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# From vagueness and confusion toward clarity and distinctness in human knowledge. A comparison between Aristotle and Piaget.



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# INTRODUCTION

This thesis will be developed in two parts. The first and principal part will present Aristotle's conception of the common mode of procedure that is characteristic of the human intellect. The second part will attempt to determine in what measure a rapport may be established between the genetic psychology of Jean Piaget and this teaching of Aristotle.

The source and inspiration for the investigation is found in Book I of Aristotle's Physics. It is there that he announces the principle upon which his solution rests together with three signs which support his claim. In describing the most basic movement of the intellect in its search for knowledge, Aristotle says that the natural way is to start from things which are clearer and more obvious to us and proceed towards things which are clearer and more knowable by nature. However, he hastens to point out that those things which are known and obvious to us are certain "confused wholes" so that we must advance from generalities to particulars. He says:

> Innata autem est ex notioribus nobis via et certioribus, in certiora naturae et notiora.... Sunt autem primum nobis manifesta et certa confusa magis: posterius autem ex his fiunt nota elementa et principia dividentibus haec. Unde ex universalibus ad singularia oportet procedere.[1]

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[1]Saint Thomas, In I Physicorum, 1. 1, caput 1, n. 2. (Physics, I, ch. 1, 184a 17-18 and 22-24). Due to the awkwardness of many of the English translations of Aristotle we have found it advantageous to keep the texts of Aristotle in the William of Moerbeke translation as found in the Marietti edition throughout the

In short, Aristotle's principle may be formulated in this fashion: the human intellect moves from the more known to the less known and in this movement one passes from vagueness and confusion to clarity and distinctness.

The goal, then, of this first part of the thesis is to present an exposé of this principle held by Aristotle. Our considerations will remain within the confines of his thought in order to explore the ideas which prompted him to affirm this principle together with an explanation thereof.

In the first book of the Physics, from whence this principle is drawn, Aristotle provides three signs in support of his claim: one drawn from sense-perception; a second from the mode of defining and a third drawn from observing children. This last sign, the observation made regarding children, suggested the second part of the study. Aristotle remarked that a child began by calling all men "father" and all women "mother" and only later on distinguished each of them. He states the case in this fashion:

> Et pueri primum appellant omnes viros patres et feminas matres: posterius autem determinant horum unumquodque.[2]

Commenting on this passage Saint Thomas says: "the child learns the notion man, then this man who is called Peter and finally that this man is his father".[3]

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entire thesis. However the standard reference will be provided in parentheses immediately following the Latin reference.

[2]Ibid., caput 1, n. 5. (Physics, I, ch. 1, 184b 11-12).

[3]Ibid., l. 1, n. 11. In the course of this thesis texts from Saint Thomas' commentaries will be used to interpret the often concise and brief explanations furnished by Aristotle. Such a procedure seems admissible since Saint Thomas is recognized as one of the great commentators on the treatises of Aristotle.

Such an observation was the occasion which led this writer to explore the thought of Jean Piaget, a contemporary genetic psychologist. Piaget has spent forty years experimenting in the domain of child psychology in order to discover and analyze the development of intellectual knowledge. According to Piaget one cannot claim to understand mental functioning in the adult unless one has first understood the formation of these mental functions in the child. In fact, Piaget insists that there is only one way to understand mental activity and that is genetically.[4] Could such a theory have any rapport with the principle announced by Aristotle? To provide an answer to this question initiates one into the second part of the study.

There are two characteristics of Piaget's work that immediately attract the attention of one interested in philosophy and thus encourages an investigation such as we are about to undertake. The first characteristic is revealed in the very nature of his research. Piaget's genetic psychology is qualitative rather than quantitative. That is to say, he seeks to comprehend the quality and content of a concept which a child possesses at a given age. This procedure differs from the quantitative approach which is characteristic of behavioral psychology. The quantitative approach seeks to determine the presence and extension of a given concept at a given age without necessarily analyzing the quality of the concept under consideration. Piaget, however, is interested primarily in determining the quality and content of the concepts by a careful examination of the processes involved in their

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[4]Piaget defines genetic psychology as the science that "cherche à expliquer les fonctions mentales par leur mode de formation". La psychologie de l'enfant, collection "Que sais-je?; (Paris: P.U.F. 1966), p. 6.

formation.[5] Such a qualitative approach gives his thought, in a very general way, a common ground with that of philosophy insofar as philosophy, likewise, seeks to know things as they are in their very nature.

The second characteristic is more specific; it is characteristic of his entire theory. Repeatedly there appears throughout Piaget's work the notion that in the formation of any concept (invariant, to use Piaget's vocabulary) there is a gradual progression from vagueness and confusion to clarity and distinctness. A passage from Six études de psychologie, concerning the very beginnings of intellectual life in the child, makes this immediately evident.

> Au point de départ de l'évolution mentale il n'existe à coup sûr aucune différenciation entre le moi et le monde extérieur, c'est-à-dire que les impressions vécues et perçues ne sont rattachées ni à une conscience personnelle sentie comme un "moi", ni à des objets conçus comme extérieurs: elles sont simplement données en un bloc indissocié, où comme étalées sur un même plan, qui n'est ni interne, ni externe, mais à mi-chemin entre ces deux pôles. Ceux-ci ne s'opposeront l'un à l'autre que peu à peu.[6]

This polarization, according to Piaget, is accomplished in terms of an assimilation-accommodation process analogous to that found in biological development. Such a process, he maintains, is characteristic of all stages of intellectual life. In La construction de réel he announces it as a principle governing every stage of development. He says:

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[5]Piaget, (avec Fraisse), Traité de psychologie, t. VII, (Paris: P.U.F. 1963), p. 110.

[6]Piaget, J. Six études de psychologie (Genève: édition Gonthier, 1964), pp. 19-20.

> Ces transformations globales des objets de la perception et de l'intelligence elle-même qui les façonne peu à peu dénotent donc l'existence d'une sorte de loi d'évolution que l'on peut énoncer comme suit: l'assimilation et l'accommodation procèdent d'un état d'indifférenciation chaotique à un état de différenciation avec coordination corrélative.[7]

A principle such as this merits investigation and provokes reflection. It brings the second part of the study clearly into focus: to attempt to understand how Piaget conceives of this vagueness and confusion so that we might determine in what measure a rapport may be established between his thought and the principle stated by Aristotle.

In the light of the foregoing remarks the specific point around which this thesis develops becomes evident. It is in considering the role played by vagueness and confusion in the acquisition of knowledge in the respective positions that we hope to establish a common ground between Aristotle and Piaget. However, in order that this study be legitimate there are certain remarks that must be made at the outset lest the reader be misled into anticipating a one-to-one correspondence between the teaching of Aristotle and the experimental data of Piaget.

The first of these remarks calls attention to the fact that the work of Aristotle and Piaget belong to different disciplines: Aristotle's to philosophy; Piaget's to experimental psychology. Thus we cannot expect that they ask exactly the same question nor that they use the same methods to resolve the problem. In proof of this we find Piaget constantly insisting that he is not asking the philosophic question of how knowledge considered in general comes about; rather he confines

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[7]Piaget, J. La construction du réel (Neuchâtel: Delachaux et Niestlé, 1937), p. 309.

himself to asking how a particular concept comes to be. Such a question, he maintains, places him in the domain of a purely "positive" problem which can be determined by experimental methods.

> Instead of asking what knowledge is in general or how scientific knowledge (taken as a whole) is possible, which naturally presupposes a complete philosophical system, we can make a habit of confining our questions to the following "positive" problem: how do different forms of knowledge, rather than knowledge itself, develop? ... thus all problems are met on a historical and critical rather than an immediately philosophical perspective.[8]

Piaget's interest lies in discovering the actual concrete processes by which the child develops its first and basic intellectual concepts which he calls "invariants" or "coherent structures". He maintains that he is working in an area which is prior to the formulation of any laws of reasoning since, for him, the laws are but the result of certain characteristics of the concepts which have already been established. In proof of this the following passage is cited.

> Le problème reste donc entier, pour la psychologie, de comprendre par quel mécanisme l'intelligence en vient à construire des structures cohérentes, susceptibles de composition opératoire; et il ne sert de rien d'invoquer des "principes" qu'appliquerait spontanément cette intelligence, puisque les principes logiques sont le fait d'un schéma théorique formulé après coup, une fois la pensée construite, et non pas de cette construction vivante elle-même.[9]

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[8]Piaget, J. "Genetic Psychology and Epistemology", Diogenes, 1953, Vol. I, p. 51.

[9]Piaget, J. La psychologie de l'intelligence (Paris: Colin, 8e édition, 1965), p. 42.

Such a position will lead him to declare "that logic is the axiomatics of reason, (and) psychology of the intelligence is the corresponding experimental science".[10] Thus, in this way, Piaget claims that his psychology is independent of, prior to and yet a prerequisite for any philosophical investigation.

The second remark touches the very nature of this study. Since this is primarily a philosophical paper the reader must be aware that we are using Piaget's theory in a way which is foreign to his thought. To place his theory beside a philosophical position in order to determine what results would be forthcoming would not only be foreign but irrelevant as far as Piaget himself is concerned. And this for two reasons: the first, Piaget does not accord to philosophy the stature of a "science"[11]; second, he maintains that experimental psychology alone is sufficient to integrate and order the other disciplines.

Not only does he insist that he is not solving a problem on a philosophical level but he claims that philosophy has little of value to contribute to the domain of knowledge since it is not based on experimental data. He says,

> ... certes, féconde et même indispensable à titre d'introduction heuristique à toute recherche, elle (la réflexion spéculative) ne peut conduire qu'à élaborer des hypothèses, assui large soient-elles, mais tant qu'on ne recherche pas la vérification par un ensemble de faits établis expérimentalement ou par une déduction réglée selon un algorithme précis (comme en logique), le critère de vérité n'en peut que demeurer subjectif, sous les

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[10] Ibid., p. 37.

[11] Science is used by Piaget in the modern sense as a knowledge resulting from an experimental investigation rather than in the classical sense of a knowledge of things in their causes.

formes d'une satisfaction intuitives, d'une "évidence"...[12]

At best speculative reflection "conduit à ce qu'il faut appeler une sagesse ou une foi raisonnée, et ce n'est pas une connaissance du point de vue des critères objectifs ou interindividuels de vérité"[13]. Indeed this is the thesis of his work Sagesse et illusions de la philosophie.

> La thèse en est simple...: que la philosophie...constitue une "sagesse", indispensable aux êtres rationnels pour coordonner les diverses activités de l'homme, mais qu'elle n'atteint pas un savoir proprement dit, pourvu des garanties et des modes de contrôle caractérisant ce qu'on appelle la connaissance.[14]

Now just as philosophy has nothing to offer psychology, psychology, as understood by Piaget, is not subject to any other discipline but of itself is capable of directing and ordering the other sciences. In a recent conference, entitled "La psychologie, les relations interdisciplinaires, et les systèmes des sciences", he makes this point very clear. After discussing the relation between genetic psychology and all the other disciplines (exclusive of philosophy) he says,

> La psychologie occupe donc bien unc position centrale, et non seulement comme produit de toute les autres sciences, mais comme source possible d'explication de leur formation et de leur développement.[15]

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[12]Piaget, J. Sagesse et illusions de la philosophie (Paris: P.U.F., 1965), pp. 20-21.

[13]Ibid., p. 21.

[14]Ibid., p. 1. Also in the conclusion he writes: "cette synthèse raisonnée entre les croyances, quelles qu'elles soient, et les conditions du savoir est ce que nous avons appelé une "sagesse" et tel nous paraît l'objet de la philosophie." p. 281.

