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THE ARISTOTELIAN NOTION OF NATURE

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PROPOSITIONS

I. Bos generat bovem et sol.

II. Artes quae actiones et passiones imitantur dependent quantum ad veritatem ipsius artificii a synderesi et scientia morali.

III. Operatio Dei immanens, secundum quod est virtualiter transiens, est ratio formalis a priori existentiae Dei in rebus.

IV. Non cognoscentia nihil habent nisi formam suam, cognoscentia autem possunt habere etiam formam rei alterius.

V. - Necessarium est in qualibet operativa scientia, ut procedatur modo composito.

PREFACE

In Book II of the Physics, Aristotle defines nature as "the principle and cause of movement and of rest in that to which it belongs primarily and in virtue of itself, not in virtue of an accidental attribute." (1) Today many who read the Physics find this definition fatuous and inconsequential. Now if Aristotle's very notion of nature were misconceived, searching indictments of the philosophy based on that notion would certainly be warranted. And this is precisely the representative judgment made by one of the foremost contemporary Aristotelian scholars, A. Mansion :

> Nevertheless, the absolute existence of nature appears evident to him [Aristotle]. But can notions drawn from ordinary experience and language be grounds enough to affirm this existence ? Is not recourse to a rigorous demonstration in order ? The Stagirite does not precise the question to this extent and answers without hesitation that it would be ridiculous even to wish to demonstrate that nature exists ; what is clear is not demonstrated by what is not clear. — In a preceding passage of the Physics, he had argued hypothetically against the Eleatics that one must hold as given that all or at least some natural beings were in movement; if not, both natural philosophy and its object are destroyed. There he had recourse to experience or induction, and his argument held. But here he goes too far and argues to the existence of a principle transcending experience. Of course,

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(1) - Physics. II, ch. 1, 192b23.

> the inference in virtue of which he arrives at this conclusion is so immediate to common sense that Aristotle was led to consider it as evidence. It remains, nevertheless, that all the developments of his theory of nature will participate in the flimsiness of its beginning and, simply, will have as its basis only the succinct analysis of everyday experience and of ordinary language which we have summarised; but this experience, expressed in this language, implies an interpretation going beyond the facts (2).

This is certainly devastating criticism — one is surprised to find that Mansion can later salvage as much of the second Book of the Physics as he claims to.

The position held and explained here, on the contrary, is that an understanding of certain things presupposed by Aristotle, but which call for explanation today, will obviate difficulties such as the ones quoted above; or at the very least will show why Aristotle considered his method to be justified.

The order we propose to follow in our investigation is this : first, we shall consider those things presupposed by Aristotle, which are related to his notion of nature, together with the difficulties arising therefrom; next, we shall turn to the various impositions of the word "nature" and show the impor-

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(2) - Augustin Mansion, Introduction à la physique Aristotélicienne, 2e éd., Paris, Vrin, 1946, p. 101.

tance of the first imposition of nature for the understanding of the definition given in the Physics; finally, we shall analyse and attempt to justify the definition given in the Physics.

The general problems we are faced with in this study are two : the problem of Aristotle's so-called confusing (and, if his modern critics are right, confused) use of words; and the problem of the place and certitude of internal experience in the Physics. Considering the first problem, we find Aristotle commonly basing the scientific definition of a thing, for example, of "matter" or of "form", on the way "the many", the man in the street, use the name of that thing; again, he has the exasperating practice of using a word to mean one thing in one sentence and a different thing in the very next sentence without distinguishing these meanings; and again, he ordinarily uses the name of a thing before he defines that thing : for instance, he uses the word "nature" and "natural" throughout the first book of the Physics but does not define nature until the second Book (3).

Since internal experience is but vaguely recognised by

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(3) - Mansion, op. cit., p. 106 : "Malgré le soin qu'il met à définir les termes philosophiques importants, Aristote, on l'a reconnu souvent, continue d'en faire un emploi fort libre, et s'écarte même, en divers passages, du sens qu'il vient d'établir quelques lignes plus haut. C'est le cas pour le mot nature comme pour bien d'autres. Il

modern Aristotelians as having a place in the Physics, our problem lies simply in seeing the scope and proving-force of internal experience and the importance attached to it by Aristotle in his definition of nature.

If the treatment afforded these general problems appears overlong and seems to have but little to do with the proper subject of this paper, one should remember that a direct commentary on the text of Aristotle must presuppose many other notions as more evident (4). The general treatment of Aristotle's use of words and of internal experience is an attempt to set down these presuppositions in an orderly fashion.

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rappelle ou reprend fréquemment, il est vrai, dans d'autres traités, la définition donnée au livre II de la Physique. Cela n'empêche que prend sous sa plume des significations qui, tout en étant propres à sa philosophie naturelle, s écartent dans une certaine mesure de celle qu'il lui assigne, quant il en traite ex professo. De ces significations certaines ont déjà été relevées dans des passages du premier livre de la Physique."

(4) - Henri Pichette, "Considérations sur quelques principes fondamentaux de la doctrine du spéculatif et du pratique", Laval Théologique et Philosophique, Vol. I, No. 1, p. 52 : "Il importe de remarquer que les principes connus de soi 'quoad sapientes' présupposent eux-mêmes une explication proprement dite que les anciens ont supposée et qu'ils connaissaient parfaitement sans toujours nous la donner d'une manière très expresse. C'est qu'ils n'ont pas toujours tenu compte de la faiblesse de leur postérité."

