in a sense power. For, as already explained, a habit is formed in the senses by imagination's capacity to conserve individual sensations which are then reproduced each time another sensation specifically the same is received by the power. If, then, this reinforced appearance of experience, which is really a habit of a power (possibly of several powers working together), is universal, then so would any other habit formed in the senses be universal; consequently, all sense habits, and not just *nous*, could be principles of science. Secondly, what sensible qualities would be present in such an appearance of universal experience? This is easier to see in the case of the eye for its habit of redness is formed from the sensible quality red. But what could the appearance of the experience, "sick man cured by this herbal medication," contain as sensible qualities? The herbal medication might have one appearance (hot pale green liquid, say) as well as the symptoms of being sick (such as runny nose and heat of fever) built from the repetition of quite similar sensible qualities. But when the senses perceive Socrates who is sick, then Plato

¹ Le Blond (*Logique et méthode*, pp.131-36) describes the empirical psychological process in which the soul is a passive receptacle of sensibles thus: "C'est ainsi, par accumulation et condensation des sensations semblables qu'est produit en nous l'universel spécifique, καθόλου, ἔν παρὰ τὰ πολλά, image résiduelle où les particularités individuelles, en se recouvrant, se sont neutralisées, et laissent seulement perceptibles les notes communes, qui ont été renforcées." (p.134). Le Blond takes this idea from Philoponus' commentary, agreeing with him in seeing the process as an accumulation of sensible appearances in which that which is common is reinforced; but, as will be seen, despite understanding the process leading up to it identically, the two conceive the nature of the universal differently. For a variation on this, cf. Averroes (*De Demonstratione Expos*, p.565) who holds the view that it is through the repetition of one form succeeding another form in the soul that one eventually obtains the universal; but, the universal would then contain all the particular forms that went into composing it, which apparently do not disappear into one reinforced appearance of a similarity.

who is sick, and so on, what sensible qualities are the same in each of these singular men that would reinforce the appearance of (sick) man? Is it their colour, their size, their weight, their odour that would form this appearance? These would probably be different for each individual and gradually fade for lack of reinforcement or maybe cancel each other out by setting up conflicting motions in the sense apparatus. There may only remain the basic shape of the human body; but this would have to be quite indefinite and probably faintly sensible because of all the individual differences and lack of repetition of precisely the same motion. On the other hand, this common core, whatever it may be, would have to be held to be the most sensible aspect of man because it is the aspect that would be reinforced by constant repetition. Paradoxically, that which would be reinforced by the sensible qualities would be that which would seem to be least sensible or present the least differentiation in sensible qualities among singular men; and because of its vagueness, it could be called a "generic image" that would differ from those more defined and detailed appearances of singular men.¹ If, on the contrary, one appearance of man cannot be formed due to a lack of similar sensible qualities, then it would be hard to see how such an appearance could be generated at all without the aid of intellect and its capacity to perceive the accidentally sensible substance *man* common to the individual men. But since an intellectual influence is not permitted on Le Blond's terms, the experience of "sick man cured by this herbal medication" would have the appearance of herbal medication associated with symptoms of sickness sitting in a subject man that is either vaguely sensible or not perceived at all. In either case, experience would still remain an individual sensible appearance and, as such, would apparently be incapable of going beyond spatio-temporal limits to embrace the universality--potentially all instances anywhere and anytime--proper to the universal of the intellect.

A second interpretation would consist in identifying experience with the all resting universal in the soul, but distinguishing it from the universal as one beside the many and principle of science. This seems to be Philoponus' understanding.² He takes *ê* to mean *kai*

¹ The notion of generic image can be found in Granger (*Théorie de la science*, quoted above) who maintains that experience is the universal at rest in the soul which is "un universel comme image générique" (p.21). See also Tricot (*Seconds an*, p.244, ft.1) who says of experience: "l'universel ou plutôt une simple 'image générique'," and expounds (p.244, ft.3) "Les notions [of experience] sont quelque chose de fixe et d'immuable; elles ont pour condition l'arrêt et le repos dans l'âme de ce qu'il y a de commun entre plusieurs images différentes."

² In *Post An Comm*, p.436,1-6.

(as an explicative *that is*) and says that experience is identified with that which is at rest in the soul; however, for some reason, Philoponus does not take this all resting in the soul to be universal in nature. One can wonder why he apparently ignores the description of that which is in the soul as being universal and only considers it as all resting; but, it is clear that he does not consider experience to be universal, nor identical to the universal, since he affirms that it is from experience, the all resting, that comes the universal, the one beside the many and which is one and the same in all the parts. Thus Le Blond followed Philoponus in treating \hat{e} as explicative and in identifying experience with at least that which is at rest in the soul; but he then diverges from him by identifying the last part, the universal as principle of science, with this. This explains the divergence in their conclusions regarding the universality of experience. Unlike Le Blond, Philoponus restricts the sensible cumulative process to the formation of experience, thereby differentiating between the resultant sensible appearance formed from the common aspects of the singulars constituting it on the one hand and the universal (in the intellect) which is principle of science, on the other.

A third interpretation would be the one proposed by Eustratius¹ according to which the all resting universal in the soul is identified not with experience (from which it is distinguished), but with the universal as one beside the many and principle of science. As a result, Eustratius, like Philoponus, maintains that the universal which is principle of science comes from experience and is not identical to or reducible to it. But contrary to Philoponus, he apparently ignores the \hat{e} and takes the description following it to modify the universal as one beside the many. Neither of the Greek commentators, therefore, consider experience itself to be universal.

Now, if the passage is thus divided into these three parts, there are no other interpretations possible since all possible combinations of the three parts are used. The central phrase, the all resting universal in the soul, can either be identified with only one or the other of the extremes--experience (Philoponus), or the one beside the many which is principle of science (Eustratius)--or with both of them (Le Blond). However, if Aristotle's text is respected as it is written, the part "all resting" should not be joined to the part "the universal in the soul" as if both parts referred to one thing. Instead, they should be kept separate so

¹ *Post An Comm.*, p.264,10-20.

that each part could then be identified with its closest extreme, that is, experience is described as all resting, while the universal in the soul is described as the one beside the many and principle of science.¹ The first identification is possible because the repetition of *ek* before “all resting” and introduced by *ê* taken as an explicative *kai* indicates that experience, the from which, is still being referred to. The phrase “all resting” could then be seen to be a reference to all the memories making up an experience that must somehow form a settled and determinate collection or sum of conserved appearances. The second identification concerning the universal is possible because of the repetition of the article *tau* (after “in the soul”), which indicates that the universal in the soul is being explicitly and clearly described as the one beside the many and principle of science. With these two units established, they can then be conjoined by the implicitly understood verb *ginetai* in accordance with the *ek... gignomai...* structure of the exposition begun a few lines earlier. Thus, one would retain the symmetry of Aristotle’s presentation: from sense comes memory; from many memories comes experience; and, “from experience, that is, from the all resting [comes] the universal in the soul, the one beside the many, which is one in all being for each the same, [and is] principle of art and science.”² Understood in this way, the sentence would clearly state that experience is not universal but that from which comes the

1 If Aristotle wished to refer to one thing, he probably would have written, τοῦ παντός ἡπεμήσαντος καθόλου ἐν τῇ ψυχῇ, placing the adjectival phrase between the article and the noun being modified rather than before the article as it is actually written. The same occurs in English: ‘the all resting universal in the soul’ is not the same as saying ‘all resting the universal in the soul’. The second, as is, makes no sense, hence, indicating the likely source of confusion. Philoponus must have read it this way because he, too, kept the two descriptions separate.

2 This interpretation has been helped by Zabarella’s (*Opera Logica*, p. 1270Bff.) (partial) comprehension of the passage. His translation of the passage reads: “*experientia vero, aut ex omni universali quiescente in anima, uno praeter multa, quod in illis omnibus unum insit idem,*” after which Zabarella admits its obscurity and that it may even be doubted because the principle of science must be universal while experience must be singular. He then reinterprets: “*ideo Aristoteles quasi corrigens interponit illa alia verba (aut ex omni universali quiescente in anima) ex ipsa enim experientia singularium gignitur [italics ours] universale in intellectu, quod est [italics ours] principium artis, et scientiae : ideo sensu verborum est, ex experientia vero, seu ex ipso universale fit principium artis, et scientiae.*” Notice how he understands the presence of the verb *comes* (*gignitur*) as being implicit in the passage, a point attested to by the translations noted above; but, unlike those translations, Zabarella places the verb between experience and universal instead of between universal and principle of science. Unfortunately, though, he still understands all resting and the universal in the soul as forming one unit, which he admittedly finds puzzling and attempts with difficulty to explain. If anything, the universal in the soul should be identified with the principle of science (again as Zabarella notices by introducing the last part by *quod est* in his reinterpretation) and the all resting could then easily be taken as a clarification of experience as being a group of similar memories. We surmise that Philoponus was probably aware of the implicit verb γίγνεται at this place, which would have led him to separate all resting from universal in the soul.

universal. Thus, there would only be one universal arising from experience, with the latter being just a pseudo-universal holding together in one group all the resting or stabilized memories composing it.

The appearance of experience and the universality appropriate to it can now be described in two ways: either as an accumulation of sensible appearances conserved as memories in which there is a reinforcement of that which is common or as a collection of similar appearances collated through the intellect's rational activity acting on the appearances retained in the internal sense of memory (and probably estimation, too). Whereas the first method using the senses alone can be present in both man and beast, the second can only be proper to man because of its additional use of intellect. Following the first description, experience can be understood to be a habit acquired by an animal giving it a definite way of acting in a particular circumstance perceived to be similar to the experience. It may be said that by perceiving a present appearance through such an appearance of the similar, experience is always erroneous because there is a lack of correspondence in regards to the perception of the present appearance's sensible qualities; but, it is precisely this error that allows for the cognitive subject to perceive in the present appearance the aspect that is similar to experience's appearance and to react to it appropriately. Since experience contains many memories, it no longer has the relationship of original-likeness present in one memory, but rather the relationship of similarity in which the present appearance is associated with the many memories of an experience as to their common aspect. Even if the perception of a present appearance must first always be through its corresponding memory, once this memory is associated with the others constituting one experience of the same thing, it becomes possible to compare it with these other similar memories, too, such that the present appearance would eventually be interpreted and perceived as to its common aspect, that is, that which makes it similar to all the memories with which it is associated in the comparison. Whereas memory's one to one association between original and likeness limits the use of the past because only another likeness sensed in the present will stimulate the corresponding memory, the plurality of memories making up one experience expands the usefulness of the past because the present appearance need only stimulate that which is common and similar to the experience. Since this plurality of memories associated as to what is common to them actually forms one experience, a unified form of cognition, it eventually develops into a habit of that which is common to them. As a result, the sense apparatus has become expanded, so to speak, so that the motion it receives does not have to

take one narrow and precise path to be perceived. As long as the motion is within the vicinity of the path traced out by the common aspect of many memories, it can be perceived as similar. Nevertheless, since the appearance of experience is quite complex (both in terms of the sensible qualities making up the things and the associations involved between different things), as well as being vaguely sensible with respect to sensible aspects that are common (because they must present little sensible differentiation among the singulars), there arises the possibility for making errors in associating the correct experience with a new present appearance: not every hot pale green liquid is medicinal, and sometimes several different illnesses can present the same symptoms. Thus the need for repetition through trial and error in the use of appearances of experience. Experience, more than any of the other conserved appearances, requires habituation, a sort of programming of the sense apparatus, so that it acquires the ability to interpret a present appearance correctly.

In the acquisition of experience, the perceptive capacities of the senses are, in a way, opened and made more flexible. They become less focused on, or less sensitive towards, sensible qualities because they perceive things not in their sensible singularity which differentiates one singular from another, but rather in their sensible similarity and commonality. The sense powers can be said to become less sensible and more intelligible when they act through experience and its appearances; however, there is a limit to this decreasing sensibility and increasing intelligibility. Experience always remains an association made between a present appearance and an appearance of similarity, no matter how vague the sensible content of the latter. Sensible substance, though incidentally perceptible through an appearance of a thing in its sensible integrity, always remains unknown per se even at this stage of sense cognition, and as shown above with the example of man, would therefore require the use of the intellect to be perceived. This point, added to the increased risk of error due to experience's appearance being impoverished in sensible content, seems to indicate the moment at which the influence of the intellect on the senses could be useful. Whether it be done consciously by an active reflexion on the plurality of memories or naturally and spontaneously without conscious reflexion, the rational activity of the intellect can greatly aid in organizing the appearances of experience by collating appearances along lines of similarities that remain vaguely perceptible or imperceptible to the senses. Just as the senses can be claimed to have a degree of intelligibility, so can the intellect be said to possess a degree of sensibility while collating appearances by vaguely perceiving, through its perception of a similarity common to all the

appearances being collated, the universal in the singulars as a one in the many without as yet perceiving it as a single identity beside the many. In this manner, both descriptions of experience actually turn out to be complementary. Describing it as an accumulation of sensible appearances reinforcing that which is common focuses on the powers of sense and how this cognition is acquired through them. On the other hand, viewing it as a collection of similar appearances collated through the intellect's rational activity acting on the appearances stresses the role of intellect in further organizing experience in a more systematic way. After all, the universal proper to human experience consists in a conjunction of sense cognition and intellectual knowledge.

5.3 Logos as Language and Thought (but *tithenai ta phainomena*)

Although experience is not the universal that is principle of science, Aristotle regularly claims¹ that experience provides the principles of science, in particular, those that are proper to a given science. Not only this, he even goes so far as to suggest that in certain physical sciences such as astronomy, once experience has provided a knowledge of the appropriate phenomena, the demonstrations and scientific knowledge of the reality of these phenomena are discovered pretty well simultaneously.² Being the highest form of sense cognition possible, experience holds a privileged place in the scientific search to explain and understand sensible reality. Trying to develop the science of medicine after perceiving only one sick person is not likely to be very scientific, that is, a knowledge of the cause(s) of the illness that can lead to an appropriate remedy.³ This may only come after having encountered many instances of sick people and having spent much time in studying the illness to learn its symptoms and how it runs its course: only through time and prolonged experience can one acquire a sufficient knowledge of sensible reality or a given portion of it.⁴ Just as an inferior sense power provides the matter for a superior power's activity, experience provides the matter of a science, the phenomena related to the subject of the science, which the intellectual activity of demonstrating conclusions attempts to explain. In the pursuit of scientific knowledge, the assertion that sense cognition is that which is better

1 *Pr An* I.30, 46a 18. See also *Prtp* B48.

2 See *Pr An* I.30, 46a 19-21.

3 We are well aware that medicine was considered an art, not a science, by Aristotle; but to the extent that the doctor must know the cause of an illness, his art, like all art, is based on scientific knowledge.

4 *NE* I.3, 1095a 1-11; II.1, 1103a 14-16; and, VI.8, 1142a 11-20.

known to us and from which is obtained per se, universal knowledge of things is therefore to be understood as signifying that the phenomena known through experience forms the prior knowledge. Consequently, the expression *tithenai ta phainomena*, to lay down the phenomena, found in Aristotle's works is most properly predicable of the appearances of experience. If memory gives a conserved appearance a phenomenal character by associating it with its origin, then experience, and especially prolonged experience which will be composed of very many memories of the same thing, strengthens and develops this phenomenal character and reduces the chances of being fooled by phantasms or unreal appearances and unessential phenomena. Consequently, the injunction *tithenai ta phainomena* can be taken as a methodological command to pose or lay down the phenomena as they appear to the eye of experience which sees aright; for, if the end or goal of a scientific theory is to save (the) appearances it is attempting to explain, it can only do so if it first begins by laying down the appropriate phenomena known through experience and whose reality can then be explained in the science.¹

The kind of experiential knowledge better known to us which can serve properly as material principle of science must, therefore, already be a rather sophisticated and evolved cognition of the phenomena.² As seen above, experiential sense knowledge can be intellectual to the degree that the intellect's collative activity puts some order in it such that the universal is vaguely and confusedly perceived as a similarity found in a multiplicity of singulars. Consequently, before it can be suitable for science which is of the universal, there must be a progressive movement from experience first acquired strictly through the senses to experience acquired through the senses but further organized by means of this rational activity of the intellect. Once this initial activity of the intellect is done, though, experience oftentimes penetrates still further into the intellectual realm. It is often remarked that Aristotle's conception of experience and the phenomena appropriate for scientific endeavours usually incorporates an examination of his predecessors' opinions, the *endoxa*, in a given science as well as of the linguistic structures of their words and the conceptual

1 Cf. NE VI.11, 1143b 6-14: "[Some habits are like natural endowments and caused by nature over time....] Therefore we ought to attend to the undemonstrated sayings and opinions of experienced and older people or of people of practical wisdom not less than to demonstrations; for because experience has given them an eye they see aright."

2 This is noted by Kahn ("The Role of *nous*") in his distinction, presented during the discussion of the principles of science, between everyday common concepts and scientific concepts.

structures these reveal.¹ In such cases, “reading the *endoxa* [becomes] merely a special instance of reading the *phainomena*.”² A look at the initial chapters of many of Aristotle’s treatises clearly reveal this linguistic and conceptual analysis of opinions and common beliefs taking place along with the description of the phenomena that are being considered to essentially compose the subject-matter of the science. This examination has the qualities of being historical, which is an acknowledgement of the necessity of time in the acquisition of experience, and dialectical, during which are probed the probability and rational consistency of prior attempts at selecting and explaining the essential phenomena belonging to the subject-matter. In this context of doing philosophical history, dialectics plays its role of gradually opening a road leading to the principles of science, such as preparing an adequate definition of the subject.³ Through dialectical arguments, false, ambiguous, and contradictory positions are eliminated, while the remaining theories and ideas are further tested to separate out what is probable and likely and closest to the truth, that is, there is a search for an adequate correspondence between the phenomena and the rational description and explanation of them.⁴ In short, the examination of opinions (whether it be one held by all, most, or only the wise) actually corresponds to the other two meanings of *logos* noted above, namely, language and the thoughts being expressed through language; and, with this dialectical inquiry of opinions concerning the phenomena of experience, we encounter another way in which *logos* not only influences and orders sense cognition, but, in fact, transforms and translates it into intellectual knowledge so that it can become a suitable material principle of science.

1 Owen (“Τιθέναί,” pp.83-86) recognizes two meanings of τὰ φαivόμενα: 1) “empirical observations;” and, 2) the ἔνδοξα, “the common conceptions on the subject,” and the λεγόμενα which “turn out as so often to be partly matters of linguistic usage or, if you prefer, of the conceptual structure revealed by language.” He points out that whenever Aristotle wishes to distinguish the first meaning from the second, he calls it a perceptual phenomenon, “τῶν φαivομένων κατὰ τὴν ἀΐσθησιν” (DC III.4, 303a 22), and distinguishes it from an ἔνδοξον. Irwin (*First Principles*, p.26) also affirms that Aristotle has two methods of going from things known to us to reach principles known by nature: 1) empirical inquiry, which begins from perception; and, 2) dialectical inquiry, which begins from common beliefs. The two are closely related, for, as Irwin (p.31) remarks, “All the appearances relevant to inquiry reflect someone’s fairly immediate belief.”

2 Kosman (“Maker Mind,” p.358).

3 *Top* I.2, 101a 34-b 4. See also *Rh* I.2, 1358a 10-25 which states that the proper subjects of dialectical and rhetorical syllogisms are commonplaces or topics: some are more general while others are more specific to a particular subject and come closer to the principles of its science.

4 Weil (“Place of Logic,” p.100 and p.107): “[Dialectics, as it is understood in *Top*, deals with opinions which] constitute, for the end of serious discussion, the sum of the knowledge acquired by mankind, and thus form the indispensable starting-point of every scientific inquiry.” See Owen (“Τιθέναί,” pp.86-87).

Even though the rational activity of ordering and organizing sense cognition has now moved from *logos* as an influence of intellect in the sense powers to that of *logos* as language and thought occurring on the intellectual plane, the level of thought and understanding is still usually quite close to the phenomena and dependent on experience. This seems to be the reason *logos* can be placed alongside the phenomena themselves as an object of study, which study takes the form of a dialectical examination of opinions expressing in language thoughts based on (common) experience. However, once the presence of *logos* in the form of *endoxa* becomes a part of the phenomena of experience, there is always the danger of language obscuring, rather than revealing, the phenomena as they are known in sense experience. In effect, language may actually be merely nominal, that is, one that does not express any thought because of a lack of sense experience with the phenomena. To make sure, therefore, that language at least expresses thought based on sense experience, it is preferable to have a dialogue with “the things themselves [which] call out to man from everywhere” instead of empty verbal dialogue with other people’s views.¹ If ever a theory or argument is not supported by the phenomena, it is to be rejected rather than kept just because it is logically consistent with theoretical principles one wishes to keep.² Whenever proceeding dialectically, one must be sure to aim the arguments at the subject of discussion and not merely at the verbal expressions used.³ Even when analysing linguistic expressions and the thought structures these reveal, the goal always remains the attempt to discover what these show about the reality of the phenomena being thought and spoken about. For, if the truth or falsity of a statement depends on the reality being signified and not vice versa, it is ultimately due to the fact that knowledge is measured by the knowable.⁴ To conclude, in regard to experience and its phenomenal knowledge, the purposes of inquiry into opinions are to obtain a better grasp of the phenomena, and not necessarily of the common beliefs from which a dialectical discussion began; to isolate the

1 This preference is attributed to Aristotle by Romeyer-Dherbey (*Les choses mêmes*) who studies the Stagirite’s notion of τὰ πρᾶγματα, defined by the author as “ce qui de toute part interpelle l’homme.” (p.32). See especially the introductory sections: “C’est leur présence [τὰ πρᾶγματα] qui constitue pour l’homme l’épaisseur de l’expérience, et pour le philosophe la consistance de son discours.” (p.37).

2 This is stated by Aristotle on many occasions who would often describe such theories as being “verbal and void” (λογικῶς καὶ κενῶς). See, e.g., *GC* I.8, 325a 13-23; *Ph* VIII.3, 254a 25-b 6; and, *EE* I.8, 1217b 21.

3 *Top* I.18, 108a 17-25.

4 *Meta* X.6, 1057a 7-11. See also, *Int* 9, 18b 36-39.

phenomena appropriate to the subject of discussion so that irrelevant ones can be avoided; and, to find the puzzles and problems that are inherent in the subject and eliminate irrelevant puzzles others may have raised.¹ If the main purpose of coming to a better perception of (the reality of) the phenomena is kept in mind, then the analysis of opinions can help one profit from the wealth of other people's experiences with reality, thereby prolonging and increasing one's own experience and rendering it more suitable for scientific pursuits.

As a consequence of including language and thought about the phenomena as part of the phenomena, the phenomena known through experience surpass having strictly sensible qualities and eventually acquire more intelligible qualities. It is no longer just any kind of phenomenon that is suitable for science; it is, instead, one that has passed a dialectical test whose criteria have just as much to do with the demands of proper linguistic expression and logical, consistent thinking as with the injunction to save the appearances, even if the latter are to be the final reference and judge.² By means of language and thought, the intellect can slowly transform an earlier form of experience composed of strictly sense knowledge into a more sophisticated form of experience incorporating some level of conceptual and intellectual knowledge. This is implicit in the description of experience as a pseudo-universal or a confused universal formed by organizing sensible reality more along similarities that are less sensible into units resembling concepts whose comprehension is vaguely intelligible. If one focuses on the senses and their cognition, a pseudo-universal is understood to be a collection of similar memories about one thing. If, however, one focuses on the intellect and its thought, a pseudo-universal could signify a vaguely understood universal insofar as the intellect grasps that which is similar to many sensible singulars. Thus, to the extent that the intellect knows a universal as a one in the many singulars (though not yet as a one beyond them), and that this knowledge is put to a dialectical test of inquiring into opinions concerning the singulars known through this

1 Irwin (*First Principles*, pp.30-32).

2 Irwin (*First Principles*, p.32) observes: "The role of experience and inquiry in the discovery of the appearances shows that 'appearances' is to some extent a misleading term for what Aristotle actually wants. Though the term does not mean 'observations' or 'observed facts', these glosses suggest what he wants. The appearances from which a theory should be formed are primarily those that appear to a trained and experienced observer as the result of systematic inquiry." In *DC* III.7, 306a 5-18, Aristotle remarks that natural explanations must be consistent with the phenomena given by sense perception; but, he affirms in *M* I.7, 344a 5-6 that an explanation of phenomena inaccessible to observation is satisfactory when it is free from impossibilities, i.e., the explanation contradicts neither the observable appearances nor itself, the thought it expresses.

universal, experience can truly be held to be an intellectual form of knowledge, albeit one whose conceptual comprehension may still be vague and largely dependent on sensible singulars. This point can be further developed by looking at two meanings and interpretations given of the term *adiaphoron*, apparently another description given of the pseudo-universal of experience from which universals in the intellect come.

Aristotle affirms in II.19 that the first universal in the soul arises when one of the undifferentiated makes a stand.¹ If one considers experience as one appearance formed by the accumulation and reinforcement of the common aspect of the many memories composing it, then *adiaphoron* could refer to it and would mean indistinct in the sense that this appearance lacks definition with respect to its sensible qualities.² This interpretation of *adiaphoron* would be closely related to another of its proposed significations, namely, that which is undifferentiated, which the notion of similarity would connote, since it is only similar aspects that are common to the multiplicity of memories. The similar is that which is “not different” among numerically different memories. This seems to be the meaning of the term given by Aristotle in *Posterior Analytics* II.13 where he asserts that one must look for that which is “similar and undifferentiated” among the singulars when performing an induction of concepts that will eventually be used to compose a definition of an essence.³ One of the undifferentiated would therefore refer to any one of the sensible singulars of

1 100a 14-16. Here are other translations of ἀδιὰφοροῦν: Mure- logically indiscriminable; Barnes- undifferentiated items; Warrington- an *infima species*; Most other English translations consulted- undifferentiated or without differences; Tricot- choses spécifiquement indifférenciées; St-Hilaire- n'offrent aucune différence; Mauro- *indifferente*; Soto- *impromiscuamente*; Iacobi, Ioannis, and Guillelmi- *indifferentium*.

2 Le Blond (*Logique et méthode*, p. 133): “Ce terme *indistinct*, ἀδιὰφορα, désigne évidemment l'image sensible, en tant que neutralisée par d'autres images, dépouillée de ses caractères individuels et présentant seulement les caractères communs à toute une classe d'objets.”

3 97b 7: “Ζητεῖν δὲ δεῖ ἐπιβλέποντα ἐπὶ τὰ ὅμοια καὶ ἀδιάφορα, πρῶτον τί ἅπαντα ταῦτόν ἔχουσιν.” Notice the mention of a first [universal] coming from the undifferentiated as is the case in II.19. Tricot and Waitz (see Brunschwig, “L'objet et la structure,” pp. 84-86) think that this passage in II.19 describing how universals come from the undifferentiated by induction refers to *Post An* II.13 since Aristotle states (100a 14) that it is a reiteration meant to clarify a previously stated point. As Brunschwig observes, the term πάλαι, which does usually signify a remote past reference, “a while ago,” could, however, sometimes mean “just a moment ago.” He refutes Tricot and Waitz who seek the remote reference since the passage in II.13 is much longer than this one and could not possibly be clarified by these few lines. Like Philoponus (*In Post An Comm.*, p. 437,8) and Anonymous (*Ibid.*, p. 602,2), Brunschwig looks to the account given in II.19. Anonymous thinking that it refers to the description of experience as the all resting universal in the soul while the other two that it refers to 100a 3-9, the whole process of acquiring the universal from sense cognition.

which a memory has been conserved. If that is so, then, whenever any one of these sensible singulars makes a stand (which could be understood as the retention of its appearance by memory), there would be at that moment a first universal.¹ This would make the universal a product of sense perception, which is apparently the meaning of Aristotle's affirmation that sense is of the universal even though the act of sensation is of the particular, indicating thereby the inductive method by which sense implants the universal.² Granting for now that sense can indeed implant a first universal in this way, this would pose the following problem: in the first account, the universal is said to come from experience taken to be all the memories of the same thing resting together as a whole whereas in the second account (intended to clarify the first), the first universal is said to be any one of the undifferentiated memories making up an experience. Thus, there would be a universal before experience and a universal after experience, neither of which would be universal in the manner in which experience itself was described above as being universal. Can this be so? It would appear that universal is being used somewhat equivocally to refer to different types of universals, which Aristotle attempts to distinguish by qualifying the universal in the sense of an undifferentiated memory (according to the interpretation now being examined) as being a "first universal" from which other universals could come. Recalling the three meanings of universal noted by Pacius, the first universal, any (undifferentiated) memory, could possibly correspond to the universal as it is found in sensible singulars insofar as memory would somehow conserve the universal found in the singular whenever it conserves an appearance of the singular. Then there would be the pseudo-universal of experience, made up of undifferentiated memories of the same thing, from which would finally come the universal in the intellect. But this would imply not so much different types of universals as different stages in our cognition of the universal: first it is known sensibly as an appearance in memory; then it is known sensibly and intellectually as a similarity found in many memories about one thing; and, finally, it is known by the intellect in itself as a universal. This, of course, presupposes that sense alone cannot provide (full) knowledge of the universal, especially in regard to the pseudo-universal of experience and the universal in the intellect; for, even if the senses could

1 Cf. Saint-Hilaire (*Logique III*, p. 290, ft. 7) who gives this definition of ἀδιδόξα: "les individus qui sont tous identiques entre eux relativement à l'universel dont ils sont des parties." Mure (1910 Oxford edition) adds a note at *Post An* II.13, 96b 23 which states: "the *infima species*, which is 'simple' because below it are only ἀδιδόξα." This clearly implies that ἀδιδόξα refers to sensible singulars.
2 100a 16-18 and 100 b 5. A full analysis of induction and sensation of the universal will be done in the next chapter.

provide knowledge of a first universal by conserving the appearances of Socrates, Plato, Aristotle, and other individual men, it may not be able to form the pseudo-universal experience of man simply through repetition and accumulation of that which is similar to them all. And even if that first induction were possible for sense, the likelihood that it could do others would probably greatly decrease since the induction would have to go from such "universal" appearances of man, dog, cat, and so on to acquire a "universal" appearance of animal and, from this, to yet higher universals (such as substance) whose sensible content must necessarily be minimized and increasingly indistinct. In fact, the place of intellect in the induction of universals already seems to be admitted by Aristotle in *Posterior Analytics* II.13 since the induction he describes there is more clearly the work of the intellect which merely uses the undifferentiated singulars known through sense as that from and through which the induction takes place by perceiving similarities in them. This would not only confirm what was stated above about the intellect collating and ordering sense cognition along perceived similarities through its influence on the sense powers, but realizing that induction can also be said to be a dialectical method, this ordering could also be understood to be an influence of *logos* as language and thought working with the sense cognition of human experience. Whereas the first meaning of *logos* would refer to sense powers organizing their cognition more "rationally," the second would refer to the transformation of this knowledge to the level of intellect and its dialectical activities (in view of acquiring science).