[15]Piaget, J. "La psychologie, les relations interdisciplinaires, et les systèmes des sciences", Conférence donnée au XVIII Congrès International de

The third remark, upon which we must insist at length, alerts the reader to the fact that it is not Piaget himself who invites the comparison between himself and Aristotle. He is willing to admit a certain common ground with "le fondateur de la biologie" for he says,

> Il y a dans Aristote ... une vue profonde qui est celle de la parenté entre l'organisation vitale (donc bien les "formes", structurales ou dynamiques) et les fonctions mentales, en particulier cognitives. C'est cette parenté que nous nous efforçons effectivement de soulinger et sommes prêts sous ce rapport à reconnaître qu'elle a été aperçue dès les travaux du fondateur de la biologie, ce qui ne date donc pas d'hier.[16]

However, it is the interpretation given to this relationship between vital functions and cognitive functions that renders their thought diametrically opposed.

> Mais pour ce qui est de la signification à conférer à cette parenté, si étroite soit-elle, il semble y avoir inversion de sens complète entre les vues aristotéliciennes et la perspective contemporaine.[17]

He explains the difference under a twofold aspect.

> Pour Aristote, en effet, l'âme est le moteur du corps, tandis que pour la psychologie, les fonctions cognitives sont l'une des résultantes de la vie organiques et motrice. Pour Aristote, d'autre part, l'inférieur est suspendu au supérieur, tandis qu'au point de vue évolutionniste le seconde dérive du premier par un processus historique, et, si direction il y a,

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psychologie (Moscou, 4-11 août 1966) cited in Bulletin de psychologie, t. XX, 5, no. 254, décembre 1966, p. 254.

[16]Piaget, J. Biologie et connaissance (Paris: Gallimard, 1967), p. 58.

[17]Ibid.

> elle est dué à des systèmes régulateurs et non point à une prédétermination finaliste.[18]

Thus he concludes by saying:

> Il y a donc là deux inversions fondamentales de sens et, si l'on voulait retenir la formule, il faudrait la renverser en "la forme du corps est l'âme" ou plus précisément "les formes organiques comprennent à titre de résultante nécessaire les formes cognitives".[19]

Now having made these three observations: first, that their thought belong to different disciplines; secondly, that they hold contrary positions regarding the role of philosophy among the sciences; thirdly, that they hold inverse views concerning the origins of cognitive functions, the writer still feels justified in making this comparison on two accounts. First, the proposed comparison concerns one point, and one point alone, i.e., the role played by vagueness and confusion in the acquisition of knowledge within the respective solutions. Secondly, that the study could prove fruitful provided that one adheres to the method to be proposed for the development of this thesis. That is to say, in the principal part of the paper a positive approach shall be taken, one providing a clear exposition of all elements relevant to Aristotle's teaching on the problem. In the second part, concerning the thought of Piaget, it seems advisable to adopt a tentative approach, i.e., one of inquiry or investigation. The goal of this section, as has already been pointed out, is simply to explore Piaget's genetic theory in order to determine in what measure our investigation may be verified. That is to say, to what degree might we claim a

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[18] Ibid.

[19] Ibid., p. 59.

rapport between Aristotle and Piaget based on the role played by vagueness and confusion in the acquisition of knowledge since this notion seems to have an essential part in their respective positions.

In the second part, then, it is imperative that Piaget speaks for himself. We must be attentive to his mode of procedure, the area in which he is working, the basic findings, the manner or way of expressing these results, together with the principles drawn therefrom. Although we have already indicated the precise area wherein we hope to establish a rapport, however, it will only be after an accurate summary of his theory has been presented that this judgment will be accessible. That is to say, only upon terminating the investigation of Piaget's theory will we be able to decide in what measure and to what degree one can establish a relationship between a philosophical position dealing with the most common mode of procedure proper to the human intellect and a modern theory of genetic psychology.

To accomplish this task the thesis will be divided into three parts. Part I deals with Aristotle's doctrine on the common mode which is characteristic of human knowing, which, in turn, consists of three chapters. Chapter 1 describes the general context of Aristotle's solution. Chapter 2 treats of the basic principle which states that man proceeds "from the more known to the less known." Chapter 3 shows that this movement is always "from the vague and confused to the clear and distinct."

Part II deals with the doctrine of Jean Piaget on the development of concepts and will, likewise, consist of three chapters. Chapter 1 presents certain preliminary considerations. Chapter 2 discusses the basic principle of Piaget's genetic psychology: that every structure has a genesis, and that every genetic activity takes

place between two structures. Chapter 3 indicates that this genesis is from a certain state of confusion toward differentiation and coordination.

Part III shall compare and contrast the theories of Piaget and Aristotle in order to determine in what measure a rapport may be established between them.

Chapter 1

# GENERAL CONTEXT OF ARISTOTLE'S SOLUTION

## I. LIMITS OF THE PROBLEM

A. The goal all men desire: science

B. Knowledge possessed prior to the search: common conceptions

C. Use of the term "common conceptions"

## II. "EX OPPOSITIS" ARGUMENT FROM DESCARTES

PART ONE

## Chapter 1

## THE GENERAL CONTEXT OF ARISTOTLE'S SOLUTION

The general context within which Aristotle discusses the common mode of procedure that is characteristic of the human intellect will be the concern of this chapter. This presentation sets forth the limits within which Aristotle conceived the problem thus providing the evidence for the principle which he maintains governs the common mode of procedure. These limits may be stated as follows: the goal desired by all men and the point of departure from which man moves toward the goal. Having once grasped how he conceived of these limits together with the relationship existing between them, one has sufficient grounds to see the wisdom of the principle upon which the solution is founded, namely, that the natural way for man to proceed is from the more known to the less known and this movement always implies going from a certain vagueness and confusion toward clarity and distinctness.

The two subsequent chapters in this part of the thesis will provide a detailed explanation of this principle. Chapter 2 will be concerned with the explanation of the expression "from the more known to the less known". Chapter 3 will be concerned with the passage from "vagueness and confusion toward clarity and distinctness".

To accomplish our present task, that of sketching Aristotle's view of the situation in its widest dimensions, we propose to develop it in two parts. The first

and major portion of the chapter concerns the goal all men desire together with a consideration of that which they possess prior to the search. Such an undertaking demands that we first understand the meaning of the term science, which is the goal sought by all men, and then we must recognize the nature of the knowledge man possesses prior to any formal search for knowledge or science. Essential to the understanding of this portion of the investigation is the notion of common conceptions and their characteristics together with a fundamental distinction between clarity and certitude. The second part of the chapter shall indicate the validity of Aristotle's position by an "ex oppositis" argument drawn from the theory of Descartes.

## LIMITS WITHIN WHICH ARISTOTLE FOCUSED THE PROBLEM

### SCIENCE – THE GOAL ALL MEN DESIRE

All men desire to know. Since knowledge is an equivocal term signifying the results of various kinds of knowing we must specify that the knowledge referred to in the principle "all men desire to know" is that knowledge which is called "science". The characteristic which differentiates science from knowledge is certitude. Now "science" can be understood either in the ancient or in the modern sense. Science, according to Aristotle, was a knowledge of things in their proper causes. He maintained that science is obtained when we know a given reality in all the causes which account for its being such and not otherwise.

> Scire autem opinamur unumquodque simpliciter, sed non sophistico modo, quod est secundum accidens, cum causam arbitramur cognoscere propter quam res est: et quoniam illius causa est, et non contingere hoc aliter se habere.[1]

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[1]Saint Thomas, In I Post. Analy. 1. 4, caput. (Posterior Analytics, I, ch. 2, 71b 8-14).

That is to say, science, according to Aristotle, is a perfect knowledge of a given reality. To be perfect knowledge this knowledge must be certain, and to be certain it must be a knowledge through causes. Should one know a thing in all of its causes then one possesses the most perfect kind of knowledge – scientific knowledge.

Science in the modern sense is "any reasoned knowledge that is universal and systematic".[2] The ideal scientific knowledge is to be found in mathematical physics, which uses mathematical calculations and a highly refined method involving experimentation, formation and verification of hypotheses.[3] The term "cause" as used in the modern sense is quite different from Aristotle's use of the term. Saint Thomas states that for Aristotle "cause" meant that from which something proceeds with a dependence in being: "...causae autem dicuntur ex quibus aliqua dependent secundum suum esse vel fieri."[4] In Book II of the Physics he makes a detailed study of the various kinds of causes, their number and their characteristics.[5] In modern science "cause" is often understood merely as an antecedent – consequent relationship, wherein a certain kind of phenomenon is linked to another in a certain unvarying and necessary way so that it can be considered an expression of a law of nature. In aristotelian terms, one might say that this type of science

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[2]Saint Thomas, The Division and Methods of the Sciences, (Questions 5 and 6 of the Commentary on the De Trinitate of Boethius), translated by Armand Maurer (Toronto: Pontifical Institute of Mediaeval Studies, 1963), introduction, p. x.

[3]Ibid.

[4]Saint Thomas, In I Physics, l. 1, n. 5.

[5]Saint Thomas, In II Physics, l. 6, caput III, n. 121 ff. (Physics, II, ch. 3, 194b 16 - 195b 3).

consists in forming generalizations rather than discovering universal principles.

However, whether one is concerned with scientific knowledge as understood by modern science or as understood by philosophy the question inevitably arises: how does one proceed to attain this knowledge? What is the fundamental procedure governing the activity of the intellect in its search for science? To answer this question Aristotle took cognizance of the existing situation: he recognized, on the one hand, the kind of knowledge which all men desire, and, on the other hand, he recognized the kind of knowledge which men possess prior to the search for this knowledge or science.

## COMMON CONCEPTIONS – THE POINT OF DEPARTURE

In contrast to this knowledge, which is called science, common experience testifies that man has a vast array of vague, confused and hazy ideas which are prior to and in no way the effect of strict scientific investigation. These common conceptions[6] have often been put in question precisely because of their characteristics of vagueness and confusion. Could such notions contribute, in any way whatsoever, to man's quest for science? For instance, if the average man were questioned as to whether he knew the meaning of "quantity", "place", "time", "number", "sameness", "difference", "unity", "existence", "cause", or "being" he would probably reply in the affirmative; nevertheless he would find it difficult to supply a precise definition. Although certain that such realities exist, the knowledge of their precise nature

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[6]This name has been assigned to these notions for two reasons: first, insofar as they are the common possession of all men; secondly, insofar as they, in themselves, contain an element that is common.

remains vague and confused. These notions lack the very characteristics which man's scientific knowledge should possess. Not only do they lack these qualities but they seem to be defined by the very opposite: vagueness and confusion. Since precision and clarity are constitutive of science how then could vague and common knowledge be an adequate starting point for the acquisition of science? Is it feasible that common knowledge ever function as a principle from which clear and distinct knowledge proceeds? Would this not be an attempt to arrive at the clear and the distinct from the vague and the confused?

Strong as the case may seem to be against beginning with our common conceptions in the search for science, experience again teaches us that no matter what area man wishes to investigate he begins with some knowledge, albeit vague and confused.

Examples furnished by Aristotle

In support of this claim, that man's knowledge begins with common conceptions, Aristotle himself provides three examples. The first example points to the fact that this mode of procedure seems most natural to man. It is found in the De Caelo where Aristotle considers the very ordinary words "both" and "all". It seems that all men naturally use the term "both" for any two things, while the term "all" is applied to three or more.

> Quae enim duo, ambo dicimus, et duos ambos, omnes autem non dicimus; sed de tribus hanc appellationem dicimus primum. Hoc autem, quemadmodum dictum est, propter naturam ipsam sic inducentem, sequimur.[7]

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[7]Saint Thomas, In I De Caelo, 1. 2, caput. (De Caelo, I, ch. 1, 268a 16-20).