Chapter I

ARISTOTLE's USE OF WORDS

"There is an ancient saying, that 'hard is the knowledge of the good'. And the knowledge of names is a great part of knowledge." (Plato, Cratylus, 384.)

1. - Word, Concept, Thing.

The fact that logical positivism has pre-empted the study of words and of language in general suggests that those dissatisfied with the conclusions reached might find rather interesting a reconsideration of Aristotle's doctrine of the nature of the word.

I think it must be patent to all that a philosophy of language such as that of the New Positivists, which would eliminate whole areas of human discourse as meaningless and unintelligible, has significant implications for human culture. It might conceivably be a prelude to a brave new world in which the human spirit, having rid itself of the ghosts of Plato and Aristotle, and the impediments of the centuries, should enter into the full light of a wholly "scientific" era. It might, on the other hand, conceivably be a symptom of a decaying culture, and a prelude to a scientific barbarism and a cultural nihilism. In any case, the issues pre-

sented to so untoward a situation constitute a challenge to critical thought (1).

Aristotle's doctrine on the word (as considered by the logicism) is found, in the main, in the Perihermenias. St. Thomas, in commenting on the text of Aristotle, points out that because man is naturally a social and political animal he finds it necessary to communicate with others in order to achieve the ends of social life (2). Since man is possessed of intellectual knowledge, his desire to communicate with others requires, for its satisfaction, something more than the simple grunts and groans proper to brute animals, which serve man only in his communication of the basic emotions. Relative to these simple sounds, the language of man constitutes a highly complex system. In order for one man to communicate his ideas (called, by analogy with the spoken or written word, "mental words" (3)), he uses a medium which is at once both sensible and artificial.

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(1) - W. Urban, Language and Reality, (New York : Macmillan and Co., 1939) p. 13. Cf. Charles W. Morris, Semiotic and Philosophy, (New York, Prentice Hall, 1946) p. 233 ff. : "Semiotic offers a challenge to philosophy; it is indeed a 'prolegomena to any future philosophy', demanding that philosophy make clear the nature of its signs and the purpose of its discourse. Philosophers of widely differing schools today recognise the need of meeting this challenge... even some philosophers regard philosophy as identical with semiotic in its greatest generality."

(2) - In I Perihermenias, lect. 2, n. 2.

(3) - Cf. : De Veritate, qu. 4, art. 1 ; "quia verbum exterius, cum sit sensibile, est magis notum nobis quam interius secundum nominis impositionem, per prius vocale dicitur verbum quam verbum interius".

The medium of communication, the spoken or written word, is sensible; it can be heard or seen, and as such is more known to us that the mental word. As St. Thomas explains :

> It is plain that an unvoiced conception of the heart or intellect is silent; but that silence of the heart is dispelled when the idea is put into physical words. Thus, exterior words are more manifest and less simple than the interior conceptions of the heart (4).

From a second point of view, we can see the power of the sensible word to manifest the mental word. The sensible word is an artifact in the strictest sense. The spoken word is to the human intellect what the creature is to the divine intellect; both are the products of an exteriorisation of an idea, the one is the divine mind, the other in the collective human mind. (5) Again, just as Aristotle uses analogies taken from human art to manifest

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(4) - In De Divinis Nominibus, ch. 4, lect. 1 : "Manifestum est enim quod conceptio cordis vel intellectus, absque voce est cum silentio; sed per sensibiles voces illud silentium cordis enunciatur. Sicut autem voces exteriores sunt nobis magis manifestae, et minus simplices quam interiores conceptus cordium, ita..."; cf. : IIIa, qu. 60, art. 6, c : "Dicit autem Augustinus in II de Doctr. Christ., quod 'verba inter homines obtinuerunt principatum significandi', quia verba diversimode formari possunt ad significandos diversos conceptus mentis, et propter hoc per verba magis distincta possumus exprimere quod mente concipimus."

(5) - Ia, qu. 17, a. 1, c. : "Dependent autem ab intellecto divino res naturales, sicut ab intellectu humano res artificiales".

prime matter and substantial form, so in much the same way does man make use of words as artifacts to manifest his ideas.

"The spoken word, since it is significant by convention, has as its principle the will, just as other artifacts do." (6) The word is constituted as a sign both by the will as efficient cause, and by the intellect; the matter, sounds signifying ideas, is contingent; and the word is measured by man's practical intellect. A sign that words are not natural, but depend on the will, is found in the diversity of languages used by man to express his concepts. An Englishman and a German use the same system of logic, but the words they use to argue scientifically will (except for words taken from a common language, or coincidentally similar) be different.

Further, since, the intellect is a faculty which not only understands things but manifests them, the intellect has an

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(6) - De Ver., qu. 4, art. 1 : "Verbum prolatum exterius, cum sit significativum ad placitum, ejus principium est voluntas, sicut et cæterorum artificatorum." The word as an artificial sign is the formal subject of grammar, and is defined, as are all artifacts, as an imitation.