The second interpretation of *undifferentiated* can elucidate the idea expressed in this last conclusion. Bolton figures that *adiaphoron* signifies the first universal mentioned in *Physics* I.1, namely, the *holon sugkexumenon*.¹ He judges the first universal in the soul to be that of experience which is a universal containing "things which are rather jumbled up [*sugkexumena*]" because, according to him, *en tōn adiaphorōn* "could easily mean that it is 'a unity composed of undifferentiated things', i.e. a *sugkexumenon*." Thus he claims that what is first perceived and received as the universal of experience is "a unity composed of (as yet) undifferentiated things." As a result, experience would not be a strict universal but instead a vague perceptible sensible whole more knowable to us from which would come

¹ "Aristotle's Method," pp.2-9. See *Ph* I.1, 184a 21-26: "ἔστι δ' ἡμῖν τὸ πρῶτον δῆλα καὶ σαφὴ τὰ συγκεχυμένα μᾶλλον· [...] τὸ γὰρ ὅλον κατὰ τὴν αἴσθησιν γνωριμώτερον· τὸ δὲ καθόλου ὅλον τί ἐστι·"

the principles of science and art, which are proper universals more knowable by nature.¹ What Bolton seems to stress is not so much the fact of sensible similarity among the different memories composing an experience, but rather the fact that the appearance and sense cognition of experience, this better known vague sensible whole, is still intellectually confused because the different universals that could be predicable of man, for example, and by which it could be intelligibly and scientifically known are not yet clearly distinguished by the intellect. This is, in fact, how Owens understands the first sensible, jumbled universal in *Physics* I.1. According to him², the path of human knowledge from things that are more knowable to us to things more knowable in themselves “means proceeding from concretions to the distinct cognition of the principles and elements into which they may be analyzed.” Owens claims, therefore, that there is a type of sensible universal which contains in a confused and undifferentiated manner the principles and elements, genus and species, each of which would be the particulars of which this confused universal could be predicated. Thus the first universal is neither a species nor a genus as distinct notions, “but rather a vague object in which both are fused and neither is differentiated.”³ Owens’ reference to genus and species is in response to two interpretations of the order in which universals are said to be acquired. In II.19, Aristotle’s reiteration states that we start with a specific universal and work up to ever more generic universals until the process reaches those universals having no parts, which is usually understood to refer to the categories. The other interpretation states the inverse, that is, that the first known universal is generic

1 Bolton (p.9) holds that his interpretation explains better the difference between experience and science or art because it clearly defines that experience lacks the knowledge of the kind which is necessary for possessing proper universal knowledge, e.g., man is not yet known as a certain species of animal in the jumbled universal of experience. Although Wieland (“Inquiry into Principles,” p.131), in his comments on the universal presented in *Ph* I.1, does not identify it with the ἀδταφώρων in II.19, his wording nonetheless clearly expresses the idea of an undifferentiated mass: “We have to start with something ‘poured together’ [συχκεχυμένον] and undifferentiated; we arrive at knowledge not by simply bypassing this undifferentiated, preliminary sort of knowing, but by articulating it into its various factors and constituents.” He further explains that, in the *Ph* context, καθόλου “does not designate anything general in the sense of a class, but something general in the sense of *indeterminate*, something not yet differentiated into its factors.”

2 “The Universality,” p.463. Cf. Shute (*The Psychology*, pp.3-4).

3 “The Universality,” p.472. He adds later on: “The starting point, accordingly, is neither the lowest species nor the highest genus, but an as yet undifferentiated object that is universal to both. It may therefore be referred to simply as “the universal,” while the genera, differentiae, and species contained under it may be called without hesitation its καθ’ ἑκαστα.” On p.468, Owens provides references in the Aristotelian corpus where καθ’ ἑκαστα does sometimes refer to universals such as the different species of a genus.

which gradually becomes specific.¹ Against these two positions, Owens, like Bolton, places the confused mass of the sensible universal in the position of first universal.² The first universal would therefore be one that potentially contains properly intellectual concepts such as species and genera because they are not as yet actually known as distinctly separate conceptual entities. It is the kind of universal and conceptual knowledge that would betray a sort of mental confusion present in a lack of precision and clarity in expression but which may be enough of a comprehension of reality suitable for everyday use.³ What Bolton and Owens seem to be describing is a universal knowledge based on experience, the transformation of experiential sense cognition into a rudimentary level of thought and understanding expressible in opinions about the phenomena of experience.

These two interpretations of *adiaphoron* spring from an ambiguity which comes not only from the text, but also from the nature of human experience itself. Thus far, the phrase, "one of the undifferentiated making a stand is the first universal," can mean either that the first universal is any single memory among undifferentiated, similar memories of one thing, or that the first universal is the experience of one thing which is better known to us as a whole according to sense but is still intellectually undifferentiated and confusing. Whereas the first position considers the first universal to be the retention of one memory before it becomes a part of an experience composed of similar memories about one thing,

1 Whereas the first-mentioned is the traditional interpretation given by most commentators, Owens notes that the second view is held by the Greek commentators Simplicius, Philoponus, and Themistius, who understand the simile of the army rout in *II.19* as well as the sensible universal in *Ph. I.1* in this way. According to Owens (p.471), both interpretations are legitimate because the movement from species to genus takes a logical view and the inverse movement is an epistemological one according to which "a thing seems first known under the vaguest general notion of 'something'."

2 Owens ("The Universality," pp.474-75) concludes: "What Aristotle has in mind, if the present interpretation is correct, is that the confused object first grasped in sensation remains universal in regard to all further knowledge. The origin of all human knowledge in sensation would mean, then, that all other objects have to be known basically in terms of concrete sensible things, with the necessary refinements and negations added through judgments and the conclusions of reasoning processes." Note that Owens, unlike Bolton, does not transpose what he says concerning the first universal in *Ph. I.1* to *II.19*. Cf. Modrak (*Power of Perception*, p.168, ft.31) who does refer to *Ph. I.1* in her analysis of *II.19*.

3 Owens ("The Universality," p.473) writes: "Whether the child first becomes accustomed to call the vaguely known object 'Dad' or 'man' or any other name, is beside the point. It is known first as a confused whole, and only later are the concepts of it as 'father' and as 'man' differentiated." Bolton ("Aristotle's Method," p.8, ft.7) differentiates between the universal of experience and that of science by remarking that, "one can have a general concept adequately formulated in a nominal definition, e.g. of man, without having an adequate scientific definition." See Wieland ("Inquiry into Principles," p.131) and also Leszl's comments ("Knowledge of Universal," p.310) on the universal presented in *Ph. I.1*.

the second seems to consider it as consisting in the acquisition and use by the intellect of an experience about one thing insofar as it forms a vaguely understood sensible whole. Thus, the former would strictly consist in sense cognition of a universal while the latter would consist in a knowledge that involves both sense and intellect. But neither of these is a knowledge of a universal in the strict sense, a one beside the many existing in the intellect, and which is said to come from experience in the first account. If this second account is to be a reiteration of the first, then it would seem that the second should also show how the universal could come from experience--unless Aristotle suddenly decided to use universal in a different meaning in the same chapter without signalling the change. Thus, the ambiguous phrase cited above may be interpreted as affirming that the first universal is an actual universal, potentially present in the intellectually undifferentiated whole of experience, that has made a stand in the intellect. This differs from the second interpretation of *adiaphoron* in that it does not identify the first universal with experience, which is said to be *adiaphoron*, but rather distinguishes experience, which is still said to be *adiaphoron*, from the first universal understood as something intellectually distinct and differentiated from the intellectually jumbled experience from which it came. As the intellect's comprehension of experience is based on sense knowledge that is better known to us but is vaguely intelligible, it seems preferable, despite the fact that it is being used by the intellect, to call this a pseudo-universal or a potential universal and distinguish it from the first universal in the soul. By making this distinction, this interpretation would establish a parallel in II.19 between the first account of the process of the acquisition of the universal and the second account. The first states that from all the resting memories of experience comes the universal in the soul; and, the second could read: when one thing comes out of the undifferentiated to make a stand, the first universal in the soul arises or is acquired. In this manner, the two accounts of experience would be complementary, for the all resting could mean that everything making up one experience is together in a sensible whole (because of a similarity) which is as yet intellectually undifferentiated; however, once any one of the things found in this sensible whole makes a stand or is immobilised by the intellect, there is at that moment a first universal. The experience, for example, of healing with the same herbal remedy many people suffering similarly would be a resting or calm sensible whole in which the universal concepts and propositions that can be predicable of the experience are as yet undifferentiated because the universals are still not acquired as separately known conceptual entities in the intellect, that is, the intellect knows the experience as a concrete situation in which no one thing stands out because everything is

intertwined in this experience and understood with reference to it. It is only when one of these makes a stand, for example, the concept man or fever or medicine, that there would be acquired a first universal in the intellect as something distinct and differentiated from other universals potentially contained in the undifferentiated pseudo-universal of experience.¹ What the second account adds to the first is an elucidation of how universals of varying universality can be said to come from experience by induction from sense. The (first) universal must come from experience in both accounts; but, experience is being viewed from two perspectives: as the culmination of sense cognition in the first account, it is a whole gained by repetition and accumulation of that which is similar among many individual memories; and, as the origin of universals in the second, it is a jumbled and confused unity of potential universals. Thus, the first account focuses on the different levels of sense cognition while the second focuses on the different levels of intellectual knowledge; and, as experience happens to be both the highest form of sense cognition and the lowest form of intellectual knowledge, it shares in the properties of both types of cognition.²

Although the totality of human experience incorporates both sense and *logos*, sense cognition and intellectual knowledge, affirming that the phenomena are to have precedence over the *endoxa* implies that the former enjoys a certain status with respect to measuring the reality and veracity of the latter. The phenomena known through sense experience act as a reference point and a principle of unity holding together the linguistic and conceptual experience of the intellect's discourse in trying to describe and understand what is perceived. The two levels of human experience can be said to be united and held together by the relation of signification since the intellect, especially in its goal of obtaining scientific knowledge of reality, must signify this reality as it manifests itself to sense.³ Not

1 Cf. Themistius (*DA Paraph.*, pp.109,27-110,1) who affirms that the intellect divides what imagination received as a confused whole and then reunites the elements into one λόγος and νόημα, his example being of the appearance of Socrates walking which is divided into the concepts of *Socrates* and *to walk* and then united in the proposition *Socrates is walking*.

2 Cf. Kahn ("On Thinking," pp.368-69) who remarks that experience is not the work of sense-perception alone since the experience of animals with λόγος is radically different from that of those without. The individual judgment *this remedy helped Callias when he was sick with this disease*, which belongs to experience and precedes the stage of universal judgment, "does not contain a single term that could be provided by aisthēsis alone."

3 The passage in *Int* 1, 16a 3-8 stating that words are symbols of affections in the soul could easily be interpreted as meaning (thoughts expressed through) language signifies sense experience, especially since man cannot put the things themselves in language but must use names to represent them, as Aristotle

surprisingly, the first entry into language of what is known through sense is often poetic, phenomenally descriptive, and concrete rather than abstract, describing mainly the sensible and accidental because of its focus on individual sensible appearances. It is only with experience that one acquires a knowledge of similarities common to many individuals, thereby gradually approaching the essential by perceiving, naming, and describing these similarities, many of which are either vaguely perceptible or completely imperceptible to sense. By translating sense cognition into a vaguely intelligible cognition of similarities, language used by the intellect slowly becomes an expression of thought since the intellect's knowledge of similarities perceived in sensible singulars is a potential knowledge of universals in the intellect. Through this activity of the intellect, experience becomes more suitable for the purposes of acquiring science. In effect, as science consists in universal knowledge proceeding through universal concepts and premisses, it requires what may be called universal phenomena, for example, an appearance of man composed of attributes belonging to every man, or at least to most men, and not of those belonging to one or several individual men.¹ The intellect, by directing its activity toward sense experience, is able to generate such a universal phenomenon of man, a pseudo-universal englobing in a confused mass as many of the properties as possible predicable of all men known in experience. The knowledge of sense experience thus becomes, to an extent, universalized. If sense experience can help man gain a certain familiarity with and assurance of the existence and appearance of the reality perceived, the dialectical inquiry into opinions seems to be concerned with collecting and selecting properties which have been perceived to follow all or most instances of one same thing, thereby establishing a comprehensive phenomenal universal that is more faithful to all the similar instances, that is, a coherent probable or true opinion about a given phenomenon.

Even though the phenomena of sense experience have a certain precedence over the universal phenomena of intellectual experience, intellectual discourse does bring us closer to the reality of a phenomenon than sense does because when it perceives a similarity common to many, it touches the universal as it is found in the sensible. As that which is similar to many sensible singulars is that which is less sensible but more intelligible, the knowledge of a similarity turns out to be a knowledge approaching the knowledge of a

affirms in *SR* 1, 165a 7.

¹ *Pr An* 1.27, 43b 13-14: "Δεῖ δ' ἐκλέγειν μὴ τὰ ἐπόμενα τινί, ἀλλ' ὅσα ὅλω τῷ πράγματι ἔπεται. Οἷον μὴ τί τινὶ ἀνθρώπῳ, ἀλλὰ τί παντὶ ἀνθρώπῳ ἔπεται· διὰ γὰρ τῶν καθόλου προτάσεων ὁ συλλογισμός."

universal which is itself (an) intelligible. When the similarity known is of a phenomenon in its phenomenal integrity, that is, of the whole phenomenon taken as a subject, or one entity unto itself, and not of one part of it, then this knowledge is of its intelligible substantial form, its universal nature and essence.¹ Substantial form being the principle of essential activity, intellectual experience will describe reality and things in terms of functions and activities instead of in terms of their sensible make-up. The medical experience of healing sick people with a certain remedy, for example, will eventually be described in terms of similar actions and reactions, or ways of behaving and operating, and leave aside irrelevant sensible qualities like the size or shape of individual runny noses.² The transformation of sense experience into intellectual experience renders experience human and makes experiential cognition more suitable for scientific knowledge. This activity could be thought of as an attempt at writing a natural mythology, that is, a relatively complete description of universal attributes, such that the explanation of a phenomenon's presence in reality can eventually be done with reference to the thing itself since science consists in possessing an explanation, had by means of intelligible universals and conceptual relations, of a thing through (any one of) its necessary, essential causes. It may also be understood as the first step taken by the intellect in its quest for an answer as to the nature or essence of a given phenomenon which may suddenly present itself to it as a question, or an *aporia*, since it is a known (in fact, the better known to us and our senses) that is still unknown to the intellect seeking understanding. Inspired by the wonder of the familiar, the intellect will turn to language about the phenomenon and the naive thought expressed in phenomenal descriptions, common beliefs, and opinions concerning the phenomenon, and begin a dialectical inquiry into this jumbled mass of intellectual vagueness and confusion to try to put some order into it (or rather, discover the conceptual and intelligible order vaguely

1 According to Aristotle (*Meta X.1*, 1052a 15-35), one or unity has four main meanings, two concerned with indivisibility in movement and two with indivisibility in definition (ὁ λόγος) because of an indivisibility in thought (ἡ νόησις). In the first pair, one meaning is that which is a whole (τὸ ὅλον) and has a form, especially a natural form, while in the second pair, one meaning is that which is indivisible in form (εἰδέει), i.e., indivisible in intelligibility and in knowledge (τὸ καθ' ὅλου). Thus, the indivisible unity of form (τὸ ὅλον) could be the (metaphysical) basis in the sensible singular corresponding to the intelligible universal (τὸ καθ' ὅλου). Notice also that the etymology of the term universal, *universum*, turned into one (*unus* one + *vertere* turn), signifies whole, a point made by Aristotle in affirming the universal to be a kind of whole (*Ph L1*, 184a 25). Cf. *DA L1*, 402b 15-403a 2 which states that knowledge of properties conformable to experience helps in knowledge of substance. More will be said on this in the next chapter.

2 Notice how the focus on actions and reactions in theoretical experience is analogous to the description of practical experience as habitual ways of acting and reacting of an animal.

expressed in it) to generate a more coherent phenomenal universal, thereby slowly opening a road to the principles of science which must come from the phenomena themselves.¹ This dialectical inquiry can also be viewed as a dialectical induction since the movement from many individuals to one similarity, or commonality, brings to mind the method of induction, which Aristotle says is the path to obtaining the principles of science. It is to this topic we now turn.²

1 See *Ph* I.1, where Aristotle states that the causes, principles, and elements of things come by analysing the better known jumbled sensible whole. Cf. Wieland ("Inquiry into Principles," p.139): "[Aristotle's inquiry into principles is] an analysis of the presuppositions which underlie tradition and speech, presuppositions which represent an empirical *a priori*, as it were, of all acquisitions of knowledge and which are already presupposed in every substantive assertion. [... An] analysis of language is *directly* and *as such* an analysis of the most general objective structures, an analysis which can furnish nothing more than guidelines for concrete investigation."

2 Although the focus of the dissertation is on scientific knowledge, the cognitive value of experience is not to be denigrated. Reality is not equally open to perfectly scientific knowledge, for instance, the realm of human conduct. Note that even the principle of contradiction is "proven" by Aristotle against people who deny in words its validity by pointing to our experience of avoiding walking into wells and over precipices, an ostensive demonstration based on a very pragmatic criterion. See *Meta* IV.4, 1008b 12-31 and also *Meta* XI.6, 1063a 29-34.

CHAPTER VI

INDUCTION OF THE PRINCIPLES OF SCIENCE

In II.19, Aristotle succinctly states that the primary is necessarily known through or by means of induction because this is how sensation implants the universal.¹ Thus, induction is the name given to the process by which is acquired *nous*, the habit of the principles of science. As seen during the study of Aristotelian logic and science, demonstrative science depends on a non-discursive, noetic activity of knowing terms by which can be known both single concept-terms and indemonstrable propositions since these cannot be known through the rational discursive activity of syllogizing and demonstrating. Consequently, this noetic knowledge of the principles of science can only come from sense cognition, which itself is non-rational and non-syllogistic—a consequence in keeping with the principle that intellectual knowledge must come from sense if it cannot come from prior intellectual knowledge. Yet, this conjunction of sense and intellect in terms of the relationship between induction and *nous* (as habit) is “a profound embarrassment” for many scholars.²

There are doubts that II.19 is to be placed in a logical treatise discussing demonstrative knowledge because its description of an inductive method based on sense discrimination

1 100b 3-5. This neatly encapsulates the same thought presented earlier in *Post Art* I.18, *in toto* where it is mentioned that demonstration depends on universals and these on induction of particulars which are known by perception. See also *Post Art* II.2, 90a 25-30.

2 Couloubaritsis (“Y a-t-il une intuition?” p.445) thinks that Aristotle’s linking of induction and $\nu \circ \hat{\upsilon} \varsigma$ “ne peut que soulever un profond embarras [...] que depuis toujours les interprètes de la pensée aristotélicienne ont ressenti.” According to Couloubaritsis, the source of the embarrassment is the incompatibility he finds in Aristotle claiming, on the one hand, that $\nu \circ \hat{\upsilon} \varsigma$ seizes the principles of science and, on the other, that these principles are produced by induction. See also Le Blond (*Logique et méthode*, pp.131-46), who finds the $\nu \circ \hat{\upsilon} \varsigma$ -induction relationship in II.19 problematic and thinks that $\nu \circ \hat{\upsilon} \varsigma$ seems to be added abruptly in the chapter without valid justification.

resulting in the habit of *nous*, suggests that induction is not at all syllogistic and logical. Indeed, the process called induction (to lead in/on) toward intellectual principles of science is contrary to the deduction (to draw down) of syllogistic reasoning starting from them and could in this way be said to be “non-logical” or “psychological.”¹ As a result, some commentators find it extremely difficult to explain how an inductive method that is strictly sensible and empirical can terminate in an intellectual and universal form of cognition.² Some resolve the dichotomy by eliminating the intellectual element in *nous*, understanding this cognitive habit to be merely the end or final state of the empirical induction itself. Thus Barnes³ reduces the question of an intellectual habit called *nous* to a “terminological” one concluding that, “*Nous* has no philosophical importance in *APst.*” There are others, on the contrary, who recognize the “philosophical importance” of arriving at something beyond this ‘empirical induction’ since this always remains at the level of sense cognition and could never attain to the universal of intellectual knowledge needed for demonstrative science. Moreau⁴, for instance, is aware of the fact that the principles of science could not be provided by experience alone as its cognition always remains contingent whereas science is of the necessary. He acknowledges that Aristotle attempts to bridge the gap between the contingent and the necessary by claiming that these principles are grasped by *nous*⁵; however, he goes on to note that, by itself, induction could never result in knowledge of principles that are necessary, though it may very well prepare for this intuition of the principles. Although he recognizes the shortcomings of a strictly empirical inductive method of arriving at principles that are necessary, in the end Moreau doubts the “calling forth *in extremis* of the intuition of the essence and the intellectual grasp of the principles”

1 See the remarks of Barnes, Albert, and Averroes presented in the introductory paragraphs of chapter 2. The term *psychological* is simply intended to signify the operation of sense powers providing sense knowledge of singulars in induction, in contradistinction to the intellect and its universal knowledge.

2 In Barnes' (*Post An.*, p.259) words: “B 19 raises numerous problems, of general and of detailed interpretation. [...] B 19 is Janus-faced, looking in one direction towards empiricism, and in the other towards rationalism. The principles are apprehended by ‘induction’ (epagoge) in an honest empiricist way; but they are also grasped by *nous*, or ‘intuition’ as it is normally translated, in the easy rationalist fashion. It is a classic problem in Aristotelian scholarship to explain or reconcile these two apparently opposing aspects of Aristotle’s thought.”

3 *Post An.*, p.270.

4 “Vérité antéprédicative,” p.28.

5 Note that Moreau defines $\nu\omicron\hat{\upsilon}\varsigma$ here as an intuitive capacity of the intellect enabling one to discover the essence and the reason of the properties affirmed in discursive judgments.

in order to satisfy the requirement that science be of the necessary.¹ Understanding induction as a purely empirical and non-logical method of acquisition predicable of the sense powers ignores, however, the fact that Aristotle usually uses the term to signify intellectual or logical processes, such as the syllogism from induction generating the primary immediate proposition, or premiss, described in *Prior Analytics* II.23 and the consideration of induction as a dialectical form of argument in *Topics*.² Are these types of induction referred to in II.19? It would appear that the first-mentioned would have to find a place in the account since Aristotle explicitly affirms that this induction provides an immediate proposition, and the indemonstrable immediate premiss required by demonstrative science is of this sort. But this induction could hardly be the non-logical result of sense cognition obtained in empirical induction since it leads to a syllogistic form of inference. The induction described in *Topics* seems especially useful in establishing definitions, which are also included among the principles of science, and so would likely be present in the account of II.19; but, here, too, the induction must be logical and intellectual. Perhaps, then, the inductive process can be a combination of both non-logical and logical processes happening either successively or simultaneously as Tejera³ affirms and Bolton⁴ apparently suggests in stating that II.19 is not “merely a genetic account of the psychological preconditions for the generation of knowledge of first principles” because it incorporates induction understood to be an inferential process--which he appears to equate with the syllogistic inference described in *Prior Analytics* II.23. Also, there is an explicit reference to *nous* in the induction presented in *Prior Analytics* II.23 as in II.19; however, the activity of perceiving or apprehending (*noein*) all the cases mentioned in the first text implies that *nous* is not just a passively acquired product of induction as the second may suggest. Thus Aquinas⁵, for example, not only accepts the noetic habit as the end result of an inductive process, but also invokes the activity of the agent intellect, that is, *nous* as a productive capacity and efficient cause of intelligibility perfecting the induction by abstracting the universal knowledge from the sensible. Those critical of this interpretation

1 Moreau qualifies this implausible attempt by Aristotle as being a “*pium desiderium*.” (p.33) Cf. Irwin (*First Principles*, p.173) who, for other reasons, affirms that “Aristotle’s appeal to intuitive *nous* to explain how we grasp first principles is a bad solution to the difficulties raised by his own view on demonstration.”

2 See *Top* I.12.

3 *Analytics*, p.14: “The process of induction is described here in succinct psychological as well as logical terms.” He (p.48) calls this process “intuitive induction.”

4 “Aristotle’s Method,” p.5.

5 *In Post An Expos*, II, l.20, n.593.

point out that Aristotle himself never explicitly speaks of *nous* as possessing an abstractive operation.¹ These diverse interpretations show then that induction can apparently refer to different types of inductive methods in which *nous* is sometimes understood to be something produced by induction, sometimes seen to be the cause of induction, and sometimes completely separated from and irrelevant to induction.

As the inductive process going from sense knowledge to the noetic habit of the principles of science must result in both a conceptual and propositional form of principle of science, induction will therefore be studied with this in view. After an introductory general presentation of the inductive method, this method will be looked at with respect to the acquisition of concept-terms, especially definitional terms, and then with reference to the acquisition of indemonstrable immediate propositions. There will then be a brief study of the issue of having to enumerate all cases in induction. This will be followed by an examination of the inductive method presented in II.19, with special attention being given to determining how sense can be said to implant the universal. At the end of all this, the question of how induction could be related to *nous*, in the sense of a habit possessing the principles of science, will be taken up.

6.1 General View of Induction

Aristotle generally considers induction to be one of two methods of persuasion or forms of argument (the other being syllogism).² Whereas syllogizing consists in drawing (down) with necessity a consequent from an antecedent, induction is said to be a road leading (up) from particulars to a universal.³ The two are opposed according to the kind of argument and the force of persuasion characterizing each. Induction is said to be more convincing and clearer to us because it is more knowable to sense, while syllogism is rationally convincing and more knowable according to the intelligible universal (essence of things).⁴

1 So Kahn ("The Role of *nous*," p.409). More will be said on abstraction in the next chapter.

2 *Pr An* II.23, 68b 10-14; also *Top* I.12, *in toto* where dialectical arguments are divided into syllogism and induction.

3 *Top* I.12, 105a 13-14: "ἐπαγωγή δὲ ἢ ἀπὸ τῶν καθ' ἕκαστον ἐπὶ τὰ καθόλου ἐφοδος."

4 *Top* I.12, 105a 16-18: "ἔστι δ' ἢ μὲν ἐπαγωγή πιθανώτερον καὶ σαφέστερον καὶ κατὰ τὴν αἴσθησιν γνωριμώτερον καὶ τοῖς πολλοῖς κοινόν, ὁ δὲ συλλογισμὸς βιαστικώτερον καὶ πρὸς τοὺς

Syllogizing is more intelligible because beginning with a universal, it consists in a movement that draws (downward) with necessity a consequent that is subordinated under and contained within the comprehension of the universal. Induction, on the contrary, is a motion beginning with a multiplicity, first known sensibly rather than through any given intelligible universal, and works its way (upward) toward one universal comprehension that will signify (univocally) and subordinate all the selected particulars manifesting this one comprehension. Syllogism and induction thus present contrary intellectual motions, which, with certain reservations, may be respectively referred to as de-duction and in-duction, leading down (or out) from and leading up (or in) to a universal.

It is more than likely that induction, much like syllogism, is a term usually meant to cover different types or species of inductions. This is already implied by the principles of science being double in nature and thus probably requiring two separate types of inductive methods to establish each of them. This is also obvious in Aristotle's affirmation that all argument is either syllogistic or inductive, whether the argument be dialectical, demonstrative, rhetorical, and so on.¹ From this general perspective, induction could be held to refer primarily to an abstract form of thinking present in specific inductive arguments bearing on different subject matters varying in degrees of probability and truth. This form common to all inductions would be the aforementioned idea of being a road going from particulars to universals, regardless of the matter or content.² Now the inductive road or path seems to possess two main characteristics: leading on and adducing instances.³ If that is so, the enumeration of particular instances would be undertaken with the ulterior goal of leading one on to the general or universal knowledge being manifested through each of the particulars adduced. As a result, the activity of enumerating would be subordinate to and merely a necessary condition of the properly inductive act of going from particular to

ἀντιλογικούς ἐνεργέστερον." And *Pr An* II.23, 68b 35-36.

¹ See, e.g., *Rh* L2, 1356b 1-5 where Aristotle states that the enthymeme is a "rhetorical syllogism" (ῥητορικὸν συλλογισμόν) and the example a "rhetorical induction" (ἐπαγωγὴν ῥητορικὴν).

² De Corte (*La Doctrine*, p.179) finds three uses for induction: "Remarquons au préalable que l'induction, au sens aristotélicien du mot, ne se limite pas au procédé d'inférence que les modernes décorent de ce nom et qui de la diversité des expériences se hausse à une loi scientifique; elle est une méthode de connaissance beaucoup plus générale englobant ce procédé aussi bien que le passage des propositions particulières aux propositions indémontrables constitutives de l'ossature de la pensée et que la progression de la sensation au concept universel. L'induction comprend pour lui tout le domaine qui échappe au rayonnement du syllogisme." As will be seen, this last statement can be problematic when it comes to the induction of immediate propositions since Aristotle presents it in syllogistic form.

³ See Ross (*Pr and Post An*, p.48 and pp.481-83).

universal.¹ Induction would then turn out to signify the development of a perception of a universal through singulars, or the development of a cognitive habit through repeatedly perceiving particular cases manifesting the same universal. This perception must therefore be rooted in a sense-perception of sensible particulars; but if induction is to terminate with the perception of a universal, it must somehow terminate in an intellectual or intelligible kind of perception and cognition.²

If induction in general is defined as the path itself to universal knowledge by passing through particular instances of the universal, it would seem that abstraction could be made of the particulars and universals being referred to. This means that the terms *particular* and *universal* become relative to the matter or content taken into consideration in a given induction. When the particulars used in an induction are individual sensible men, for example, the universal that would be acquired would be man, a species. But if the particulars are individual species like man, dog, cat, and so on, the genus animal would be the universal obtained by induction. The same would happen, therefore, at ever higher levels of universality: the induction always proceeds from matter which is less universal to arrive at the more universal.³ This would imply that induction need not always start from particulars that are sensible individuals but may also start from the less universal said to be better known to us. Yet, in the induction going from several species to their genus, for example, how are the species known? If the full intelligible comprehension of a species means having its definition, then the species cannot be known in this way since the genus being sought through the induction of several species, and which the definition of the species requires, is still unknown.⁴ Each of the species must therefore be known in a less than fully intelligible manner or according to sense, the knowledge better known to us.

1 Cf. Granger (*Théorie de la science*, p.160) who maintains that when Aristotle uses induction, "c'est toujours d'une reconnaissance directe du concept qu'il s'agit, et nullement d'une énumération exhaustive." As mentioned, the issue of having to enumerate all cases will be examined below.

2 How exactly this may be possible will be examined below.

3 See Ross (*Pr and Post An*, p.487) and especially *Comm. Collegii Conimbri* (p.399): "*Inductio [...] est ab singularibus ad universalia progressio. Ubi nomine singularium, non modo intelliguntur vere singularia, sed etiam minus universalia; imo et partes comparatione totus. [...] Inductio est argumentatio, qua ex pluribus, vel partibus, vel speciebus, unam, vel totum, vel genus universaliter colligitur, ubi etiam nomine specierum individua complectitur.*" Recall, as well, Owens' observation that $\kappa\alpha\theta' \epsilon\kappa\alpha\sigma\tau\omicron\nu$ need not always refer to sensible singulars.

4 This is Bolton's reason ("Aristotle's Method," pp.8-9) for disagreeing with the traditional interpretation that the first universal is a *species specialissima* and proposing instead the undifferentiated sensible universal.

which means that they can be understood by making reference to sensible particulars manifesting the species (whether the particulars be known through actual sensation or in recalling conserved appearances). Until a given universal (species) is known in itself or through other universals (genus and specific difference), it can only be known less intelligibly or with reference to these sensible singulars first and better known to man.¹ Thus, though induction may sometimes begin from lower universals to obtain a higher one, it must nonetheless do so by looking to sensible particulars through which the lower universals are (better) understood. So the requirement that induction begin with particulars better known to sense signifies in practice that a reference must always be made to sensible individuals during induction. Once the universal that will contain the particular instances (whether sensible individuals or lesser universals) is inductively known, only then will these instances be knowable through that universal, which would be a more intelligible manner of knowing them.²

6.2 Induction of Concept-terms

If there is to be an induction of concept-terms suitable for use in science, the induction must result in concept-terms that must be, as much as possible, precise and accurate expressions of one definite signification. This is most important when treating of definitional terms, particularly the one signifying the subject of the science whose definition delimits the boundaries of a given science and the range of its demonstrations. This means that universals understood according to sense and with reference to sensible particulars are insufficient for science. As already noted, a universal known according to sense is really a pseudo-universal unlike a proper universal whose intelligibility is with reference to itself or, ultimately, with reference to other higher universals out of which it is composed. A species, for example, is absolutely intelligible when the essence it signifies is known

¹ Cf. *Top* VII.4, 154a 18.