Saint Thomas, commenting on the passage, provides valuable insight into Aristotle's concise thought. He says:

> Si enim aliqua sunt duo, dicimus quod sint ambo, et duos homines dicimus ambos; non autem de his dicimus omnes, sed primo hoc vocabulo utimur circa tres. Et istum modum loquendi sequimur communiter omnes, propter hoc quod natura ad hoc nos inclinat. Ea enim quae sunt propria singulis in modo loquendi, videtur provenire ex propriis conceptionibus uniuscuiusque; sed id quod observatur communiter apud omnes, videtur ex naturali inclinatione provenire.[8]

Note the elements stressed by Saint Thomas: first, that this is the common mode of procedure among men; second, such a common way of proceeding seems to come from a natural inclination in our way of knowing; third, these common conceptions are prior to any deliberate and scientific endeavor to learn.

The second example concerns the notion of nature. Man begins the study of nature by relying on a certain knowledge already possessed. Man has some experience of nature, natural things, and operation of natural things before the investigation ever begins. That is to say, the term "nature", although not properly defined, bears some intelligible content since man can distinguish between a natural thing and an artifact. Aristotle brings this situation into focus by stating that all men know that nature is and what is meant, in general, by the term. Such knowledge then serves as a basis for discovering a proper definition of nature. To attempt to demonstrate that nature is is absurd since it is immediately evident that things are.

> Quod autem est natura tentare demonstrare, ridiculum est. Manifestum enim quod huiusmodi rerum sunt multa:

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[8] Ibid., n. 6.

> demonstrare autem manifesta per immanifesta, non potentis iudicare est propter ipsum et non propter ipsum cognitum.[9]

Saint Thomas interprets the concise thought in this fashion:

> Naturam autem esse, est per se notum, inquantum naturalia sunt manifesta sensui. Sed quid sit uniuscuiusque rei natura, vel quod principium motus, hoc non est manifestum.[10]

Or again, with regard to the study of the soul the same remarks are apropos. Man possesses a pre-scientific knowledge of the soul through a certain lived experience. It is from such experience that the soul is known as that by which the body is, is alive and acts, and from which one proceeds to formulate a proper definition of the soul. Aristotle maintained that no one errs in recognizing that the soul is and what is meant, in general, when the term is used. The difficulty arises when one tries to formulate a proper definition. He says: "omnino et penitus difficillimorum est, accipere aliquam fidem ipsa".[11] Again turning to Saint Thomas we find a helpful explanation in two different sources. Commenting on the De Anima he says:

> haec autem scientis scilicet de anima, utrumque habet: quia certa est, hoc enim quilibet experitur in seipso, quod scilicet habeat animan, et quod anima vivificet.[12]

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[9]Saint Thomas, In II Physics, l. 1, caput 96. (Physics, II ch. 1, 193a 3-5).

[10]Ibid., n. 148.

[11]Saint Thomas, In I De Anima, l. 1, caput 402a 11. (De Anima, I, ch. 1, 402a 11).

[12]Ibid., n. 6.

In the De Veritate he makes the point very clear that one is certain that he has a soul from the lived experience; however the problem arises when one tries to give a proper definition.

> secundum hoc scientia de anima est certissima, quod unusquisque in seipso experitur se animam habere; et actus animae sibi inesse, sed cognoscere quid sit anima difficilimum est.[13]

In the preceding examples the characteristics of vagueness and confusion have been brought to the fore. However, despite these characteristics which seem to hamper knowledge there is another aspect of this rudimentary knowledge that must not be overlooked. This first knowledge, no matter how vague and confused (with respect to content) can be verified in sense experience. Before one possesses any scientific knowledge such as the nature of motion or of life one can point to a bird in the sky and say: "Look there! There is motion." Or one can await the first spring flower as it pushes through the soil and say: "Look there! There is life and growth."

The coexistence of these opposite characteristics is precisely that which permits, in the final analysis, the resolution of the problem concerning the acquisition of knowledge by the human intellect. These common conceptions, vague and confused though they be, provide the bedrock of all science. Their certitude, verified in sense experience, grounds man's knowledge in reality; the need to dispel vagueness and confusion marks the area of actual progress in knowledge.

This view, which maintains that all science begins with a knowledge which

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[13]Saint Thomas, De Veritate, q. 10. a. 8, ad. 8.

is pre-scientific, is not only characteristic of Aristotle's thought but of the whole of Greek thought in general. Now lest one tend to doubt the distinction between clarity and certitude we will distinguish between these terms by means of etymology, common experience and an analogy.

Distinction between clarity and certitude

Etymology

The word "clarity" first means "brilliancy", "splendor" or "glory"; secondly, it means "clearness of shape, outline or sound"; and thirdly, it means "directness, orderliness and precision of thought or expression".[14] The word originates in the Latin "clarus". The first meaning of which relates to sight, as when one speaks of something being "bright", "shiny"; secondly, the word relates to hearing as a "clear voice"; and thirdly, the word may mean "manifest", "plain", "evident" or "intelligible".[15] The English word "evident" is to be taken here in the sense of plainly visible.

The word "certitude" is taken from the word "certain" meaning "determined", "fixed", "precise" or "exact". The second meaning is "implied or thought" as of certain people; the third, fourth and fifth meanings carry the significance "sure", "dependable", "no doubt".[16] This word stems from the Latin "certus".

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[14]Webster, The New International Dictionary, 3rd edition, (Springfield: G. & M. Merriman Co., 1963), p. 416.

[15]Lewis-Short, Latin Dictionary (Oxford: At the Clarendon Press, 1958), pp. 348-350.

[16]Webster, (2nd edition), p. 441.

The first meaning given for "certus" is "determined", "resolved", "fixed", "settled"; the second meaning is applied to all those elements that remain constant, fixed or unchangeable.[17] No mention is made of clarity when speaking of certitude. Hence neither of these terms, etymologically, implies the other.

Common experience

The difference between these two terms may be illustrated by relying on common experience. Take as an example seeing something in the distance. That there is something present is manifest but one may be unable to determine exactly what it is. It might very well be a tree, an animal or a man. Now supposing, as one draws nearer, a figure of a man is recognized; does this imply that one can determine, as yet, whether it is a stranger or a friend? Note that although one is unable to name a thing exactly as it is from the very beginning this does not lessen or destroy the certitude that such a reality is present. This first knowledge, vague as it is in content, provides the minimum degree of knowledge sufficient to name a thing as one knows it at the time. For the best a man can do is to name a thing as he knows it.[18] This first knowledge, vague and confused though it be, provides the basis for further investigation in order to determine whether this be simply an inanimate object, an animal or a man. Even if one could name, quite accurately, the being in question as a "man" it is still not evident that this man is a stranger or a friend, Peter. This example should suffice to indicate that the certitude of a thing's

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[17] Lewis-Short, p. 320.

[18] Saint Thomas, Ia, q. 13, a. 8, ad. 2.

existence does not coincide necessarily with the clarity and distinctness as to what it is by nature. Certitude does not, automatically, dispel vagueness and confusion.

Lest one conclude that to reduce the spatial distance between the knower and the reality which is known is sufficient in order that clarity and certitude coincide, consider another example wherein space or distance is not a factor. Everyone, in his common everyday experience, has encountered motion. At every turn one can point to an infinite variety of movements, but how many people are qualified, on the strength of these observations, to state what motion is in itself? How many could formulate a proper definition of motion? Hence the question: does the certitude of the reality (in this instance "motion") guarantee that one possesses a clear and distinct knowledge of the very nature of motion in itself? Common experience replies in the negative. Examples, drawn from common experience, could be multiplied but let these two suffice to indicate the difference existing between the terms in question.

An analogy

The difference between these two terms is heightened by an analogy. Aristotle claimed that the sense of touch is the most basic, primary, and important sense in animals. Touch, he says, is the essential mark of life: "Hoc autem tactu, determinatum est vivere."[19] It is most basic in the sense that insofar as an animal is a sensitive organism, it might happen that it lacks other senses but it

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[19]Saint Thomas, In III De Anima, l. 18, caput 435 b 16. (De Anima, III, ch. 13, 435b 16).

cannot lack touch.[20] Because of this intimate link with the body it would be true to say that without it, it is impossible to have any other sense.[21] It is the only sense which we must have; all other senses which animals have are not for being but for well-being: "Alios autem sensus habet animal, sicut dictum est, non propter esse, sed propter bene."[22] Thus it would be true to say that the loss of this sense brings about the death of the animal: "manifestum igitur, quod necesse hoc solo privata sensu animalia mori."[23]

Now granting the importance of its role as a mark of life, and as the basis of all the other senses, what does it provide by way of value? "Touch is called the sense of certitude while sight is called the sense of distinction, clarity and representation."[24] By the sense of touch one is able to verify the object for oneself. The ultimate criterion for certitude is experience. "Touch is the ultimate sense of substance, of experience and of nature"[25]; nevertheless it provides very little in the way of representation. One can in no way speak of it as a sense of clarity and distinctness. These terms refer to the sense of sight, as a more objective and perfect sense.[26] The fact that touch does not provide clarity in no way detracts from the

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[20]Ibid., 435b 5.

[21]Ibid., 435a 13.

[22]Ibid., 435b 20.

[23]Ibid., 435b 5.

[24]Charles De Koninck, "Sedeo, Ergo Sum", Laval Theologique et Philosophique, VI (1950, no. 3), p. 345.

[25]Ibid., p. 346.

[26]Ibid., p. 443.

certitude possessed; it simply means that another sense provides the aspect of clarity. Hence sight is considered the more perfect, objective, less material and thus considered as the instrument par excellence of knowledge.[27] But it still remains that the concrete, ultimate verification rests with touch.

At this point the analogy between the sense of touch and the sense of sight, on the one hand, and the knowledge one first possesses and the knowledge one hopes to possess, on the other hand, begins to emerge. The knowledge afforded by touch is certain as to the existence of the object but remains confused and vague as to what has been encountered, while the sense of sight is akin to the clear knowledge of what the thing is itself. The knowledge acquired by touch can be compared to the knowledge we have in our common conceptions (i.e., certain but vague), while the knowledge acquired by way of sight may be compared to our proper conceptions (i.e., distinct and precise).[28]

Now to this point in our presentation, the term "common conceptions" has been applied to those terms found in the ordinary language, habitually employed by all men, which upon investigation are found to possess a certain degree of vagueness and confusion. However, this term "common conceptions" does not belong first and foremost to these notions, rather this term is used most properly in another context. Hence it would prove advantageous to investigate this area wherein the term is most properly used in order that it may shed light on the use of this

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[27] Ibid.

[28] Proper conception is the result of a scientific investigation; a definition, it is characterized by clarity, precision and distinctness. This notion shall be discussed a little further on in this chapter.

term with respect to common language notions.

The original meaning of the term "common conceptions" is found in the De Hebdomadibus of Boethius. He says: "communis animi conceptio est enunciatio quam quisque probat auditam".[29] Note that a common conception is an enunciatio which immediately implies something complex, i.e., it is composed of terms which must themselves be common, in the sense of possessing a universal character. He divides the enunciatio into two groups: those which in themselves are per se nota to all men and those which are per se nota to the learned. The first or the most common are those which are per se nota to all men and this on two accounts. They are the most common or universal principles ("dignitiates" to use Aristotle's term) which are presupposed to the acquisition of all science. They are known to all men. That is to say they are the most basic and universal principles from which all men proceed in their search for knowledge. Boethius provides examples: "si a duobus aequalibus aequalia demas, quae relinquuntur, aequalia esse."[30] Under the two aspects already mentioned, then, are these enunciationes considered most common: in themselves, since they are the first and most universal principles from which one proceeds in any science; second, insofar as they are known to all men.