Some say that we form words only because the object of knowledge is not immaterial enough, or when the object is absent. This is true as far as it goes. But it is not the whole of the matter. We form words not only because of the imperfection of our intellects, verbum ex indigentia, but also because of the perfection of the intellect as such, "verbum ex abundantia cordis" (St. Augustine). The human intellect has a natural tendency to imitate, to the extent possible, the causative knowledge of God, in which there is no real distinction between the speculative and the practical modes. It can imitate God's knowledge in the perfectly practical order where it is, in a sense, the cause of the essence and existance of a thing. It attempts to do the same thing in the speculative order in the fields of modern mathematics and logic, but even more generally in naming things, in manifesting things to itself in a practical way by bringing the object from potency to act in naming it. Consider the etymology of the "verb" manifest. We manifest a thing first of all when we seize it by the hand (manus-fendere), as when we seize a thief in his attempt to escape. In "manifesting" a thief we have, in a sense, made a thief, since before we catch him he is not, for us at least, a thief. In somewhat the same sense we make the object we know in manifesting it through the process of naming it; since before we know its name it is not for us, properly speaking an object of knowledge (7a).

(7a) - It is only in the Beatific Vision where there is no proportion between the knower and the object known - where we cannot of ourselves seize the object (for this we need the human glories) - that the intellect cannot manifest to itself the object.

intrinsic ordination to the formation of the word (7). The importance of this point of Aristotle's doctrine cannot be overemphasised. When we come to consider the one-to-one correspondence between word and idea, we shall see that a man cannot have a clear idea of a thing unless he knows the artificial sign signifying that thing.

Thus, because of the interiority of the experience required to make a work of art, because the work of art is something of ourselves, and because artistic creation is an unparalleled expression of human liberty, the work of art is better known to us than what is imitated.

We have seen that the word is better known than what it stands for, since it is a sensible sign and an artifact. We now begin to see that the word is one of the best instruments of the intellect in its search for what a thing is. This instrumentality of the word, merely indicated here, will be treated in following chapters where we shall see how the first imposition of a word, and

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(7) - John of Saint-Thomas, Cursus theologicus (ed. de Solesmes) T. IV, p. 63, n. 42. "Quaecumque ergo natura intellectualis, ex hac vi intelligendi et activitate in tota sua perfectione et modo considerata, petit quod aliquid procedat intra se quatenus non solum est vis apprehensiva, sed etiam manifestativa et expressiva... Hoc enim non est imperfectio in natura intellectiva, quod manifestativa et expressiva sit rei intellectae; hoc enim pertinet ad fecunditatem et plenitudinem intellectus, et ad latitudinem cordis, ut eructet verbum bonum, id est, perfectum."

in particular of the word "nature", is a necessary instrument for the understanding of the scientific definition of a thing. An indication of the extent to which the word is an instrument of the intellect may be seen from the following example given by St. Thomas, where he hints that correct accidence may be set aside to make way for the more perfect understanding of that which is signified; commenting on the phrase "non ex sanguinibus" in the Gospel of St. John (8) he writes :

> The material cause of generation is blood and therefore he says "not from bloods". And although the word "blood" in Latin [and in English] has no explicitly plural form, in Greek it has such a form; therefore the translator [St. Jerome] did not observe the grammatical rule in order that he might teach the perfect truth. Thus he did not say "from blood" (according to the Latin) but "from bloods"; for it is understood that something is generated from blood, acting as matter for bodily generation — the seed of the man and the menstrual flow (the ovum) of the woman.

Having considered the need for language, we shall now inquire into the precise relation between word and idea, as Aristotle explained it. With characteristic conciseness he writes :

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(8) - In Evangelium Joannis, chap 1, lect. 5, n. 5 : "Materialis quidem causa generationis est sanguis; et ideo dicit : 'Non ex sanguinibus'. Et licet hoc nomen 'sanguis' in latino non habet plurale; quia tamen in greco habet, ideo translator regulam grammaticae servare non curavit, ut veritatem perfectam doceret. Unde non dicit, 'ex sanguine',

> Spoken words are the signs of those things received in the soul, and written words are the signs of spoken words (9).

The intellect receives an impression from an agent acting through the senses; since the intellect is an immaterial faculty, the impressions of things received in the soul are immaterial. The immaterial idea or the mental word is a sign of the thing known, that is, the idea is that which makes known, as other than itself, the object. Furthermore, the spoken word is also a sign of the object known; the reason why we use words is to communicate impressions or ideas about an object. Both the spoken and the mental word are signs of the object, but in different ways : the mental word is the natural and immediate sign of the thing; the spoken word is both the artificial and conventional immediate sign of the mental word, and the artificial and conventional mediate sign of the thing

We have seen in what sense the spoken word is artificial and, in general, how it is conventional. Moreover, we know from experience that the spoken or written word "man" or "Socrates"

> secundum latinos, sed 'ex sanguinibus'; quod intelligitur quicquid ex sanguine generatur, concurrens ut materiae ad carnalem generationem (semen viri sive menstrum mulieris)".

(9) - Perihermen., I. chap. 1 16a3.

relates directly to what we know about man or about Socrates, and not directly and naturally to the object as it is in itself, otherwise everything said about an object would be perfectly intelligible; and further, everything said about an object would be perfectly true. That the mental word is a natural similitude of the object (10) is evident upon consideration of the unity of man's ideas as expressed in roughly equivalent language. "Man" is always defined in terms such as these : featherless biped, rational animal, etc The very fact that simple ideas can be translated from one language to another testifies to the unity of mental words, of ideas.