² Somewhat similar remarks may be made when considering the matter in terms of it being conceptual or propositional. The one inductive form may be used to arrive at universal concepts and universal propositions but each would be acquired from their respective particular instances. See Ziegelmeyer ("Discovery of First Principles," p. 139): "Aristotle wanted to teach us that we are dependent on the senses not merely for all our concepts or ideas, that is, for the so-called *simple* or *incomplex* universals; but also that the *complex universals*, i.e., the principles, *qua principles*, must be derived from sense-experience. In other words, unless we experience the actual operation of the principle in some concrete synthesis, we are not justified in putting these terms together to form such a universal principle." Notice, also, the harmony between this and the notion that the truth or falsity of an enunciation is to be judged with reference to reality.

through the definition expressing this essence. The most intelligible definition of a species is one composed of its proximate genus and specific difference, though it may be known less intelligibly, that is, with less precision and accuracy, through other universal concepts playing the logical roles of genus and difference.¹ This operation of obtaining a concept signifying precisely an essence obviously belongs to the cognitive activity of defining since precision in concepts is acquired by analyzing or dividing through the addition of differentia more generic universals into lesser universals until one eventually comes to an *infima species*, that is, a universal that is no longer divisible because it is the definition of a substantial form of a sensible individual (or of any entity that is itself indivisible). But if induction is a path from particulars up to a universal, then it would consist in an intellectual movement going in the opposite direction to that in defining which, working downward from a generic universal to lesser universals, only reaches the particular insofar as it arrives at the *infima species* expressing its essence. Of the sensible particular in its numerical individuality, there can be no definition.² So, if precisely defined concept-terms become known by defining universals, how, then, can there be an induction of them from sensible particulars?

A text that may provide information on the use of induction in the act of defining is *Topics*³ where Aristotle examines ways in which definitions can be acquired and for which induction is said to be useful. The uses of dialectics in general, and not just dialectical induction, was already noted in the previous chapter in its function of examining opinions to put some order and consistency in the composition of a phenomenal universal. By performing inductions of the singulars included in a phenomenon of experience, dialectical inquiry can help one perceive the similarities common to most or all of the singulars.⁴ Although this dialectical induction may be useful in preparing the acquisition of the first universals from sense cognition--for each similarity could give rise to a universal concept in the intellect predicable of the singulars--, it would not automatically result in a very precise understanding of the essence of the singulars. One may merely end up with a collection of concepts of varying universality each predicating one aspect or property found in all the

1 See *Top* VI.4 where Aristotle distinguishes definitions made from terms (universals) that are absolutely intelligible from those made from terms more intelligible to us.

2 *Meta* VII.15, 1039b 25-1040a 7.

3 See especially books VI and VII which treat of definition.

4 See, e.g., *Top* I.18, 108b 8-30.

singulars. For a precise definition of the essence, the act of defining concept-terms is further required, and it is in *Posterior Analytics* II.13 that Aristotle presents the method by which this can be accomplished, a method incorporating induction.¹

Posterior Analytics II.13² provides the rules that are to be followed when defining the essence or whatness that is to be expressed in a concept-term. As already alluded to, the application of the method described in this chapter is most readily seen in regards to the subject of a science and the definitional term expressing its essence since every demonstration must assume the whatness of the subject and make it known in some way other than by demonstration.³ The activity of defining must meet three requirements if the definition obtained at the end of the process of analyzing a genus is to be considered a valid expression of an essence: the concept-predicates composing this essence must be found; it must also be assured that all the concept-predicates have been admitted and that none have been omitted; and, it is important that the concept-predicates be properly ordered among themselves.⁴ Obviously, one must first find the concept-predicates capable of expressing the essence of the thing being defined. These concept-predicates are those which inhere always in the subject and which taken singly are wider in extent than the subject (that is, they are also predicable of other things than the subject) but when taken collectively are co-extensive with the subject. It is the synthesis of the concept-predicates that will give the essence of the subject being defined.⁵ The concept-predicates selected must also remain within the limits of the genus which is the most universal of the concept-predicates selected, being predicable of all the others but not all they of it. Once all the concept-predicates have been acquired, the process of adding the specific difference to a genus (to divide it) will put them in order, and if this is done correctly, it will result in a valid

1 Recall the reference made to this text in the last chapter in studying the meanings of $\pi \acute{\alpha} \lambda \lambda \alpha \iota$ and $\acute{\alpha} \delta \iota \alpha \phi \acute{o} \rho \omega \nu$.
2 96a 20-22.

3 *Post An* II.9 suggests this when it is said that in some cases the essence is immediate and a principle (of the demonstration) and for which one must suppose or make apparent in some other way both that it is and what it is. *Post An* II.13 seems to outline one of these other ways. See Apostle (*Post An*, p.237, n.2) who, in commenting II.9, states: "In what way can the immediate whatness be made evident? *Division* [italics ours], intuition, induction, abstraction, and habituation are methods by which principles are acquired."

4 *Post An* II.13, 96a 24-34; 97a 24-25; and, 96b 28-35. A concept-predicate is a concept predicable of the defined, hence, one that could be used in the definition.

5 *Post An* II.13, 96a 24-b 14. Aristotle gives the example of defining the numerical triad. See also *Post An* II.17, 99a 32-36.

definition of a species. Beginning with the genus, one selects the concept-predicate that can be a *differentia* cutting the genus in two, that is, divide it in a binary fashion to ensure that the entire genus has been cut; for example, animal is divided into footed and non-footed. The subject being defined falls on one of the two sides of the division, for it must be either one of the contradictories.¹ The division is done according to the comprehension of the genus and determines the order of the concept-predicates because after animal has been divided into footed or non-footed, the next concept-predicate must divide the new comprehension signified by the new genus footed animal (assuming the subject being defined falls on this side). The process of division is continued until the subject has been defined.²

It is obvious that the operation of defining can only begin after all the concept-predicates have been found. These are made known by induction from the particulars whose essence is being defined. Induction can also ensure that a genus is not equivocal, which is important since the genus is the starting-point of the act of defining. According to Aristotle, it is necessary always to look to the similarities present in the multiplicity of particulars as one gradually goes up in universality on the path to establishing the genus.³ With each similarity found, a universal predicable of them all is acquired. By comparison and contrast with particulars that are the same in one respect (generically) but different in others (specifically), one is able to slowly rise to higher universals expressing one signification. If, at some point, the particulars can no longer be expressed by one signification, then there is more than one generic universal and the induction may stop. In this manner, one is able to obtain a univocal genus. As well as finding the genus, induction, by having the particulars in view, can help in verifying that the analysis of a genus is terminated because the definition obtained at any moment during the analysis can always be compared with the subject being defined through the particulars known in induction.⁴ The verification effected through induction can also be performed whenever any new concept-predicates are

1 Aristotle (at 97a 7-23) remarks that it is not necessary to know everything to define that which is essential to one thing. It is sufficient to assume that the thing being defined necessarily falls on either side of the binary division.

2 *Post An* II.14, 98a 1-12. See *Meta* VII.12, where Aristotle treats of the unity of a definition reached by division and which, as he says, was not dealt with in *Analytics*.

3 *PostAn* II.13, 97b 7-24.

4 *Post An* II.13, 96b 7-14 and 97b 28-29. See also Le Blond (*Logique et méthode*, p.33): "Il ne faut pas oublier, en effet, que l'induction n'est pas uniquement, aux yeux d'Aristote, une méthode de trouvaille, mais aussi une méthode d'épreuve et de vérification."

proposed for use in a definition because these can be understood and perceived to belong or not to belong to the defined by making reference to all the particulars enumerated in the induction.

It may be seen that the induction of scientific concepts incorporates a large part of intellectual work. The more a dialectical induction used to establish a phenomenal universal comes closer to collecting and selecting only those attributes belonging essentially to a subject, the closer one comes to acquiring universals in the intellect which can be used to define it. Once acquired, these universals can then be grouped together and ordered through the activity of defining. By establishing relationships between these universals in the act of dividing, the poorer comprehension of universals, in particular the genus, becomes richer. This richness in comprehension means that generic universals become more precise in signification so that they become specific concepts predicable of things similar as to their essence. This similarity of essence renders things most intelligible since the possession of a definition of their essence makes sensible individuals, as instances of this essence, susceptible to scientific knowledge. One may put the matter differently by saying that induction by itself can acquire universals of varying universality, but until the intellect selects and joins certain universals (those essential to the subject being defined) in an orderly way through the activity of defining, the comprehension of the universals gained by induction is an understanding had in relation to the particulars rather than being an intelligible understanding based on relationships between universals. Yet, induction can also aid the activity of defining, which must always make reference to the subject being defined, to see whether the definition obtained corresponds to it and expresses well its essence or not. If, as described, induction and defining turn out to be reciprocal and complementary cognitive processes, then dialectical inquiry may help determine which concept-predicates are predicable of a subject and ensure that these are coherent and not contradictory in any way, whereas defining could help put these in order so as to give precision to the discourse about a subject and gradually come to a definition of what it is essentially.

6.3 Induction of Immediate Propositions

In *Prior Analytics* II.23, Aristotle presents an “inductive syllogism” which is explicitly stated to establish the primary and immediate proposition.¹ The conjunction of induction and syllogism in an attempt to manifest that even induction can be put into syllogistic form can be extremely confusing, especially since our introductory remarks present induction as a mode of argument opposed to syllogism.² But much of the confusion created by the assimilation of induction to syllogism can be dissipated if one respects Aristotle’s restriction that the inductive syllogism is, in fact, “a syllogism coming from induction”³ because instead of having a properly universal term serving as middle of the syllogistic inference, there is an enumeration of particular instances. In cases where there are only two universal terms instead of three whose union is to be the proven result of a syllogistic inference, the middle term common to both must be provided by an induction of particulars known to belong to both universals.⁴ The syllogistic movement of going from one term to another through a third follows upon the properly inductive activity of presenting individual cases known to belong to one of the universal terms and then perceived (inductively) to belong to the other as well. The particular instances act, then, as the middle term permitting the union of the two universal ones.⁵ Since the induction of particulars is that through

1 68b 30: “ἔστι δ’ ὁ τοιοῦτος συλλογισμὸς τῆς πρώτης καὶ ἀμέσου προτάσεως.”

2 Le Blond (*Logique et méthode*, pp.125-28) figures that Aristotle just wants to show that induction can be put into syllogistic form, if and when the condition of all cases is satisfied, without implying either that this is induction’s true nature or that complete induction is always possible. He also thinks that induction as a syllogism is a real demonstrative argument and so cannot—contrary to what Aristotle may say—really conclude the first principles because these are indemonstrable. For his part, Granger (*Théorie de la science*, pp.160-61) judges that the induction being presented here is not a different kind of inductive operation but, rather, “La seule différence est de point de vue: il est ici question de l’induction en tant que *raisonnement* analysé plutôt que comme acte global de formation du concept.”

3 *Pr An* II.23, 68b 15: “Ἐπαγωγὴ μὲν οὖν ἐστὶ καὶ ὁ ἐξ ἐπαγωγῆς συλλογισμὸς;” and, 68b 31-34.

4 Pacius (*Organum*, II, c.23, n.5 (p.257)): “[If one cannot prove by a syllogism in the proper sense], *id est, non possit probari per medium, eo quod nullum est medium, necesse est ut probetur per inductionem, atque ita probetur per inferiora et posteriora.*” And n.6 (p.258): “*nam syllogismo probantur, quae medium habent: inductione vero probantur potissimum, quae medio carent.*”

5 Some explanation like this seems to be behind Aquinas’ affirmation (*In Post An Expos.* Proemium, n.6) that, “*inducere enim ex uno in aliud rationis est.*” Cf. the following idea announced in one latin translation (see J.R. O’Donnell, ed. “Themistius’ Paraphrasis,” p.313) of Themistius’ commentary on *Post An*: “*Oportet ergo inde ut haec via, qua erigitur res universalis, sit syllogismus, viae syllogismi particularis. Quod est quia omnis sermo intendens ad res particulares et aggregans ex eis rem universalem nominatur syllogismus particularis.*” However, that this translates Themistius’ thought may be doubted as he himself

which the syllogized conclusion is had, the conclusion is dependent on this induction and in this manner induction itself may be said to demonstrate, though it is not the strict sense of demonstrating through a universal middle term expressing an essential cause.¹

Whenever induction is taken as a demonstration, it is said to prove that something is or is not; otherwise, it is just said to make something clear (the fact) without demonstrating anything (cause or reason of the fact).² Thus, induction is not really assimilated to syllogism; but insofar as a syllogism can come from an induction, it may be held that it is the induction itself that demonstrates or proves the inherence expressed in the syllogized conclusion.

At this point there appears to be a dilemma. Is the immediate primary proposition the indemonstrable product of a noetic activity of knowing terms, as it was affirmed in chapter 2, or is it rather the consequence of a rational activity of syllogizing, as just now seen? To answer this, it must be realized that an immediate proposition, whether scientific or not, does not, in a certain way, come from prior propositions but only from prior concept-terms, that is, in both premisses of this kind of syllogism, the concept-term is predicated, not of another term as in syllogism or demonstration properly speaking, but of singular instances to which the concept is perceived through induction to belong immediately. As an example, *man* would not be predicated of another term like *animal* or *mortal* but of singular men. This explains why such propositions are said to be immediate and it would be sufficient for maintaining that they are indemonstrable.³ Although the immediate union of two concept-terms can thus be done syllogistically, the difficulty now is to determine whether the immediate proposition is a product of the noetic activity of knowing terms or a product of the activity of induction, a dilemma neatly presented in Aristotle's affirmation that it is necessary to know all the particular cases by a noetic operation because induction is had by enumerating all cases.⁴

(*Post An Paraph*, p.64,15-16) writes this about induction: "καθὸ λέγεται ἐπαγωγή πᾶς ὁ ἐκ τῶν κατὰ μέρος τὸ καθόλου κεφαλαιούμενος λόγος."

¹ *Post An* I.3, 25-33.

² *Post An* II.7, 92b 1 and II.5, 91b 15 and 34.

³ According to Albert (*In Pr An Comm*, II, tr.7, c.4 (p.148)) the value of the syllogism coming from induction lies in its providing the necessity of the union of the two terms: "*inductio nullam habet necessitatem nisi a syllogismo.*"

468b 28: "Δεῖ δὲ νοεῖν τὸ γ τὸ ἐξ ἀπάντων τῶν καθ' ἕκαστον συγκεείμενον· ἢ γὰρ ἐπαγωγή διὰ πάντων."

Looking at Aristotle's example, (the concept-term) *long-lived* (*makrobion*) occupies the position of the major term (A), (the concept-term) *bileless* (*mê ekhein kholên* or *akholon*) that of the middle (B) and particular long-lived animals such as man, horse, mule, and so on occupy that of the minor (C) in the syllogism.¹ Since the syllogism coming from induction proves through the particulars enumerated, the minor term plays the role of the middle rather than the actual middle term, that is, the minor is the middle because it is the medium through which, or the means by which, the major concept-term *long-lived* will be seen to belong to the middle concept-term *bileless*.² According to Aristotle, the forming of the immediate proposition *All bileless animals are long-lived* proceeds in the following way. First, the major *long-lived* is known and said to belong to the whole of the minor or all of the particular long-lived animals because all the bileless are long-lived. Next, the middle *bileless* is said to belong to all the particular long-lived animals too. Then Aristotle sets down the condition that if the minor term is convertible with the middle and the latter is not wider in extension, then it is necessary that the major *long-lived* belong to the middle *bileless*, thus establishing the immediate proposition that *All bileless animals are long-lived*.³ The difficulty with the example is the phrase "because all the bileless are long-lived"⁴ intended to explain the first premiss, *Long-lived belongs to all the particular long-lived animals*. In fact, the major premiss would seem to be justified by the conclusion being sought by the syllogism coming from the induction, thus assuming in the premisses what is

1 Here is the syllogism presented by Aristotle (68b 21-25): "τῶ δὲ γ ὅλω ὑπάρχει τὸ Α· πᾶν γὰρ τὸ ἄχολον μακρόβιον. ἄλλὰ καὶ τὸ Β, τὸ μὴ ἔχειν χολήν, παντὶ ὑπάρχει τῶ Γ. εἰ οὖν ἀντιστρέφει τὸ Γ τῶ Β καὶ μὴ ὑπερτείνει τὸ μέσον, ἀνάγκη τὸ Α τῶ Β ὑπάρχειν."

2 The positioning of the terms in a syllogism partly determines their extension since the relation of predication demands that the predicate-term be conceived as being wider in extension than the subject-term in a proposition. Since the particulars are always the least universal, they must have the least extension, hence occupy the minor term's position. This corresponds to the fact that induction always starts from that which is most knowable to us and to sense to arrive at (higher) universals. The other two terms being universal concept-terms must then occupy the two remaining positions. Why long-lived occupies that of the major and bileless that of the middle will be elucidated in the course of the analysis of the example.

3 The conversion of terms must respect the principle of conversion (announced by Aristotle in the chapter previous to this one) stating that if two things belong to the same thing and the extreme is convertible with one of them, then the other term will belong to the one that is converted. The fact that long-lived is the predicate-term in this proposition which is the conclusion of the syllogism would explain why it must be the major term in the syllogism. Its extension would then be wider or greater than that of bileless which, being the subject-term and having less extension, would then be placed in the remaining position of middle term. But since the conclusion follows the premisses, one could wonder why this would be so in the premisses.

4 I.e., "πᾶν γὰρ τὸ ἄχολον μακρόβιον."

to be concluded, which would beg the question. How, then, are the example and this explanatory phrase to be understood?

One possibility would be to simply eliminate the explanatory phrase and take the major premiss as stating, *Long-lived belongs to all the particular long-lived animals*, without further explanation or addition.¹ The example would then be interpreted as follows: first, (the concept-term) *long-lived* is predicated of all particular long-lived animals; then, (the concept-term) *bileless* is predicated of all particular long-lived animals; finally, since *bileless* is seen in the minor premiss to be convertible with all particular long-lived animals, *long-lived* would consequently belong to *bileless*. This interpretation seems to work by taking one concept and predicating it of a given particular definitely known to belong to it because it is an instance of it, and then taking the other concept to try predicating it of the same particular to see if it belongs to it, too. The same process would be repeated for all the particulars definitely known to belong to the first concept. If the second concept is perceived to belong to each and every particular known to belong to the first concept, then at that time one could conclude that the second concept belongs to the first because it is perceived to belong to each and every one of its particulars.²

Another possibility would be to alter the text in some way. Ross³ changes "all the bileless" in the explanatory phrase to "C," that is, the minor term of particular long-lived animals. This alteration would then give us a sentence stating that long-lived belongs to all the particular long-lived animals "because all the particular long-lived animals are long-lived." This would appear rather tautological and hardly worthy of being explanatory since a concept is always, and only truly, predicable of its subject and particular instances. If there is an explanation here, why, then, is there not one for the minor premiss as well? For it is

1 In his translation, Jenkinson (Revised Oxford ed.) does put "πάν γὰρ τὸ ἄχολον μακρόβιον" in square brackets, adding in a footnote that Tredennick suggests excising it altogether. In the older Oxford ed., however, the same translator had left the phrase in the text as is without any hint of it as being problematic.

2 This seems to be the way Philoponus (*In Pr An Comm*, p.473,13-28) explains the principle of conversion and the inductive method's manner of functioning. See especially ll.26-28: "ὥς καὶ νῦν ἐπὶ τῆς ἐπαγωγῆς τὸ ἄχολον κατηγορεῖται ὑπόθου τῶ κόρακι· κατηγορεῖται δὲ καὶ τῶ κόρακι τὸ μακρόβιον· οὐκοῦν καὶ τῶ ἀχόλω τὸ μακρόβιον."

3 *Pr and Post An*, pp.485-87.

much less obvious as to why *bileless* would belong to all the particular long-lived animals. Be that as it may, this change results in basically the same interpretation as in the previous case. In both, the apparently misplaced term *bileless* is eliminated from the major premiss and reserved only for the minor, such that the same premisses are used in both to construct the syllogism coming from the induction. A different modification of the text would consist in keeping the explanatory phrase as is while altering the minor term (C) to signify particular *bileless* animals instead of long-lived animals.¹ According to this interpretation the induction selects one at a time animals known to be *bileless*, which are then found by observation to be long-lived at each and every instance. This would seem to explain Aristotle's "Freudian slip" in his statement that long-lived belongs to all the particular long-lived animals "because all the [particular] *bileless* are long-lived." It is as if Aristotle implicitly begins with the minor premiss first, namely *Bileless belongs to all particular bileless animals*, to direct the induction. As one selects each *bileless* animal, one then observes or perceives that they are also long-lived, and this would give the major premiss of the syllogism.² Once the major premiss is found by induction, the minor premiss is merely explicitly formulated to form the syllogistic argument. As well, the condition of *bileless* having to convert with all the particulars would easily be met since it would simply be a case of the concept-term *bileless* converting with all the particular instances of which it is obviously predicable, the individual *bileless* animals enumerated.³

Of the interpretations provided thus far, the first two presented, and seen to give the same result, would use the major term *long-lived* to select all the particulars to be considered by the induction, namely, particular long-lived animals.⁴ As a result, the conversion of the minor would occur only when the middle term *bileless* has been seen to be predicable of all

1 This is Smith's recommendation (*Aristotle's Prior Analytics*, pp.220-21).

2 Note that Aristotle (*Post An* I.13, 78a 30-38) does affirm that induction or perception is used to establish the major premiss of the syllogism of the fact ($\acute{\omicron} \tau \iota$), but not that of the reason of the fact ($\delta \iota \acute{\omicron} \tau \iota$).

3 Smith (*Aristotle's Prior Analytics*, p.221): "Thus, what Aristotle is saying with the troublesome phrase is this: since, as a matter of fact, everything *bileless* is long-lived, [then why perform the induction?] it will result that in selecting *bileless* things for consideration we are also selecting long-lived things. When we have exhausted the entire class of *bileless* things (so that we know that B does not 'extend beyond' C but converts with it), we are in a position to infer that whatever is *bileless* is long-lived."

4 It should be known that for this induction to work, it must proceed by using a universal concept that will enable the one performing the induction to perceive, recognize, and select only those particulars belonging to it. See *Post An* I.1, 71a 22-24 where Aristotle states that the particular is known directly or immediately under its universal. See also the commentary of *Comm Collegii Conimbri (Liber II De Priori Resolutione*, p.399) where this point is quite clearly made.

the particular long-lived animals enumerated through the concept-term *long-lived*. If that is so, then the universal knowledge acquired through the induction would be the universal proposition that *bileless* belongs to long-lived because it was seen to belong to every particular long-lived animal. But this conclusion is not the one stated in the example. In fact, it inverts the two terms of the conclusion being sought: Long-lived belongs to bileless. In other words, since the conclusion *Long-lived belongs to bileless* is actually the universal immediate proposition being sought, then the induction must manifest that *long-lived* belongs to all the particular bileless animals. The last interpretation given (Smith's) has the advantage of doing just this, though at the price of modifying the text. Would it be possible to explain the syllogism from induction based on the example without making any alterations to the text whatsoever?

Recall that Aristotle's example states firstly that long-lived belongs to all of the particular long-lived animals "because all the bileless are long-lived." Then it is affirmed that bileless belongs to all the particular long-lived animals, and after the conversion of these terms, he concludes the immediate proposition that *All bileless animals are long-lived*. If the wording is respected, the second sentence would have to be understood as saying that all the particular bileless animals were enumerated and perceived to be long-lived. The knowledge gained by this induction would then be that *long-lived* belongs to all these particular animals first known to be bileless but then perceived during the enumeration to be long-lived too, hence, the explanation long-lived belongs to long-lived particulars because all (particular) bileless animals (enumerated) are (actually perceived to be) long-lived. The major premiss *Long-lived belongs to all the particular long-lived animals* seems to express the conclusion of this induction in which the particulars are conceived as they are perceived to be at this moment. The minor premiss *Bileless belongs to all the particular long-lived animals* would be a previously acquired foundation because the concept *bileless* was that through which the particular bileless animals were recognized and selected for the induction, but once it was perceived that all the ones enumerated are also all of them long-lived, thus establishing the major premiss, it then became evident that *bileless* belongs to all the particular long-lived animals. In other words, the concept used to perceive the particulars at the start of the induction is now seen to be predicable of them as they are perceived at the end of the induction. At the very moment in the induction that one perceives that all the particular bileless animals enumerated are long-lived too, one knows at that same moment both that these are all long-lived animals such that the universal *long-*

lived can belong to them all and that the universal *bileless* can be predicable of all the particulars now perceived as long-lived. Again the wording of the text seems to suggest the simultaneity of this knowledge acquired at the end of the induction because the major is justified by the fact that all the particular bileless animals are long-lived while the minor states that all the particular long-lived animals are bileless. Notice how each proposition expresses the predication of one universal of all the particulars belonging to the other universal, and in so doing, each proposition expresses one half of the movement of conversion of all cases necessary to conclude universally that *long-lived* belongs to *bileless*. Thus, these propositions seem to be the actual premisses of the syllogism whose universal conclusion is also had simultaneously with the perception that all the bileless animals (enumerated) are long-lived too since the particulars enumerated are numerically the same for both premisses, even though the particulars are perceived and expressed differently in each premiss. Finally, the reason *long-lived* is predicated of *bileless* in the conclusion is that the induction begins with the knowledge of particular bileless animals perceptible through the universal *bileless*. The universal *long-lived* becomes known as a result of the induction of particular bileless animals each perceived to be long-lived. Thus, the universal *long-lived* must occupy the position of the major term, the one that is most universal and acquired by the inductive method using the less universal *bileless* and its particulars under it. As a result, the universal knowledge acquired through the induction actually seems to be two-fold: the universal concept *long-lived* and the universal proposition *Long-lived belongs to bileless* because it is through this latter concept and the particulars belonging to it that the path of induction took to arrive at the universal *long-lived*.¹ The syllogism from induction is thus a product of the perception gained through induction that all the particular bileless animals are long-lived too.

6.4 Enumeration of All Cases

The stipulation that induction must be of all particular instances, or else the syllogized conclusion cannot be considered to be universally valid, gives the first impression of being a totally unrealistic demand. After all, how can anyone enumerate all the bileless animals

¹ Assuming that there is a noetic grasp in this induction, observe how this conclusion would imply that the noetic object is double and that induction would lead to both a concept and a proposition incorporating that concept. Cf. Granger (*Théorie de la science*, p.160): The function of induction "est la reconnaissance dans le concept, c'est-à-dire l'annonce originaire d'une proposition universelle."

that were, are, and ever will be? Aristotle knows that sensible individuals can be infinite in number (in the sense that a universal concept is not limited in its extension and attribution to individuals here and now); yet if this is what he demands, then this syllogism from induction is for all practical purposes useless and irrelevant.¹ If taking the requirement of all cases in this simplistically literal sense of having to actually enumerate all the sensible individuals in order to have a complete or perfect induction is too far-fetched, unbelievable, in fact, impossible (as the infinite can never be known), and therefore something that could never exist, then “all cases” must probably mean something else. Either that or Aristotle himself would have to accept the accusation he levels at others of uttering something *logikōs kai kenōs*, an empty verbal theory. As this seems highly unlikely—not to mention the fact that this simplistic understanding borders on being absolute nonsense—, the stipulation of all cases needed for the induction must be taken to signify something else.²

One typical interpretation is to recognize that particular may signify both sensible individuals falling under a species and the species under a genus, and to decide that in this situation it must signify the species. By doing so, the numerical infinitude of sensible individuals is limited and circumscribed by the finite number of species.³ Though this

1 Many excuses, rationalizations, apologies, and ingenious interpretations have been offered by various Aristotelian commentators to try to diminish, avoid, or get around the requirement and to avoid the charge of irrelevancy. Ziegelmeyer (“Discovery of First Principles,” p.136) writes: “[... the] only way to meet it [induction of all cases] is to suppose that Aristotle is here speaking of *scientific* induction, for which he erroneously [sic] demanded an enumeration of *all* the instances - a postulate that would render all induction nugatory. [Then is this what the postulate really means?] But as we hope to show presently, he does not require such complete enumeration for the *natural* and *spontaneous* induction by which we discover the first principles.” Cf. Ross (*Pr and Post An*, p.50): “It is strange that in the one considerable passage devoted to induction Aristotle should identify it with its least valuable form, perfect induction.” And also pp.486-87: “He [Aristotle] knows well that he could not observe all the instances, e.g., of man, past, present, and future. [Then why does he nonetheless affirm it?] The advance from seeing that this man, that man, etc., are both gall-less and long-lived has taken place before the induction here described takes place, and has taken place by a different method (imperfect induction). What he is describing is a process in which we assume that all men, all horses, all mules are gall-less and long-lived and infer that all gall-less animals are long-lived.”

2 Note that the same may be said concerning the establishment of a definition. How can all the particulars be perceived to determine what is essential to a thing? Aristotle’s answer to this objection was given above in the section covering the induction of concept-terms. This section will study the problem of enumerating all cases within the context of the induction of an immediate proposition.

3 Smith (*Aristotle’s Prior Analytics*, p.221): “But we can interpret ‘all cases’ in two ways: either as an examination of every *individual* falling under a certain predicate or as an examination of every separate *kind* falling under it.” According to Smith, the example in *Pr An* II.23 lends itself to the second view, even though Aristotle does not explicitly say which of the two is intended. Ross (*Pr and Post An*, p.487) affirms that Aristotle “escapes” individual enumeration by going from the species which are limited in number to

might explain the example--for bileless can be considered as a generic concept under which are included the specific concepts of the different bileless animals--it does not take into consideration the fact shown earlier that recourse to sensible particulars is inevitable in all inductions because this is the way in which the lesser universals are understood. This interpretation also eliminates as a possibility an induction in which an *infima species* is one or both of the universals being joined through the syllogism coming from the induction. Since an *infima species* is the lowest universal possible, a reference to sensible particulars would be the only way of accomplishing the induction. As having recourse to some form of sensible individuals is unavoidable, the dilemma of having to actually enumerate an infinite number of particulars remains.

One way of dealing with having to enumerate an infinite number of particulars (included under the extension of a concept) would be to call in the aid of *nous* (as Aristotle himself does) at some point in the induction and maintain that the noetic grasp of all the particulars signifies an imagining or assuming that all the particulars have been enumerated.¹ If induction is held to be an activity or operation that can only take place when particulars are actually being enumerated, then particulars that are not yet enumerated, but known as if they were, must be referred to some other faculty or activity; consequently, this knowing *as if* is conceived of as an activity of imagining or assuming identified with the *noein* mentioned in Aristotle's text. After having selected a limited number of bileless animals, all of which are perceived to be long-lived, one could then say, with some justification based on this limited induction, something like, "and so on with any others that may be enumerated," or "etcetera," or something of the sort to halt the inductive process.² This interpretation at least offers a way of dealing with the infinite number of sensible particulars their genus.

1 For those who hold that only induction, especially a purely sensible or empirical one, is needed to provide the immediate proposition, or any universal knowledge, the challenge of knowing all the instances would be just as absurd and difficult to explain as that of acquiring universal knowledge from sense. Leaving the $\forall \circ \hat{\cup} \zeta$ -induction relationship for later discussion, we merely present this position. In this case, $\forall \circ \hat{\cup} \zeta$ does not mean an intuitive operation of the intellect, as will be seen.

2 Albert (*In Pr An Comm*, II, tr.7, c.4 (p147)): "*et erit tunc sic formandus syllogismus, omne quod est equus, vel mulus, vel homo, et sic de aliis, est longaeuum: sed omne non habens choleram, est equus, et mulus, et homo, et sic de aliis : ergo omne non habens choleram est longaeuum.*" Cf. Kal (*On Intuition and Discursive*, p.29): "In the inductive procedure, however, it is not actually necessary to adduce all possible cases. At a certain point one says 'etcetera' and waits for the other to advance an objection.