The second group Boethius mentions as belonging to the things which bear the title enunciatio are those which are per se nota to the learned. Again he provides

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[29]Saint Thomas, Opuscula Theologica, Vol. II; In Boetii Hebdomadibus, 1, 1, textus Boetii, n. 6.

[30]Ibid., n. 8.

an example: quae incorporalia sunt, in loco non esse".[31] Now these common conceptions are also, in themselves, most common and universal, however, they are not most common insofar as they are not known to all men but are only known to the learned.

Returning now to the common conceptions which have been discussed in the first part of this chapter we can find ground for a certain justification in the use of this term with respect to these common language notions. It is evident that the realities which these common conceptions represent, such as quantity, motion, soul, etc., are not in themselves the most common or universal realities when compared with the "dignitates" of which Boethius was speaking. However, insofar as they are known to all men they may be considered as being more common than those common conceptions which are only per se nota to the learned. Hence compared with the "dignitates" they are less common and less universal since they are not presupposed to the acquisition of all knowledge, but these same realities possess a certain degree of universality since they are presupposed in the acquisition of one or other of the sciences. For example, a pre-scientific knowledge of motion is presupposed to the investigation of motion, in general, as well as the specific kinds of motion studied in the various sciences. Likewise, a pre-scientific knowledge of the soul is presupposed to the knowledge of psychology, in general, and to the various branches of philosophy.

In the light of the foregoing remarks we may summarize as follows: common language notions have a claim to the term "common conceptions". They are in

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[31] Ibid., n. 9.

themselves less universal in comparison with the "dignitates", nevertheless insofar as they are known by all men one might justly say that they have a greater claim to the title than those which Boethius claimed were per se nota to the learned.

In concluding this first section of our chapter the following observations flow from the foregoing discussion: there is no attempt on the part of Aristotle to escape the limitations of human knowing in order to formulate a coherent theory of knowledge. He recognized the paradox that confronts man: between that which he desires and that which he possesses prior to the search. Hence his theory rests between these two poles. The point of departure, no matter how apparently impoverished, and the goal to be attained are integral parts of the one general theory. There is no rupture between that which is first known and the term of a scientific investigation.

## DESCARTES' VIEW OF THE PROBLEM

Should one wish to justify the validity of Aristotle's principle, then a study of Descartes' position on this same problem would prove advantageous.[32] Let us, very briefly, indicate a few points which will put into relief the reasonableness of Aristotle's position. Whereas Aristotle exemplified the Greek tradition by maintaining that all science begins with pre-scientific knowledge, Descartes stands as the originator of a whole new current of thought, which will become characteristic of all of modern philosophy, insofar as he maintained that pre-scientific knowledge should

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[32]For a detailed discussion of this problem see: Sister Edward Mary Houlihan, o.p. "Descartes and Aristotle on common conceptions", unpublished licenciate thesis, Université Laval, July, 1965.

be suspended or rejected until a method and point of departure could be established which would insure, from the outset, the clarity and certitude demanded by science. Recall the first of his four logical precepts wherein he demands that nothing be accepted as true unless it be clearly and evidently so.

> ...ne recevoir jamais aucune chose pour vraie que je ne le connusse évidemment être telle; c'est-à-dire, d'éviter soigneusement la précipitation et la prévention; et de ne comprendre rien de plus mes jugements que ce qui se présenterait si clairement et si distinctement à mon esprit que je n'eusse aucune occasion de le mettre en doute.[33]

The essential demand of the third precept is that one begin with notions that are simple and easy to know. These "simple natures" are defined in Règle III.

> nous n'appelons simples que celles dont la connaissance est si claire et si distincte que l'esprit ne les puisse diviser en plus grand nombre dont la connaissance soit plus distincte.[34]

Of these "simple natures" we shall mention only two but they shall adequately serve our purposes. The first is that of "motion"; the second is that of the "soul". Descartes vehemently denounced Aristotle's definition of motion claiming that it was forged by an intellectual to obscure a simple reality. He says, "...celui qui promène dans une salle, fait bien mieux entendre ce que c'est que le mouvement, que ne fait celui qui dit: est actus entis in potentia prout in potentia"[35]. "Car qui

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[33]Descartes, Discours de la méthode, II, (bibliothèque de la Pléiade, Paris: Gallimard, 1953), p. 137. All references are from the Pléiade edition.

[34]Règles pour la direction de l'esprit, XII, p. 81.

[35]Lettre à Mersenne, 16 octobre 1639, p. 1059.

comprend ces mots? ... On doit dire qu'il ne faut jamais expliquer les choses par des définitions de ce genre."[36]

Reflect for a moment on what is happening. Descartes, in this instance, demands that one accept the certitude found in a common conception without admitting the conditions under which it exists, i.e., that it is simultaneously present with vagueness and confusion. In fine, Descartes elevates a common conception to the stature of a proper conception (by identifying certitude and clarity). Thus as soon as one knows that a thing is, ipso facto, one has an equal degree of clarity as to what the thing is in itself.

The second example of a "simple nature" which we shall consider is that of the "soul". In this instance we find Descartes using just the reverse of the foregoing reasoning. With regard to the nature of the soul and its relation to the nature of man Descartes argues in this fashion:

> ... je connais avec certitude que j'existe, et que cependant je ne remarque point qu'il appartienne nécessairement aucune autre chose à ma nature ou à mon essence, sinon que je suis une chose qui pense, je conclus fort bien que mon essence consiste en cela seul, que je suis une chose qui pense ou une substance dont toute l'essence ou la nature n'est que de penser. Et quoique peut-être ... j'aie un corps auquel je suis très étroitement conjoint; néanmoins, parce que d'un côté j'ai une claire et distincte idée de moi-même, en tant que je suis seulement une chose qui pense et non étendue, et que d'un autre j'ai une idée distincte du corps, en tant qu'il est seulement une chose étendue et qui ne pense point, il est certain que ce moi, c'est-à-dire mon âme, par laquelle je suis, est entièrement et véritablement distincte de mon corps, et qu'elle peut être ou exister sans lui.[37]

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[36]Règle XII, p. 87.

[37]Méditations, VI, pp. 323-324.

What is one to conclude from this example? In this instance we find Descartes rejecting any positive value that common knowledge might afford. Common experience reveals that man is not essentially a soul or "une chose qui pense". In effect Descartes is demanding that man accept a definition that stands in direct contradiction to that which can be verified in experience.

In making this brief comparison between these two "simple natures" a certain confusion in Descartes' thinking becomes apparent. Herein is revealed a marked discrepency in Descartes' attitude toward common knowledge. In the first example (that of motion) he accepts common knowledge (but wrenched from its proper setting) as being sufficient unto itself. In the other example (that of the soul), he rejects common knowledge and demands that his argumentation alone be accepted. Would these examples not indicate that Descartes was not as free from common conceptions as he thought himself to be? Unwittingly he did one of two things: either he distorted their nature by elevating them to a position of a proper conception (a stature they cannot support, for although they possess the requisite certitude they lack the quality of clarity) or he demanded that common conceptions be rejected and that one accept that which is manifestly contrary to human experience. Descartes' position is admirably described by Saint Thomas. In I Metaphysics Saint Thomas says, "Quicumque per suam rationem removet aliqua, quae sunt apud eum magis nota quam ipsa positio, inconvenienter ponit."[38]

Thus in a very brief and summary fashion we have seen that Descartes' theory serves as an indirect proof of the validity of Aristotle's position that one cannot escape

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[38]Saint Thomas, In I Meta. 1. 14, n. 217; cf. also: In IV Meta. 1. 15, n. 710.

common conceptions in one's search for science.

## CONCLUSION

By way of concluding this chapter let the following points be made. First, Aristotle's distinction between "clarity" and "certitude" permitted a twofold division of knowledge: knowledge that is simultaneously vague and confused yet certain (as in the case in common conceptions or our common language notions) and knowledge that is clear, precise and proper (corresponding to the demands of science as in the case of proper conceptions). Upon inspection, these two areas were not found to be contradictory and irreducible situations from which there is no issue but rather an accurate picture of the human condition. Knowledge is to be found between these two poles, each making its specific contribution to the knowing process. The common conceptions ground human knowledge in reality (i.e., one is certain that something is). However, the concomitant vagueness and confusion, with respect to content, affords the area of actual progress in knowledge. Dispelling vagueness and confusion leads to the formation of a proper concept, which knowledge man did not previously possess. Between these two: the origins of knowledge and the term of completion, there is true growth, or passage or discovery.

Secondly, the reliance on common conceptions as the basis of all knowledge has a decided advantage. This first knowledge which gives immediate and certain contact (or verification) with reality, while remaining vague and confused as to exactitude of meaning, provides the means by which man passes to scientific knowledge without demanding a complete rupture between that which is first known and that which is finally understood.

Thirdly, beginning the quest for science with common conceptions avoids "system-building". "System-building" arises when one substitutes proper conceptions for common conceptions as the starting point of knowledge. All subsequent knowledge may follow with rigorous logical necessity but since the point of departure has been severed from the certitude derived from sense experience, conclusions may be drawn that are absolutely contrary to reality or the order of nature. The classic example of this type of thinking is to be found in the works of Spinoza. In Part I of his Ethics he sets forth certain definitions which he wishes all to accept. Three examples shall be provided to illustrate the point in question. In each instance we find his definition is far beyond what is first known in our common conceptions concerning "cause", "substance", and "God".

> I understand that to be cause of itself (causa sui) whose essence involves existence and whose nature cannot be conceived unless existing.
>
> .....
>
> I understand substance to be that which is in itself and is conceived through itself: I mean that, the conception of which does not depend on the conception of another thing from which it must be formed.
>
> ..... .....
>
> God I understand to be a being absolutely infinite, that is, a substance consisting of infinite attributes, each of which expresses the eternal and infinite essence.[39]

Such definitions are far from those with which Aristotle would begin were he to investigate anyone of the aforementioned realities – cause, substance, God. What is presented in the definitions of Spinoza as the starting point from which a study would begin are in reality proper scientific definitions which are the results

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[39]Spinoza, Ethics, Part I, p. 1.

of a long and serious investigation. This type of definition is the goal toward which one advances and not the point from which one begins. Since Aristotle insisted that scientific knowledge began with pre-scientific knowledge which grounded man in common experience, one can never speak of his thought as being a "system".

Thus having presented the general dimensions of the situation as recognized by Aristotle we are now ready to investigate, at closer range, what he understood by moving from "the more known to the less known."

Chapter 2

# FROM THE MORE KNOWN TO THE LESS KNOWN

## I. EXPLANATION OF THE PRINCIPLE

A. Man's first knowledge is of sensible things which are sensible in act and intelligible in potency

B. Man's knowledge consists in knowing: that a thing is, what it is said to be and what it is in itself

C. Relation between the reality which is first known and the whole of reality: more known to us and in itself

## II. SIGNS OF VALIDITY OF THIS PRINCIPLE

A. Doctrine on naming according to Aristotle

B. Testimony of Werner Heisenberg

Chapter 2

# FROM THE MORE KNOWN TO THE LESS KNOWN

In the foregoing chapter we sketched the general framework of Aristotle's solution to the problem concerning the common mode of procedure that is characteristic of the human intellect. The central task of this chapter is to provide a detailed explanation of the factors involved in that aspect of the principle which says that man proceeds "from the more known to the less known". The explanation will be divided into three parts. The first part will answer the question: what is first and most known to man? To which Aristotle replied: sensible material things. The second part will describe the kind of knowledge man has of these sensible things. Such a consideration leads to the following distinctions: "that a thing is", "what it is said to be" and "what it is in itself". The third part of the explanation will point out the distinction in the term "more known" between that which is "more known to us" and that which is "more knowable in itself".