Having inquired briefly into the relation between the spoken word and the mental word, we are now in a position to see certain of the unwelcome consequences attaching to such a relation, and further, to see the reason for the desire of many modern philo-

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(10) - Cf especially : In II de Anima, ch. 11; Ia, qu. 13, a 2 ; "... voces sunt signa intellectuum, et intellectus sunt rerum similitudines."
Nazarius in Ia, qu. 13, a. 1 : "De vocibus, S. Thomas dicit esse intellectus signa.. De intellectibus affirmat esse similitudines ad notandum differentiam in significando (naturaliter et artificialiter) quam differentiam observat Aristotales qui in I Peri. appellat notas, i.e. signa; conceptiones vero appellat passiones in anima — quia maxime causantur a re ut a fundamento veritatis, et in intellectu recipiatur quae receptio passio quaedam est S. Thomas autem conceptiones appellat intellectus quia sunt termini actus intelligendi."

sophers to replace, so far as possible, the word with the mathematical symbol.

Here is found the root of the reason why oral tradition is of such great importance to the maintenance of a consistency in the tradition of a particular school of thought : uniform conventions in the use of words reduce the possibility of deep and far-reaching errors in the interpretation of such a system. Of two men who differ widely in interpreting a particular system of thought, the one who has the closer contacts with those who were themselves united by oral tradition with the originator of the system, say with Marx, and claim no departure, it is he, other things being equal, who will be the better interpreter of Marx, and the one for whom the written words of Marx will mean the most. Again those trained in one system feel secure only within the terminology of that system, and tend to translate all else into the terms of that system. Here, too, is the root-reason of the desire professed by many modern philosophers to translate words into mathematical symbols : so many verbal difficulties and problems are eliminated. Is it any wonder then that so many strive to rationalise mathematically the relation between thing, idea and word ? The purpose of this paper, however,is to show, through an examination of the notion of nature that though these attempts may be praiseworthy absolutely, the disadvantages involved in using words as a media for the discus-

sion and solution of philosophical problems are far outweighed by the advantages to be gained.

Later in this paper an attempt will be made to bring out in all its force the full import of what is but indicated here by the dictum : Every word is defective (11).

> "But I say that some of the aforesaid names ['highest good', 'first being', as referred to God] express perfection and have no defect as to that for the signification of which the name was imposed; but as to the mode of signification, every name is defective. For by a name we express a thing as we conceive it intellectually. But our intellect, the origin of whose knowledge is the senses, does not by-pass that mode found in sensible things..." (12).

The argument pertinent here is this : the measure of the word is the intellect; but since the human intellect has an imperfect mode of knowing, the imperfections found in our ideas will be reflected in the words we use. Corresponding to the errors to which the intellect is liable are errors in the use of words, not to speak

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(11) - Contra Gentes, I, ch 30 : "Omne nomen cum defectu est."
(12) - Ibid., : "Hoc autem aliqua praedictorum nominum perfectionem absque defectu importare, quantum ad illud ad quod significandum nomen fuit impositum ; quantum enim ad modum significandi, omne nomen cum defectu est. Nam nomine res exprimus eo modo quo intellectu concipimus. Intellectus autem noster, ex sensibus cognoscendi initium sumens, illum modum non transcendit qui in rebus sensibilibus invenitur...."

of the difficulties involved in choosing the right word to express an idea. Mistakes are possible at every stage of the process from thing to idea to word, and inversely, for the listener, from word to idea to thing. There are errors arising from insufficiency of observation rashness in judgment, mistakes in reasoning. There are errors consequent upon the artificiality of words, changes in meaning, homographs, homonyms, synonyms. And finally, there are errors arising from ignorance. Seeking sure knowledge of a thing, we make use of two variables, the idea and the word — given two variables to reach a constant, a mathematician would throw up his hands in despair.

The presence of the idea or concept as medium between word and things adds to the radical imperfection of human words as a means of communication. St. Thomas writes :

> Words are signs of ideas, but it is ideas which are the likenesses of things. For it is clear that the unity or diversity of significant sounds does not depend on the unity or diversity of things signified; otherwise there would be no equivocal words; for then, if there were different things, they would have correspondingly different names, and not the same name. Therefore the unity or diversity of a significant sound, be it complex or incomplex, depends on the unity or diversity either of the sound or of the idea, the sound being a sign only, whereas both idea and thing in addition to being signs, are signified by signs. Therefore, a name can mean one thing now and another later, either because

> of diversity of sounds only — as in synonyms, in which there are different sounds but the very same thing signified; or also to different sounds can correspond different ideas : either because of a diversity in things signified or because of a diversity in the quality of the ideas — which latter takes place when there is a diversity of connotations consequent upon a diversity in the ways of understanding one and the same thing (14).

In this passage and in the one quoted above from the Contra Gentes, St. Thomas makes reference to what he calls the mode or quality of signification. In the chapter on the first imposition of a word, we shall see priciesly what the quality of signification means in terms of the correspondence between the mode of knowing and the mode to be found in sensible things.