Aristotle in fact says that one should merely imagine [$\forall \circ \hat{\in} \vee$] the minor C as being comprised of all cases of the general rule. He does not seem to have meant that one must actually enumerate all cases, as if that were possible. The idea is only that all possible cases of the general rule must in fact be capable of featuring as such."

and does not eliminate the possibility of inductions starting from them. It would be the method of what are called imperfect inductions, imperfect because not all the instances have been actually enumerated. On the other hand, if *nous* is identified with the habit of the principle of science--which this interpretation does make possible--and *nous* grasps the immediate propositions which can then serve as indemonstrable premisses of demonstrative science, this kind of noetic imagining or assuming seems rather tentative and weak. Though it may be enough for dialectical immediate propositions, it lacks the universality of necessary knowledge which is that of science. In fact, if one finds a counter-example sometime later on, then the immediate proposition concluded in the syllogism coming from an imperfect induction would be refuted. At the very least, what this interpretation does manifest is a change in the meaning of "all cases" since it here signifies all possible cases that may be enumerated instead of all cases actually enumerated. But it is precisely the openness inherent in the possible that makes the universal immediate proposition thus acquired rather general and contingent upon not being refuted.¹

The advantage of this interpretation lies in its acceptance of rooting induction in sensible particulars and sensible cognition from which the universal is said to come. Though it admits that only a partial enumeration is required by assuming or imagining the knowledge gained in induction to be possible in all similar cases, it still implicitly presupposes that the induction must be of all cases actually enumerated for it to be perfect. This is evident in the fact that it is said to be imperfect and that it remains open to being refuted by a counter-instance not enumerated in the original imperfect induction. However, that the expression "all cases" is intended to signify, even if only as a presupposition, actually having enumerated all the particular instances (before an induction can be said to be perfectly terminated) is unlikely, for the infinite can never be actualized or exist actually.² The only existence proper to the infinite is a potential one. If, therefore, all cases is intended to cover the infinite number of particulars that may be known by inductive enumeration and that which is infinite can only exist potentially, then the only enumeration of them that could be

¹ Aristotle (*Top* VIII.2, 157a 24) suggests using the expression "ἐπὶ πάντων τῶν τοιοῦτων" in the situation where there is no general name to cover the resemblances being sought to acquire inductively a universal. Notice that the expression is therefore not used to express the possible extension of a universal to all the particulars under it, but rather to temporarily name its yet unnamed comprehension. There does not appear to be any passage in which Aristotle states an expression like *etcetera* with reference to the infinite extension of particulars.

² *Ph* III.6, 206b 13-14.

appropriate and possible would be a “potential” enumeration of all instances. But what could potentially enumerating all cases mean? It cannot mean simply assuming or imagining “and so on with all other possible instances of the sort” because, as stated, this still presupposes an actual enumeration of all cases and admits the possibility of a refutation so that the induction would not really turn out to be of all cases as previously assumed or imagined. What is required is an enumeration and an induction that is truly potentially all the cases such that not one can be missing and no counter-instance or error is possible. In other words, the potential enumeration must be of all the particular instances with some sort of necessity such that whenever an induction is actually enumerating new instances it is merely actualizing the infinite potentiality of all cases actually having been enumerated. This is especially important when the induction is used to gain scientific immediate propositions which must be necessarily and universally true, not just generally probable and contingent upon not being refuted. So how can such a potential enumeration possessing with necessity all the particular instances be explained?

Aristotle enunciates, “induction shows through the particulars which are clear to us that everything is thus because nothing is otherwise.”¹ By implication, the knowledge of all cases comes through perceiving that there is no opposition to it being so; or, it may be said that all becomes possible through none being impossible. This suggests that the perception that something is so in all cases will be had only once the induction manifests that no counter-instance is possible, for example, with each bileless animal perceived to be long-lived there somehow arises or is acquired the perception that it is impossible for it to be otherwise (not long-lived), and through this necessity is acquired the universal cognition that it is so in all cases. It would be a perception and cognition gained negatively or by a negative kind of necessity, that is, by denying the opposite because it is perceived to be impossible.² Yet this does not seem to eliminate so much as merely displace the requirement that induction be of all the instances. After all, would it not be necessary to enumerate all the instances before coming to know with necessity that it is impossible to be otherwise? Simply put, the answer would be no since an induction that just gives the knowledge that something is so is not the same as one that gives the knowledge that something is so because it is impossible to be otherwise. The latter is grounded in a

¹ *Post An* II.7, 92a 37-38: “ὡς ὁ ἐπάγων διὰ τῶν καθ’ ἕκαστα δήλων ὄντων, ὅτι πᾶν οὕτως τῷ μηδὲν ἄλλως.”

² Cf. *Post An* I.2, 72b 1-3.

necessity and as a cognition of a necessity, it can only come from a cognition of the essence, or whatness, of the thing being enumerated, just as in the case of science which is said to be a knowledge of the necessary because it is of the essence. Therefore, it is only an induction that leads to a cognition of the essence of the particulars enumerated that can provide the source of the knowledge of necessity; for a thing cannot not be what it is, or put in another way, it is impossible for it to be otherwise than that which it is.¹ In this manner, then, the induction can be held to have gone through all the particular instances, not because it has actually enumerated every single particular possible for enumeration, but because it has done so potentially by having acquired the cognition of the universal essence of the particulars being enumerated, a cognition which will permit one to select and enumerate correctly or without error any new instances as they arise.²

6.5 Induction in II.19

According to the presentation of induction thus far, this cognitive process would appear to belong to a faculty of the intellect rather than to the powers of sense. Even if reference must always be made to sensible particulars, the universal knowledge resulting from the instances enumerated in induction cannot be at the level of sense. In fact, if induction is meant to signify a strictly empirical cognitive process, one belonging to the senses alone, several difficulties would arise. First of all, induction could not be opposed to syllogism and described as another kind of persuasion and argumentation, for syllogism, persuasion, and argumentation are all activities proper to the intellect. Secondly, defining induction as the road from particulars to a universal would not make any sense since universal normally, and in its proper sense, qualifies intellectual, not sense, knowledge. Thirdly, induction

1 Cf. Aristotle (*Post. Ana.*, pp.81-82, n.20): "Further knowledge of individuals or particulars of the same kind will not add to one's knowledge of the nature of those individuals or particulars, for what these add to their nature are only accidents." And p.298, n.17: "in the formation of indefinables [i.e. highest genera or categories and differentia], induction is neither complete nor necessary. To acquire the concept of quantity or of any indefinable one need not sense every existing quantity, for quantities not yet sensed would not, if sensed, produce a different concept of quantity."

2 Note how this view corresponds to the fact that every universal, whether it be a species or genus or whatever, is predicable of an infinite number of particulars, not actually but potentially. Cf. Granger (*Théorie de la science*, p.162) who says: "NOEIN TO G ne signifie pas AISTHANESTHAI TA KATH' HEKASTON, et le terme employé par le Philosophe en est un assez sûr indice. S'il s'était agi de recenser exhaustivement tous les cas singuliers d'animaux sans fiel, c'est à la sensation qu'il fallait recourir, non au NOEIN, vocable d'acception large, sans doute, mais qui ne saurait recouvrir la sensation." Granger thinks that the enumeration of all cases is actually a consequence, not a requirement, of induction which reveals the exclusive distribution of a property to the class of individuals represented by those singulars enumerated.

could not be invoked in the operations of defining and forming immediate propositions since neither of these can possibly be done by the senses. As a consequence, though requiring cognition provided by the senses, induction seems to be more properly a function of the intellect. Yet, II.19 certainly gives one the impression that induction belongs more to the senses, for it is affirmed that sense implants the universal inductively and that the noetic habit is developed from the discriminative capacity of sense-perception.¹ This may be why some commentators claim that there are actually different kinds of induction and that the one presented in II.19 is not the same kind as the one described in *Topics* (or, for that matter, the ones described in the two chapters of *Analytics* referred to above).² In effect, does not Aristotle affirm that sense is of the universal (man) though the act of sense-perception is of the particular or singular sensible thing (Callias)? Thus, the movement within the sense powers beginning with the sensation of a present appearance and terminating in its conserved appearance, whether it be a memory or an experience, would appear to be an induction leading to universal knowledge, too, but of a different kind than the inductive methods seen so far. In what manner, then, can sense be held to know the universal?

To begin with, affirming that sense knows or makes known the universal in some way or other must be accepted if induction is to work. The very act of having recourse to sensible singulars to carry out an induction implies that the universal is present in some way in each of the particulars enumerated; otherwise, the inductive activity would become totally meaningless. In fact, if the universal is not somehow in the particular, then why look to them in the first place to obtain the universal? It would be vain and absurd to do so. Also, how could induction be called the path to universals by means of particulars if the latter could in no way lead to the former? This is the full significance of claiming that the enumeration of particulars is subservient to the actual inductive motion of perceiving the

1 Following Mure, "implants" translates the Greek ἐμποιεῖ at 100b 5. Other translations include: Barnes and Ackrill- instills; Apostle and Taylor- produces in us; Warrington- implants; Tejera- by induction we obtain; St-Hilaire and Tricot- produit en nous; and, in latin translations, we have *facit*, *inprimit*, *fit* (*invenitur*), and *efficit*.

2 See, e.g., Le Blond (*Logique et méthode*, pp.36-37) and Averroes (*De Demonstratione Expos*, p.566) who affirms: "*Haec autem inquisitio [in II.19] est alia ab inquisitione, quam narraverat in Libro Topicorum, illa [in Topics] enim facit adipisci universale imaginarium, haec autem facit adipisci verum universale.*" Notice how he calls the universal acquired in dialectical inquiries "*universale imaginarium*" which is not the "*verum universale*," a conception similar to the one presented in the previous chapter of the phenomenal universal said to be a pseudo-universal expressed in opinions dialectically examined.

universal in the particulars selected: one keeps presenting instances through the course of an induction until the universal sought is finally perceived. Once the universal has been found, the induction can be stopped, for it has accomplished its purpose. It must be granted, therefore, that the universal is in each sensible singular for induction to be a valid cognitive operation. As it was seen in the previous chapter, the universal as existing in a sensible singular is first and foremost an essence, a principle of its being and cause of its existence, and a nature, a principle of the individual's motion and rest, manifested by the individual's substantial form. Granting that this is the universal in each particular, it must now be seen how an induction of the universal from the particulars enumerated can take place through the senses.

The implication of enumerating particulars to attain to the universal is that each particular must be perceived or known to be an instance, a representative or sample case, of the universal being sought.¹ If each particular is known in its individuality and singularity alone, then the universal which is common to and predicable of several particulars could never and would never be obtained.² This means that in the act of perceiving a singular thing, we must not only perceive that which makes it particular, unique, and different from other sensible individuals, but also that which makes it an instance of a universal.³ Now, to perceive a sensible singular as an instance of a universal could only occur if the particulars enumerated in induction are somehow perceived to be similar in some respect. It is only because Socrates is perceived to be similar to Callias and they similar to Plato that the concept *man* could ever be acquired inductively.⁴ Since that which is similar is common to

1 As Wedin (*Mind and Imagination*, p.156), using the terminology of contemporary philosophy of mind, puts it: "the perceptual system can inductively generate universals only because perception is of types [universals], not tokens [singular instances]."

2 Though the context is not that of induction but of potential and actual knowledge, Leszl ("Knowledge of Universal," pp.293-94) expresses this idea in the claim that if the universal and the particular are "categorically different and therefore as constituting two isolated objects of knowledge [... then Aristotle could not say] that there is some sense in which knowing *this* A is to know in general (thus to know all A's); for this is excluded if knowledge of *this* A is something absolutely unique (something which can regard only it and nothing else), as it would follow from its correlation to the individual as such [i.e. as to its individuality]."

3 Mauro (*Braevi paraph*, c.XI, n.9): "*in singularibus non solum percipimus ipsam rationem singularitatis, in qua differunt, sed etiam rationem universalem, in qua conveniunt*." See also Soto (*de Demonstratione Comm*, p.493).

4 *Top* I.18, 108b 8-12. Aristotle is well aware of the difficulties in determining similarities, but he never denies their importance in induction. See *Top* VIII.2, 157a 20-33. The different meanings of things that are similar or like (ὁμοίωσις) can be found in *Meta* X.3, 1054b 4-14.

them all, this common element could be perceived as something other than or besides the particulars and could therefore constitute the basis of a cognition of the universal in sensible singulars.¹ This seems to be the case with the appearance of experience. As a collection of memories about one thing, there is a sense cognition of each singular memory in its sensible individuality; but as one experience, it is a cognition of a similarity common to all the memories and which could be perceived as something other than them. The suggestion is that knowledge of the universal could only come from perceiving several singulars, not just one, because the similarity from which it may arise is only known as that which is common to a plurality of singulars; however, each of the singulars must nevertheless be perceived as to this similarity for it to be an instance of the universal, which implies that the universal must already be perceived, even if vaguely, in each singular.

In the previous chapter, it was hypothetically proposed that the conservation by memory of an appearance of a sensible singular could in some way conserve the universal found in the singular and, as a result, sense would implant the universal. Something like this would have to be the case if one is to respect Aristotle's affirmation that sense is of the universal while its act is of a particular: of man while perceiving Callias. Sainte-Hilaire understands this as saying that the power of sense enables someone to recognize that Callias is a man while the singular activity of the power enables someone to recognize that it is this particular man Callias.² Recalling that the activity and the object with which it is identical are both found in a cognitive capacity, the object would give the capacity its singularity of activity but the habit through which this activity is performed would give the capacity a certain universality of activity since all similar objects would stimulate the capacity in the same way. This is why it was affirmed that the red seen now would be seen as an instance of redness through the habit of red formed in the power of sight. The habit, being a state of the power, would know the universal, that this is a case of redness, while the object actualizing the power would enable the power to perceive the particular, the red colour

1 Gerardi (see Minio-Paluello and Dod, eds. *Latinus An Post*, p. 281): "*usquequo pervenit ad eam universale secundum illam similitudinem. [...] secundum ergo hanc similitudinem fit (invenitur) universale ex sensibus.*" Cf. Themistius (*Post An Paraph*, p. 63, 22-24).

2 *Logique III*, p. 290, n. 7: "En voyant Callias, la sensibilité ou la faculté de sentir reconnaît que c'est un homme [... et] l'acte spécial de la sensation qui s'adresse à cet homme nous fait reconnaître que cet homme particulier est Callias."

being seen here and now.¹ Although this may explain Aristotle's affirmation, the example of perceiving Callias the man is the perception of a substance, which can be problematic on the assumption that sense without intellect implants the universal since substances do not seem to be perceptible to sense. Barnes², for example, wonders how the first universal in the chain of universals man-animal-...-substance could be gotten by an induction based strictly on sensory data. According to him, as sense is only of the proper and common sensibles, it would seem that only nonsubstantial universals (colours, shapes, and the like) could be generated from sense cognition. To account for the acquisition and formation of substantial universals coming from sense, one would have to conclude that the accidentally sensible is also perceptible to sense.³ But since accidentally sensible means nothing other than not sensible at all, this implies that sense operating by itself would be incapable of generating universals of substances. Thus, sense would apparently require the aid of the intellect to effect the induction of accidentally perceptible universals of substances from sensible singulars, a point already made in the previous chapter with respect to the perception of many similarities having a slight or no sensible basis. Kahn notes that "the universal is present in sense-experience only if we include the incidental [i.e. accidental] sensibles with their noetic component, and it is made available only if the percipient subject possesses the *nous* or *logos* required to detect it."⁴ One possible explanation of how universals of substances can be "detected" by the intellect would be to call upon language as a medium of universal thought.⁵ The obstacle, however, to this proposal is the question

1 Cf. Zabarella's explanation (*Opera Logica*, p.1275D): "*Sensus enim nunc videt colorem hunc, non colorem universalem, ipsa tamen natura visus respicit cognitionem non huius coloris, sed simpliciter coloris tanquam obiectum proprium, et sibi adaequatum*" And p.1276A: "*ipse quidem sentiendi actus est solummodo rei singularis, non est rei universalis, nisi per accidens. At ipsa sensus natura respicit universale ut obiectum adaequatum, non singulare.*"

2 Barnes' view is presented in Wedin (*Mind and Imagination*, pp 156-57).

3 Wedin (*Mind and Imagination*, p.156) meets Barnes' difficulty by holding that, "the inductive base will have to include incidental as well as proper objects of perception." This is merely one example of an author indiscriminately using "incidental" in the sense of accidental. See also Apostle (*Post An.* p.298, n.16) who observes that just as the sensibles are divided into proper, common and accidental, "so 'power of sensation' [would have] three allied meanings. One can sense a man only accidentally."

4 "On Thinking," pp.367-68. He mentions it is not always noted by commentators "that the incidental [i.e. accidental] sensibles represent the overlap or conjoined action of sense and intellect." One who did is Albert (*In Post An Comm.* II, tr.V, c.1 (p.103)): "*Talis autem est sensus per accidens qui ex reflexa ratione ad sensum mixtum in sensibili universale adiutorio superioris potentiae.*" So, too, De Corte (*La Doctrine*, pp.129-30).

5 This is Wedin's solution who, if we recall, proposes language as one of two possible meanings of the term $\lambda \acute{o} \gamma \omicron \varsigma$ in human experience. See *Mind and Imagination*, p.157: "Precisely because it embodies universals, language can make explicit what is implicit in perception. Thus, we have here at least a

of figuring out how concepts signifying sensible substances come to be present in language in the first place, for language expresses concepts such that these have to already be acquired before being expressed verbally. Saying that concepts are derived from habitual imposition of names on sensible substances is not the same thing as saying that they are derived from perceived sensible individuals. Even if learning a language likely follows this process of imposing names, this affirmation would seem to be a form of nominalism bringing to mind Aristotle's remark that the blind man uses language without thought or understanding because of a lack of sense cognition of his subject of discourse. One could always ask how the noetic habit's possession of universals of substances "enter into" language. After all, Aristotle says that the universal really does come from sense, that the universal *man* really does come from the sensible individual Callias who is sensed. Even if the acquisition of universals of substances is ultimately impossible without the help of intellect, the universal must nonetheless be in the sensible and perceptible to sense in some way, even if only "implicitly" as Wedin himself admits.¹ Themistius somewhat better describes how the acquisition of universals signifying substances can occur by maintaining that sense perceives both Callias and man present in a confused way in the particular; but *nous* will afterwards perceive that which is similar and common to many individual men to assemble and unite the similarities in the one universal *man* distinct from the particulars, a distinction made possible by the fact that man and Callias are perceived by *nous* as not being completely the same.² This position has the benefit of placing the universal in the sensible and holding that sense does at least perceive it confusedly, which is apparently the reason intellect is eventually needed. The drawback is that a confused perception of substance is nonetheless a sense-perception of substance and is therefore not the same as no perception of substance which accidental perception necessarily suggests.

Perhaps a clearer solution can be found by recalling ideas presented on the common sense.

suggestion as to how language acquisition could play a role in concept acquisition. It is in some such way that we are able to be aware of Socrates qua man and not merely Socrates qua colored or shaped thing."

1 A similar objection can be made against Kahn ("On Thinking," p.368) who concludes: "It is only in the case of *human* perception, enriched by the conceptual resources provided by its marriage with *nous*, that Aristotle can speak of us as *perceiving a man*. If we were restricted to the reception of sensible forms, all we could perceive would be colours and shapes." But one may ask: where do these "conceptual resources" belonging to $\nu \circ \hat{\upsilon} \varsigma$ come from if concepts do not come from sensible singulars? All $\nu \circ \hat{\upsilon} \varsigma$ could presumably do is form a concept as concept but the content of the concept man must come from sensible singular men.

2 *Post An Paraph*, pp.64,2-65,3. Cf. Albert (*In Post An Comm*, II, tr.V, c.1 (p.103)): "*quia sensus est et sensum accipere est universale, quod mixtum et confusum est in singularibus.*"

It was noted that the external senses' accidental perception of substance (that is, that it is completely imperceptible to them) could be compensated by the common sense's incidental perception of it (that is, that it is perceptible to it), inasmuch as the composite presentation of a substance in its sensible wholeness means that it is perceived in external reality as a whole by the common sense forming this unified presentation. The reason of its perception of substance being incidental is twofold: firstly, the common sense only perceives and knows the whole through its parts, the different sensible qualities perceptible per se to it or the external senses; and, secondly, the common sense only knows this whole as a sensible whole, or cluster of sensible qualities, distinct and separable from other sensible qualities composing the perceptual field without knowing that it is a man in substance, that is, without perceiving the intelligible essence or nature of this sensible agglomeration. The common sense's ability to unite sensible qualities belonging to one subject provides the necessary condition for later conservation of phenomena in their sensible wholeness or consistency, and through this conserved appearance, the senses would acquire the capacity to perceive substance incidentally. In other words, sense cognition would not only include the perception of proper and common sensibles (both per se sensible to the senses), but also the perception of the fact of togetherness or wholeness of different sensible qualities perceived to be together in one subject. As this fact of togetherness or coherence of sensible qualities is neither a proper nor a common sensible, the unity of a unified appearance formed by the common sense would turn out to be a modality of the appearance and would consequently be known incidentally, that is, numerical unity (based on a whole sensible appearance) perceived per se by the common sense can be an incidental perception of substantial unity.¹ Thus, though the universal essence of the substance of which the sensible coherence is a sign, and the reasons why it must be so, transcend the powers of sense, its incidental perception of the fact of this sensible coherence seems to be enough for one to conclude that sense does provide an initial, limited cognition of substance and its corresponding universal. In effect, the perception of the unity of an appearance, instead of the proper and common sensibles composing it, orients the focus of sense-perception on the least sensible quality, the one that presents the least difference and is similar to many individuals; and, when this perception is reinforced in the experience of many memories of the same substance, it habituates sense to perceive and recognize particular sensible

¹ There is an analogy being made here with the per se perception by an external sense of its proper object and its per accidens perception of a common sensible which is an accompanying subject of the first and perceived as a modality of it.

substances as being instances or types of the universal knowable to sense.

This view seems to bring out the full significance of Aristotle's affirmation¹ that the universal is a certain kind of whole and that the better known whole is the one known according to sense. It is the fact of togetherness or of forming a whole that would render an appearance universal (especially when it is a phenomenon known through experience) because togetherness and wholeness suggest a unity and a coherence--in the etymological sense of this term: *co-* together + *haerere-* stick; (parts) that stick or are tied or attached together. Now this unity can only be given by a singular substance. In effect, if Aristotle includes substance as a *per accidens* sensible object in his presentation of the objects of sense, it is likely because the *per se* sensible objects, the proper and common, are merely accidents of singular substances and cannot exist without them. I do not perceive a free-floating red all by itself or a square by itself. What I perceive is a red, square table, or a tall, white man, or to be more precise, a tall, white sensible subject or unity since the substance's nature is not knowable to sense.² As alluded to in a previous chapter, the division into three sensible objects does not signify three substantially separate and independent subjects, but three degrees according to which one singular sensible substance can be perceptible to and knowable through sense. Proper sensibles can be perceived best and provide the most certain sense cognition because they respect the nature of the external sense powers. Common sensibles transcend somewhat the capacity of the external senses each taken individually but can be perceived by the common sense when it discriminates sense information provided by the external senses. Substance would not be sensed at all if it was not due to the fact that the common sense provides a unified appearance representing something in its sensible integrity; and even in the possession of such a unified appearance, sense can still only be said to perceive substance incidentally. This appears to explain why the sensible perception of substances or of the universal in the sensible singular is sometimes said to be vague or confused: at the sensible level of cognition, a substance

1 In *Ph* I.1, cited in the previous chapter (section 5.3) during the discussion of ἀδύφωρον.

2 Sorabji ("Intentionality and Physiological Processes," pp.197-98) admits something akin to this in what he calls a "propositional appearance," "meaning by that no more than that something is a *predicated* of something; [..., i.e.,] a perceptual appearance is typically an appearance *that* something is the case, or, as we would sometimes prefer to say, an appearance *as of* something's being the case." As an example of this appearance (which he thinks reveals an act of interpreting on the part of the senses), he observes that there is not merely an appearance of whiteness but of whiteness as belonging to something or as being located somewhere.

appears to the cognitive subject as a collection of sensible qualities hanging together, that is, as a coherent sensible appearance. This may also be why sense's cognition of the universal has been focused on substance. It is only when sense perceives a thing as a whole that it acquires any sort of cognition of a universal, and this whole is due to and points to substance. This means that a distinction is to be made between the three sensible objects, proper, common, and substance, on the one hand and the universal in the intellect that can be acquired from each, on the other. In the strict sense, and as Aristotle's example of sensing Callias (along with this exegesis) suggests, universal refers primarily to substance, the essential form of the sensible singular giving it its unity of being and is its most intelligible aspect. Next, it refers to all other universal concepts that may be predicable of substance such as genus, specific difference, and necessary properties. The different fields of mathematics represent the intelligibility and universal concepts concerning common sensibles, while proper sensibles are not really intelligible at all, except inasmuch as linguistic phenomenal descriptions of them are understood through our sense experience of them.

The universal cognition gained in sense-perception could, therefore, only be valid in the case of substance, the source of sensible wholeness. As mentioned, a conserved appearance of a given substance being derived from individual substances, its wholeness or unity would be specific in nature, the *species specialissima* or *infima species*, since this is the universal that is closest to individuals in their sensible manifestation. This perception would really be an incidental perception of the appearance's form, its essential being, inasmuch as it provides the knowledge that a substance or essential entity exists. The intellect could then use this knowledge as an initial universal in its operations of coming to know and understand the substance. Otherwise said, this sense cognition acquired incidentally would indicate the presence of a substance, the fact that there is an *ens*, a substantial being, whose nature and essence the intellect can thereafter gradually come to know. It would seem to be at this point that a call for intellect, *nous*, could be made and its relationship to the inductive method presented in II.19 studied. In fact, if the primary text is intended to show how the principles of science and the noetic habit can be acquired by means of an induction from sense, and this inductive method is understood to be strictly empirical and sensible, there would arise one major difficulty: the habit of *nous* would have to be reduced to habits in the senses. Consequently, its knowledge would consist in sensible appearances and there would be no universals or concepts in the proper sense of

intellectual knowledge. Even in the case of substance, the only one where sense can truly be said to have any sort of universal knowledge, this universal knowledge would still be limited to a cognition of a sensible appearance and would not consist in a knowledge of definitions or demonstrative premisses. As well, it was already seen to be highly unlikely that sense without the aid of intellect could also come to know higher universals based on accumulations of similar appearances of these first specific universals of different substances. Compared with the two intellectual inductive methods looked at above, the sensible induction of II.19 would appear to be far from a noetic habit of principles of science whereas the other two inductions would be closely related to *nous* as habit inasmuch as they could result in a knowledge of the principles of science (either definitional terms of the subject or immediate propositions). How, then, is induction from sense related to *nous* as habit of possessing the principles of science?

6.6 Induction and *Nous*

The answer to the preceding question could be set up by realizing first of all that the expressions *sensible induction* and *induction from sense* are not to be considered identical. Sensible induction refers to the process just described in the preceding section by which the specific universal corresponding to a given singular sensible substance can be known through the incidental perception of its phenomenal coherence. It is one species of induction distinguishable from the others presented above. Induction from sense, on the contrary, is a general expression predicable of all inductive methods insofar as they must all begin from sensible singulars; but more fittingly to the context of II.19, it is intended to signify the inductive process beginning from a sensible singular and terminating in the acquisition of a principle of science, either a definitional term or an immediate proposition. Thus, induction from sense would have to actually include several species of induction and would be the truly appropriate “kind” of induction that could lead to the habit of *nous* signifying the possession of the principles of science.¹ One must also be aware that *nous* or *noein* is explicitly mentioned in both *Prior Analytics* II.23 and *Posterior Analytics* II.19, the sole passages in the Aristotelian corpus dealing with the mechanics of induction in any

¹ Aristotle (at 100b 4-5) affirms that the primaries are necessarily known by induction “because even sense” (“καὶ γὰρ καὶ αἴσθησις”) implants the universal this way. Whereas Bekker keeps the second καὶ, Ross drops it. Bekker’s edition would bring out the distinctions in meanings we are proposing. More will be said shortly on how the different species of induction can be co-ordinated to produce the noetic habit.

detail. This would suggest that in Aristotle's eyes, an affinity rather than any irreconcilable opposition or separation exists between *nous* and induction. It is worth noting that the cognitive habit of *nous* is introduced in II.19 because of a lack in the cognitive habit of science: due to the fact that the demonstrative method, by which scientific knowledge is acquired, requires principles that are themselves indemonstrable, Aristotle brings into service *nous* and its non-discursive, noetic activity of knowing terms and indemonstrable immediate propositions.¹ Therefore, *nous* is not to be understood as being introduced due to a defect in the inductive procedure from sense described in II.19, such as saying that sense by itself cannot provide universal conceptual or propositional knowledge. The *raison d'être* of *nous* in this text is to be found in the nature of science and not in that of induction. Once this is granted, the purpose of II.19 can be seen to consist in showing how the indemonstrable principles of science are themselves acquired by examining the acquisition of a noetic habit of these principles. The non-demonstrative, non-discursive, method of induction from sense is then presented as Aristotle's answer to this. Thus, induction itself would be subordinated to *nous* and would find its *raison d'être* in the noetic habit, for it is presented in order to explain the generation of the habit of *nous*. This implies that induction is to be explained with reference to *nous*, not vice-versa.

This implication can be seen in several ways. While induction is generally defined as the road or path to the universal through particulars, one can distinguish the road, the process of enumerating particulars manifesting a universal, from the universal that is acquired at the end of this road whenever it is finally perceived, that is, the point of arrival signified by the acquisition of a universal. Although induction could be said to be composed of these two parts, the inductive method itself is usually identified with the process of enumeration, for its definition as the road to the universal suggests a cognitive process or movement more than a state of rest, which the point of arrival at the end of the road implies. In fact, once one acquires the universal, we say that the induction has accomplished its goal and the activity of enumerating can be halted. Now, can the method of induction itself explain the

¹ The word $\nu \omicron \hat{\upsilon} \varsigma$ at 100b8 is translated thus: Mure and Apostle- intuition; Barnes and Ackrill- comprehension; Warrington- intuitive reason; Taylor- intellect; Tejera- intelligence; St-Hilaire- l'entendement; Tricot- l'intuition; Didot and Pacius- *irvelligentia*; Soto, Iacobi, Ioannis, Gerardi, and Guillelmi- *irvellectus*. Barnes and Ackrill translate $\epsilon \pi \iota \sigma \tau \acute{\eta} \mu \eta$ by "understanding" and thus translate "comprehension [$\nu \omicron \hat{\upsilon} \varsigma$] will be the principle of understanding [$\epsilon \pi \iota \sigma \tau \acute{\eta} \mu \eta$]." a statement we find difficult to comprehend or understand. In this section, $\nu \omicron \hat{\upsilon} \varsigma$ will signify the habit of the principles of science. This habit will be shown to belong to the intellect.

perception and acquisition of the universal bringing to an end the inductive process of enumerating particulars? Would not *nous* be necessary? The fact that an induction may sometimes fail to produce a perception of the universal would suggest that the process itself is insufficient in explaining its acquisition.¹ An example of this was seen in the discussion of the necessity of enumerating all cases. Sometimes an induction leads to universal, necessary, and essential knowledge; sometimes it leads to probable and generally valid knowledge contingent upon not being invalidated by a counter-example, which is really like failing to perceive the universal. How could the same road lead to different kinds of knowledge? The reason for this cannot be that one induction enumerated particulars of better quality, that is, better examples of the universal, since all particulars must be perceived as being instances of the universal. Neither could the reason be that one induction enumerated more particulars than the other, for the number of cases does not seem to determine the knowledge gained. The act of enumerating is subordinate to the perception of the universal in the particular resulting in its acquisition. An induction may consist in perceiving one instance, several, or many, for this is not what is significant to induction, but rather the perception of the universal in the particular(s), whenever this may occur. Also, if induction must fulfill the requirement of having to enumerate all cases in order for it to produce the universal, then induction, for all practical purposes, would never produce universal knowledge but only generally valid knowledge. But if one can perceive a universal such that one knows that this is so in all cases potentially without having performed an actual induction of all the cases, then would this not suggest that the perception and acquisition of the universal is not completely dependent on and explainable by the inductive method of enumerating particulars? It would seem to be related more to *nous* and the intellect's knowledge of universals. Since the cognitive process of induction is related to the particulars enumerated, whereas the perception of the universal is obviously related to the universal, how can the change from particular(s) to universal be accounted for by making reference to induction without making reference to *nous*-intellect? This is especially problematic if one thinks that induction is a method belonging to the senses alone by which the singulars enumerated are known and the universal is said to be implanted in us. Besides, if every movement or process is to be named by its end², then induction

¹ Berti ("Intellection of Indivisibles," p.150) remarks that the inductive enquiry into the essence of a thing sometimes succeeds in an intellection of it and sometimes does not. Our interpretation of this sign, however, differs from his.