As a sign of the validity of this position evidence will be drawn from two sources: first, from Aristotle's doctrine on naming; the second, from Werner Heisenberg's remarks on the value of common language notions.

## EXPLANATION OF THE PRINCIPLE: FROM THE MORE KNOWN TO THE LESS KNOWN

Let us return to the original statement of the principle upon which Aristotle's solution rests. Recall that he states the case very simply by saying that the natural way

to proceed is to start from things which are more knowable to us and proceed to those things which are clearer and more knowable by nature.

> Innata autem est ex notioribus nobis via et certioribus, in certiora naturae et notiora.[1]

Now a legitimate question may be asked: what things are first known to us? Common experience replies: sensible material things. Those realities which are first known, and known most certainly, are those things verified by sense experience, i.e., by touching, smelling and seeing. This testimony (since confirmed by the experimental data of Jean Piaget[2]) let Saint Thomas to declare that the beginning of our knowledge is in sensible things which are intelligible in potency: "principium cognitionis nostrae est a sensibilibus, quae sunt materialia, et intelligibilia in potentia."[3]

Man's first knowledge is of sensible things

Since the beginning of our knowledge is found on the sense level[4], the senses provide man's first and immediate contact with reality. They are the medium between things of the material world and our intellectual knowledge.[5] But this first knowledge, acquired by the senses, only provides a knowledge of the most external aspects of a given reality.[6] Sense knowledge does not tell man what things are in

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[1]Saint Thomas, In I Phy., l. 1, caput, n. 2.

[2]Piaget, Jean. La construction du réel chez l'enfant. Neuchâtel: Delachaux et Niestlé, 1950, p. 311 ff.

[3]Saint Thomas, In I Phy., l. 1, n. 7.

[4]Saint Thomas, In I Meta., l. 2, n. 45.

[5]Saint Thomas, De Ver., q. 1, a. 11c.

[6]Piaget, Jean, La construction du réel, p. 312 ff.

themselves, because the "senses arrive at the quia, but never at the propter quid"[7]. It is the propter quid, that is, what things are in their very nature, which the intellect seeks to know.

However, Aristotle's acceptance of this principle that the beginning of our knowledge is in the senses never led him to identify the knowledge proper to the senses with the knowledge proper to the intellect. He avoided two errors: first, that the knowledge acquired by the senses is the sum total of knowledge possible (i.e., it exhausts all aspects of reality); second, that the knowledge possessed by the intellect is found, in identically the same way, in the sensible material world.

Between these two orders, that of the senses and that of the intellect, Aristotle insisted upon an intimate link, on the one hand, and a profound difference, on the other hand. The intimate link: the senses ground the certitude of knowing in external reality and in this respect the certitude of intellectual knowledge depends on the certitude of sense knowledge.[8] The profound difference resides in the fact that sense knowledge concerns the singular, whereas the intellect comprehends the universal: "Nam, cum sensus sit cognitio particularium, intellectus ... universali comprehendit."[9] Or again, the knowledge of the senses bears on the singular and is prior to the knowledge of the intellect which concerns the universal: "... quia sensus cognitio, quae est singularium, praecedit cognitionem intellectus

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[7]Saint Thomas, In I Meta., l. 1, n. 30. "... sensus cognoscat quia, tamen, non propter quid cognoscit".

[8]Saint Thomas, De Ver., q. 12, a. 3, ad. 2 and ad. 3.

[9]Saint Thomas, Meta., proem.

in nobis, quae est universalium."[10] Moreover, the senses grasp only the external properties of material things whereas the intellect seeks to know things in their very nature.[11]

From the vast and varied data, provided by the senses, the intellect "draws out" or "abstracts" the intelligible content. This intelligible content may be described as the common element which is present in a given reality despite all the individuating circumstances. That is to say, the human reason grasps unity in multiplicity rather than multiplicity in unity.[12] It has the power to "recognize", "draw out", "seize" or "abstract" this common element or essential nature leaving aside such accidental properties as color, shape, size, etc. For example, the intellect recognizes "animal" when confronted with "elephant", "man" and "mouse". Saint Thomas states the case very well when he says that the proper object of the human intellect is the nature of material things: "intellectus autem humani, qui est conjunctus corpori, proprium objectum est quidditas sive natura in materia corporali existens."[13]

To this point in our discussion the terms "intelligible meaning", "intelligibility", "essence" or "nature" have been used interchangeably to describe that which the intellect grasps of material reality. Now we must recognize that this

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[10]Saint Thomas, In I Phy., l. 1, n. 8.

[11]Saint Thomas, I, q. 107, a. 4; q. 57, a. 1, ad. 2.

[12]Mauer, op. cit., p. xxxiii.

[13]Saint Thomas, I, q. 84, a. 7, cf. De Anima III, l. 8, n. 705, I, q. 85, a. 6.

intelligibility exists in a twofold manner: in the individual sensible thing as that which accounts for its specific nature and in the intellect as a universal. It will be a careful study and consideration of the universal which shall occupy us in the next chapter.

Recall that we began this discussion with the statement from Saint Thomas' commentary on Aristotle that man's knowledge begins in sensible things which are intelligible in potency: "principium cognitionis nostrae est a sensibilibus, quae sunt materialia, et intelligibilia in potentia."[14] It is at this point that the phrase "intelligible in potency" takes on full significance. The senses never grasp the propter quid (i.e., the nature or intelligibility of the material object). In order that the latent intelligibility be recognized the presence of an intellect is required. Until such a time as the intelligibility is recognized by the knower it remains in potency. Only in the presence of a knower is the intelligibility reduced from being potentially known to being actually known. However, one must avoid conceiving of the intellect in a Kantian sense of possessing predetermined categories which are simply imposed on reality. On the contrary, Aristotle insisted that the intellect is potentially whatever is knowable, though actually nothing until it has thought. What it thinks must be in it just as the characters may be said to be on a writing tablet on which nothing actually is written.[15]

From the foregoing discussion one sees the general framework within which

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[14]Saint Thomas, In I Phys., l. 1, n. 7.

[15]Aristotle, De Anima, III, ch. 4, 429a 29-430a 1; cf. Saint Thomas, In III De Anima, l. 9, nn. 722 and 738.

Aristotle's theory develops. Both the senses and the intellect play a part in knowing that which is first known, namely sensible, material things. While both these powers are intimately related, nevertheless they are distinct from one another. Recall that sense knowledge is only of the singular whereas the intellect grasps the universal: "...quia sensus cognitio, quae est singularium, praecedit cognitionem intellectus in nobis, quae est universalium."[16] It is from the sense knowledge of the singular that the intellect abstracts the universal or the intellectual content.

At this point we are ready to focus on two further considerations: what is it that we first know about sensible reality and what is the relation between what we first know (i.e., sensible material reality) and the totality of reality. The first of these considerations leads us to the distinctions which Aristotle makes on the side of man's knowing; the second, to the distinctions on the side of what is known.

Man's knowledge of the material universe

An examination of the knowledge man possesses, even of the simplest material reality, reveals that what he "first knows about the reality" and "what it is in itself" are related one to another but are not necessarily identical. Thus Aristotle distinguishes in the term "more known" between that which is "more known to us" and "that which the thing is in itself."

Now, within the term "more known to us" Aristotle makes a twofold division between "that it is" and "what it is said to be". Although the distinction was actually made with regard to the knowledge that one must possess prior to the formation of a

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[16]Saint Thomas, In I Phy., l. 1, n. 8.

demonstrative syllogism, it can be legitimately applied in the area in which we are working. He says,

> Dupliciter autem necessarium est praecognoscere; alia namque quia sunt, prius necesse est opinari, alio vero, quid est quod dicitur intelligere oportet, quaedam autem utraque;[17]

Saint Thomas, commenting on this passage, first states the distinction, then clarifies as follows:

> Quod dupliciter necessarium est praecognoscere: quia duo sunt quae praecognoscuntur de his, quorum praecognitionem habemus silicet quia est et quid est.[18]

It is the clarification regarding the quid est that is our present concern.

> De quibus oportet praeintelligere quid est quod dicitur, idest quid significatur per nomen ... Et non dicit quid est simpliciter, sed quid est quod dicitur, quia antequam sciatur de aliquo an sit, non potest sciri proprie de eo quid est: non entium enim non sunt definitiones.[19]

Thus we are to understand Aristotle as saying that, at the outset, man knows "what a thing is said to be" and not "what it is in itself" (i.e., absolutely and simpliciter). Now "what a thing is said to be" is that knowledge possessed in a nominal definition wherein one understands the meaning of the name. It is from such knowledge that the knowledge of "what the thing is in itself" is forthcoming. Aristotle claimed it was impossible to advance in science unless one possessed

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[17]Saint Thomas, In I Post. Analy., l. 2, caput, n. 5. (Posterior Analytics, I, ch. 1, 71a 11-13).

[18]Saint Thomas, In I Post. Analy., l. 2, n. 16 (underscoring mine).

[19]Ibid., n. 17 (underscoring mine).

some pre-existent knowledge with which to begin. Upon what other basis could an inquiry be made? Does one not need to know "something" about the thing that would incite one to question further? It cannot be shown that something is unless the intellect first knows the meaning of the name: "sed non potest ostendi de aliquo an sit, nisi prius intelligatur quid significatur per nomen".[20] Thus man begins with the knowledge "that the thing is" and "what it is said to be" and proceeds to the knowledge of "what it is in itself".

Relation between what is first known and the whole of reality

Looking a second time at the distinction "more known to us" and "more knowable in itself" the term "to us" is not used without reason since that which is "first known" may be taken in two senses: first, in itself; second, as to us. Now "prior" and "better known" are terms which need clarification for there is a difference between what is prior and better known in the order of being and what is prior and better known to man.[21] Reflection on this distinction will reveal the relationship existing between the reality man first knows and the whole of reality in general.

First, consider the distinction on the side of that which is known (i.e., order of being or nature). Aristotle was aware that those things which are first and most known to us are not necessarily those things more knowable in themselves; and that those things which are more knowable in themselves are least knowable to us.[22] For him a thing was more knowable insofar as it was in act and not in

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[20] Ibid.

[21] Aristotle, Post. Analy., I, ch. 2, 71b 33-72a 4.

[22] Aristotle, Physics, I, ch. 1, 184a 19-21.

potency.[23] Thus those things further removed from potentiality have greater degrees of being and hence, of their nature, are more knowable in themselves. Such a position led Saint Thomas to say that man advances by beginning with those things least clear by nature but most certain to us, in order to arrive at those things which are most clear by nature and yet less knowable to us.

> ... quae sunt magis nota quoad nos, accipit cognitionem intelligibilium, quae sunt magis nota secundum naturam, ita scientia naturalis procedit ex his, quae sunt nota magis quoad nos et minus nota secundum naturam.[24]

Such is the natural procedure in man's knowing: he begins with what is first and most known to him and gradually proceeds to those things which are, by nature, first and most clear, in the sense that they are more knowable in themselves. For instance, the knowledge first possessed of a given material reality (which is the proper object of the human intellect) attains only the most external aspects of the reality together with a name that has been conventionally assigned. However, in this first knowledge something of the essential nature has been glimpsed but only in a vague and confused way. It is from such a beginning that man proceeds to clarify his knowledge of the essential nature. Or to state the case in other terms: man moves from a common conception of a particular thing toward its proper and scientific conception. Thus as he masters a small portion of the visible universe he is prompted to investigate the "invisible" world (to use the terminology of Aristotle). That is to say, from a consideration of material beings, both animate and inanimate,

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[23]Saint Thomas, I, q. 12, a. 1c.