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(14) - Quaestiones Quodlibetales, Quodlibetum 4, a. 17 : "... non voces sunt signa intellectuum, intellectus autem sunt rerum similitudines. Manifestum est autem quod unitas vocis significativae vel diversitas non dependet ex unitate vel diversitate rei significatae; alioquin non esset aliquod nomen aequivocum; secundum hoc enim si sint diversae res, essent diversa nomina, et non idem nomen. Dependet ergo unitas vel diversitas vocis significativae, sive complexae sive incomplexae, ex unitate vel diversitate vocis vel intellectus; quorum unum, scilicet vox, est signum et non signatum tantum; intellectus autem signum et signatum, sicut et res. Potest ergo nomen vel enuntiabile esse aliud et aliud vel propter diversitatem vocis tantum sicut est in synonymis, in quibus est diversa vox, sed idem significatum omnino : vel etiam cum diversitate vocis potest esse diversitas intellectuum, sive propter diversitatem rei intellectae, sive propter diversitatem modi intelligendi; et hoc contingit quandoquando est diversitas consignificationis; quae consequitur diversum modum intelligendi unam et eandem rem..."

Thus, in summary, we have seen indicated certain of the more salient properties and relations to which the human word is subject. In following chapters we shall investigate the "common uses" of words and the order of imposition, so that we may get some insight into the function of the word as a necessary principle of knowledge.

2 - The Common Use of a Word.

The aim of this chapter is to examine the distinctions between the common use, the etymology, the first imposition, and the nominal and real definitions of a word. These distinctions will serve a two-fold purpose : first, they will be instrumental in helping us to offer an answer to the question : of what importance to the philosopher is the common use of a word ? Secondly, these general distinctions will later serve as the basis for distinctions in the use of the word "nature".

In the Topics Aristotle says that in our use of words we should attend to the meaning which is given them by "the many", the man-in-the-street :

> Things are to be called by the same names the multitude use; but when we ask about the quality of things, whether they be such or such, we no longer attend to the multitude. For instance, that which is productive of health is to be called salubrious; but whether a certain thing in question be productive of health is to be decided by what the physician says, and not by what the multitude say." (1)

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(1) - Topics II, ch. II, text. 6.
Cf. also : Contra Gentes, I, c. 1 ; De Ver., q. 4, a. 2; In I Post. Anal., lect. 4 n. 6 : "... significatio autem nominis accipienda est ab eo, quod intendunt communiter loquentes per illud nomen significare."

Aristotle distinguishes the common signification of the word and the knowledge of the object to which the word refers. The ordinary (1) usage of the word as standardised by the lexicographer is to be followed for the common meaning; the expert, the authority in the field, is to decide whether such a word with such a meaning denominates adequately an object under discussion. Loquendum cum multis, sentiendum cum paucis, runs the ancient saw. Thus, for example, the ordinary man determines the meaning of the adjective "dead"; but it belongs to the biologist to determine whether or not a particular plant is at present dead or still alive.

In drawing the distinctions between the nominal and the real definitions of a thing (2), we must not forget that the lack

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(2) - Cajetan, In de Ente et Essentia, Procemium n. 8 (Maristti) : "Circa hanc particulam nota quod sicut quid rei est quidditas rei, ita quid nominis est quidditas nominis. Nomen autem cum essentialiter sit nota earum quae sunt objective in anima passionum ex I Perihermenias, non habet aliam quidditatem nisi hanc quod est signum alicujus rei intellectae seu cogitatae : signum autem, ut sic, relativum est ad signatum. Unde cognoscere quid nominis nihil est aliud quam cognoscere ad quod tale nomen habet relationem ut signum ad signatum. Talis autem cognitio potest acquiri per

(1) - Note that "ordinary" has at its root the word "order". We shall see that the order in question here is a natural order.

of a real definition expressing the what-it-is (essence) of a thing does not necessarily imply the lack of a nominal definition of that thing. We cannot define "carrot" exactly : it may be difficult to determine beyond all shadow of doubt exactly what it is that makes a carrot a carrot and not a parsnip or a turnip. But we can point to a carrot, we can give its apparently distinctive qualities, we can approximately describe its color, its figure, its size; we taste the difference. All this may be included in the nominal definition of the carrot. As a matter of fact, the nominal definition of a thing offers a good critique of the real definition of that thing; the real definition must define what is pointed out or described by the nominal definition. In his commentary on the Posterior Analytics, St. Thomas writes :

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(2) - continued

accidentalia illius signati, per communia, per essentialia, per motus et quibuscvis aliis modis. sicut a rustico quaerentibus nobis quid nominis anthropos si digito ostendatur homo, vel per similitudinem quid pictum; et similiter de aliis. Interrogantibus vero quid rei oportet assignare id quod convenit rei significatae in primo modo perfectionis adaequatae. Et haec est essentialis differentia inter quid nominis et quid rei, scilicet quod quid nominis est relatio nominis ad signatum; quid rei vero est rei relatae seu significatae essentia. Et ex hac differentia sequuntur omnes aliae quae dici solent, puta quod quid nominis sit non entium complexorum, per accidentalia, per communia per extranea; quid rei vero est entium incomplexorum per propria et essentialia : relatio enim vocis potest terminari ad non entia in rerum natura, et complexa, et declarari per accidentalia et hujusmodi; essentia autem rei non nisi per propria essentialia habetur de entibus incomplexis.

> The question "does this exist ?" precedes the question "what is this ?" But it cannot be shown whether a thing exists, unless it be first understood what the name of the thing signifies." (3)

Further, the incertitude which attaches to the nominal definition does not destroy the certitude of the real definition, once it has been reached : if we doubt whether every featherless biped be a man, we do not by that fact doubt that man is a rational animal. This is because we are not giving a real definition of a word; rather we define the object whose nominal definition is "featherless biped".