² *Ph* V.1, 224b 7-9.

would have to be a process tied to *nous*-intellect and its universal knowledge rather than to sense-perception and its knowledge of singulars. This reference to *nous*-intellect would particularly be useful in explaining how an induction from sense can result in a cognitive habit of the principles of science, and is most evident in the acquisition of immediate propositions. If induction is the road from particulars to a universal, then an induction of particular bileless animals could only produce the universal bileless. The perception that this particular bileless animal is long-lived would be inexplicable if induction did not make reference to *nous*-intellect's activity of joining terms to form an enunciation. What is it about the inductive method of enumerating singulars that could explain the fact that all the particular bileless animals are perceived to be long-lived simultaneously with the knowledge that the universal bileless is predicable of all the particular long-lived animals, that is, the same particulars are perceived to be both bileless and long-lived. Thus joining the extreme universal terms of the consequent syllogism in the particulars enumerated and, through this union in the particulars, their subsequent union in the universal immediate proposition concluded by the syllogistic act of reason. This cognition and the activity producing it is too complex and too intellectual to be justified by a simplistic induction performed by sensing singulars. The inductive method incorporated in the operation of defining can also be similarly held to be too complex to be explained solely by an enumeration of singulars known through sense. In short, if the sense powers are involved inasmuch as the particulars must be perceived to carry out the enumeration, induction would nonetheless seem to be an activity belonging primarily to *nous*-intellect and would therefore require it.

It must be realized that the affirmation that induction is a cognitive process or method means that it must be an operation performed either by one cognitive capacity or by two, or several, capacities working together. The primary text certainly gives the impression that induction is an operation performed by the senses and that the noetic habit is merely the end result of their activity.¹ On the other hand, the act of "*noien* all the cases" in *Prior Analytics* II.23 suggests that *nous* is in charge of the induction and enumeration of particulars.² To

¹ Couloubaritsis ("Y a-t-il une intuition?" p.451) seems to be of this view since "l'induction constituerait pour ainsi dire le *notus* lui-même," at least in the case of an induction producing universal knowledge of the essence, which is what he understands as being discussed in II.19.

² See, e.g., *Comm. Collegii Conimbri* (c.I, q.2, a.3 (pp.435-40)) where the commentator holds that, "*praecipuam causam assentiendi principiis non esse inductionem, sed lumen intellectus, cum perspicua terminorum penetratione;*" but he adds that the intellect needs, nonetheless, induction and experience to

determine more precisely which cognitive capacity, or capacities, perform the activity of induction, the necessary condition to be satisfied would be that it, or they, perceive any similarities in the particulars enumerated from which a universal could be elicited. Insofar as sense can attain to experience, it could perceive similarities in sensible qualities and those based on the specific universal corresponding to a given substance, albeit only incidentally in the latter case. All other similarities that could be found to exist in a multiplicity of particulars, namely, all those that could generate higher non-specific universals, do not seem to be perceptible to sense in any way. Instead these seem to require intellect for their perception. Now just as intellect as *logos* can refer to a rational faculty working in conjunction with sense cognition to collate sense cognition along similarities of different sorts, so, it would seem, could intellect as *nous* refer to an intellectual faculty whose inductive operation is turned toward sense cognition to perceive different kinds of similarities. In fact, if intellect as *ratio particularis* can collect, order, and organize memories according to similarities, its activity presupposes that the similarity in question has been perceived because it is only after having recognized or perceived a similarity among a plurality of memories that the intellect would be able to bring them together in the same group. The intellect may very well go back and forth between the singulars, but if it does not perceive that there is a similarity between them, it could never bring them together. Thus, the collative activity is dependent on a faculty that can perceive the similar whose activity does not consist in a rational or discursive movement, a going from one to another, but rather consists in a perception or grasp. As collation is an activity of intellect as *logos* working with sense cognition, so induction seems to be an activity of intellect as *nous* working with sense cognition; and, just as collation is the name given of the rational discursive activity on sense cognition resulting in a pseudo-universal containing many similar things, similarly, induction could be the name given to this non-discursive noetic activity which perceives the similarity according to which the pseudo-universal is formed. Insofar as the noetic perception remains only of a similarity, it is a perception of a universal in the many singulars to which it is common without as yet being a perception of a universal as a one beyond the many. In this manner, collation and induction, rational discourse and intellectual perception with sensible singulars, turn out to be complementary activities of the intellect in its quest to find similarities and establish some order in the sense

cognition making up experience.¹ Nevertheless, the perception of a similarity is already a perception, even if only a vague one, of a universal, for the similar as similar consists in being a relation.² Since a relation is something existing between things, the cognition of a relation of similarity requires both the rational discursive activity of the intellect and its perceptive noetic activity, but particularly the latter. It is this relation that will join the multiplicity of singulars perceived to be similar into one group under one universal.³ In other words, the similar is a kind of universal, intelligible object transcending sensible qualities and the multiplicity of individual sensible things. Being neither a proper nor common sensible, the similar must fall under the category of accidentally sensible objects for the external senses (or incidentally sensible for the common sense). Knowing that two things are similar according to a given quality, especially if it is not a sensible quality but a substantial one, is already an initial knowledge of their substance and nature.

Consequently, the perception of all similarities (as similarities), including the *per incidens* perception of the specific universal corresponding to a substance gained in sensible induction, would be accomplished by intellect as *nous* perceiving *per se* a universal in the singular but not yet as something beyond it. Once this first perception is had, though, and all the particulars are collated in one group according to the similarity, intellect as *nous* could then perfect the induction by perceiving the universal as a one beyond the many.

If that be so, *nous* would not be a passive product of induction performed by the senses; instead, it would be an intellectual faculty actively performing the induction of singulars and the perception of the universal coming through, though not being generated by, the induction. Certainly, sense implants the specific universal insofar as it conserves the appearance of a singular substance in its sensible wholeness; but, as it only incidentally

1 If Aristotle never speaks of a *ratio particularis* and its collative activity, perhaps it is because he viewed this intellectual activity as taking place during induction and as being subordinate to the perceptive activity without which no collation could ever take place. Observe how, here as in syllogism and demonstration, a rational-discursive act of the intellect is dependent on a prior intellectual act that is a non-discursive noetic perception.

2 *Cat* 7, 6b 10. See also *Cat* 8, 11a 15-18.

3 Cf. Dooley (see Alexander, *On Aristotle Metaphysics I*, p.19, ft.30) who, to explain Alexander's claim that experience is rational, refers the reader to Alexander's *DA cum Mantissa* (83,2-13) and cites the passage (11-13) stating: "ἥτις περίληψίς τε καὶ διὰ τῆς τῶν καθ' ἕκαστα αἰσθητῶν ὁμοιότητος τοῦ καθόλου λήψις νόησις ἐστίν. ἢ γὰρ τῶν ὁμοίων σύνθεσις ἔργον ἤδη νοῦ." In Fotinis' translation of this passage we have: "This comprehensive perception ... is an intellective act."

perceives this, it is really *nous* that will perceive this per se and use this singular as the better known from which all other universals are to be acquired inductively by perceiving different similarities.¹ Aristotle's assertion that *nous* is a habit acquired by induction is, in effect, an admission that *nous* signifies a faculty that has acted repeatedly in a certain way to develop the habit, which, it must not be forgotten, indicates nothing other than a capacity's determinate and fixed way of acting.² Just as habits in the sense powers are formed by repeatedly perceiving their proper objects, so would the habits in *nous* be formed by perceiving its proper objects repeatedly. *Nous* signifies a faculty that is potentially the habit possessing principles of science and actualizes this potentiality by acting inductively.³ If induction can be said to produce the habit of *nous* at the end, it is only because *nous* as a faculty capable of acting in that way was already there in the beginning.⁴ Thus, the induction from sense terminating in the habit of *nous* possessing the principles of science can be described as an activity accomplished primarily by *nous*-intellect. By perceiving per se the universal implanted through sensible induction, *nous* can perform all other intellectual inductions. Apart from the initial sensible induction by which sense implants in man a specific universal in the form of a conserved appearance of a

1 Cf. Zabarella (*Opera Logica*, p.1277E-F): "*quamvis enim proprie solus intellectus faciat universale, attamen non sine ministerio sensus offerentis particularia, quamobrem modo quodam etiam sensus dicitur facere universale, quaterus praebet inchoamentum, et primum initium productionis universalis: dat enim intellectui assumptum inductionis, ex quo universale colligatur.*" See also Trendelenburg (*Elementa*, p.114).

2 See Kahn ("The Role of *nous*," pp.398 and 400) who remarks that the habit of $\nu \circ \hat{\upsilon} \varsigma$ in II.19 is the perfected state of the cognitive capacity of $\nu \circ \hat{\upsilon} \varsigma$ (the potential, but not the active or agent) studied in *DA*.

3 Note that Aristotle declares that the principles of both science and art come from the noetic habit, which implies that $\nu \circ \hat{\upsilon} \varsigma$ can be of contingent as well as of necessary things. See Aquinas (*Ethicorum Expos.* VI, l.1, n.1120): "*Rursum, verum necessarium et verum contingens videntur se habere sicut perfectum et imperfectum in genere veri. Eadem autem potentia animae cognoscimus perfecta et imperfecta in eodem genere, sicut visus lucida et tenebrosa: multo igitur magis eadem potentia intellectiva cognoscit necessaria et contingentia.*" As interesting as it may be to examine how $\nu \circ \hat{\upsilon} \varsigma$ can be the principle of art, this topic will be left out of this study whose focus is centered around $\nu \circ \hat{\upsilon} \varsigma$ as principle of science. Cf. *Comm Collegii Conimbri* (c.I, q.2, a.3 (pp.436-37)): "*Secundo experientia solum attingit coniunctionem praedicti cum subiecto, necessitatem autem, vel contingentiam coniunctionis non discernit, sed principium est cognitio primo et per se attingens necessitatem connexionis inter principii terminos.*"

4 Cf. Leshner ("Meaning of $\text{NOY}\Sigma$," p.58): "The relation between $\nu \circ \hat{\upsilon} \varsigma$ and $\acute{\epsilon} \pi \alpha \gamma \omega \gamma \acute{\eta}$ turns out to be a typically Aristotelian one: there is one activity, grasping the universal principle, but it admits of various descriptions; to speak of it as an act of $\nu \acute{\omicron} \eta \sigma \iota \varsigma$ is to give an epistemological characterization, while to characterize it as $\acute{\epsilon} \pi \alpha \gamma \omega \gamma \acute{\eta}$ is to speak of methodology." And Kosman ("Understanding, Explanation," p.390): " $\text{NOY}\Sigma$ as the general goal and condition of $\acute{\epsilon} \pi \alpha \gamma \omega \gamma \acute{\eta}$ is insight as capacity and achievement; it is the ability, dispositional and actualized, to see the true causal nature in the clearly understood particular,...."

substance in its phenomenal coherence, *nous* effects the induction leading to principles of science by perceiving the (formal) unity of this appearance and using it as the particular better known to sense. The universal of the species as it is known to sense roots its corresponding universal phenomenon, the jumbled and confused mass of (similar) attributes predicable of it, initially formed by the intellect, and guides the intellect's dialectical inductive activity in attempting to discover just those attributes belonging to it essentially. In this manner, the intellect gradually acquires universals in the strict sense, that is, found in the intellect, that are predicable of the particular and which could eventually serve in the activities of defining its essence and forming immediate propositions concerning it. By making reference to this specific unity and form as it is known to sense, *nous* will ground the conceptual unity of the definition expressing its essence as well as the propositional union of immediate propositions incorporating the definition as one of its terms. The habit of *nous* does not indicate, therefore, a full-blown intellectual understanding of a subject of a science, but rather an initial perception of its phenomenal coherence which, after much intellectual work, develops into an intellectual habit possessing the principles of science which can then be used to demonstrate other properties. This would respect the idea that experience is a pseudo-universal from which come the principles of science and is the matter of science that is potentially universal. Thus, the description of the inductive method leading to the habit of *nous* presented in II.19 could be seen to be an extremely brief sketch of an induction from sense composed of different species of induction. The question that remains to be answered is whether the perception, that is, the activity of intellectual perception or intellection¹, occurring during this induction, and through which *nous* develops its habit, can be claimed to consist in an act of intuition or not.

¹ Waitz (*Organon*, p.429): "*Principia, quibus vera scientia nititur, mens ipsa percipit et sola intelligit.*"

CHAPTER VII

HUMAN INTUITION

The purpose of this dissertation is to attempt to arrive at a definition of human intuition through Aristotle's thoughts on *nous* as this is described in the context of *Posterior Analytics* II.19. Thus far, this much may be said about *nous*. In the introductory remarks *nous* was stated to be an operation of the intellect distinguishable from the operation designated by *dianoia*. The differences between the two were ascertained by uncovering, and then negating, the properties predicable of the better known activity of *dianoia*, a rational-discursive mode of operating, as this is explained in Aristotelian logical theory. As a result, whereas *dianoia* was seen to be mediate and whose operation consists in a complex syllogistic or rational movement, *nous* was seen to be immediate, whose operation perceives or grasps a simple noetic unit, either of a concept or of an indemonstrable proposition.¹ Recalling that the non-discursive noetic act was said to be one of knowing terms, the two aspects involved in human understanding could be called thinking and knowing: the act of *dianoia* (or intellect *meta logou*, as it may also be described) usually signifying an act of thinking, the act of *nous* (or intellect *meta vou*) usually signifying an act of knowing.² In fact, in each of the three intellectual operations of reasoning,

1 Cf. Rodier (*Traité de l'âme*, p.473): "La fonction de l'intellect qui opère la synthèse du divers est la διάνοια. [...] Le νοῦς au sens propre saisit les concepts indivisibles, et cette intellection est infaillible." See also Blumenthal (*Aristotle and Neoplatonism*, p.163): "[In Platonic and Neoplatonic philosophy] *Nous* cognized its objects directly and immediately, and in doing so became identical with them, while *dianoia* went through a process, moving from one object to another."

2 On the difference between thinking and knowing, see Kal (*On Intuition and Discursive*, p.9): "The term 'intuition' serves here to translate a Greek word [i.e. νοῦς] which also signifies 'mind'. The term 'intuition' indicates an important function of the mind: the mind inasmuch as it can have insight or cognition. This is the knowing mind. On other occasions Aristotle uses the same Greek word in a less specific sense to indicate broadly the human mind in all its functions. Besides intuition, these include the

enunciating, and defining, upon which syllogistic discourse depends, there can be seen to be both a rational discursive component and a non-discursive noetic component. In reasoning, the first-mentioned component refers to inference; but, for this syllogistic movement to occur, the intellect as *nous* must first perceive the middle term through which the inference will take place. In enunciation, there is a movement between the subject- and predicate-terms, but their union depends on intellect as *nous* to perceive the compatibility or incompatibility in meaning or comprehension. Finally, in defining, the orderly analysis or division of a genus is the rational discursive aspect of this operation, whereas perceiving the unity of genus and specific difference and understanding what is being signified by the resultant definition belongs to intellect as *nous*. What is said about syllogism must obviously hold for demonstration since this is a species of syllogism. Thus it may be affirmed that while thinking may help us in coming to understand, true understanding comes in knowing.¹

Nous was also seen to be comparable and closely related to the power of sense and its cognition because of the inability of the dianoetic faculty to perform certain functions. Judging the truth or falsity of enunciations and determining whether a definition adequately defines the defined require a non-discursive intellectual perception through which the correspondence between a thought and the reality signified by the thought can be known. Since the reality signified by the thought must be known through the senses, these intellectual functions resulting in an act of knowing can only be performed by *nous* in which a thought signifies an appearance in an act of *noesis*. It is an acknowledgement of the principle *tithenai ta phainomena*: the requirement that intellectual knowledge start and end by making reference to the phenomena known through sense. This is especially important for (natural) science whose principles cannot be posed *a priori*, but must instead

function of discursive activity. The discursive mind is the mind inasmuch as it reasons, argues, or orders: it is the thinking mind. Sometimes Aristotle uses a special Greek word [i.e. δὲ ἄνομα] to indicate the thinking mind, other times he does not. By the distinction between intuition and discursive reasoning, therefore, we mean the distinction between knowing and thinking, between the view which the mind has cast upon the world and the reasoning, arguing activity of the mind.”

1 The distinction between thinking and knowing is only intended as another way of showing the dual nature of intellectual operations and is not intended to make a strict identification between *nous* and knowing, *logos* and thinking. In fact, insofar as a syllogism is a knowledge of a cause permitting the rational movement from antecedent to consequent, it can also be designated as a state of knowing: scientific knowledge.

be derived from reality as it presents itself to us through the senses.¹ This is the reason for Aristotle's admission that the principles of science, the noetic habit, must be generated and developed through an induction from sense; yet this induction from sense resulting in the noetic habit of the principles of science is not to be seen as a result of the sense capacities alone. It is not to be identified with sense induction, for there is much intellectual activity done with the cognition gained through the senses. In fact, apart from sense induction, it is *nous*-intellect that performs all the other types of induction looked at in the preceding chapter. These, then, were the moments at which it seemed legitimate to admit the existence in the intellect of a cognitive capacity, *nous*, functioning intuitively, *noēsis*.

Now the thesis that *nous* can indeed signify human intuition in the primary text is supported by the tradition of Aristotelian commentary which shows that the term is most often translated by *intuition* (or its equivalent in other languages), although how this is consequently understood and described may vary.² Among those who offer definitions or descriptions of *nous* in II.19 in terms of intuition, Leshner states that it signifies "insight, or grasp of the universal principle, acquired by induction from particular cases and constituting the source of scientific knowledge."³ Dooley⁴ translates *nous* by "perceptive intuition," similarly claiming that this translation "emphasizes the important point that the apprehension of truths by *nous* is an intuitive act - as distinct, that is, from apprehension through demonstration - but that the intuition results from an empirical inductive process based on sense perception." These descriptions stress the close relationship between intuition and the activity of induction from sense cognition, and are in line with the

1 S. Mansion (*Le Jugement*, p.211): "Aristote prend conscience que la connaissance qui est à la base de toute science est une prise de contact avec une réalité existante. [...] La définition, doit-on conclure de son exposé, n'est pas quelque chose que l'on pose, c'est quelque chose que l'on *cherche* en scrutant la nature de l'objet offert à l'esprit, que l'on affirme lorsqu'on l'a découvert et dont on fait le point de départ de la connaissance déductive." Cf. Moreau ("Vérité antéprédicative," p.30): "D'un être naturel, on ne peut poser *ce qu'il est*, par une définition nominale, pour examiner ensuite *s'il est*: Il faut d'abord qu'il nous soit donné en quelque façon dans l'expérience, qu'il se révèle à nous par ses propriétés ou accidents, par des qualités sensibles; et il nous appartient de rechercher à partir de là *ce qu'il est*, d'élaborer graduellement sa définition, de saisir son essence."

2 Although he himself does not do so, Barnes (*Post An.*, pp.267-68) at least acknowledges that commentators traditionally translate $\nu\omicron\hat{\upsilon}\varsigma$ by *intuition*. Barnes is merely one of an increasing number of contemporary commentators who refuse the traditional translation and interpretation of $\nu\omicron\hat{\upsilon}\varsigma$.

3 "Meaning of $\text{NOY}\Sigma$," p.68. According to Leshner, the grasp of first principles of science is merely one special case of grasping universal principles.

4 See Alexander, *On Aristotle Metaphysics I*, p.22, ft.38.

etymology of the term *nous* which makes reference to sense-perception. *Nous* originally signified “the realization or recognition of some feature of one’s perceptual field,” or “the realization of the import of a perceived situation or state of affairs.”¹ The perception, realization, and recognition of the meaning of a situation is simply narrowed in II.19 to the perception and grasping of principles of science from particulars perceived as instances of the universal acquired. The view that *nous* is the cognitive capacity in charge of the act of performing the induction and of producing the intuition or insight at the end of the induction is proposed by Apostle² who asserts that *nous* can have two related meanings in II.19. The first signifies intuition, “that which is acquired as knowledge, and this is a habit and also a principle,” while the second signifies intellect, “that which acts or causes an intuition.” Thus, he concludes: “Accordingly, the intellect acts to produce an intuition, which is an acquired principle and is the most accurate knowledge.” Although recognizing several other meanings for the term *nous*, Kosman³ expresses a similar idea when he affirms: “In one sense, *nous* is the human capacity to think; in another it is the *archê* of that developed cognitive perceptual capacity we have to recognize things for what they are and to construct logically connected bodies of rational discourse that explain and make intelligible the world about us, the *archê*, in other words, of *epistêmê*.” The list of authorities who have understood *nous* as signifying intuition can easily be continued; however, it would be more philosophically satisfying if we were to determine the intuitive nature of *nous* by examining some of the properties and descriptions usually associated with it.

7.1 Immediate

The first attribute predicable of the intuitive act of the intellect is that it operates immediately, in contradistinction to the rational discursive operation through the medium of a middle term. As mentioned in the Introduction, this is the most common property given in

1 Leshner (“Meaning of ΝΟΥΣ,” pp.47-51) provides the etymology and historical use of $\nu \omicron \hat{\upsilon} \varsigma$ and its cognates. Cf. Von Fritz (“Noos in Homeric Poems,” p.85): “In other words, in each of these cases [e.g., when Helen suddenly realizes that the old woman is really the goddess Aphrodite] the concrete object is only the incident through which a character suddenly realizes the full meaning of a situation. This situation is the real object of the mental act designated by the verb $\nu \omicron \epsilon \hat{\iota} \nu$.” See also Elders (*Aristotle’s Theology*, pp.15-24) who gives the popular meanings of $\nu \omicron \hat{\upsilon} \varsigma$ during Plato’s and Aristotle’s time.

2 *Post An.*, p.295, n.15.

3 “Maker Mind,” p.356. Kosman presents the same ideas in “Divine Being,” p.185.

definitions of intuition. Some Aristotelian scholars do not admit the possibility of an immediate intellectual knowledge and, as a consequence, deny the existence of intuition with which this immediate knowledge is usually identified. The main reason for this denial is that the noetic habit possessing the principles of science is generated by an induction from sense and often only comes after much intellectual effort, as mentioned. Wieland¹, for instance, remarks that that which is self-evident (which the principles must be) is not “direct intuitive knowledge” but knowledge not derived from anything else, by which he means that there are paths leading to this knowledge though it is not derived from the paths. What does it mean for something not to be derived from a path leading to it? It would seem that he is referring to the dialectical examination of opinions leading to, but without deriving, that is, deducing, the principles (as a conclusion would be derived from the principles in demonstration). Perhaps it is the path of induction by which universal knowledge is acquired, again without being deduced or demonstrated from the particulars enumerated. In either case, he denies a “direct” intuitive acquisition of knowledge of the self-evident because this would have to come *indirectly* through an examination of opinions or an induction of particulars. Berti similarly claims that thinking in general and intuition in particular have an anterior component, namely, sense-perception, experience, induction, and non-demonstrative types of enquiry. He qualifies his remarks by adding that the search for the essence either succeeds in intellection (as he calls this intellectual act), which is infallible when it occurs, or it fails and no intellection occurs, in which case nothing is found at all. Thus, he concludes that there can be no intuition of the principles of science, that is, “a faith in the intellect’s capacity to intuit essences immediately,” because the intellection comes after the search and is not necessarily easy, immediate, or direct.² For Berti, it is the process itself that will produce this intellection because he basically identifies the two.³ However, if the above considerations on induction being a road to the universal

1 “Inquiry into Principles,” p.135.

2 Berti (“Intellection of Indivisibles,” pp.142-43 and 150). Berti reaffirms his views in “Reconsidérations sur l’intellection.” See p.396: “Aristote n’est pas un intuitionniste, c’est-à-dire qu’il ne conçoit pas l’intellection des indivisibles comme une intuition immédiate, simple, instantanée.” The properties of being simple (in the sense of indivisible) and instantaneous will be examined in the next section.

3 See “Reconsidérations sur l’intellection,” pp.403-04: “Le processus par lequel l’intellect parvient à l’intellection des essences [...] Aristote l’identifie avec l’induction qui part des perceptions sensibles.” This, according to Berti, is the process as it is described in II.19. In *Top* the process of searching for principles is instead dialectical because the question as to whether a formula is a definition of something is a dialectical problem to be discussed, “et cette discussion est faite de questions, de réponses et de réfutations: tout le contraire, donc, d’une simple intuition.” Cf. Modrak (*Power of Perception*, p.172) who also finds induction to be “incompatible with any interpretation that makes some further act of intuition necessary for the

without necessarily implying and including the acquisition of the universal at the end of the road are valid, then these views are untenable. It is the intellect itself that performs inductive and dialectical inquiries based on sense cognition of particulars. As Berti admits, there is no guarantee for the success of an inquiry. It may be aborted and end in ignorance. If it is to be insisted that intellection is not a cognitive act but merely a product of the inquiry itself, then what it is about the act of inquiring that makes it successful at times and unsuccessful at others seems difficult to explain. But affirming that the intellect is in charge of the act of inquiring, and that a successful result is due to an intellectual perception of that which is being sought (while failure is due to a lack of this intellectual perception), can explain this experience. In effect, successful perception likely comes about once the intellect has been sufficiently habituated to perceive the intelligible object. Admitting this, does all the anterior intellectual effort of searching necessarily negate the immediate and intuitive nature of the noetic act of knowing the essence and the principles of science when it finally does occur?

In answer to this question, Lesher makes a helpful distinction. He states:

If to intuit something is simply to have insight or realize the truth of some proposition then certainly $\nu\omicron\hat{\upsilon}\varsigma$ will be intuitive knowledge and $\nu\acute{o}\eta\sigma\iota\varsigma$ will be an act of intuition. If however we mean by 'intuition' a faculty which acquires knowledge about the world in an a priori or non-empirical manner, then it will be inappropriate to think of the Aristotelian $\nu\omicron\hat{\upsilon}\varsigma$ as intuition."¹

If the noetic perception or intuition is understood to be an act of insight--whether it be into the truth of a proposition or the definition of an essence or that which is self-evident--then this need not imply that there is no prior (sense) knowledge or cognitive activity as the second meaning of intuition noted by Lesher implies. The intuitive knowledge denied by both Berti and Wieland seems to be based on a comprehension of intuition according to this second (Kantian?) meaning where its immediate nature is understood as an *a priori* or non-empirical manner of knowing. In fact, both deny intuitive knowledge for the reason that the knowledge of the principles of science is preceded by other (sense) knowledge and intellectual activities. But, the recognition of a stage prior to an intuition does not automatically and necessarily prevent there being an intuition: an intellectual activity differing from the one of inquiring, consisting in an insight perfecting the process of

knowledge of first principles."

¹ "Meaning of $\text{NOY}\Sigma$," p.64.

inquiry and through which knowledge of self-evident principles or definitions of essences or immediate propositions is had. The rational discursive act of thinking during an inductive process or intellectual inquiry is not to be identified with the intuitive act of knowing and understanding that may, or may not, result at the end of this preparatory stage. Also, the meaning of *immediate* acknowledged in chapter 2 is not that of an *a priori* or non-empirical knowledge, but rather knowledge of a proposition that has no prior proposition or a term having no prior term. Here again the existence of sense cognition and the inductive and dialectical activities by which universals, definitions, and indemonstrable propositions are acquired from sense do not negate the immediate nature of this acquisition by the intellect; for, before being known in the intellect, these universals, definitions, and indemonstrable propositions did not exist, except potentially, in the particulars known by sense. Consequently, whenever the intellect does finally perceive and know terms and propositions based on sense cognition, it is said to do so immediately in contradistinction to the mediated knowledge of propositions (and terms) gained through acts of reasoning using propositions (and terms) already acquired and existing in the intellect. Thus, the immediacy of an act of *noêsis* would consist in an intuitive perception, an insight into an intelligible aspect of a sensible appearance or phenomenon, the intelligible being the proper object of the intellect and being either conceptual or propositional. The act of *noêsis*, therefore, would be like sense because it is a perception, but unlike it because this perception belongs to an intellectual faculty; and, being an act of the intellect, it resembles the rational discursive operation which is itself intellectual, but unlike it in being an immediate act. In this manner, the act of *noêsis* can generally be defined as an immediate intellectual perception resulting in an intuition or an insight into an intelligible aspect of a phenomenon. As such, it would be the cognitive act by which sense cognition becomes intellectual knowledge and the potentially intelligible becomes actually intelligible.¹

7.2 Noetic Object: The Indivisible

If the act of *noêsis* is as just defined, then to better understand the nature of this act, it is necessary to understand the intelligible or the noetic object determining and actualizing the

¹ Although the context is that of mathematics and not the physical sciences, nonetheless, cf. *Meta* IX.9, 1051a31: “Ὅστε φανερόν ὅτι τὰ δυνάμει ὄντα εἰς ἐνέργειαν ἀναγόμενα εὐρίσκεται. Αἴτιον δ’ ὅτι νόησις ἢ ἐνέργεια ὥστ’ ἐξ ἐνεργείας ἢ δύνამις· καὶ διὰ τοῦτο ποιοῦντες γιγνώσκουσιν.”

noetic faculty. In other words, what could the intelligible aspect of a phenomenon be? Or, in what manner is sense cognition potentially intelligible knowledge? In *On the Soul*, Aristotle states that the objects of *noêsis* (*noêta* or intelligibles or thoughts) are the indivisible (*adiáireta*) on the one hand and, on the other, a certain synthesis of intelligibles (*noêmata*) such that they form a quasi-unity and are like one being, that is, one intelligible object or thought.¹ As already remarked, these two objects correspond to the knowledge of concepts, terms, or definitions, on the one hand, and enunciations or propositions, on the other. Fattal² describes the difference between the two by saying that the indivisibles are intelligibles which are perceived in themselves independently of any predicative relationship with other intelligibles. They are, therefore, intelligible per se. When, however, an intelligible is perceived in a predicative relation with another, he says that it is intelligible per accidens because its intelligibility is dependent on its relation with the other intelligible. In this manner, it may be said that the indivisibles are the elements composing a predicative judgment since the intelligibility of the intelligible per accidens is dependent on the intelligibility of that which is intelligible per se. Mignucci, who similarly holds that the indivisibles are concepts or individual terms of a proposition, adds that their indivisibility lies in being “elementary units of signification” out of which is generated the signification of propositions.³ This, as it may be noticed, is just another affirmation of the intellect’s intentional activity present in its first operation of signifying something definite. There is also one other important point to note. Since enunciation is an object of *nous* that is a quasi-unity, it has a certain indivisibility and therefore resembles the indivisible itself in that it,

1 III.6, 430a 26-28. This entire chapter in *DA* deals with the objects of $\nu\acute{o}\eta\sigma\iota\varsigma$. In recent times, it has become the object of much commentary in which it is sometimes compared and contrasted with the parallel passages given in *Int* 1 and *Meta* IX.10. See Mignucci (“Vérité et pensée”) who compares all three texts, understanding the $\alpha\acute{\iota}\mu\eta\sigma\acute{\upsilon}\nu\theta\epsilon\tau\alpha$ of *Meta* IX.10 in a logical way, that is, he interprets them “comme les contenus de nos concepts en tant que déterminés par leur structure formelle et sans matière” and consequently identifies them with the $\acute{\alpha}\delta\iota\alpha\acute{\iota}\rho\epsilon\tau\alpha$ such that both signify the same thing: “les contenus conceptuels exprimés par les termes des propositions.” This differs from Bonitz (*Meta Comm*), e.g., who understands the $\theta\acute{\upsilon}\sigma\acute{\iota}\alpha\iota$ metaphysically as referring to simple substances, “*quae non habent distincta a substantia accidentia nec coniunctam cum actu aliquo potentiam contrariū, sed integrae sunt substantiae et ἐνεργείαι.*” As will be seen shortly, the $\acute{\alpha}\delta\iota\alpha\acute{\iota}\rho\epsilon\tau\alpha$ can, in different ways, refer to both logical or intellectual entities and metaphysical entities.