[24]Saint Thomas, Expositio super librum Boetii de Trinitate, q. 6, a. 1.

one is led to a consideration of the nature of being as such. This is the natural road for man: he moves from that which is better known to him to those things which are better known in themselves. Thus the paradox is spelled out clearly: man advances in knowledge by beginning with those things least clear by nature but most certain to him, in order to arrive at those things which are most clear by nature but least knowable to men. One example should suffice. Motion is most certain to us yet upon terminating the investigation it is found to be least clear by nature since it is least in act (i.e., it marks the transition from potency to act).

At this point we terminate the explanation of Aristotle's principle from the "more known to the less known" since all the necessary elements needed for grasping the meaning of the principle have been explored.

## SIGN OF VALIDITY

### From Aristotle's doctrine on naming

As a sign of the validity of this principle Aristotle points to the manner in which we name things. Why is the naming of things such a clear sign of the principle involved? Because the mode of signification follows the mode of understanding.[25] If one grasps what transpires in the process of assigning a name one has a deeper insight into how knowledge is acquired.

The statement of the theory underlying the activity of "naming" is found in Metaphysics V:

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[25]Saint Thomas, I, q. 45, a. 2, ad. 2.

> nomina enim imponuntur a nobis secundum quod nos intelligimus, quia nomina sunt intellectuum signa. Intelligimus autem quandoque priora ex posterioribus Unde aliquid per prius apud nos sortitur nomen, cui res nominis per posterius convenit.[26]

Names are imposed according to the knowledge man has of things, so that oftentimes man knows what things are "said to be" and not necessarily what they "are in themselves". Just as a name is a sign of what man understands of the thing, likewise the things often most clear and certain to man are least knowable in themselves. Now, man names the prior from the posterior; so in knowing he proceeds from things prior to him and moves toward those things which are prior in themselves.

The theory of naming is based on the principle that one names things according to the manner in which one receives the knowledge of the thing: "nomina imponuntur secundum quod cognitionem de rebus accipimus."[27] Thus the way in which a word signifies does not immediately depend on the way in which the things that they stand for are in themselves, but rather in the way in which they become known to us and are presented to our minds.[28] Hence a name signifies the first thing about the object of which man has knowledge. According to common experience man knows things in the sensible universe and the name conveys that which he first knows about sensible things so that it is said that we name a thing according to the knowledge we have of its nature from its properties and effects. Saint Thomas

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[26]Saint Thomas, In V Meta., l. 5, n. 824.

[27]Saint Thomas, De Ver., q. 4, a. 1; I-II, q. 7, a. 1.

[28]Cf. DeKoninck, C. "Abstraction from matter", Laval Théologique et Philosophique, Vol. XIII, n. 2, 1957, p. 149 ff.

says: "naturam alicuius rei ex ejus proprietatibus et effectibus cognoscere possumus, sic eam nomine possumus significare."[29] Since a man only names a thing insofar as he knows it, it often happens that that from which the name is imposed and that which the name signifies are not always the same: "non est semper idem id a quo imponitur nomen significandum, et id ad quod significandum nomen imponitur."[30] For example, we name the substance stone from its act, as that which hurts the foot but this name is not meant to signify a particular action but the very nature of stone. "Sicut substantiam lapidis denominamus ab aliqua actione ejus, quia laedit pedem; non tamen hoc nomen impositum est ad significandum hanc actionem, sed substantiam lapidis."[31] Hence the distinction between etymology and imposition (i.e., the meaning or imposition) must now be drawn.

> The etymology of a word differs from meaning. For its etymology depends on what it is taken from for the purpose of signification (id a quo imponitur nomen significandum); whereas its meaning depends on the thing to which it is applied for the purpose of signifying (id ad quod significandum nomen imponitur).[32]

It may often happen that a person is familiar with the primary meaning (i.e., imposition) but does not know exactly from whence it came (etymology). Thus it is of importance to investigate the order of imposition. This order may

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[29]Saint Thomas, I, q. 13, a. 8, ad. 2.

[30]Ibid., a. 8c.

[31]Ibid.

[32]Cf. De Koninck, "Abstraction from matter," p. 151, (underscoring mine); Saint Thomas II-II, q. 91, a. 1, ad. 2.

be considered from two points of view: priority with regard to nature (i.e., the reality to which the term most properly belongs) and priority with regard to imposition itself. Common experience testifies that names of obvious things are transferred to the less obvious.

> Procedit autem nostra cognitio intellectualis a notioribus ad minus nota; et ideo apud nos a notioribus nomina transferentur ad significandum res minus notas.[33]

For instance, the word "distance" has been transferred from things being far apart spatially to all contraries.

Thus realizing that words have several meanings ranging from the first and most concrete to the most remote and abstract gives a further illustration of Aristotle's principle. In the Fifth Book of the Metaphysics Aristotle provides numerous examples wherein he begins with words in their original imposition and then proceeds to show the extension they take on. He always begins (as we shall observe from the following examples) with a meaning that is verified in sense experience.[34]

> Causa vero dicitur uno quidem modo ex quo fit aliquid ut inexistente, ut aes statuae, et argentum phialae et horum genera. . . . Amplius ut finis. Hoc autem est quod est cuius causa, ut ambulandi sanitas: nam quare ambulavit, dicimus ut sanetur. Et dicentes ita, putamus reddidisse causam.[35]

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[33]Saint Thomas, I-II, q. 7, a. 1.

[34]Aristotle repeatedly shows that philosophical language is extremely concrete at its origin.

[35]Saint Thomas, In V Meta., 1. 2, caput, n. 405. (Meta., V, ch. 2, 1013a 25-32.).

. . . . . .

> Necessarium dicitur sine quo non contingit esse aut vivere quasi concausali. Ut spirare et cibus animalium est necessarium. Nam sine his esse impossible. . . . Amplius demonstratio necessariorum est, quia non contingit aliter se habere quod demonstratum est simpliciter. Huius autem causa est quae prima sunt: si impossibile est aliter se habere, ex quibus est syllogismus.[36]

Once the original meaning is grasped (i.e., the one verified in sense experience) then all further impositions have signification, no matter how abstract, in virtue of this first imposition. Thus, the most abstract terms rest in last analysis upon a primary meaning that is verified on the sense level, since we can only name things as we first know them.

This investigation of naming, manifesting the validity of Aristotle's position, has served a double purpose. First, it showed that naming is based on knowledge, albeit vague, confused and imprecise, yet knowledge; secondly, that the name assigned is given on the basis of what we know of the object at the time, which, as we have noted, may be quite different from what the nature of the thing really is. However, this knowledge affords the basis from which we begin the investigation of the nature and thus ultimately formulate a definition or a proper conception.

Testimony of Werner Heisenberg

Aristotle does not stand alone in his insistence on the value of common

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[36] Ibid., l. 6, caput, nn. 416-421. (Meta., V. ch. 2, 1015a 20 - 1015b 8.).

language notions, both as the basis from which all human knowledge begins and as a revelation (through naming) of the process of knowing.

Werner Heisenberg, an eminent physicist, has defended the same position in Physics and Philosophy. He, too, is convinced of the inherent value of the concepts of natural language as the immediate and certain connection with reality despite the fact that they are often vague and inaccurate.

> ...one of the most important features of the development and the analysis of modern physics is the experience that the concepts of natural language, vaguely defined as they are, seem more suitable in the expansion of knowledge than the precise terms of scientific language, derived as an idealization from only a limited group of phenomena. This is in fact not surprising since the concepts of natural language are formed by the immediate connection with reality; they represent reality.[37]

Furthermore, "the intrinsic uncertainty of the meaning of words bring about the need for definition"[38]. However, as the concepts move toward more precise definitions (as those of mathematical schemas) they often lose their immediate contact with reality.[39] Or, as Aristotle would say, these concepts have greater precision or exactitude according to content yet they lack the quality of immediate certitude characteristic of common conceptions; they are the results of reasoned certitude which may be more difficult to grasp and recognize than those of common language.[40] However, Heisenberg does not hesitate to say that no matter what

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[37]Heisenberg, Werner, Physics and Philosophy, (New York: Torchbooks, Harper and Row Publishers, 1962), p. 200.

[38]Ibid., p. 169.

[39]Ibid., cf. p. 200.

[40]Ibid., cf. p. 200.

advances may be made in modern science

> any understanding must be finally based upon natural language because it is only there that we can be certain to touch reality and hence we must be skeptical about any skepticism with regard to this natural language and its essential concepts.[41]

CONCLUSION

The following observations made on this aspect of Aristotle's principle that one proceeds "from the more known to the less known" shall serve as a conclusion to this chapter.

First, the reply to the question what is first and more known to man, namely, sensible material things, brought forth the need to distinguish the roles played by the senses and the intellect in the attainment of knowledge. It was shown that things are sensible in act and intelligible in potency. Hence the senses only know the concrete singular whereas the intellect knows the universal which is present despite the individuating circumstances.

Secondly, with regard to the knowledge man possesses of a given reality, a threefold distinction was forthcoming. Aristotle maintained that knowledge begins by man knowing "that the thing is" and "what it is said to be". From these two man proceeds toward a knowledge of what the "thing is in itself". It is precisely this area which accounts for the increase of one's knowledge. Man begins with the fact that a given reality is together with what it is said to be. These two factors only furnish a minimum of knowledge but it is from these that man proceeds

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[41] Ibid., p. 201-202.

by a long and diligent investigation toward a precise knowledge of the nature of the reality in question. Hence in the knowledge of any thing there is a definite progress, i.e., one begins with a knowledge which we may call a common conception and then proceeds to make precise this knowledge and hence formulate a proper conception.

Thirdly, Aristotle distinguishes, on the side of the objects, between things "more known to us" and "things more knowable in themselves". Again an area of development and progress in knowledge unfolds. As we have seen, what is most knowable to us (even in regard to an individual sensible thing) is oftentimes the least knowable element of the reality in question. Likewise, among the ensemble of realities that are knowable, those which are most knowable in themselves are least knowable to us. Between these two poles: the knowledge of any particular thing and the knowledge of all reality, stretches the whole expanse of the sciences: from the concrete and experimental to the most abstract and philosophical.

At this point we are ready to investigate the conditions under which our knowledge develops. Such a discussion brings us to a consideration of the second aspect of the principle: that knowledge proceeds from vagueness and confusion toward clarity and distinctness. Hence the following chapter will examine the conditions of knowledge at the beginning of the endeavor and then account for the passage toward the goal all men desire – clear and distinct knowledge.

Chapter 3

# FROM VAGUENESS AND CONFUSION TOWARD CLARITY AND DISTINCTNESS IN OUR KNOWLEDGE

## I. EXPLANATION OF THE PRINCIPLE

A. Preliminary remarks concerning the presentation of the principle in the Physics

B. Explanation of the principle as such

C. Summary of the material as presented by Saint Thomas

## II. THREE EXAMPLES ILLUSTRATING ARISTOTLE'S THEORY

A. Nature

B. Motion

C. Soul

Chapter 3

# FROM VAGUENESS AND CONFUSION TOWARD CLARITY AND DISTINCTNESS IN OUR KNOWLEDGE

The previous chapter dealt with the first portion of Aristotle's principle governing the common mode of human knowing, namely, that man begins with the more known and moves toward the less known. The investigation began by asking the question: what is most known to man? The answer: sensible, material things. Such a reply demanded that one recognize the role played by the senses and by the intellect in the acquisition of knowledge. A further analysis revealed a distinction between knowing "that a thing is", "what it is said to be" and "what it is in itself". That it is to say, while certain that the reality is and having grasped something of its nature, man's knowledge still remains vague and confused as to the precise nature of the reality in question. This initial grasp of the nature becomes clearer and more precise as the investigation proceeds. The third point, made in the preceding chapter, established the difference between those things that are by nature (or in themselves) more knowable and those things which are more knowable to us. This distinction indicated a movement from knowing realities which are less knowable in themselves because they are less in act, to those things more knowable in themselves because they are more in act.