The distinctions between the common use of a word, its first imposition, its etymology and the notion of a thing will be useful at this point. Later we shall see the importance of these distinctions in the face of some of the criticisms made in Book V of Aristotle's Metaphysics, which is, as we shall see, something other than a dictionary of philosophical terms chosen at random.

As we have already pointed out, the common use of a word yields the meaning which the word has when used by the multitude. This use is, in general, characteristically concrete and colorful.

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(3) - In I Post. Anal., lect. 2 n. 5 . "Unde quaestio, an est praecedit quaestionem, quid est. Sed non potest ostendi de aliquo an sit, nisi prius intelligitur quid significatur per nomen."

When we ask for an example of something "substantial", the ordinary man will point to the heaviest, most solid thing in sight; and he would be inclined to deny that a body of water is as substantial as a mountain.

The notion of a thing is most often used as roughly synonymous with the nominal definition of a thing, with this difference, however, that the notion means rather the general idea or conception of a thing; whereas nominal definition refers more to the common-sense meaning of a word than to the idea of a thing. The nominal definition of "natural" is given by pointing to a horse or to a tree. The notion of "natural" is given by an explanation of one's general idea of what "natural" implies. It is in this sense that the expression "notion of nature" is used in the title of this paper.

The etymology and the first imposition of a word are distinguished from the common use and the nominal definition of a word inasmuch as the notions of neither etymology nor first imposition contain any necessary reference to an actual past or present usage, as do the notions both of common use and nominal definition of a word. Etymology and first imposition are formally distinguished one from another by the fact that it belongs to the grammarian to study the derivation of a word by analysing its parts, by seeking the root from which it derives, or by referring it to an earlier form of the

present language; it belongs to the wise man in his character as judge to determine the first imposition of a word, i.e. signification which corresponds to what is first known in the object signified - as will be explained more fully in the following chapter. Further, etymologies of words signifying the same object may vary in different languages, but the first imposition, since it is but the verbal expression of the original sense-knowledge of an object, is common to all word-signs of the same object, no matter what the language (4). Note that the etymology of a word need have no direct

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(4) - This is not to imply, however, that there is a one-to-one correspondence between words of one language and the words of another. Words differ according to the experience and importance of certain objects in the lives of various peoples. - In II Eth., lect. 8, n. 341 : "... est innomi natus, quia raro hoc accidit. Et multa similiter sunt innominata, propter hoc, quod homines ea non advertunt communiter, ut sic ipsis nomina imponerent." - Cf. also : P. Weiss, Nature and Man, (Princeton U. Press, 1944) p. 61 : "After I had finished this book, I came across the following by the brilliant Benjamin Whorf (The Technology Review, vol. XLII, April 1940, p. 6) : 'Hopi has a noun that covers everything or being that flies, with the exception of birds, which class is denoted by another noun. The former noun may be said to denote the class — flying class minus bird. The Hopi actually call insect, airplane, and aviator all by the same word, and feel no difficulty about it. The situation, of course, decides any possible confusion among very disparate members of a broad linguistic class, such as this class. This class seems to us too large and inclusive but so would our class "snow" to an Eskimo'. We have the same word for falling snow, snow on the ground, snow packed hard like ice, slushy snow, wind-driven snow — whatever the situation may be. To an Eskimo, this all-inclusive word would be almost unthinkable; he would say the falling snow, slushy snow, and so on, are sensuously and operationally different, different things to contend with; he uses different words for them and for other kinds of snow. The Aztecs go even farther

correspondence to the order of imposition as determined by the metaphysician; nor need the first imposition of a word correspond to any common use of that word. It may be, for example, that internal experience is the main factor in determining the first imposition of a word, which word was used almost from the beginning to denominate a more general class of objects. The metaphysician, in order to manifest further impositions, may find it necessary to determine the first imposition, which may not, as in the case of word "nature", find confirmation in the original common use of that word. All this will become clearer once we have determined the principles which govern the first imposition of a word, and have analyzed the order of imposition of the name "nature" as given in the Metaphysics. Here we shall concern ourselves primarily with the common use of words, in order to see what is its importance, if there be any, to the philosopher who is seeking knowledge of the objects designated by those words. To the extent that we recognize this importance, to that extent will we have answered the difficulty of those who see in Aristotle's use of the terms "nature" and "natural" an unwarranted word-play; he gives to them very general and ordinary meanings both before and after he gives a strict definition of these terms, which

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than we in the opposite direction, with cold, ice, and snow all represented by the same basic word with different terminations; ice is the noun form; cold, the adjectival form, and for snow, 'ice mist'." — Cf. : Ernst Cassirer, Language and Myth (New York : Harper and Brothers, 1946) pp. 39-40.

it is said, presents a major obstacle to a scientific interpretation of the Physics.

We have seen in what way the artificiality and sensibility of words help to make them better known to us than the concepts they signify. In the order of knowledge the sensible is known first. As an artifact the word is measured by our intellect, and so is human creation

In brief, we have seen something of the importance of words in manifesting ideas. The problem here is : precisely why is the common use of words important to the life of the intellect ? why not abstract from the way in which words are commonly used and make a fresh start ?