2 “L’intellection des indivisibles,” pp.426-27.

3 “Vérité et pensée,” p.415: “C’est donc dans ce sens que les termes d’une proposition sont indivisibles, car ils sont les unités élémentaires de signification pour les propositions.”

too, is a unit of signification, a thought or intelligible signifying one thing.¹ This point, namely that enunciation is a thought and a unit(y) of signification, seems to be forgotten or blurred quite often. An enunciation is not a sentence in which two things are signified and joined by a third thing called a verb acting as a copula. It is one thought, the thought of a relation between the two “things” being signified through the concept-terms joined together. Therefore, the relation is the “thing” signified by an enunciation, although it can only be known through the relata, the concept-terms.² One of the concept-terms plays the logical (not grammatical) role of a noun and the other, of a verb, the latter including the notion of the copula because it is a predicate: something said *of* (something). It is through the presence of the verb itself that the synthesis of an enunciation also makes reference to and posits or includes time since enunciations can not only signify something in the present, but also something that happened in the past or may happen in the future. This point may also be shown by realizing that in both cases of indivisible and synthetic noetic objects, it is *nous* and its act of *noêsis* that makes the intelligible one and indivisible.³ In this manner, the two noetic objects, the indivisible and the synthetic, may be referred to as essential and relational thoughts, or an indivisible thought signifying essence (or whatness) and a quasi-indivisible thought signifying existence.⁴

Thus, the noetic object is to be an indivisible signification or else a quasi-unity of signification built upon indivisible units of signification. But what is the indivisible subject that is being signified? In other words, what is the indivisible subject existing in external

1 Philoponus (*DA Comm.*, p.45,3-5): “*Sed sive simplicia sicut que intelliguntur, sive composita, secundum hoc intelligit ipsa intellectus, secundum quod sunt simplex et indivisibile et unum [... and lls.20-22] et propositiones actu intelligit non secundum quod composita, sed secundum quod unum aliquid significant.*” Cf. *Meta* VI.4, 1027b 23-25 where Aristotle affirms that thinking things together or apart [i.e. an enunciation] becomes a certain unity.

2 See *Int* 3, 16b 20-25.

3 *DA* III.6, 430b 6: “Τὸ δ’ ἐν ποιοῦν, τοῦτο ὁ νοῦς ἕκαστον.” Even the notion of time added in some enunciations is due to νοῦς: “τὸν χρόνον προσεννοῶν καὶ συντιθείς.” (430a 34). Observe that the view of enunciation and the proposition presented here would certainly suggest that the syllogism, being composed of propositions, is through and through noetic and is essentially a movement of noetic thought.

4 Notice how the etymology of the term *existence*, *ex-* forth + *sistere-* stand, is relational in conception; for, as Gilson (*L’être et l’essence*, p.16) remarks, “*existere* signifie proprement *ex alio sistere* [... et] désignait d’abord dans leur [i.e. les scolastiques] langue l’acte par lequel un sujet accède à l’être en vertu de son origine.”

sensible reality and known in an act of *noêsis*?¹ Aristotle first remarks that the indivisible could be so either potentially or actually. That which is actually indivisible may yet be potentially divisible, for example, a length known as actually indivisible is still potentially divisible because it can be cut into two segments. (This would suggest that divisible things in sensible reality can only be known by *nous* as indivisible.) That which is potentially indivisible, on the contrary, is something that is not only actually indivisible, but also potentially not divisible (*a-diairetov*), that is, it is not capable of being divided. An example of this is a point. Having recognized the two modes of being indivisible, Aristotle then lists the various indivisible subjects knowable by *nous*. These include continuous quantity, form (*eidê*), points (and all other similarly indivisible things that divide), privations, and causes having no contraries.² Of the indivisible subjects mentioned, the most important for science is that of the form (while for mathematics it would be quantity) whose essence would be understood in a definition. Since science seeks to know reality as it manifests itself to sense, the forms here are of individual sensible substances, “the immaterial essences of material realities.”³ As it was seen in a previous chapter (ch. 5), it is the universal as it exists in each sensible singular: as the principle of unity of matter, it is substantial form; as the principle of its movement, nature; and, as the cause of the entity’s being, essence. As a consequence, the act of *noêsis* is a perception of the substantial form of being belonging to an individual sensible entity. Recall that it is substance that gives the sensible qualities of an appearance its coherence and wholeness, and that this sensible coherence, being the form or unity of the appearance or phenomenon, is itself not sensible. This unity is an indivisibility and, as such, has the nature of the object of *noêsis*. This is the intelligible object as it exists in the sensible singular, an intelligible object that is only potentially identical with thought and which becomes an actual intelligible object in the intellect of the knower once the knower perceives this indivisibility in the appearance known through sense. It is in perceiving its substantial form that the intellect becomes the sensible particular without its matter. It is this that the senses perceive incidentally when in

1 The analysis of the indivisible that follows focuses on that of the ἀδίαίρετα, leaving aside the quasi-indivisibility of a synthesis.

2 The passages in which the kinds of indivisible objects are presented pose many problems of interpretation, both philological and philosophical. Even the list offered here is a tentatively proposed one, in particular, with regard to the last two items mentioned. However, since only form—whose inclusion in the list is not doubted, though how it is known is open to debate—interests us here, we leave aside the issues concerning the others.

3 Berti (“Intellection of Indivisibles,” p. 147).

possession of an appearance in its phenomenal integrity and the intellect perceives per se through its noetic faculty. The ultimate implication of this is that if the act of *noêsis* can be considered to be an intuition, it is because it is an insight into the essence of the phenomenon by seeing into the substantial form that gives it being.

Due to both the immediate nature of the act of *noêsis* and the indivisibility of its object, intuition is sometimes also said to be instantaneous. This property is closely related to that of being immediate because the immediate (or mediate) nature of an intellectual operation can be understood by analogy to motion, and instantaneous makes reference to time which is the measure of motion. Thus, if rational discourse is said to be a (mediated) movement from one thought to another and therefore can be said to take time, then intuition, which is said to be immediate, can be said not to take time, that is, it is instantaneous. This conclusion may also be arrived at by reasoning with respect to the indivisible object of *noêsis*: since the noetic object is indivisible, and the instant of time is also indivisible, then the noetic object must be known in the aspect of time corresponding to it, which is the instant. The instant may be defined, in effect, as the indivisible “part” of time, or, more precisely, a time without parts, since it is the now or present moment that can both separate and unite the past and the future, somewhat like a point, which has no magnitude, in the middle of a line divides and unites the two segments found on either side of it.¹ Not surprisingly, those who deny the immediate nature of intuition and the act of *noêsis* usually deny its instantaneous quality, too. Berti claims that the indivisibility of an act of *noêsis*, both in terms of its object and the time of its act, is not to be understood as being instantaneous but instead “unitary,” that is, a unitary act of *noêsis* has only one object, and no other, which it possesses and thinks in a unitary time that is not necessarily only an instant.² This appears to be Aristotle’s view, too, since he states that the form “is thought

1 On the instant or now, see *Ph* IV.13, 222a 10ff. The point or instant can both divide and unite spatial or temporal continuity in the following way: When the point or instant actually exists, then the continuity is divided into two. When the point or instant exists only potentially, then the continuity is still actually existant; consequently, the two segments do not exist actually but only potentially, which really means that there is only one continuity. This is a crucial distinction needed to show how the act of $\nu\acute{o}\eta\sigma\iota\varsigma$ is instantaneous, as will be shown. On the continuity of time, see also *Cat* 6 5a 6.

2 “Reconsidérations sur l’intellection,” p.397: “cela [i.e. indivisibility of the time and act of $\nu\acute{o}\eta\sigma\iota\varsigma$] signifie qu’ils sont pensés dans un temps unitaire, c’est-à-dire dans une unité de temps qui n’est pas nécessairement un instant, pendant laquelle l’intellect ne pense pas autre chose, et par un acte unitaire, c’est-à-dire par une seule intellection, par une intellection qui n’a pas d’autre objet.” Note that, according to Berti, this is only valid for thoughts whose subject is a quantity or a form, the others being known differently. Still, the instantaneous quality of *nòhsiw* is denied in all cases.

in an indivisible time and by an indivisible act of the soul."¹ However, what is it exactly that makes a given stretch of time unitary or indivisible? Must it not be the same indivisible act of *noêsis* knowing (not thinking, for this connotes change) the same indivisible object throughout the entire unitary time? For, if at any given moment or instant during the unitary time there is a change in object and act, then the unitary quality of the time would be broken. Would this not imply, therefore, that the indivisible act of *noêsis* on the same indivisible object takes place in an indivisible instant of time moving throughout time and giving time its unitary quality? Just as the movement of a point forms a line whose unity depends on the same point being in continuous motion, so would time have a unitary quality because of the continuous movement of the same instant through time. The fact that we normally know something for a period of time and not just for an instant, the flash of one fleeting moment, must not obscure the point that the act of *noêsis* can only take place in an instant, in the flash of the moment. This knowing in an instant which may then continue over a period of unitary time must not be confused with thinking in time proper to rational discourse and which really does take time to become fully known. If I say, "Man," the hearer will know and understand instantaneously what is meant (or else, know nothing at all). If, however, I say, "Here is a syllogism about man: All men are.....," and add nothing more, then the hearer's intellect will be anticipating more because the process of thinking begun remains incomplete. The thought expressed in the first case is indivisible because it is a complete, whole, and actual signification, whereas the thought expressed in the second case is divisible because it is an incomplete, partial, and potential signification.² The difference between knowing in a unitary time and thinking in time is that between duration

1 *DA* III.6, 430b 15: "ἀλλὰ τῷ εἶδει, νοεῖ ἐν ἀδιαίρετῳ χρόνῳ καὶ ἀδιαίρετῳ τῆς ψυχῆς."

2 It is important not to confuse the indivisible thought being expressed in an instant with the expression of this thought which takes time (because no intellectual activity can occur without an appearance or image, i.e., language). See Themistius (*DA Paraph.*, pp.110,20-111,13) who remarks, "[...] ἀκούει μὲν γὰρ ἐν χρόνῳ, νοεῖ δὲ οὐκ ἐν χρόνῳ, ἀλλ' ἐν τῷ νῦν [...because] τὸ μὲν ὄνομα διαίρετόν, ἀδιαίρετον δὲ τὸ νόημα." Themistius explains that every divisible has an indivisible, and every synthesis (ἐν πᾶσι τοῖς συνθέτοις) a simple, (ἀπλοῦν) which does not exist separately, and then applies this to language and signification: "οὔτε γὰρ τῆς σημαίνουσας φωνῆς τὸ σημαίνόμενον ἐστι διαστήσαι, ἀλλ' οὐδὲ ἐξείπειν οἷόν τε ἄνευ φωνῆς, τάχα δὲ οὐ συνείναι παρ' ἑαυτῷ μή τιμι λέξει καὶ πρὸς αὐτὸν ἐναρμόσαντα· ἀλλ' ὅμως τοῦτό ἐστιν ὁ μεριστὴν οὔσαν τὴν λέξιν ἀμερῆ ποιεῖ καὶ διαίρετὴν ἀδιαίρετον." Similarly, Philoponus (*DA Comm.*, pp.50,23-51,6 and 52,1-27). See also *Cat* 6 4b 31-35 where Aristotle places speech, like number, under the category of discrete quantity.

(which is what Berti's conception of unitary time seems to signify) and time. Duration is the movement through, though not in, time of an actual instant whose actuality relegates time to a potential existence (which is why the instant cannot be in time). Time, on the other hand, is the movement in, not through, time of a potential instant whose potentiality is within or subsumed by the actuality of time.¹ Duration therefore connotes conservation and preservation of the (actually) present instant and suggests sameness throughout time, whereas time connotes destruction and continuous change of the (potentially) present instant and suggests difference in time. Duration indicates the presence of a whole actuality, or a complete activity, through time while time indicates an incomplete and partial activity taking place in time, a movement or a becoming which will only have a fullness of actuality the instant the movement attains to the perfection of activity.² If the act of *noêsis* is immediate and its object is indivisible, then the only time that could correspond to this is that of a duration begun the instant the act of *noêsis* was actualized; and, if another object is known, then it is only in an instant that this change could take place since a new duration can only be formed by the motion of a new instant. In this manner, intuition can be considered an immediate, instantaneous intellectual perception of an indivisible object; and, for science, this object is primarily the essence of sensible substances.³

7.3 Noêsis as Sight and Touch

The notion of an immediate and instantaneous intellectual perception resulting in an intuition of essence must not lead one to the conclusion that intuition is a full-blown insight into the essence, that is, a complete understanding of it. Immediate simply refers to the non-discursive or non-syllogistic intellectual operation signified by *nous*, and instantaneous, to the time this operation takes. Neither of these properties describes the

1 Cf. *Cat* 6 5a 27: "ὑπομένει γὰρ οὐδὲν τῶν τοῦ χρόνου μορίων."

2 See *Ph* IV.11, 218b 22-219a 1 where Aristotle cites the experience of not realizing that time has elapsed whenever a state of mind does not change, or we do not notice its changing, because we connect the earlier now or instant with the later and make them one, cutting out the interval because of a failure to notice it. This is the experience of duration, an example of which is expressed in the saying, "time flies when you're having fun," because, being caught up in and fully present to the pleasurable activity at hand, we do not notice the passing of time, or change. Aristotle says as much in his reflections on pleasure in *NE* X.4, 1174a 14ff.

3 Although the focus has been on the intuition of essence, it must be realized that the relation of existence is also known by an immediate, instantaneous act of *νόησις* since its quasi-unity is an indivisible noetic object.

knowledge and understanding acquired through this operation. All that is known of this, so far, is that the noetic object is indivisible and can refer to either an essence or an existence. Certainly, as the etymology of the term reveals, intuition denotes an intellectual vision, “a visual perception of the intelligible,” which often connotes a “clarity” of understanding.¹ Words and expressions describing intellectual activity in terms of sight, such as, *theōria*, *eidē*, *species*, *contemplation*, *speculation* (in the philosophical, not the capitalist, sense), “to see what you mean,” and “to see through you,” usually suggest perfect intellectual knowledge and the possession of a full understanding of a situation or thing, an understanding that sees into the very essence of it. It evokes the Cartesian notion of clear and distinct ideas. Aristotle himself uses the image of the “light” of the intellect which “makes” the potentially intelligible actually intelligible just as physical light makes the potentially coloured actually coloured and, as a result, visible to the power of sight.² But, understanding the act of *noēsis* in terms of an act of seeing and an intuition runs the risk of overlooking the fact that Aristotle also describes *noein* in terms of touching and making contact with its indivisible object.³ Since the cognition furnished through the sense of sight is not the same as that furnished through the sense of touch, the implication of calling the act of *noēsis* both a sight and a touch (or contact) is that the knowledge acquired is not always the same.⁴ If intellectual sight normally connotes a full understanding and intuition

1 See *Prp* B24: “Τοῦ δ’ αὖ νοῦ αἰ νοήσεις ἐνέργειαι, ὀράσεις οὐσαι νοητῶν, ὡς τοῦ ὀρατικοῦ ἐνέργεια ὀρᾶν τὰ ὀρατά.” See also the comparisons between sight and theoretical knowledge in *Prp* B51 and B70-77.

2 *DA* III.5, 430a 15-16. *SS* 6, 447a 10 states that light is said to make sight, i.e., it is the efficient cause of seeing. It is particularly this image of the light of an “agent” or “maker” intellect that is often used to show how the intellect operates by a process of abstraction of the intelligible form from the singular sensible appearance (the matter). See also the analogy offered at *NE* I.6, 1096b 29: “ὡς γὰρ ἐν σώματι ὄψις, ἐν ψυχῇ νοῦς.”

3 This oversight could only be due to a lack of awareness of the key passage *Meta* IX.10, 1051b 23-25, where Aristotle speaks of a contact (τὸ θιγεῖν), as well as of the passage *Meta* XII.7, 1072b 21, where the identity between intellect and intelligible is based on a contact: “νοητὸς γὰρ γίγνεται θιγγάνων καὶ νοῶν, ὥστε ταῦτὸν νοῦς καὶ νοητόν.”

4 Recall de Buzon’s observation (in the Introduction) that translating νοῦς by intuition “surdétermine le sens du terme grec en lui conférant la métaphore de la vision immédiate et instantanée.” Rosen (“Thought and Touch”) is apparently the first in recent times to call attention to Aristotle’s description of the act of νοεῖν in terms of a θιγεῖν. According to him, one difference between sight and touch is that, “Touch perceives by immediate contact, whereas there is a distinction between sight and things seen.” (p. 132, ft. 6). Aristotle, at different times, seems to value one sense over the other. On the superiority of sight, see *GC* II.2, 329b 13; *DA* III.8, 429a 2; *SS* 1, 437a 2-16; *Meta* I.1, 980a 23-27; and, *Rh* I.7, 1364a 38. On the superiority of touch (and the hand), see *DA* II.9, 421a 20ff; *SS* 4, 441a 2; *HA* I.15, 494b 17; *PA* II.16, 660a 12, II.17, 660a 17ff., and, IV.10, 687a 9ff. See Romeyer-Dherbey’s reflections (“Voir et toucher”) on

of essence, then what kind of knowledge could a *noein* that is a *thigganein* generate? And, if they do generate different kinds or degrees of noetic knowledge, then how are they related?

Although the precise etymology of the term *noein* is not settled, Von Fritz claims that one of the root meanings is quite probably “to sniff” or “to smell.”¹ The reference to the sense of smell to describe an intellectual activity or knowledge remains in English today in the notion of “smelling a danger (or trouble),” which means having a trace or suggestion of the presence of a danger without as yet knowing exactly what it could be. Unlike the clarity of full and final understanding which the analogy with sight connotes, the analogy with the sense of smell seems to correspond to an initial vague knowledge that is more felt or sensed by the intellect than clearly and intelligibly known. As well, the reference to smell brings the noetic act closer to the sense of touch.² Concerning touch, Brague remarks that it is primarily this sense that provides a contact with the world, and it is even the condition of intelligence because it establishes the requisite “presence to the world in the state of being awake.”³ The suggestion, therefore, is that the act of *noein* in terms of touch is meant to show the initial contact of the intellect (or mind) with the intelligible object and the first level of vague and confused knowledge it has of it.⁴ In fact, could this not describe the first noetic perception of the intelligible in the appearance, that is, the indivisible form and substance of a phenomenon as it is still found in the coherent sensible universal?⁵ The

the value of both sight and touch in themselves and with respect to what they can reveal about intellectual knowledge.

1 “Nous in Pre-Socratic Philosophy: Part I,” p.223. He does recognize, however, that despite this association with the sense of smell, the fundamental meaning of $\nu\omicron\epsilon\hat{\iota}\nu$ in Homer, namely, “to realize or to understand a situation,” is semantically closer to terms concerned with vision.

2 In the Aristotelian tradition, the five senses are usually given a hierarchical order in terms of their utility and importance for survival: touch (the most important), taste, smell, hearing, and sight. Observe how touch and sight are the extremes with smell occupying the middle position; consequently, relative to touch, smell is closer than sight.

3 Brague (*La question du monde*, pp.259-60) notes that the conception of “la présence au monde dans l’éveil” is implied by Aristotle’s claim (*SI* 2, 455a 22-27) that cutting off touch produces sleep. Recall the closeness between touch and the common sense as the centre of the power of sense-perception.

4 Cf. Thomas De Koninck (“La noësis et l’indivisible,” p.227) who asserts that the noetic faculty touching the simple substances (i.e. the absolute indivisibles mentioned in *Meta* IX.10, 1051b 19-33) means “que le toucher, justement, ne livre toujours qu’une connaissance confuse - certaine mais très indistincte, comme à tâtons. Il se découvre à cet égard encore le meilleur analogue de l’intellect, plus particulièrement de sa condition initiale.”

5 This is the universal better known to sense of *Ph* I.1 which is intellectually confusing and jumbled. In one circumstance, namely, the perception of particulars necessary to effect practical syllogisms, Aristotle (*NE* VI.11, 1143b 5) does describe $\nu\omicron\hat{\iota}\varsigma$ as $\alpha\tilde{\iota}\sigma\theta\eta\sigma\iota\varsigma$.

content of such an intellectual perception would necessarily be initially confusing to the intellect because the form would be known as it is in the appearance and would still be very much intelligible in potency. However, since experience helps in determining which appearances are phenomenal in character, that is, which are real appearances, whenever *nous* makes contact with, “grasps,” or “seizes” such appearances, it would anchor the intellect in reality.¹ Touch is, in fact, considered to be the sense of existence, reality, substance, nature, experience, and sympathy. It is the sense of certitude par excellence, unlike sight which, despite its being considered as the sense of distinction, clarity, and representation, yields less assurance about the reality of things than touch because it is more open to being fooled by illusions and other errors of the sort.² Thus, even though the act of *noêsis* understood as touch does not give full understanding and insight into the essence, it nonetheless provides the intellect with the assurance and certitude that something real and substantial is present to it, a certitude grounded in the knowledge of existence, or the fact that there is a substance to be known.³

These views may clarify why Aristotle speaks of an act of assertion (not of affirmation) on the part of the intellect when it makes contact with substance.⁴ This assertion is, in effect, an act of acceptance, or reception, by the intellect of the intelligible object. The initial assertion and noetic contact is enough to determine the intellect’s indetermination and to direct its attention and abilities towards the indivisible as it is found in the phenomenon; and, after much intellectual effort, the noetic act as sight may result. In other words,

1 If the first universal is being, an *ens*, perhaps it is because the phenomenon perceived by $\nu\omicron\upsilon\sigma$ is perceived as being one really existent entity.

2 Charles De Koninck (“*Sedeo*,” p.343 and pp.345-46). De Koninck declares that truth is the good of the intellect, but that without certitude, there can be no truth. Common experience can again shed light on these thoughts. Whenever we experience something which seems unreal or too good to be true, do we not respond “pinch me!,” in the hopes of reassuring ourselves that it is indeed real and true.

3 Commenting on the meaning of $\theta\iota\gamma\epsilon\hat{\iota}\nu$ in *Meta* IX.10, 1051b 24, Aubenque (“La pensée du simple,” p.79) maintains that the intuitive research into the simple is one that results in “la constatation intuitive de leur existence [... et] de constater intuitivement qu’il y a des essences, mais non de dire ce qu’elles sont.” He is following Aristotle’s statement (at *Meta* 1051b 31-33) that an essence is either known or ignored, yet this knowledge of it still admits of inquiry into its nature. As described here, the act of $\nu\acute{o}\eta\sigma\iota\varsigma$ as touch has some affinities with the common notions of intuition as being a hunch or a sixth sense through which we know or feel certain that something is the case, but we are not sure what it is or why it is so.

4 *Meta* IX.10, 1051b 24: “τὸ μὲν θιγεῖν καὶ φάναι ἀληθές (οὐ γὰρ ταῦτὸ κατάφασις καὶ φάσις), κτλ.” Cf. *DA* III.7, 431a 8: “τὸ μὲν οὖν αἰσθάνεσθαι ὅμοιον τῷ φάναι μόνον καὶ νοεῖν.”

object has fully become actually intelligible. This occurs when the intelligible is no longer known with reference to the phenomenon in which it was first perceived but is known in itself instead. The act of *noêsis* as sight indicates the possession of self-evident knowledge: the intelligible object is known with reference to itself. Through the analogy with both senses of touch and sight, the act of *noêsis* can be seen to be that which gives unity to the development in intellectual knowledge and progression in understanding by keeping the different inductive, dialectical, and other discursive operations focused on the same indivisible object. Yet this unity of object and continuity of intellectual movement must not hide the fact that from the initial vague knowledge there are quantum leaps in understanding. The first noetic act of making contact with the indivisible is described in terms of either/or: either there is knowledge or there is ignorance.¹ The same may be said about any subsequent acts of *noêsis* which instantaneously perceive a new indivisible according to which newly acquired knowledge can be reorganized and unified. The intellectual activities preceding each noetic perception merely constitute the pathway leading to and preparing an intuitive and indemonstrable knowledge. In this manner, the first intellectual perception of the existence of a substance will deepen in understanding to eventually terminate in the intuition of its essence (if possible); or, in other words, the knowledge that a substance exists finally ends in the understanding of what it is.²

Understanding the act of *noêsis* by analogy with sight and touch may also shed light on the nature of truth, especially in regard to the habit of *nous* which is said to be truer than the

1 Concerning the use of the term $\theta\iota\gamma\epsilon\hat{\iota}\nu$ in *Meta IX.10, 1051b 5*, De Corte (*La Doctrine*, p238, ft.2) remarks: "remarquez que la finesse de l'emploi de $\theta\iota\gamma\epsilon\hat{\iota}\nu$ (l'aoriste marque une action instantanée) et de son opposition à $\mu\eta\ \theta\iota\gamma\gamma\acute{\alpha}\nu\epsilon\iota\nu$ (la faculté reste alors inerte)." Brague (*La question du monde*, p.371) also notes that contact has the property of " 'tout ou rien' qui implique la soudaineté de l'apparition et de la disparition: deux corps entrent en contact et cessent de se toucher sans genèse." He adds that this is valid for all the senses because of their tactile base, which is revealed in Aristotle's affirmation that perception is actualized without becoming or process.

2 Fattal ("L'intellection des indivisibles," pp.434-35) notes that the act of $\nu\acute{o}\eta\sigma\iota\varsigma$ can result in knowledge of both existence and essence: "Cette intellection constate et postule l'existence évidente des ἀδιάριετα. Il y aurait donc une sorte d'intuition de l'existence et même de l'essence des indivisibles, une saisie de leur être selon leur τὸ τί ἦν εἶναι." But, it must be realized that ascertaining the existence of an indivisible object does not necessarily imply an intuition that would be a full understanding of the essence as expressible in an essential definition.

habit of science.¹ Firstly, the noetic perception, or grasp, of the indivisible as it is found in the phenomenon is really of reality as it presents itself to us despite our wills or what we think. It is the objective and unavoidable stubborn matter of the fact of existence, the absolute necessity of that which is actually present. Secondly, it would seem to be with reference to this phenomenal indivisibility perceived by *nous* that one could speak of a universal phenomenon from which could be generated the principles of the science explaining that phenomenon, for it is the indivisibility which is universal, that is, common to all phenomena similar in species. As a result, this intelligible object could form the subject of the science of it, with the definitional term expressing its essence being predicated of it in the hypothesis affirming its existence.² This might offer a solution to some of the difficulties raised by Aristotle in *Posterior Analytics* II.7 where he wonders how definition, which cannot posit the existence of the defined, must, nonetheless, be of something real to avoid being a nominal definition, an explanation of a word's meaning.³ Might it not be claimed that the definition expressing the essence is perceived by *nous* as sight whereas the defined, the phenomenon "representing the reality itself" (to quote S. Mansion), is perceived by *nous* as touch? Thus, the hypothesis would be formed by uniting these two noetic objects. The nominal definition could then be understood as consisting in an intelligible object that is not predicated of a phenomenal indivisibility perceived by *nous* but is instead predicated of the word itself: the word or sign, substituting for the reality which has not been perceived, is the appearance perceived by *nous*.⁴ This view also shows how the induction and acquisition of a scientific concept is intimately tied to, and even simultaneous with, that of a scientific proposition because in order to acquire the definitional term expressing the essence, it is necessary to possess the subject perceived

1 Aristotle (*DA* I.2, 404a 29) affirms that $\nu \theta \hat{\upsilon} \varsigma$ is a certain power about truth. See also *NE* VI.3, 1139b 15-17 where $\nu \theta \hat{\upsilon} \varsigma$ is just one of five intellectual habits by which "the soul possesses truth by way of affirmation or denial."

2 See S. Mansion (*Le Jugement*, p.208): "La définition réelle ainsi comprise n'est pas cette tautologie qu'on imagine parfois. Le prédicat n'y est pas l'équivalent total du sujet, car il ne possède pas ce caractère de réalité inclus dans la *suppositio* du sujet. Il subsiste toujours, entre le sujet et le $\lambda \acute{o} \gamma \omicron \varsigma$ définissant, cette différence que le premier représente la réalité elle-même, tandis que le second est seulement ce que l'esprit en connaît de façon distincte."

3 See also S. Mansion (*Le Jugement*, pp.209-10).

4 Although the point has not been fully examined, it would appear that the difference between $\sigma \upsilon \nu \iota \acute{\epsilon} \nu \alpha \iota$, understanding an expression, and $\nu \theta \in \hat{\upsilon} \nu$ could be explained by saying that the first predicates its definition of the word itself whereas the second predicates it of the phenomenal indivisibility simultaneously grasped in the act of $\nu \theta \in \hat{\upsilon} \nu$ since the act of $\nu \theta \in \hat{\upsilon} \nu$ requires a phenomenon and a contact with reality whereas the other does not necessarily require this.

in the universality of its phenomenal indivisibility. In other words, an essential definition is obtained within the relation of the hypothesis, hence, the relation of existence, in which the definition is always predicated of the subject being defined throughout the operation of defining it.

If that is so, then the reason for the truer nature of the noetic habit would seem to lie in its contact with reality through its perception of a phenomenal indivisibility. In this noetic contact with reality there is no room for error, at least in the case of the perception of the essence, because the indivisible is the proper object of the act of *noêsis*.¹ The simple nature of the (actually) indivisible means that it is completely indivisible, and it also helps explain the impossibility for error since the simple can only be either known or ignored; in other words, there is no possibility of a false attribution of one thing to another because there is only one thing.² But the act of *noêsis* as touch is not true(r) just because it is a contact with reality. As in all cognitive acts, it identifies itself with the object perceived; therefore, the identification with the truth of (a) being makes it more true than science whose truth is dependent on this other truth known by *nous*.³ In fact, it must not be overlooked that Aristotle not only speaks of truth with respect to the judgment of enunciation, but also with respect to being itself.⁴ The noetic act understood as a *thigganein* is, therefore, a contact with the truth of being because its contact with reality is not only of the essence (which is the cause of a being), but also of its existence insofar as the essence is perceived as the

1 See Fattal ("L'intellection des indivisibles," pp.434-35): "L'équivalent intelligible du *sensible par soi*, c'est l'*indivisible par soi* et l'analogue de la sensation des sensibles propres excluant l'erreur, c'est l'*intellection*." Note that although there can be no error with respect to the essence, it is still possible to have a progression in understanding of the essence, as shown above, or to form a logically invalid definition.

2 *DA* III.6, 430b 26-30: "ὁ δὲ νοῦς οὐ πᾶς, ἀλλ' ὁ τοῦ τί ἐστι κατὰ τὸ τί ἦν εἶναι ἀληθῆς, καὶ οὐ τι κατὰ τινος." Kal (*On Intuition and Discursive*, p.47): "Truth is here [*Meta* IX.10] knowledge, and untruth is ignorance, instead of a wrong connection or distinction. There is either intuition or no intuition; intuition itself cannot err. Untrue contact with reality is an absurdity."

3 Kal (*On Intuition and Discursive*, p.48): "In *Metaphysics* Lambda 7, finally, Aristotle states that the mind, in its contact with reality, identifies itself with the object of intellectual knowledge and with entity. It would be impossible here for an identification to take place which at the same time is not an identification and which for that reason is untrue."