In this chapter our immediate concern will be a consideration of the quality of this knowledge which proceeds from the more known to the less known. As has

already been stated, the movement is from vagueness and confusion toward clarity and distinctness. Hence we will examine the roots of this vagueness and confusion in order to determine how one arrives at clarity and distinctness. To accomplish this task the chapter will be divided into two parts. The first part, concerning the explanation of the principle, will be divided into three parts: first, certain preliminary remarks will be made pertaining to the principle as found in the Physics; second, the explanation of the principle as such will be given; third, this same principle will be set forth according to the mode used by Saint Thomas in a. 85, a. 3 of the Summa Theologica. The second part of the chapter will deal with three examples which illustrate Aristotle's theory. Two examples will be drawn from the philosophy of nature concerning "motion" and "nature" itself, and the third will be drawn from Aristotle's psychology concerning the notion of "soul".

## EXPLANATION OF THE PRINCIPLE

Whether knowledge be considered on the sense level or on the intellectual level, the question remains the same: what is the quality of the knowledge man first possesses? To both situations Aristotle replies that our knowledge is vague and confused since it is of certain confused wholes. "Sunt autem primum nobis manifesta et certa confusa magis".[1] This principle: That it is the whole which is first known but known only confusedly, Aristotle maintains, is the basic and universal principle governing the acquisition of knowledge by the human intellect. Now in order that this principle be put clearly into focus we have decided (as mentioned

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[1]Saint Thomas, In I Phys., l. 1, caput n. 2. (Aristotle, Physics, I, ch. 1, 184a 22).

previously) to present it from three different vantage points. The first discusses the principle in the context of the Physics. The second discusses the principle as such, that is to say, an analysis of all the elements essential to obtain a proper understanding of the principle. The third treats St. Thomas' exposition of the principle as found in the Summa, I, q. 85, a. 3.

Remarks concerning the principle as found in the Physics

The clearest formulation of the principle is found in Book I of the Physics. It must be noted, however, that Aristotle's intention in this context was not to provide an explicit treatment of the principle as such. Rather he was intent upon accomplishing a very particular goal, namely, to determine the subject of the philosophy of nature. In order to accomplish this goal he employed the principle and, in passing, provided three signs which served to support the validity of such a claim. Thus, the primary aim was to show that the subject of the philosophy of nature was "mobile being". Upon investigation "mobile being" was recognized as a reality which remains, in a certain sense, vague and confused, until all the elements, principles and causes have been studied with respect to every genus and species falling under that category of reality called "mobile being". Thus, "mobile being" can be considered as a certain whole which is vast, extensive and which remains known only vaguely and confusedly until all genera and species are known distinctly. Although Aristotle's intent was to determine the subject of the philosophy of nature as "mobile being", a second reflection on the matter reveals that this reality "mobile being" serves as a manifest illustration of the principle involved, namely, that it is always a whole which is first known but known only confusedly.

To discuss the principle as such surpasses the domain of the philosophy of nature. This principle is, in effect, the common and universal principle governing any and all modes of acquisition of human knowledge. Hence a discussion of the principle as such belongs primarily to the domain of metaphysics. The ratio (or reason) of the principle, as Saint Thomas points out in his commentary on the Physics, is found in the very nature of the human intellect itself. He maintains that the ratio is grounded in the nature of the movement characteristic of the human intellect, namely, a movement from potency to act. That is to say, the intellect acquires knowledge by moving from the imperfect to the perfect and from the confused to the distinct. Just as in the order of time and generation, the imperfect precedes the perfect so also in the order of knowledge this same law obtains: imperfect knowledge precedes perfect knowledge. Now as long as something is known indistinctly and confusedly, the knowledge remains imperfect. Perfect knowledge, to the contrary, demands a complete, distinct and clear knowledge of all the elements, principles and causes. To know something imperfectly implies that one's knowledge is partly in act and partly in potency, whereas perfect knowledge is in total act (i.e., the knower possesses a clear and distinct knowledge of all elements). Saint Thomas states this position as follows:

> ...quia cognoscere aliquid indistincte, medium est inter puram potentiam et actum perfectum, ideo, dum intellectus noster procedit de potentia in actum, primo occurrit sibi confusum quam distinctum; sed tunc est scientia completa in actu, quando pervenitur per resolutionem ad distinctam cognitionem principiorum et elementorum. Ethaec est ratio quare confusa sunt primo nobis nota quam distincta.[2]

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[2]Saint Thomas, In I Phys., l. 1, n. 7.

In this respect there is a striking resemblance between the perfection of nature and the perfection of the intelligence. The more a being is determined the more perfect it is, likewise with respect to the intelligence, the more the intellect seizes the differences in a being the more its knowledge is perfect.[3]

As signs of the validity of this principle that what is first known is a "whole" but known only confusedly, Aristotle provides three examples. The first example, stated very succinctly, deals with the very manifest reality, namely, a sensible integral whole.

> Totum enim secundum sensum notius est: universale autem totum quoddam est. Multa enim comprehendit ut partes universale.[4]

The second is drawn from the mode of defining wherein one moves from a certain whole which is vague and confused to a definition that is clear and precise.

> Sustinent autem idem hoc quodammodo et nomina ad rationem. Totum enim quoddam et indistincte significant, ut puta circulus. Definitio autem ipsius dividit in singularia.[5]

The third and last example or sign is drawn from the way in which children obtain knowledge. Again there is a manifest movement from that which is vague and confused to that which is clear and distinct. Aristotle says,

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[3]Cf. Webert, J. "La pensée humaine" Somme Théologique, Éditions de la Revue des jeunes, Paris: Desclée et Cie., 1954, appendices II, p. 248.

[4]Saint Thomas, In I Phys., l. 1, caput n. 3. (Aristotle, Physics, I, ch. 1, 184a 24-25).

[5]Ibid., n. 4 (Aristotle, 184b 9).

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[4]Saint Thomas, In I Phys., l. 1, caput n. 3. (Aristotle, Physics, I, ch. 1, 184a 24-25).

[5]Ibid., n. 4 (Aristotle, 184b 9).

> Et pueri primum appellant omnes viros patres et feminas matres: posterius autem determinant horum unumquodque.[6]

In the subsequent development of this chapter wherein the principle as such will be the subject of discussion we will see that these three signs are, in reality, aspects of the principle which indicate its absolute universality: in the domain of the integral whole be it sensible or intelligible, the mode of defining, and in the domain of common sensible knowledge. However, in the context of the Physics they are not presented as domains wherein the principle applies (thus indicating its universality) but rather they are presented as simple examples confirming the validity of the principle. Such is the case, since Aristotle's intention in the Physics was not to present an exposition of the principle as such but rather to determine the subject of the philosophy of nature.

Having made these preliminary remarks concerning the presentation of the principle as found in the Physics we can proceed to a discussion of the principle as such. This presentation will be accomplished by a re-ordering of the material so as to put into evidence the nature and extension of this principle which is absolutely fundamental in man's acquisition of knowledge.

Presentation of the principle as such

To present this principle in all of its universality we must turn to Saint Thomas' commentary. Recall that the original statement of the principle as given by Aristotle reads as follows:

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[6]Ibid., n. 5. (Aristotle, 184b 12-14).

> Sunt autem primum nobis manifesta et certa confusa magis: posterius autem ex his fiunt nota elementa et principia dividentibus haec.[7]

The analysis made by Saint Thomas brings out all that is implied in this cryptic statement of Aristotle. He comments on the principle first by presenting the ratio and then by interpreting the signs used by Aristotle. Mention has already been made of the ratio which is found in the very nature of the intellect itself which moves from potency to act. Hence we have seen that any movement from potency to act is essentially a movement from the imperfect to the perfect, one can see that in human knowing vagueness and confusion would be equated with imperfect knowledge and clarity, precision, distinctness would be equated with perfect knowledge. Likewise, if the intellect moves from potency to act then the quality of human knowledge would likewise be subject to the same conditions, i.e., knowledge would begin in vagueness and confusion and proceed to clarity and distinctness.

The point which interests us at this time is the word "whole" since the claim is made that it is the whole which is first known but known only vaguely and confusedly. Commenting on the aforementioned passage Saint Thomas draws out the distinction between two different kinds of "wholes": an integral whole (be it sensible or intelligible) and a universal whole (which may be called a universal in praedicando). He comments in this fashion:

> Quorum primum sumitur a toto integrali sensibili: et dicit quod totum sensibile est notius secundum sensum; ergo et totum intelligibile est notius secundum intellectum. Universale autem est quoddam totum intelligibile, quia comprehendit

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[7]Saint Thomas, In I Phys., l. 1, caput n. 2.

> multa ut partes, scilicet sua inferiora; ergo universale est notius secundum intellectum quoad nos.[8]

Note that in the passage above St. Thomas uses the same expression as Aristotle to describe the universal whole: "certain kind of whole" – "quoddam totum intelligible". It is considered a whole insofar as it includes many things like parts. Hence our task is to grasp the meaning of the word "whole", then integral whole and subsequently "universal whole" (or universal in praedicando) in order to understand the principle Aristotle is using.

The term "whole" is analogical. In a most general way a whole first implies a certain perfection since it means that in which none of the parts are missing; secondly, that the parts become one in the whole.[9] Now the differences among "wholes" arises with respect to the way in which the "parts" are contained. If the parts are constitutive of the nature so that the whole would not be such a thing without each and every part then one has an integral whole, an "ipsum unum", be it sensible or intelligible. In this case, the whole cannot be predicated of any individual part but it is rather that all the parts together form the whole. A whole in this sense means one thing composed of parts in such a way that none of the parts are that one thing.

> Aut ex partibus constituatur unum, ita quod non quaelibet partium sit unum illud. Et haec est ratio totius integralis quod de nulla suarum partium integralium praedicatur.[10]

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[8]Saint Thomas, In I Phys., l. 1, n. 9.

[9]Saint Thomas, In V Meta., l. 21, n. 1098.

[10]Ibid., n. 1099.

In other words, an integral whole cannot be predicated of any of its own integral parts. Whereas, a containing whole which can be predicated of any one of its own parts (considered as subjective parts) is called a universal whole. Again using the commentary of Saint Thomas, he says

> ...dicitur quasi sit aliquod unum totum ex hoc quod praedicatur de unoquoque, sicut universale, quasi multa continens ut partes, in eo quod praedicatur de unoquoque. Et omnia illa sunt unum in toto universali, ita quod unumquodque illorum est illud unum totum.[11]

It would seem that the term "whole" belongs most properly to the integral whole and has been applied to the universal whole "per posterius". In proof of this we refer again to the notion that in both the texts of Aristotle and of Saint Thomas one finds the same expression "quoddam totum" —"a certain kind of whole", when referring to the universal whole. It will be by examining the signs which Aristotle employs that the application of the term "whole" to the universal will be made manifest. However before examining Saint Thomas' commentary on the signs, we will cite the notion of "part" which is a corollary to that of "whole".