The answer is given implicitly in Aristotle's words :

> The effect which lectures produce on a hearer depends on his habits; for we judge to be proper the language to which we are accustomed, and that which is different from this seems strange, somewhat unintelligible, and foreign because of its unfamiliarity. For it is the customary that is better known to us. And how great force the habitual possesses, the laws make manifest, in which fabulous and puerile things have greater force from usage than the reality of our knowledge concerning them." (5)

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(5) - Metaphysics, II. (a) ch. 3, 994b32-995a6; cf. : In II Metaph. l. 5 nos. 331-333, St. Thomas explains the reference to laws : "Loquitur autem hic Philosophus de legibus ab hominibus adinventis, quae ad conservationem civilem sicut ad ultimum finem

This text shows the relation between the intellect and that to which we are proportioned by habit, by custom. What we hear repeatedly we are inclined to receive as true; these are the words called common words. Aristotle, in explaining what he means in saying that the customary is most readily accepted, gives the example of the man who will pay no heed to a scientific explanation unless it is presented in a mathematical way; but even more acceptable, because more customary, is the common use of words. A difficulty remains, however, in seeing precisely why it is that we accept more readily what we are used to hearing. But since an adequate answer would require a paper quite as long as the whole of the present one, we must rest content with a general notion of the relation between custom, intellect, and will as pertaining to words.

An example of the application of the common use of words to a philosophical problem is found in the Physics (6). In searching for the intrinsic principles of absolute generation, Aristotle first makes use of the words "matter" and "form" in their common meanings as referring to the accidental principles of an artificial thing, in

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ordinantur; et idco quicumque invenerunt eas, aliqua quibus hominum animi retrahuntur a malis et provocantur ad bona secundum diversitatem gentium et nationum in suis legibus tradiderunt, quamvis multa eorum essent vana et frivola, quae homines a pueritia audientes magis approbabant quam veritatis cognitionem."

(6) - Physics, I, ch. 7.

order to shed light on the first principles of becoming. Prime matter is unintelligible unless one first sees what is meant by the matter of an artificial thing (7). Here, then, is an example in which the simple words "matter" and "form" in their common meanings are indispensable to a right understanding of the Aristotelian doctrine of absolute change.

St. Thomas explains that habits born of custom incline in a natural way; what we are accustomed to becomes, as it were, second nature. The common denominator of both natural habit and of custom is a proportion to the object of inclination. Just as man by his human nature is proportioned to first principles; and just as man in virtue of his habit of temperance is proportioned to acting temperately; and just as man in virtue of the particular disposition of his taste-buds is proportioned to what pleases his taste at any particular moment; so man, in virtue of custom, is proportioned, by a habit similar to a natural habit, to accepting what he is accustomed to hearing. At the beginning of our intellectual life, we are unable to judge what we hear; our intellects are a long time in the process of <u>in-forma-</u>

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(7) - Cf. <u>In I phys.</u>, lect. 13, n. 9 : "Quod igitur sic se habet ad ipsas substantias naturales, sicut se habet aes ad statuam et lignum ad lectum, et quodlibet materiale et informe ad formam, hoc dicimus esse materiam primam."
Cf. also : <u>In I Phys.</u>, lect. 15, n. 10 : "ad manifestandum materiam primam, oportet uti exemplo sensibilium substantiarum."

tion (8). It is at this stage of our intellectual life that the will plays an important role. The will is a faculty which receives that which pleases it. But the will is pleased by that to which it is proportioned by custom. Now the will desires the perfection of the whole man, and consequently desires the good of the intellect which is knowledge. Since the intellect has as yet few standards of its own by which to judge (since it does not see), the will supplies for this properly intellectual function and orders the intellect to receive what it commands, which both in the present and to a lesser extent, in the future acts as the measure of what is presented. The object as obscure cannot move the intellect. But the object as pleasing the will can move the will. The will then moves the intellect to accept what it offers, not because it is seen but because it is pleasing — "non quia visum sed quia placens".

Since the common use of words to the extent that it is common (9) is a prime example of what we accept because of custom, we may

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(8) - Cf. Contra Gentes I, c. 11. Cf. Comm. of Ferrara : "Praedicta autem opinio provenit partim quidem ex consuetudine qua ex principio assueti sunt nomen Dei audire et invocare. Consuetudo autem, et praecipue quae est a puero, vim naturae obtinet, ex quo contingit ut ea quibus a pueritia anima imbuitur, ita firmiter teneat ac si essent naturaliter et per se nota."