4 See, e.g., *Meta* II.1, 993b 24-30: "Ὅσπερ ἕκαστον ὡς ἔχει τοῦ εἶναι, οὕτω καὶ τῆς ἀληθείας." Cf. Moreau ("Vérité antéprédicative," p.29) "il n'est point, aux yeux d'Aristote, de vérité qui n'exprime l'être de la substance ou de ses accidents."

indivisibility in or of a phenomenon (the individual being).¹ As Moreau observes, the truth of a judgment, which is customarily defined as the conformity of (the relation established by) thought with the reality, the *adaequatio mentis et rei*, is verified according to another truth, which he calls “antepredicative” and is the truth of reality, or the thing itself as it “reveals” itself to us in sense-perception and experience.² Moreau points out that this truth as revelation of reality is grounded in thought and its intentional nature.³ Thus, it is through *nous*’ activity with or on the phenomenon known through sense-perception, the noetic touch, that thought gains access to the truth of being. It is this truth which measures the truth of judgments expressed in enunciations and the propositions of a demonstration and which, as a consequence, can be said to be “truer.”

7.4 Abstraction and Signification

Many Aristotelians (mostly of the scholastic period and the Thomist tradition) hold that the act of *noësis* operates by abstraction.⁴ The notion of abstraction, “drawing away (from, out of),” seems to be implicit in maintaining that *noein* as touch perceives the potentially intelligible in the phenomenon, which can then become actually intelligible once the intellect knows the indivisible essence by itself or with reference to itself in an intuition or insight.

1 Cf. Elders (*Aristotle’s Theology*, pp.188-91) who asserts that $\nu\omicron\hat{\upsilon}\varsigma$ as $\theta\iota\gamma\gamma\acute{\alpha}\nu\epsilon\iota\upsilon$ is contact with the truth of being and that for $\nu\omicron\hat{\upsilon}\varsigma$ to receive the $\nu\omicron\eta\tau\acute{o}\nu$ and the $\omicron\hat{\upsilon}\sigma\acute{\iota}\alpha$, it must receive reality and enter into contact with the reality of the existent thing, and not only its essence. See the interesting remarks about thought in terms of touch at *Prtp* B56.

2 “Vérité antéprédicative,” p.23: “Il faudra donc admettre, si l’on ne veut retirer sa base à la vérité du jugement, que dans la perception la réalité se montre *telle qu’elle est*, que la perception est essentiellement (sinon sans réserves) une *révélation* de la chose; ainsi la vérité de la perception n’est pas conformité, mais révélation, et dans cette révélation on saisit, antérieur à la vérité du jugement, la vérité de la chose. [new prg] Telle est la vérité que l’on peut appeler *antéprédicative*, parce qu’elle est antérieur au jugement.” Cf. Elders (*Aristotle’s Theology*, p.21): “the original meaning of the term: *notis*, rather than denoting the intellect as a faculty, signifies the insight of some hidden truth beyond man, and which comes to man like a revelation.” Recall the etymology of the term $\acute{\alpha}\lambda\eta\theta\epsilon\iota\alpha$: uncovered, unhidden, thus, revealed.

3 “Vérité antéprédicative,” p.23: “[Antepredicative truth] se fonde dans l’*intentionnalité* de la pensée, dans l’ouverture de la conscience à l’être... [and, p.30] dans l’*intentionnalité* constitutive de la conscience, dans son ouverture à l’être.” Could it not be said instead “son ouverture par l’être” or “son ouverture par l’apparition de l’être”?

4 Aquinas is generally considered to be one of the first to describe the act of $\nu\acute{o}\eta\sigma\iota\varsigma$ as fundamentally abstractive, and many references from his works could be cited. To give but a few instances, see *In DA Comm*, III, l.7, n.692 and III, l.8, ns.713 and 716. Other scholars who follow Aquinas include Kluge (“Abstraction,” pp.337-65); Charles De Koninck (“Introduction à l’étude,” pp.9-65); De Corte (*La Doctrine*, p.52); Peccorini (“Aristotle’s Agent Intellect,” p.517); and, Apostle (*Post An*, pp.87-88, n.20).

In other words, abstraction is intended to signify the separating out by the intellect of the intelligible form from the appearance which is the form's matter. This conception of the act of *noêsis* does not seem to be that of Aristotle himself who, as some have pointed out, never speaks of abstraction (*aphairesis* or *en aphairesei*) to describe this intellectual operation but tends, instead, to restrict the term to the context of mathematics.¹ When speaking of abstraction in mathematics, Aristotle is referring to separating out, by an act of the intellect, the property of quantity from the sensible substance in which this property necessarily exists. Thus, abstract signifies that quantity is an entity which cannot have a separate substantial existence outside of physical substance but is capable of being separated out from it for consideration by the intellect. This view of abstraction connotes, therefore, a separation that is a departure from reality and an intellectual or logical fabrication.² This does not, however, seem to be the understanding, or the only understanding, had by some of those who make use of the notion of abstraction. S. Mansion³, for instance, claims that in one sense, abstraction could certainly mean separation and a distancing from reality because the intellect separates the "idea" to make universal concepts incapable of reaching the real individual [in its individuality]; but she notes that in another sense, this considering apart enables the intellect to look into the essence of the thing, the "en soi," thus reaching the heart of the concrete individual reality because it knows what it is. Gilson⁴, too, asserts that, "To abstract is not primarily to leave something out, but to take something in, and this is the reason why abstractions are knowledge." In the act of *noein* that interests us here, what is taken in, is the essence

1 Le Blond (*Logique et méthode*, p.135, ft.1) thinks that if Aristotle was ever to mention the agent intellect and its abstraction, II.19 would have provided the best moment with the declaration that the "soul suffers this way." He is, therefore, leary of Aquinas' interpretation and "les constructions scolastiques subséquentes." Kahn ("The Role of nous," p.409) also observes that it is the medieval commentators and Aquinas in particular who introduce the idea of abstraction, but he concedes that, "This theory is very largely Aristotelian in spirit, though not to be found in the letter of his text." He warns that this can be misleading because it can be confused with Aristotle's special doctrine of mathematical abstraction as well as un-Aristotelian modern theories of abstraction. The notion of abstraction outside the mathematical context seems, however, to have already been introduced before Aquinas by Alexander. See *DA cum Mantissa*, p.110,16-20: "ὁ γὰρ νοῦς ὁ ἡμέτερος νοεῖ τὰ αἰσθητὰ δυνάμει ὄντα νοητά, καὶ ὑπὸ τοῦ νοῦ νοητὰ ταῦτα γίνεται. αὕτη γὰρ ἐνέργεια τοῦ νοῦ, τὰ ἐνεργεῖα αἰσθητὰ τῆ αὐτοῦ δυνάμει χωρίσαι καὶ ἀφελεῖν τούτων, σὺν οἷς ὄντα ἐστὶν αἰσθητά, καὶ ὀρίσασθαι καθ' αὐτά."

2 See Bonitz (*Index*, p.126) who calls ἀφαίρεσις in the context of mathematics an "abstractio logica."

3 *Le Jugement*, p.323, ft.33.

4 *The Unity*, pp.144-45.

without the individuating matter of the appearance; but, this essence is not, in spite of this abstraction, understood as something that can exist without individuating matter.¹ In this manner, abstraction seems to indicate that in its perception of the indivisibility of a phenomenon the intellect turns a blind eye, so to speak, to sensible qualities because its perceptive capacity is made to receive the intelligible alone. There is not a separation of form or essence from the individual, but rather a perception of the individual from the perspective of its intelligible indivisible aspect. This is the same in the case of all the senses and the perception of the sensible objects. Sight, for example, abstracts by perceiving per se only its proper object colour and does not perceive anything else, except for the common sensibles which are incidentally perceived simultaneously with its proper object. In other words, abstraction implies the “critical” ability of any cognitive capacity to “separate out” or select its proper object existing in one substantial sensible subject. To conclude, it may be stated that if the act of *noësis* can result in an intuition or insight of essence, “a looking into” essence, it is because the abstraction, that is, the discrimination, it performs is really a case of “overlooking” the sensible to focus on its proper object, the indivisible which is intelligible.²

Abstraction thus indicates the modality of the intuitive operation--it is, in fact, the modality common to all cognitive operations. Since abstraction is really a modality of the intellect’s intuitive operation, then it would perhaps be better to attempt an understanding of the act of *noësis* from the point of view of it being intuitive. Intuition is said to be the result of an act of knowing or understanding, if not the resultant act itself, and perfects the intellectual effort whose end is to know and understand (truth). But, in order to prepare for the act of understanding, the intellect must begin by signifying something definite about reality by imposing names and giving a meaning to these names corresponding to things encountered so that man’s experience of the world can be conceptualized, thought about, and understood. The noetic act described in terms of touch and compared to the act of asserting

1 Aquinas (*In DA Comm*, II, l.12, n.379): “*Non enim apprehendit hoc intellectus, scilicet quod natura communis sit sine principiis individuans; sed apprehendit naturam communem non apprehendo principia individuans; et hoc non est falsum. Primum autem esset falsum. [...] Non enim exigitur ad veritatem apprehensionis, ut quia apprehendit rem aliquam, apprehendat omnia quae insunt ei.*”

2 Cf. De Corte (*La Doctrine*, p.91) who says that “la fonction *abstractive*” of the intellect disappears at death to leave room for “sa fonction *intuitive* qui constitue la marque authentique de son essence.” By implication, then, abstraction is subordinate to intuition which would be the proper activity of the intellect, even in this life, since, as just affirmed, intuiting the intelligible aspect of an appearance constitutes the manner in which the form would be abstracted from its matter.

or expressing something in its contact with reality seems to indicate this initial stage of signification.¹ Each thought signifying something definite, even if only vaguely at first because of a lack of comprehension, gives the intellect an orientation, or direction, or intention, in agreement with its intentional nature. A given thought is an object and a sign through which the intellect will go towards, in order to know, that which is signified by the thought: an appearance as a whole and, through this, the reality that is similar to the appearance.² In this way, thought and the intellectual purpose of knowing and understanding remain grounded in reality and the truth of being.³

Insofar as it is initially an act of signification, the act of *noêsis* would seem to consist in perceiving and generating the relation of sign to signified.⁴ This means that a thought (*noêma*) in the intellect is related to an appearance (*phantasma*) in the mind whenever the intellect intuitively perceives an indivisibility in the appearance, for instance, *red* is the symbol of and the name expressing the thought generated when the intellect intuited the indivisibility of this colour (relative to other colours) perceived by sight, and *man* or *father* could be the symbol of and the name expressing the thought generated when the intellect intuited the indivisibility of the appearance of Socrates. Each thought would thus turn out to be a relation of signification because the thought generated in an act of *noêsis* would be predicated of the appearance signified by it, with the consequence that that which is signified in, or about, the appearance would constitute the signification or meaning of the thought.⁵ This predication is not the strict sense of predicating one thing of another, but a

1 Bonitz (*Meta Comm.*, p.411), when commenting on *Meta* IX.10, 1051b 24, states the difference between asserting and affirming in this way: "Etenim φάσις simpliciter φησί τι, κατάφασις ὡς κατηγορεῖ τὸ κατά τινος."

2 Cf. Langston ("Scotus's Doctrine," p.16) who says that the intelligible species gives the intellect its content when knowing and directs its act towards the thing known. It is this notion of directedness that implies intentionality.

3 Cf. Granger (*Théorie de la science*, p.58): "Or signifier pour Aristote c'est essentiellement renvoyer à un être." According to Granger, the categories are "*modi significandi*" or "*formes de signification*" whose purpose is "*signifier l'être*." He adds that the differences between syntax, semantics, and ontology are neutralized in this perspective.

4 Lonergan (*Insight*, Preface, p.x): "Secondly, inasmuch as it is the act of organizing intelligence, insight is an apprehension of relations. But among relations are meanings, for meaning seems to be a relation between sign and signified. Insight, then, includes the apprehension of meaning, ..."

5 Cf. Lear (*Desire to understand*, p.256): "In general, I believe that what an expression signifies corresponds both to what, if anything, the expression refers to and to its meaning." He warns (p.256, ft.75): "Of course, one must avoid attributing to Aristotle the sophisticated semantic distinctions which have been made only recently. His notion of signifying something will cause heartache to the modern philosopher who tries

signification: a sign predicated of a signified with which it is identified and which it represents.¹ The intellect can, in fact, signify different aspects of an appearance depending on the mode of signifying. The predicables of genus, specific difference, species, and proper or common accident indicate the modes or manners in which the intellect perceives, signifies, and knows the appearances (as well as the real things similar to these). The appearance of Socrates, for instance, taken as an indivisible whole can be signified in many different ways depending on what aspect, whole or part, is perceived by the intellect: he can be known and named as an animal, laughing, big-nosed, white, and so on.² In this manner, the act of signifying serves the intellect's end of knowing and understanding because making sense (of sense) requires the making of an intelligible or thought, and making an intelligible makes sense of sense. This appears to be the nature of the "art" of the intellect which "makes" the "matter" of the potentially intelligible actually intelligible.³

Thus, whereas focusing on the modality of abstraction gives rise to the connotation of eliminating or purifying matter to leave only the form, the focus on signification to describe the noetic act keeps matter and shows how the intellect cannot think or know without appearance-matter. Matter is not an obstacle to knowing but an aid; therefore, it cannot be eliminated. This seems to be how the intellect knows the forms in the appearances or comes to know the *noēta* in sensible forms.⁴ In fact, if there is no appearance, then the noetic faculty of the intellect would lack its object since it must perceive an indivisibility in or of the appearance. Although it is the intellect's capacity of making intelligible that is responsible for the actualization of the noetic act, the appearance, by providing the intelligible in potency, still remains a necessary though insufficient condition of human

completely to assimilate it to that of either sense or reference, at least as these notions are commonly understood. The lack of precision does not, however, impugn the suggestion that part of what it is for a subject-term to signify is to refer."

1 Brunschwig ("La forme, prédicat?") notes that $\kappa\alpha\tau\eta\gamma\omicron\rho\epsilon\hat{\iota}\sigma\theta\alpha\iota$ can have another meaning in Aristotle's texts in reference to the intellect's first operation of defining whereby the specific difference-form is predicated of the genus-matter, which he calls "la prédication hylémorphique." In this predication, there are not two different "things" since it results in a definition expressing the essence of one substance, without expressing predicative truth or falsity. Another way of noting the difference is that signification predicates a thought in the intellect of an appearance in the mind whereas predication proper is between two thoughts in the intellect.

2 Themistius (*DA Paraph.*, p.116,10-24) states that the intellect can have different thoughts and combinations with the same appearances. See also *DA Paraph.*, pp.109,27-110,1.

3 *DA* III.5, 430a 13. See De Corte's development (*La Doctrine.*, p.53) of this analogy.

4 Aristotle often repeats the necessity not only of appearances in intellectual operations, but also the sense powers themselves: *DA* III.7, 431a 15-17 and 431b 2-9; III.8, 432a 1-14; and, III.12, 434b 4-7; *SS* I, 437a 1-3, and 6, 445b 15-17; and, *Mem* I, 450a 1-13.

thought.¹ This point may be elucidated by realizing that the intellect does not receive the appearance in its act of signifying, for the thought-sign replaces and represents in the intellect the appearance-signified in the mind. How? The intellect, through its capacity for making intelligibles or creating thoughts makes a thought-sign for, and by, itself signifying the potentially intelligible indivisibility that it perceived in an appearance. The reception of an intelligible by the intellect is, therefore, to be explained by the active creation of an actual intelligible on the part of the intellect itself, or briefly put, the intellect receives by making intelligibles: signs representing and signifying the appearances.² Otherwise said, *nous*-intellect in potency (*dunamei*, the capacity to receive) becomes *nous*-intellect in act by creating (*poiêtikos*, the capacity to make) an intelligible through directing its activity and energy towards the *nous pathêtikos*-mind where the appearances are stored.³ In this way, the *nous*-intellect that receives intelligibles is the same *nous*-intellect as the one that makes intelligibles, while the *nous pathêtikos* is not the *nous dunamei*, the intellect in potency to receive, but is the mind tied to the sense apparatus, especially memory, where appearances are stored. The intellect can thus operate without a corporeal organ, but insofar as it cannot operate without an appearance, which can only be had by means of the sense powers (perceptive capacities operating in conjunction with a bodily organ), the intellect indirectly needs the body so that the appearances without which it cannot operate may be acquired.⁴ It

1 See Themistius (*DA Paraph.* p.113,14-21 and p.116,6-9). Hamelin (*La théorie de l'intellect des commentateurs*, p.7) asserts: "Or, il n'y a pas d'intellection sans image: c'est là une loi absolument universelle. Car alors même que l'image n'est pas adéquate à l'intellection, elle y reste indissolublement unie." But he goes too far, in our judgment, when he adds: "Mais il y a plus: il semble parfois ne pas se contenter d'attacher la pensée à l'image, il semble vouloir expliquer par l'imagination seule la formation des universaux," making reference to the primary and secondary texts where the process of the formation of the universal is described.

2 This is how sense can be made of Aristotle's seemingly contradictory statement that the intellect is impassible (because it is an active "poetic" energy) yet seems to undergo a passive affection in its reception of an intelligible object. See *DA* III.4, 429a 13-17 and 429b 22-430a 1. By the way, if this interpretation is applied to the divine $\nu\theta\hat{\upsilon}\varsigma$ activity of $\nu\theta\acute{\eta}\sigma\epsilon\omega\varsigma$ $\nu\acute{\omicron}\eta\sigma\iota\varsigma$, the expression would have to be understood as meaning that the divine act of $\nu\acute{\omicron}\eta\sigma\iota\varsigma$ intuitively or knows its very own act of $\nu\acute{\omicron}\eta\sigma\iota\varsigma$; i.e., the intelligible object perceived would be the divine intellect's own activity, rather than the activity of some other thing, since this could be the only "object" without any potentiality whatsoever, the only one dependent on itself, and the only one worthy of divine $\nu\acute{\omicron}\eta\sigma\iota\varsigma$.

3 Cf. Mure (*Aristotle*, pp.243-44) who remarks that in Aquinas' theory of intellection, the intelligible form as product of the *intellectus agens* (made whenever it transforms and realises [the *species impressa* in?] the phantasm as an intelligible form which informs the passive intellect) is a phase immanent in the activity of the intellect itself: "It is therefore in this latter aspect a *species expressa*, a self-expression, or self-creation, of a mind whose essential nature is to know an object, and to know it by becoming it immaterially."

4 See Hamelin (*La théorie de l'intellect des commentateurs*, p.6).

is to be observed, furthermore, that the productive activity of *nous*-intellect goes out, without itself being moved, to the *pathêtikos nous*-mind, that is, it touches the mind but is not touched in return because in signifying the appearance, it makes it intelligible.¹ The productive activity of the intellect on the appearances can be said to constitute an act of unification (and concretion): the intellect unifies sensible data into an intelligible whole, or unifies matter in its form; or, otherwise said, the intellect merely perceives the unity and indivisibility, and the production of a thought is the result of this intuitive perception. This unity then refers to the definite “being” that is signified by the thought. More than this, the productive activity of the intellect renders, in a matter of speaking, the individual appearance universal since its perception of an appearance’s indivisibility is really that of the whole, hence, universal, appearance. In other words, the act of *noêsis* is a perception of the universality of the particular appearance resulting from the intellect’s productive activity acting on the appearance. Thoughts (*noêmata*) are, in this manner, actions or activities of the intuitive operation of the intellect on sense.²

These reflections on the relationship between signification and intuition can terminate with a brief look at the relationship between intellect and language as intellect’s instrument for expressing the universality of thought signifying reality. Aristotle considers language (the spoken word) to be a symbol of the “affections in the soul,” that is, the appearances, experiences, and thoughts undergone by man.³ Since language and the meaning of words

1 See Blumenthal (*Aristotle and Neoplatonism*, p.153) on the meaning of παθητικός: “In the first place it is, of course, a verbal adjective indicating that something is at the receiving end of an action, by contrast with ποιητικός, which describes something at the active or doing end of the same or another action.”

2 These reflections may provide a solution to the following problem raised by Hamelin (*La théorie de l’intellect des commentateurs*, p.85): “L’image est individuelle, l’intelligible est sans matière: à partir du moment où une forme est devenue actuellement intelligible, elle a rompu avec l’individualité. L’image peut bien préparer l’intellection, mais elle n’entre pas dans l’opération intellectuelle. Dès lors, voilà la forme intelligible d’un côté, la forme sensible de l’autre, et entre les deux un abîme qu’il n’y a rien pour combler.” On thoughts as activities, see Themistius (*DA Paraph.*, p.116,21-22) who claims that thought is the activity of νοῦς-intellect towards the appearance as a subject receiving its activity: τὸ νόημα δὲ ἐνέργεια τοῦ νοῦ περιὶ τὸ φάντασμα ὑποκείμενον.

3 *Ins* 1, 16b 1-15: “Ἔστι μὲν οὖν τὰ ἐν τῇ φωνῇ τῶν ἐν τῇ ψυχῇ παθημάτων σύμβολα, κτλ.” See also *Ins* 14, 23a 35 and 24b 1. For examinations of this passage with some of its implications, see Aubenque (*Le problème de l’être*, pp.107ff.); and, Owens (“On Cognition,” pp.106-07). Observe, once again, how this passage resembles II.19 in that both present a “psychological” basis to the intellectual operations studied in the science of logic. Aristotle admits as much in his reference to *DA* found at the end of this passage.

are first acquired by custom and habitual use, language can be used, along with sense cognition, as a reservoir of prior cognition requisite for intellectual learning and rational discourse.¹ An example of this is the necessity of nominal definitions, the meanings of words, of certain concept-terms before demonstration can begin. If, as shown above, the act of *noêsis* cannot take place without an appearance, then, whenever there is a lack of a sensible appearance, the word or expression being defined nominally could act as an “intelligible appearance,” which can be perceived by the intellect and to which refers the meaning or signification signified by the thought. This, as already alluded to, seems to be the difference between an essential and a nominal definition. In an essential definition, the intellect predicates its signification of a phenomenon, a sensible appearance known to sense, whereas a nominal definition consists in a thought being predicated of the word that is heard, the symbol which may be called an intelligible appearance by reason of its instrumental relationship with the intellect.² Language could also aid the intellect to gradually come to know the intelligible or non-sensible aspects of appearances and reality by habituating it to perceive the referent of the word and its meaning.³ Words such as *man*, *animal*, *substance*, and so on, symbolize thoughts referring to the intelligible aspects of reality and the phenomenal indivisibility that can only be perceived by the intellect; thus, in knowing the meanings of these words, the intellect can be directed to perceive the substantial level of reality, that of the essences of individual sensible substances. The intellectual perception of the word or symbol can then be replaced by the perception of the reality itself, thereby substituting a merely nominal language by one that is truly human because it actually expresses conceptual thought. This clarifies the goal and value of the dialectical examination of opinions, namely, to perceive the thought structures expressed through human language because this conceptual language is the “phenomenon” of thought, the intelligible appearance revealing the intelligible aspect of substantial reality. In this way, human language is the instrument of the intellect by which it expresses the thoughts it created so that they become perceptible to sense and, as a consequence,

1 Themistius is one of the few commentators of *Post An* who makes reference to and acknowledges the importance of language in his commentary. See his insightful comments in *Post An Paraph*, I.1 and on pp.65,28-66,3.

2 Cf. Aristotle's comment (SS I, 437a 10-15) that $\lambda \acute{o} \gamma \omicron \varsigma$ is composed of words and each word is a symbol, which is why hearing can be said to be a per accidens cause of growth in intelligence. The same may be said of sight inasmuch as the written word must be seen to be understood.

3 Cf. Wedin (*Mind and Imagination*, pp.157-58) who turns to “Mind with language as its vehicle of intuition and interpretation” to explain how $\nu \omicron \hat{\upsilon} \varsigma$ gains awareness of features of the world exceeding the strictly sensible and acquires concepts signifying them.

knowable to the intellect itself which cannot operate without an appearance. In short, before serving the purpose of communicating its thoughts to others, human language seems, first of all, to serve the purpose of making intelligible reality as it is perceived by the intellect knowable to the intellect itself.

7.5 Human Intuition Defined

Perhaps the first conclusion that could be drawn from the preceding analysis is that intuition signifies primarily the knowledge gained by the intellect, and only in a secondary and derivative manner does it refer to the intellectual activity or operation by which it is acquired. With respect to the activity, it may be described as being inductive if the focus is on sense cognition of particulars known in the process of enumeration, or intuitive if the focus is on the intuition, the intellectual knowledge of a universal, acquired at the end of the process. The operation of *nous* generating an intuition could be defined as an immediate, instantaneous, intellectual perception of an indivisible object based on, or grounded in, a phenomenon acquired through sense-perception, with all these properties understood in the manner explained above. As it was explained, sense can only incidentally perceive the indivisibility of an appearance, or the substance of a phenomenon, insofar as it knows this singular subject-substance; the *per se* perception of this, though, belongs to the intellect whose operation requires an appearance.

The primary meaning of intuition (an intuition) is the knowledge acquired through the intuitive operation of the intellect. The indivisible object of intuition was said to be primarily the essence of sensible substances, for this is the indivisible, intelligible aspect of a phenomenon. Contrary to what may be implied by the properties of immediacy and instantaneity, which describe the intellectual activity rather than the knowledge, the intuition of the essence of sensible substances incorporates two defining moments corresponding to the descriptions of *nous* as touch and *nous* as sight. The first intuitive perception of substance is of its existence, of the fact that there is a substance whose essence can be known. The second intuitive perception is of the substance's essence and is a knowledge and understanding of what it is. Thus, intuition could be more precisely defined as the intellectual perception of a phenomenal indivisibility and the understanding of its essence, or the perception of a phenomenon and the knowledge of its substance. More generally (and more in keeping with the original meaning and use of the term *nous*), it may be

defined as the apprehension of an appearance and the comprehension of its significance, or the perception of an experience and a conception of its meaning.¹ Finally, intuition may even be defined as follows: *tithenai ta phainomena kai epistamai tou ti esti kata to ti ên einai*, which may be translated as standing up the phenomenon in order to stand under its substance according to its essence, which is the ground of the phenomenon's being. Intuitive knowledge, or insight, can thus be seen to have two degrees of understanding: the first is a level of understanding based on sense experience, and the second is a level of understanding based on intellectual experience, as it may be described. The first intellectual perception is a vague knowledge of a confused universal because the intellect, in perceiving the indivisibility of the phenomenon, understands it in terms of the phenomenal content that it incidentally perceives. Yet, this knowledge is enough to give the intellect the certitude that there is a substance, though it does not yet know what it is or why it is the way it is (in its phenomenal manifestation). It is an intuition that perfects the process of organizing sense cognition into a primary intelligible signifying a coherent sensible whole. The second intellectual perception is a clear and distinct knowledge of a substantial universal because the intellect now perceives the phenomenal indivisibility in itself, that is, it knows it through the definition expressing its essence. This intuition perfects the process of organizing intellectual knowledge, especially the analysis used in defining, into a coherent intelligible whole. As the second degree of intuition starts from the first degree and perfects its knowledge, it incorporates the first so that intuition could be defined as the understanding of both the existence and essence of a substance.

These two defining moments in intuitive knowledge must not be taken to mean that they are the only levels of understanding possible. They are rather like the limits of understanding: the minimal intuitive knowledge is of the existence of a substance by perceiving a phenomenal indivisibility, and the maximum intuitive knowledge is of the essence of a substance expressed in the best definition possible. Between these two limits, there can be a continuous deepening in understanding or an enriching in comprehension as one works through different definitions that tend towards a more precise expression of the essence. These limits could therefore be described as the potentially and the actually intelligible since full intelligibility of reality comes with understanding the essence of things (to the extent

¹ Notice the parallel between our idea of perception and Aristotle's intellectual reception signified by νοῦς δυνάμει; and, our idea of understanding, or knowing, and Aristotle's νοῦς ποιητικός which makes (an) intelligible.

that their essences are definable). The continual progression in understanding must not, however, hide the fact that the change from one level of understanding to a deeper one must occur as a quantum leap, or in a discrete manner, because each new understanding can only be known intuitively, for which operation the intellect acts instantaneously in the perception of a new indivisibility or unity according to which knowledge may be [re]organized. In other words, one can know something vaguely and then think about it until it becomes somewhat clearer. This clearer understanding then becomes the ground of further thinking and reflection which may lead to yet a deeper understanding, and so on until one arrives at the fullest understanding possible.

The instantaneous change from the intuition of a phenomenal indivisibility to the intuition of its essence could also be described as a conversion of the sensible into the intelligible, or the *trans-form-ation* of an appearance into a thought (or concept or intelligible), or the transformation of a *phainomenon* into a *noêma*. This conversion may also be described in terms of particular and universal since the intellect, whose nature is universal, perceives the particular in its universality. This means that the particular is known as an instance representative of any and all cases because the intellect, in perceiving the universality of its particularity, perceives *one as any and all possible instances*. From this point of view, intuition could be defined as the intellectual perception of the universality (the phenomenal indivisibility) of a particular (the phenomenon) and the knowledge of the particularity (what it is per se) of the universal (the phenomenal indivisibility), which is the essence of the phenomenon. With the idea of universality also comes that of being since intuition converts the perception of a phenomenon into a perception of a substance. To understand the significance of this, it must be remembered that the universal in reality refers to the form and essence, which signify the cause of substantial being, and that the intellectual perception of the universal is really a perception of this substantial form.

The conversion of the potentially intelligible into the actually intelligible is often explained in terms of a causal influence on the part of *nous poiêtikos*, the making or productive capacity of the intellect.¹ Some scholars think that the intellect acts like an efficient cause of

¹ In regard to how to translate the Greek ΠΟΙΗΤΙΚΌν, several contemporary authors question the scholastic and traditional translations of *intellectus agens*, agent or active intellect, because these expressions would more properly translate ΕΝΕΡΓΕΙΑ rather than ΠΟΙΕΙΝ. In Latin, ΠΟΙΕΙΝ would be better rendered by *facere*, which in English would be *to make*. See, e.g., Kosman ("Maker Mind," p.343)

intelligibility.¹ Others affirm, instead, that the causality is that of an end and a final cause.² Then there are those like Barbotin³ who maintain that not only the intellect asserts a final causality, but also the intelligible in potency asserts an instrumental (rather than material) causality because it is like a necessary condition and instrument of the intellect's activity of rendering the potentially intelligible actually intelligible. Finally, there a few, such as M. Frede⁴, who deny any sort of causal influence on the part of the intellect. What is surprising in discussions concerning the productive activity of the intellect is the paucity of references made to the part feeling, sentiment, will, or the desire to understand, play as an inspiration and origin of the act of understanding: apart from the references to desiring the good—which for the intellect is truth—inherent in some explanations in terms of final causality, few authors consider this point.⁵ Yet, does not Aristotle introduce his *Metaphysics* with the profound statement that, “All men by nature desire to know”?⁶ Does he not also affirm that the universals are in some way (i.e. potentially) in the soul, which is “why a man can exercise his knowledge when he wishes [or wills it]”?⁷ Oftentimes, the impression one has of the intellectual activity upon reading the literature of the Aristotelian tradition is that the intellect, and the human cognitive apparatus as a whole, is nothing but a

who translates “maker mind” and Wedin (“Tracking,” p.133) who prefers “creative mind” or “productive mind.”

1 Rist (*The Mind of Aristotle*, pp.178-82), for instance, follows the analogy of the effect of art on matter. Brentano (*Psychology*, p.108) follows instead the image of light, saying that the causal activity of the intellect on the appearances is like a light illuminating them.

2 See, e.g., Martin (“Causalidad”).

3 *La théorie de l'intellect*, pp.63 and 125-26.

4 (“L'intellect agent”). He resurrects the Neoplatonic and Arabian tradition started by Alexander and explains the human act of νόησις with reference to a divine intellect, albeit in a unique way since this intellect is now immanent in man and not transcendent.