> pars aliqua dupliciter potest cognosci: uno modo absolute, secundum quod in se est; et sic nihil prohibet prius cognoscere partes quam totum, ut lapides quam domum. Alio modo secundum quod sunt partes hujus totius; et sic necesse est quod prius cognoscamus totum quam partem. Prius enim cognoscimus domum quadam confusa cognitione, quam distinguamus singulas partes ejus. Sic igitur dicendum est quod definientia absolute considerata sunt prius nota quam definitum, alioquin non notificaretur definitum per ea; sed secundum quod sunt partes definitionis, sic sunt posterius nota. Prius enim cognoscimus hominem quadam confusa

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[11] Ibid., n. 1100.

> cognitione, quam sciamus distinguere omnia quae sunt de hominis ratione.[12]

Again, he summarizes in this fashion:

> triplex est pars: scilicet integralis, ut paries, tectum, et fundamentum sunt partes domus; subjectiva, sicut bos et leo sunt partes animalis; et potentialis, sicut nutritivum et sensitivum sunt partes animae.[13]

At this point the presentation of Saint Thomas' remarks concerning Aristotle's signs will render the doctrine more explicit. The first sign is drawn from the domain of the sensible integral whole. Saint Thomas provides a concrete example, namely, a house. He shows that one can grasp the whole house, recognize it for what it is, without immediately grasping all the parts. The knowledge of the parts are virtually contained in the knowledge of the house as house but they are not alluded to in a clear and distinct way. It is on this point that he proceeds to draw a parallel with the universal whole.

> Dicendum est autem quod totum integrale et universale conveniunt in hoc, quod utrumque est confusum et indistinctum. Sicuti enim qui apprehendit genus, non apprehendit species distincte sed in potentia tantum, ita qui apprehendit domum, nondum distinguit partes: unde cum ratione confusionis totum sit prius cognitum quoad nos, eadem ratio est de utroque toto.[14]

Looking at this comparison between the sensible integral whole and the

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[12]Saint Thomas, I, q. 85, a. 3, ad. 3. Cf. In V Meta. l. 21, nn. 1093-1096.

[13]Saint Thomas, II-II, q. 48, a. 1.

[14]Saint Thomas, In I Phys., l. 1, n. 9.

universal whole we may make the following observations. The "house" is a sensible integral whole since this term cannot be applied to the parts considered as parts, that is to say, to the roof, mortar, bricks, etc. Rather it is the "house" taken as a whole which bears the name "house". Now insofar as one recognizes the reality "house" without having a distinct knowledge of the parts one has the basis for a certain similarity to a universal whole wherein one knows the genus while the knowledge of the species remain vague and confused.

The second example, in the domain of the integral intelligible whole, is drawn from the mode of defining. Aristotle claims that when one forms a definition one begins with a name which can be considered as a certain integral whole which is confused and indistinct as to content that is to be made explicit by a definition. To do this demands that one find the principles of the thing to be defined. Now this does not contradict the ideas already set forth in the Posterior Analytics that the principles ought to be more universal and hence more known from the very beginning.

Granted that the principles needed for the definition are themselves known before the definition is formulated, they are not known as the defining principles. For instance "animal" and "reasonable" are both ideas known before one embarks on a proper definition of "man". However, the term "man" is known confusedly and indistinctly until the analysis reveals that it is precisely "animal" and "reasonable" that mark his defining principles. Saint Thomas states the case in this fashion:

> Definitum enim se habet ad definientia quodammodo ut totum integrale, inquantum actu sunt definientia in definito; sed tamen qui apprehendit nomen, ut puta hominem aut circulum,

> non statim distinguit principia definientia; unde nomen est sicut quoddam totum et indistinctum, sed definitio dividit in singularia, idest distincte ponit principia definiti.[15]

We might rephrase this idea by saying that the intellect would not seek knowledge if it had not already found, in some manner, that for which it was searching. The example, afforded above, claims that one knows something of "man" before one formulates a proper definition. That is to say, one knows something of "animality" and "rationality" but one does not see them as constituting the defining notes of man. Or again, one who seeks to know the definition of man already knows what the word signifies, recognizes something of the reality in question while remaining ignorant of the precise definition. Saint Thomas presents this doctrine in his commentary on the De Trinitate de Boetii.

> ...definita sunt praecognita partibus definitiones. Oportet enim scientem, hominem esse, et quarentem, quid est homo, per* significat. Nec hoc esset nisi aliquam rem quoque modo conciperet, quam scit esse quamvis nesciat eius definitionem. Concepit enim hominem secundum cognitionem alicuius generis proximi vel remoti et aliquorum accendentium, quae extra apparent de ipso. Oportet enim definitionum cognitionem, sicut et demonstrationum, ex aliqua praeexistenti cognitione initium sumere.[16]

From the foregoing remarks we see a certain parallel between an integral intelligible whole wherein one has a certain knowledge of the reality in question without knowing all the elements and principles distinctly, and the universal whole wherein one has a certain knowledge of the genus without a clear and distinct

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[15] Ibid., n. 10.

[16] Saint Thomas, De Trinitate de Boetii, q. 6, a. 3.

* ajoute "definitionem scire quid hoc nomen 'homo'"

knowledge of all the species.

The third and last sign used by Aristotle concerns common sensible whole. Saint Thomas provides three examples to illustrate the case in question. First, he recognizes, along with Aristotle, that there is a certain evolution in our knowledge even in the domain of the common sensible. According to sense perception it is evident that man grasps the more common element prior to the grasp of the specific element: "ita communius sensibile est prius notum nobis secundum sensum, ut puta hoc animal quam hic homo."[17]

The same condition prevails when perceiving something at a distance. The object seen at a distance is indistinct and vague and in the measure in which one approaches it one can discern a living thing, then man and finally Socrates.

> Secundum locum quidem, quia cum aliquis a remotis videtur, prius percipimus ipsum esse corpus quam esse animal, et hoc prius quam quod sit homo, et ultimo quod sit Socrates.[18]

Now this same evolution with respect to distance can be compared with a certain evolution from the point of view of time. A child first learns to distinguish man from non-man, before distinguishing one man from another, eventually enabling him to recognize this man, Plato, who is his father.

> Et similiter secundum tempus puer prius apprehendit hunc ut quendam hominem, quam ut hunc hominem qui est Plato, qui est pater eius.[19]

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[17]Saint Thomas, In I Phys., l. 1, n. 11.

[18]Ibid.

[19]Ibid.

One might add, at this juncture, a very pertinent remark made by J. Webert in "La connaissance confuse".

> Les expériences enfantines — l'on pourrait ajouter celles des hommes et celles de l'humanité en tant qu'elle n'est qu'un seul homme qui apprend — progressent de classifications communes à des ordres de plus en plus distincts. Ces faits ont été relevés depuis longtemps et les différentes formes de psychologie génétiques ont dépassés en complexité ces quelques observations sommaires des anciens.[20]

The following remarks, based on St. Thomas' commentary, will serve as a conclusion to this section. They will have a twofold thrust: first, to draw sharply into focus the relationship between an integral whole and a universal whole and secondly, as a result of this parallel, to indicate the absolute universality of the principle under discussion.

One ought to realize that the same reality (be it sensible or intelligible) may be regarded both as an integral whole and as a universal whole. For instance, the universal which is abstracted by the intellect from sensible material reality can be considered in one respect an integral whole and in another respect as a universal whole.

> With the abstraction of a universal from its inferiors, we attain a whole. Included in this whole are its integral or constitutive parts. When we abstract "man" from Socrates and Plato, for instance, we define the abstracted nature as "rational animal". The parts of the definition are called the integral parts of the nature, for they actually compose the nature itself. So viewed the abstracted nature is an integral whole. But insofar as the nature has been abstracted from the inferiors in which it inheres, it is said to contain them as potential parts and when

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[20] Webert, J. o.p., "La connaissance confuse" dans la Revue des Sciences Philosophique et Théologique, juill. 1928, p. 375.

> so considered, it is not said to be an integral whole but a universal whole which contains its parts only virtually. It is for this reason that it can be predicated equally of them. If the universal whole were constituted by its parts, it could not be predicated of them.[21]

Now it has been pointed out in the preceding examples that the knowledge of an integral whole remains vague and confused until all the principles, elements, and causes are known which account for this reality. Likewise, when the same whole is regarded as a universal whole which can be predicated of its potential parts (i.e., the species) one has a certain degree of clarity with respect to the genus but remains vague and confused with respect to the species. It might be well to note in passing that a given species in the order of predication may be considered as a subjective part of a potential whole (or a universal whole) while in the order of existence the species itself may be regarded as an integral whole which contains the genus as a part.[22]

Secondly, the reason for the term "confused" whole (as opposed to "composite" whole) becomes apparent. The term "confused" whole may apply to either the integral whole or the universal whole since it concerns our way of knowing whereas the term "composite whole" does not depend on our way of knowing, but upon the nature of the reality itself.

Thirdly, reflection upon the areas of knowledge that have been discussed

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[21]McArthur, Ronald. "A study of the universal in praedicando and in causando", unpublished doctoral dissertation, Université Laval, 1952, p. 76.

[22]DeKoninck, Ch. "Introduction à l'étude de l'âme", Laval Théologique et Philosophique, Vol. 3, no. 1, 1947, pp. 27-28.

reveals that this principle applies in every domain: the integral whole, be it sensible or intelligible, the mode of defining and the area of common sensible knowledge according to place and time.

Saint Thomas' exposition of the principle in I, q. 85, a. 3.

The principle stated in the Physics, which maintains that our first knowledge is of a whole but known only vaguely and confusedly, is found to be the conclusion in this article. St. Thomas concludes the article by saying that our first knowledge (both in the sensible and intellectual order) is always of the singular and that which is first known about the singular is the most common element followed by a knowledge of the least common element.

> Est ergo dicendum, quod cognitio singularium est prior quoad nos quam cognitio universalium, sicut cognitio sensitiva, quam cognitio intellectiva. Sed tam secundum sensum quam secundum intellectum cognitio magis communis est prior quam cognitio minus communis.[23]

To recognize that this principle is the conclusion of this article is to recognize the area in which Saint Thomas was working. He is treating the doctrine in its most universal dimensions and hence he begins with two more basic principles which govern human knowing and in which are found the ratio of the conclusion. Then, in turn, this conclusion can also be regarded as a principle as it was in the Physics.

The two fundamental principles, upon which the doctrine is based, are concerned with the order among the powers in the knowing process and with the nature

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[23]Saint Thomas, I, q. 85, a. 3

of the movement within the intellect. Saint Thomas states it in this fashion: first, intellectual knowledge arises from sense knowledge and secondly our intellect proceeds from a state of potentiality to actuality.

> ...in cognitione nostri intellectus duo oportet considerare. Primo quidem, quod cognitio intellectiva aliquo modo a sensitiva primordium sumit. ... Secundo, oportet considerare quod intellectus noster de potentia in actum procedit.[24]

It is with respect to the second principle that he draws out the implications. Every reality which is governed by the law of movement passes from potency to incomplete act to perfect act. "Omne autem quod procedit de potentia in actum, prius pervenit ad actum incompletum, qui est medius inter potentiam et actum, quam ad actum perfectum."[25] Applying this idea to the domain of knowledge, perfect knowledge is complete knowledge (i.e., when an object is distinctly and determinately known) and incomplete knowledge is had when the object is known only vaguely and confusedly. Thus any thing that is known imperfectly is known partly in act, partly in potency. Thomas interprets this to mean that an object which comprises many things as parts may be known as a whole without having a precise knowledge of each part contained therein. Hence this first knowledge would rightly be considered as vague and confused.

> Manifestum est autem quod cognoscere aliquid in quo plura continentur, sine hoc quod habeatur propria notitia uniuscuiusque eorum quae continentur in illo, est cognoscere aliquid sub confusione quadam.[26]

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[24]Ibid.

[25]Ibid.

[26]Ibid.