5 Since the literature concerning the intellect's causality is abundant, we felt it necessary to limit our research into the matter, consequently, in presenting our position, we have decided to forsake a detailed examination of the different explanations offered. Among the authors who consider the point raised, though, Hamelin (*La théorie de l'intellect des commentateurs*, p.24) analyzes two ways in which the intellect and the intelligible are related and says of one of them: “on fait de l'intelligible une création de l'intellect, ou plutôt on fait la volonté antérieure à l'entendement.” Cf. Wheelwright (*Aristotle*, p.147) who writes about the term ποιητικός: “a creative cause that makes the things actual [...] another aspect [of the mind] in which it [wills or] ‘makes’ all things.” The last set of brackets are his and suggest that the will is the making capacity of the intellect. Finally, De Corte (*La Doctrine*, p.196): “Mais comment un phantasme, si spiritualisé qu'il soit par la décantation progressive de la sensation à travers les sens internes, mais toujours en liaison sous-jacente avec le sensible, peut-il émouvoir la pure immatérialité de l'esprit?”

6 L1, 980a 22: “πάντες ἄνθρωποι τοῦ εἰδέναι ὀρέγονται φύσει.”

7 DA II.5, 417b 24: “ταῦτα [τοῦ καθόλου] δ' ἐν αὐτῇ πῶς ἐστὶ τῇ ψυχῇ· διὸ νοῆσαι μὲν ἐπ' αὐτῷ, ὅποταν βούληται, αἰσθάνεσθαι δ' οὐκ ἐπ' αὐτῷ.” On the potential presence of universal forms “in the soul,” see DA III.4, 429a 27-29 and 430a 1.

machine, albeit animated, but nonetheless a machine acting very mechanically. Certainly, there is much about human cognition that can be explained in these mechanical and physiological terms; however, room must be made for the will and desire, and the part they play in the cognitive life of man. Perhaps the act of *noêsis* happens quite spontaneously and in mechanical fashion: as soon as there is an indivisibility in the phenomena, the intellect will perceive it since this is its proper object, much like sight cannot help but see its proper object colour whenever the eyes are opened in a state of readiness to receive colours that are there before them. After all, man by nature can know through both the intuitive and rational, or syllogistic, operations of the intellect as he does through the senses; however, the object on which the intellectual activities can take place usually requires much, often laborious, preparation. It takes much more effort, time, and experience (both sense and intellectual) to prepare the indivisible object of *noêsis* than it does to see a colour. In this respect, man must really desire and want to understand to get through the labour of coming to understand. If the intuition that arrives seems easy in its instantaneous and sudden flash of inspiration, a “poetic” insight, the road preparing the way to this is normally not easy at all.

Elders¹ recognizes that “desire is not unrelated to *noûs*: it follows thought; *noûs* itself becomes desire.” He even imagines it as being the offspring of thought, thus implying not only that desire follows thought, but also that it is a thought itself at a lower stage of development which has the potentiality of becoming an actually intelligible thought.² Aquinas³ presents a somewhat similar view when he defines the will (*voluntas*) as the appetite of the intellect (*appetitus intellectivus*), saying that this appetite follows upon intellectual perception, just as “desire” (*desiderium*) is the appetite following upon sense-perception. Saying that desire, or will, is an appetite of the intellect following upon a perception of one of its objects suggests that one can only desire or want to know that which one already apparently knows; yet, it was affirmed just above that one can only know by wanting to know, or willing it. In a way both positions are possible since the perception and vague knowledge of the potentially intelligible (appearance) will stimulate the intellect’s desire to know this object that may lead to a determination of the will in the

1 *Aristotle’s Theology*, p.16.

2 *Aristotle’s Theology*, p.41: “ $\nu\omicron\pi\epsilon\lambda\iota\varsigma$ is more than a mere $\delta\omicron\pi\gamma\alpha\nu\omicron\nu$ of thought: it is akin to thought and its relation to it may be compared to that of a child to its father.”

3 *In DA Comm*, II, 1.5, n.288.

form of a decision to know it as an actually intelligible object. Thus, the potentially intelligible known by the intellect acts as an object of desire moving it to act: but, the decision of the will, will make certain that the intellect's desire reaches its goal of full knowledge and understanding of the object. In a sense, the potentially intelligible is both an ignorance stimulating and a known object directing or determining the intellect's desire to know. There is, it may be said, a development from a potentially intelligible, which is more a desire, feeling, or sentiment of the intellect, to an actually intelligible, which is the state of clear knowledge and understanding; and, this development can be pushed along, to some extent, through the impetus of the will.

Describing the knowledge of the potentially intelligible as a desire of the intellect to understand brings to mind the notion of *nous* as touch which makes contact with the potentially intelligible in the perception of the indivisibility of an appearance. It must now be realized, however, that touch and contact are not entirely synonymous. Whereas contact connotes a reciprocity, touch is not necessarily wholly reciprocal since it may indicate a modification or a being affected with some feeling in the subject that touches.¹ If, therefore, *nous* is said to touch the truth of reality, it would seem that the modification it undergoes would be the desire to know caused in it in its initial perception. Perhaps an analogy could be made here with the hand grasping something. Just as there is a contact between my hand and the thing it grasps but it is only in me (my hand) that this contact also translates into a sense of touch which is more than a mere contact, similarly, it would seem, the intellect in grasping its object would experience a sense of touch that is more than a mere contact.² This interpretation might be problematic, though, for it was affirmed above that the intellect remains impassible in its activity of making (an) intelligible by moving or touching the mind-*nous pathêtikos* where the appearances are stored without itself being moved or touched in return. Perhaps this contradiction could be avoided by claiming instead that the intellect touches its object in the same way that a grieving man is said to touch us who see him but we do not touch him in return. In fact, there may be no contact, either physical or emotional, with the grieving man on our part. This sense of touch in the realm of sentiment and emotion would suggest that the mind, under the influence of the intellect which itself remains unmoved or untouched in its activity, would be touched with

¹ De Corte (*La Doctrine*, p238, ft.3): "Le verbe $\theta \lambda \upsilon \gamma \acute{\alpha} \nu \epsilon \iota \nu$ n'est pas un pur synonyme d' $\acute{\alpha} \pi \tau \epsilon \sigma \theta \alpha \iota$ il provoque dans le sujet qui 'touche' une certaine modification."

² See Brague (*La question du monde*, pp.369-73).

the desire to know and to make the appearances in it actually intelligible and universal as the intellect itself is intelligible and universal (since it is the cause of these qualities). The first problematic interpretation of touch could also be avoided by taking *nous* in the wide sense of mind, which includes the intellect, and saying that mind and intellect work together since it is only by means of both together that man can think and know. Thus it may be asserted that the mind in general in its contact with reality (through the appearance it has of it) touches reality because the mind is moved with the desire to know it. In whatever manner the noetic touch is to be interpreted, it more than likely suggests that if man really wants to know reality, or some part of it, he must be willing to open his mind and allow himself to be touched by the presence of the "other," as reality so often presents itself. "To discern is to be concerned," says Brague eloquently; and, Aquinas remarks that the intellect understands in its way whereas desire goes out to the thing as it is.¹ In the end, that which differentiates the philosopher from the sophist is the intention harboured by each: while the sophist contents himself with the appearance of having made contact with the reality of the subject he claims to know, the philosopher has truly been touched by it and is filled with the desire and the determination of will to know and understand it.² Perhaps what makes intuition human is precisely its need to receive its intelligible object from the appearances and phenomena acquired through sense knowledge of external reality, from the other that has touched man's mind.

These brief reflections on the place of sentiment or feeling, desire, and will in human cognitive life present the reasons for the title of this dissertation: *Admiring Intuition*. Intuition is not just the final actual knowledge giving its possessor the intellectual vision of clear understanding. It is also the initial potential knowledge implanting in man the desire to understand and causing his will to assent to the vaguely known object. Now the expression *admiring intuition* is intentionally ambiguous. On the one hand, *admiring* could be taken as a verb as in the sentence, *We are admiring intuition*, in which case intuition would be the subject of our admiration because it is something we find worthy. Somebody who admires intuition (or anything else) will be inspired by the subject and want to come to know it more intimately and fully. This brings us to the second possible understanding of the word *admiring*. It could be taken as an adjective modifying the term *intuition*, which would mean

¹ Brague (*La question du monde*, p.155): "Discerner, c'est être concerné." Aquinas (see *Philosophical Texts* selected by Gilby, p.33 citing from Opusc. XIV, Exposition, *de Divinis Nominibus*, ii, 1.4).

² *Meta* IV.2, 1004b 17-26; *S R* I, 165a 20 and 11, 171b 27 and 33.

that intuition has the quality described in the first-given meaning, that is, it is the intuition itself that is full of admiration and is admiring that which is known in the intuition. The object and the admiration for the object are mixed in this intellectual sentiment. This meaning closely resembles the intuition of *nous* as a touch and a desire to know. If the two meanings are put together, it could be said that man will only come to know and understand, have an insight into something, through his first having an admiring intuition of it since it could only be through such an intuition that he will have the desire and the will to (try to) know the subject fully. The suggestion is that man will lay down the phenomena (the known that is yet unknown) as a principle only if he has an admiring intuition of them, only if he regards reality as it appears to him with wonder, approval, and delight. It is only, or at least mainly, through the inspiration of this feeling or sentiment provoked in man by that which is first known through the senses that his intellect will assent to reality. If man, therefore, does not think highly of or esteem his sense cognition, then it will be very difficult, if not impossible, for him to have a respect for and be in wonder of external reality.

This last point can be clarified by an observation made by Von Fritz in the conclusion of his study of the terms *nous* and *noein*.¹ Von Fritz reports two outstanding facts in the change in meanings of these terms during the period of pre-Socratic philosophical speculation when compared to the period of Homer and Hesiod. The first is that in early Greek usage *nous* always had to do with specific situations, while almost from the very beginning of Greek philosophy, *nous*' main function became to discover the "real" world or the "real" character of the world as a whole, in contrast to the erroneous beliefs of most people. What is new is not so much the meaning of *nous*, for in both periods *nous* is used to indicate a penetration beyond surface appearances to discover the real truth. What is new is "the belief that the world is altogether different from what people in general believe it to be." The second point mentioned by Von Fritz is that in Homer and Hesiod the term *idein* is used in a wider sense than just for describing visual perception, while the field of *noein* is narrowly circumscribed and mainly confined to expressing the idea of a realization of a situation. In pre-Socratic philosophy, on the other hand, and especially after Parmenides, the field of *idein* and the role of the other senses in human cognition is more narrowly defined while the domain assigned to *noein* is "enormously enlarged." Although Von Fritz makes these

1 "Nous in Pre-Socratic Philosophy: Part II," pp.30-31.

observations, he does not seem to be aware that the two are actually complementary: as belief in the senses decreases, belief in the mind and intellect increases. As well, as belief in sense cognition decreases, belief that the world is different from what it appears to sense increases, such that man begins to believe that any logically consistent theory about reality constructed by the intellect is true, whether it is in keeping with what is known through the senses or not. This was the consequence of Parmenides on Greek philosophy. Sense cognition was denigrated and forsaken in favour of intellectual knowledge. This is not to deny that Parmenides was justified in part to maintain his position since it is, after all, only the intellect through its noetic act that the realm of substance and being can be known. (In fact, Parmenides seems to be the first of the Greek philosophers to affirm this very point in his identification of *noein* and *einai*.) The problem arises when the intellect severs itself completely from the senses and man forgets that the knowledge of reality gained through them is necessary for the very acts of *noêsis* and rational thinking to occur. It is then that the tyranny of the intellect can arise, and its claim that logical validity of rational discourse is all that matters, regardless of the truth or falsity expressed in the discourse. But the witness of sense cognition is hard to deny, and sooner or later the belief in the abilities of the intellect will be damaged. With the setting in of doubt in all of man's cognitive capacities, the door to scepticism (or religion and mysticism) is opened wide, inviting all its devastating consequences for man's cognitive life and his life as a whole.

The history of modern and contemporary philosophy--with its crisis in knowledge in the midst of an age of scientific progress, information technology, and a "knowledge-based" economy--also seems to be a confirmation of this. Beginning in the radical doubt of Descartes, the underlying attitude of this philosophy--or, perhaps, these philosophies since there has been a splintering of philosophy--is the sceptical one of taking doubt itself as the only certitude: a contradiction in terms even more strongly opposed at the level of feeling and sentiment where these belong than at the level of intellectual knowledge. It could only be because Descartes was cut off from the sensibility of his intelligence (after having denied the validity of sense cognition and experience) that he was unable to accept and know the intelligence of his sensibility, which would have given him the ostensive demonstration and certainty of the existence of extra-mental reality. Descartes' doubt is truly radical for it is not a doubt concerning the essence of a substance that the intellect naturally has after it has touched its existence. This normal and healthy doubt is implicit in the questions that are proper to the intellect concerned with its proper object: what is it? Is it of this nature or that

nature? Does it exist in this mode or in that mode? This healthy doubt is a doubt circumscribed within a certitude as to the existence of a substance or the presence of some reality. The Cartesian doubt, instead, does not even accept this implied certitude. For him, the existence of reality is no longer evident and must be intellectually demonstrated. What distinguishes the views presented above from the philosophy inherited from Descartes is that the latter begins with the sentiment of doubt whereas the former begins in the sentiment of admiration. Admiration is an acceptance and assertion of existence such that the doubt as to the essence, or mode of existence, is modified into a wonder that wants to know instead of a fear that wants to (intellectually) fight or flee the reality encountered. The sentiment of admiration is, in effect, closely related to wonder and the ability to perceive the extraordinary in the ordinary, or the unfamiliar in the familiar, without being afraid of this new (un)known. Before he can know, man must believe that he can know. He must have a certain respect and admiration concerning his cognitive abilities and the cognition they furnish about reality. Instead of beginning with a radical doubt that will deny everything, man could let himself be touched by an admiring intuition that will assent to the wonder of it all.

CONCLUSION

This examination of *nous* in Aristotle's *Posterior Analytics* II.19 took the position that in this context *nous* signifies a human intuition, the (scientific) knowledge generated by an intuitive operation of the intellect. It proposed to demonstrate this by comparing and contrasting this operation with other human cognitive capacities, their operations and the knowledge gained through them. The first comparison was performed with respect to the rational discursive operation of the intellect and concentrated on the syllogism and the demonstration produced by means of this operation as these are explained in Aristotle's theory of logic and scientific knowledge. It was determined that the very nature of syllogistic and demonstrative operations required prior knowledge that could not be acquired through these rational discursive operations themselves. It was at these moments in the activity of syllogistic thinking that the existence of an intuitive activity of knowing was deemed probable. These moments occur when forming enunciations or propositions that cannot themselves be produced as a consequent of a demonstration and when knowing concept-terms, which are obviously indemonstrable. The knowledge of both of these is, therefore, to be acquired in a non-syllogistic or indemonstrable manner, which intellectual operation is designated as being non-discursive. This non-discursive knowledge of indemonstrable propositions and terms was seen to mean that they must be acquired through an intuitive act of knowing the signification or comprehension of the terms themselves. Since the comprehension of a term is fundamentally grounded in that which it signifies, there is ultimately a reference to extra-mental reality. It is through thought's intentional nature of signifying that which is known in a thought that the truth or falsity of enunciations and the appropriateness of a definition in expressing the essence, or whatness, of the defined can be judged. In effect, the operations of forming enunciations and defining concept-terms require the knowledge of sensible singulars knowable through the powers of sense. It must be realized that though these operations are ultimately intuitive in that the union of subject-term to predicate-term, and the union of specific difference to genus, depend on an intuition of their union in the same sensible particular, this does not imply that these operations lack a rational discursive component. The act of defining incorporates an analysis or division of the genus, while the act of enunciating incorporates a syllogism

coming from an induction in which one concept-term is predicable of all the singular instances belonging to the other concept-term in each of the premisses permitting the union of the concept-terms to each other in the conclusion. Similarly, it must be realized that the syllogistic or demonstrative operation incorporates an intuitive component in the perception of the middle term as the cause of the union of the extremes, and without which there would be no rational inference from antecedent to conclusion. In other words, each of the three operations recognized in Aristotelian logic, defining a comprehension, enunciating a truth or falsity, and syllogizing through a cause, involve both intuitive and rational discursive faculties of the intellect; but, the knowledge of the union of the first two operations is due to the intuitive operation whereas the knowledge of the union of the third is due to the rational discursive operation of the intellect. Logic is concerned with examining operations of the rational discursive activity alone and determining how they may be valid. It does not examine the intuitive operation since this requires an extra-logical referent in its operation, that is, the extra-mental reality signified in thought and first known as an appearance acquired by means of the senses. In opposition to the rational discursive operation studied in logic, human intuition could be defined as immediate and instantaneous. Yet since there is a reference to sense cognition both for its operation and the knowledge acquired, it was necessary to examine human intuition by comparison to sense.

The examination of the various sense powers, both external and internal, was important to determine exactly the kind of knowledge man could acquire through them. This became evident when analyzing human experience, for there is much confusion as to the nature of experiential knowledge. It was seen that experience understood strictly in terms of sense cognition signifies the most perfect form of sense cognition possible because it is the state of sense cognition permitting a pragmatic response or reaction to an animal's environment. However, once sense experience is used by man for the more speculative or contemplative purposes of knowing and understanding reality, it was seen to be the most perfect form of knowledge of the phenomena. In this role, sense experience serves as a material principle of scientific knowledge, for it is the phenomena that must be laid down at the beginning of a scientific endeavour and against which all theoretical knowledge must in the end test itself for the truthfulness and validity of its claims. That is why experience was held to be that from which come the principles of science, and not that it is the principle of science itself. This became more evident once the influence of the intellect, represented by the term *logos*, in human experience was studied. It was then seen that the complexity of human experience

was due to the intellect ordering and organizing sense cognition in various ways and even transforming it into intellectual knowledge, even if only vaguely understood. This last point was made when *logos* was taken to indicate the inclusion of language and opinions, dialectically examined at the start of a scientific pursuit, as part of the phenomena. This examination helps to reveal the intelligible aspect of reality, the realm of substantial form vaguely perceived by the intellect, by bringing to light the “naive” thought structures and concepts expressed through the ways humans speak about their experiences in their contact with reality. But all this intellectual activity remains at the level of experience since its understanding of a universal is still with reference to sensible particulars. The principles of science, the universal known with reference to itself as something apart from the singular instances, are only acquired after having performed the different types of induction. So an examination of induction was required. This clarified how both concept-terms and immediate propositions appropriate for scientific use could be acquired by induction. It was seen that these inductions require much intellectual activity and, therefore, cannot be the simple product of an induction limited to the senses. A distinction was made between a sense induction, by which is acquired an appearance of a substance as a whole whose substantial nature is only incidentally perceptible to sense, on the one hand and, on the other, an induction from sense which starts from the prior-mentioned but includes other types of induction performed by the intellect, namely, a dialectical acquisition of universal phenomena, the induction used in defining concept-terms, and the induction of immediate propositions. It is only an induction from sense that could generate appropriate principles of scientific knowledge.

It was at this time that an intuitive operation of the intellect was brought in to compare it to the cognition generated by the senses because the induction was actually seen to be the way that the intellect habituated its capacity of perceiving the universal in the particulars. In fact, each time the intellect perceived a phenomenal indivisibility, it would perceive its proper object. The intuition of this object was determined to be a knowledge of both the existence and the essence of substances. Human intuition was therefore defined as an intellectual perception of a phenomenal indivisibility and the knowledge of its essence. Each part of the definition indicates a degree of intuitive knowledge: the first part could be described as a “touching” of the existence of a substance, whose essence is still potentially intelligible, and the second part, which may or may not follow the first, could be described as a “seeing” into the essence, an insight, so that the substance is actually intelligible. The

importance of sentiment, desire, and will in understanding was then explored, and the notion of admiring intuition was proposed to describe the initial intuition through which the intellect comes into contact with, and is touched by, the truth of reality as it is known to sense.

As mentioned in the Introduction of the dissertation, the topic of the Aristotelian noetic has generated an enormous amount of literature; yet, for whatever reasons, comparatively little of it has been devoted to studying the significance and nature of *nous* in *Posterior Analytics*, though it is explicitly mentioned even in several other places outside of II.19. Apart from what may be found in commentaries of this treatise, there seem to be very few lengthy studies of *nous* beginning from the perspective of Aristotle's logic. (The only exception we found was Kal's book.) In this respect, this dissertation could probably make a claim to some sort of originality in Aristotelian studies--if that still be possible after so many centuries of commentary--that could open the doors to different and new approaches to Aristotelian philosophy. One avenue could be to examine even further the two texts *Posterior Analytics* and *On the Soul* in each other's light to come to a better understanding of the nature of *nous* and of human thought and thinking in general. This could help show how *nous* is indeed an integral part of the human soul and how it can operate without having recourse to a divine *nous*, which was the position taken in defending our thesis. It could also better manifest that the operations examined in logic are an outgrowth of a natural activity performed by living human beings, and avoid the reduction of human thought to computer models of rational calculation. Human thought is an animate reality. There could be additional study of the relationships between the various logical operations and their correspondence to reality, especially through the intellect's act of signifying (something definite). The distinction made between the validity of thought, on the one hand, and its signifying truth or falsity, on the other, could guide these reflections. There was also a brief mention of a possible difference to be made between the Greek terms *sunienai* and *noein*. Is it valid to claim that the first signifies the understanding of a word or expression having no appearance other than the word(s) itself whereas the second signifies understanding a thought in relation to the appearance of the thing signified and known through sense experience? Closely related to this is the notion of viewing language as an "intelligible appearance" serving as an instrument and the means by which the intellect is able to make its own thoughts knowable to itself since it cannot operate without an appearance of some sort. This would call for an analysis of language as the repository of

the intellect's perception and knowledge of the non-sensible, that is, intelligible, aspects of reality. All these issues concerning language, sense, referent, thought, and the relationships between them are vital in understanding human cognition and yet, generally speaking, are equally ignored by logicians who study the *Posterior Analytics* and "psychologists" who study *On the Soul*. By seeing that signification can unite the two fields covered in these treatises, a whole new approach to studying these issues could be developed. Another theme that could be examined further is the relationship between the intellect and the intelligible, beginning with the understanding that the intellect's reception of the intelligible is accomplished by its making an intelligible. This would mean that thoughts only exist in individual intellects that have created them. The intelligible aspects of reality are not themselves thoughts but essences, which are the metaphysical counterparts of the thoughts created to signify them. What would these reflections add to the discussion of man's cognitive relationship to the universe and the human project of making sense and creating a meaning for one's life? One final point that could be developed is the place and role of sentiment, desire, and the relationship between the will and the intellect in its act of knowing and understanding. Aristotle makes many remarks throughout his corpus about the pleasure involved in contemplative activity; yet, many commentators discuss the process by which man comes to know reality either as if he were an insensitive cognitive creature or else as if pleasure were a hindrance to knowledge. In admiring intuition through the wisdom of Aristotelian philosophy, we must conclude that the desire to understand finds its origin mainly in an admiring intuition.

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Appendix A: The Aristotelian Corpus (Abbreviations of Works Cited)

Categories - Cat
On Interpretation - Int
Prior Analytics - Pr An
Posterior Analytics - Post An
Topics - Top
Sophistical Refutations - SR

Physics - Ph
On the Heavens - DC
On Generation and Corruption - GC
Meteorology - M
On the Soul - DA

Parva Naturalia - PN:
Sense and Sensibilia - SS
On Memory - Mem
On Sleep - Sl
On Dreams - Dr
On Divination in Sleep - DS

History of Animals - HA
Parts of Animals - PA
Generation of Animals - GA

Metaphysics - Meta
Nicomachean Ethics - NE
Eudemian Ethics - EE
Politics - P
Rhetoric - Rh
Poetics - Poet

Protreptics - Prtp

Appendix B: Posterior Analytics II.19

(The left-hand column indicates the chapter(s) or chapter and section(s) of the dissertation in which a passage or phrase or key word vis-à-vis the reference is discussed.)

- | | | |
|---------------------------|----------------|---|
| 2
2.1
2.2
2.3 | 99b 15 | Περὶ μὲν οὖν συλλογισμοῦ καὶ ἀποδείξεως, τὶ τε ἐκά-
τερόν ἐστι καὶ πῶς γίνεται, φανερόν, ἅμα δὲ καὶ περὶ ἐπι-
στήμης ἀποδεικτικῆς ταῦτόν γάρ ἐστιν. Περὶ δὲ τῶν ἀρχῶν,
πῶς τε γίνονται γνώριμοι καὶ τίς ἢ γνωρίζουσα ἕξις, ἐντεῦ-
θεν ἐστὶ δῆλον προσηρῆσαι πρῶτον. |
| 1.2
2.3
2.3 | 20
25
30 | Ὅτι μὲν οὖν οὐκ ἐνδέχεται ἐπίστασθαι δι' ἀποδείξεως
μὴ γινώσκοντι τὰς πρώτας ἀρχὰς τὰς ἀμέσους, εἴρηται
πρότερον. Τῶν δ' ἀμέσων τὴν γνῶσιν, καὶ πότερον ἢ αὐτὴ
ἐστὶν ἢ οὐχ ἢ αὐτὴ, διαπορήσειεν ἂν τις, καὶ πότερον ἐπι-
στήμη ἑκατέρου ἢ οὐ. ἢ τοῦ μὲν ἐπιστήμη τοῦ δ' ἕτερόν τι γέ-
νος, καὶ πότερον οὐκ ἐνοῦσαι αἱ ἕξεις ἐγγίνονται ἢ ἐνοῦσαι
λελήθασιν. Εἰ μὲν δὲ ἔχομεν αὐτάς, ἄτοπον· συμβαίνει
γὰρ ἀκριβεστέρας ἔχοντας γνώσεις ἀποδείξεως λαμβάνειν.
Εἰ δὲ λαμβάνομεν μὴ ἔχοντες πρότερον, πῶς ἂν γνωρίζοι-
μεν καὶ μαθηθάνοιμεν ἐκ μὴ προϋπαρχούσης γνώσεως; ἀδύ-
νατον γάρ, ὡσπερ καὶ ἐπὶ τῆς ἀποδείξεως ἐλέγομεν. Φα-
νερόν τοίνυν ὅτι οὐτ' ἔχειν οἶόν τε, οὐτ' ἀγνοοῦσι καὶ μηδεμίαν
ἔχουσιν ἕξιν ἐγγίνεσθαι. Ἀνάγκη ἄρα ἔχειν μὲν τινα δύνα-
μιν, μὴ τοιαύτην δ' ἔχειν ἢ ἔσται τούτων τιμιωτέρα κατ'
ἀκρίβειαν. Φαίνεται δὲ τοῦτό γε πᾶσιν ὑπάρχον τοῖς ζώοις. |
| 3.1
3
4
5
4.5 | 35
100a | Ἔχει γὰρ δύναμιν σύμφυτον κριτικὴν, ἣν καλοῦσιν αἴσθησιν·
ἐνούσης δ' αἰσθήσεως τοῖς μὲν τῶν ζώων ἐγγίνεται μονὴ τοῦ
αἰσθήματος, τοῖς δ' οὐκ ἐγγίνεται. Ὅσοις μὲν οὖν μὴ ἐγγί-
νεται, ἢ ὅλως ἢ περὶ ἃ μὴ ἐγγίνεται, οὐκ ἐστὶ τούτοις γνῶ-
σις ἕξω τοῦ αἰσθάνεσθαι ἐν οἷς δ', ἐνεστὶν αἰσθανομένοις ἔχειν
ἔτι ἐν τῇ ψυχῇ. Πολλῶν δὲ τοιούτων γινομένων ἤδη διαφορά
τις γίνεται, ὥστε τοῖς μὲν γίνεσθαι λόγον ἐκ τῆς τῶν τοιού-
των μονῆς, τοῖς δὲ μή. Ἐκ μὲν οὖν αἰσθήσεως γίνεται μνήμη,
ὡσπερ λέγομεν, ἐκ δὲ μνήμης πολλάκις τοῦ αὐτοῦ γινομέ-
νης ἐμπειρία· αἱ γὰρ πολλὰ μνήμαι τῷ ἀριθμῷ ἐμπειρία
μία ἐστίν. |

- 5.2 100a 6 Ἐκ δ' ἐμπειρίας ἢ ἐκ παντὸς ἡρεμήσαντος τοῦ καθόλου ἐν τῇ ψυχῇ, τοῦ ἐνὸς παρὰ τὰ πολλὰ, ὃ ἂν ἐν ἅπασιν ἐν ἐνῆ ἐκείνοις τὸ αὐτό, τέχνης ἀρχὴ καὶ ἐπιστήμης, ἔαν μὲν περὶ γένεσιν, τέχνης, ἔαν δὲ περὶ τὸ ὄν, ἐπιστήμης.
- 1.2 10 Οὔτε δὴ ἐνυπάρχουσιν ἀφωρισμένοι αἱ ἕξεις, οὔτ' ἀπ' ἄλλων ἕξεων γίνονται γνωστικωτέρων, ἀλλ' ἀπὸ αἰσθήσεως, οἷον ἐν μάχῃ τροπῆς γενομένης ἐνὸς στάντος ἕτερος ἔσται, εἴθ' ἕτερος, ἕως ἐπὶ ἀρχὴν ἦλθεν. Ἡ δὲ ψυχὴ ὑπάρχει τοιαύτη οὔσα οἷα δύνασθαι πᾶσχειν τοῦτο.
- Ἡ δὲ ἐλέχθη μὲν πάλαι,
- 5.3 15 οὐ σαφῶς δὲ ἐλέχθη, πάλιν εἴπωμεν. Στάντος γὰρ τῶν ἀδιαφόρων ἐνός, πρῶτον μὲν ἐν τῇ ψυχῇ καθόλου (καὶ γὰρ 6.5 αἰσθάνεται μὲν τὸ καθ' ἕκαστον, ἢ δ' αἰσθησις τοῦ καθόλου 100b ἐστίν, οἷον ἀνθρώπου, ἀλλ' οὐ καλλίου ἀνθρώπου) πάλιν ἐν τούτοις ἴσταται, ἕως ἂν τὰ ἀμερῆ στή καὶ τὰ καθόλου, οἷον τοι- 6 ονδὶ ζῶον, ἕως ζῶον· καὶ ἐν τούτῳ ὡσαύτως. Δῆλον δὴ ὅτι ἡμῖν τὰ πρῶτα ἐπαγωγῇ γνωρίζειν ἀνσγκαῖον· καὶ γὰρ 5 καὶ αἰσθησις οὕτω τὸ καθόλου ἐμποιεῖ.
- Ἐπεὶ δὲ τῶν περὶ τὴν
- 2.3 διάνοιαν ἕξεων, αἷς ἀληθεύομεν, αἱ μὲν αἰεὶ ἀληθεῖς εἰσίν, αἱ δὲ ἐπιδέχονται τὸ ψεῦδος, οἷον δόξα καὶ λογισμὸς, ἀληθῆ δ' αἰεὶ ἐπιστήμη καὶ νοῦς, καὶ οὐδὲν ἐπιστήμης ἀκριβέστερον 10 ἄλλο γένος ἢ νοῦς, αἱ δ' ἀρχαὶ τῶν ἀποδείξεων γνωριμώ- 7 τεραι, ἐπιστήμη δ' ἅπασα μετὰ λόγου ἐστὶ, τῶν ἀρχῶν ἐπι- 2.2 στήμη μὲν οὐκ ἂν εἴη, ἐπεὶ δ' οὐδὲν ἀληθέστερον ἐνδέχεται εἶ- 15 ναι ἐπιστήμης ἢ νοῦν, νοῦς ἂν εἴη τῶν ἀρχῶν, ἕκ τε τούτων σκοποῦσι καὶ ὅτι ἀποδείξεως ἀρχὴ οὐκ ἀπόδειξις, ὥστ' οὐδ' ἐπιστήμης ἐπιστήμη. Εἰ οὖν μηδὲν ἄλλο παρ' ἐπιστήμην γέ- 15 νος ἔχομεν ἀληθές, νοῦς ἂν εἴη ἐπιστήμης ἀρχή. Καὶ ἡ μὲν ἀρχὴ τῆς ἀρχῆς εἴη ἂν, ἢ δὲ πᾶσα ὁμοίως ἔχει πρὸς τὸ ἅπαν πρᾶγμα.