(9) - Rhetoric, III. ch. 2, (ed. Bohn) : "Words however of ordinary use, and in their original acceptations, and metaphors, are alone available in the style of prose : a proof (that this is the fact, is) that these are the only words which all persons employ; for everybody carries on conversation by means of metaphors, and words in their primary sense, and those of ordinary use.

say that the common use of words (because of the influence of the will) is well-known to us (10). Now one of the general methodological principles of intellectual progress is, briefly, that we begin with what we know and proceed to what we do not know; and among those things we know, what we know best must be our starting point. Applying this principle to our use of words, we may infer that in looking for the what-it-is of a thing we must begin with what we know best about that thing, namely that which is conveyed by its name. Now since we see that the name of a thing may have various meanings, we must take as our starting point the most common meaning of that name. Consider, for example, the word "form". What is the "form" of a thing ? For one who has some acquaintance with Aristotelian terminology, it is difficult to resist the temptation to say that the "form" of a thing signifies first of all its substantial principle of actuality - its substantial form. The common meaning of the "form" of a thing is, however, its shape, its figure. It might be shown, moreover, that an adequate knowledge of what Aristotle means by "substantial form" can never be grasped unless one is aware of the common meaning of

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(10) - Cf. John of St. Thomas : In IIa-IIae, qu. 57, a. 8 (disp. 18, a. 4, n. 11);
also Cajetan : In Ia-IIae, qu. 158, a. 5 (n. X);
also De Trin., qu. 3, a. 1

"fate" (11). The general problem of the importance of a knowledge of the common meanings of a word to its later, more abstract meanings is treated briefly in the next chapter on the first imposition of a word. Here we shall investigate this relation only through a sign, an example, and by analogy with the order of acquisition of the various parts of philosophy.

A sign of the importance of the common use of a word is given by St. Thomas in a treatment of the word "fate" — can "fate" be used as a synonym of Divine Providence ? St. Thomas answers :

> But since we should not have even names in common with infidels, lest occasion of error arise from sharing names with them; the name "fate" should not be used by the faithful lest we seem to agree with those who had the wrong notion of fate", who subjected all to a necessity in the stars. (12)

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(11) - Weiss, op. cit., p 185 : "The meanings of most words are slowly modified in the course of history. Occasionally, however, some powerful individual or group, some crisis in thought or fact, compels men to change the signification of the words they have been accustomed to use. Plato turned the term "sophist" from one of praise into one of contempt. Aristotle took the ordinary Greek words for timber and shape and made them into the philosophic 'matter and form' with new and wider meanings."

(12) - Contra Gentes, III, ch. 93 : "Sed quia cum infidelibus nec nomina debemus habere communia, ne ex consortio nominum possit sumi erroris occasio; nomine fati non est a fidelibus utendum, ne videamur illis assentire qui male de fato senserunt, omnia necessitati siderum subiicientes."
Cf. In I de Anima, lect. 8 n. 107 : "... plerumque quando reprobat opiniones Platonis non reprobat eas quantum ad intentionem Platonis, sed quantum ad sonum verborum ejus. Quod inde facit, quia Plato habuit malum modum docendi.

very often, to admit a name is to admit too much.

The neglect of the common use of words as a principle of knowledge finds a parallel in the neglect by philosophers of the inferior disciplines — grammar, poetics, and rhetoric. Heidegger has said that "what philosophy needs today is less metaphysics and more grammar." Though in the order of perfection metaphysics is the principle of the other sciences, it is the inferior sciences and disciplines which are principles of metaphysics in the order of acquisition. Required for the understanding of this most intelligible of human sciences is great determination or perfection of the intellect. Whence if not from the inferior disciplines and sciences can the intellect acquire this determination ? If certitude is the determination of the intellect to its object, and if the object treated by metaphysics is of such a degree of intelligibility that it is named "vision", and if the intellect is at its inception pure potency, then the certitude had by the subject — formal certitude — is very poor, though it is true that the certitude of the matter

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Cordis enim figurate dicit, et per symbola docet : intendens aliud per verba, quam sonent ipsa verba; sicut quod dixit animam esse circulum. Et ideo ne aliquis propter ipsa verba incidat in errorem, Aristoteles disputat contra eum quantum ad id quod verba ejus sonant."

in metaphysics is the greatest possible in the natural order. To deny its tenuity in formal certitude would be to identify what is best known by us with what is, of itself, most knowable.

If the disciplines which perfect the intellect are neglected, philosophy is cut off at its roots. We must start with what we know, with what is first and most proportioned to us, to arrive at an understanding of what is least proportioned to us. Since our intellects are the lowest possible in the hierarchy of intellects, we must recognize this inferiority and not proceed as though we were possessed of intellects proper to separated substances.

Analogously, the neglect of the common use of words means a neglect of what we know best in favor of what we know less well. That a slighting of the common use of a word means a slighting of what we know best in a thing is evident from the fact that it is the multitude who both determine what is best known in a thing and consequently give such and such a meaning to its name. We follow the many in our use of words because nature inclines us to this, as St. Thomas explains:

> If things are two [in number], we say "both" things, and we call two men "both" men; but we do not say "all" things or "all" men. We use this word [all] in referring to at least three things. And all commonly use this manner of

> speaking, because nature inclines us to this. For peculiarities in one's way of speaking come from conceptions peculiar to the individual; but what all commonly observe [in speaking] seems to come from a natural inclination (15).

A neglect in observing common usage is equivalent to intellectualistic tyranny; just as in moral matters the laws of a tyrant follow not nature but the tyrant's own will, so the will of the individual rather than that of the multitude becomes the principle of the meaning of every word. This becomes arbitrary in a derogatory sense, being dependent on intellectual whims and fancies peculiar to an individual.

In this chapter we have attempted to see in what sense the common use of words is justified and in what sense necessary. We now see why Aristotle is justified in using, and finds it necessary to use, the word "natural" in its ordinary meanings throughout the first book of the Physics; for it is in these common meanings that he finds help in determining the what-it-is of nature as defined at the beginning of the second book of the Physics.

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(15) - In I De Coelo, ch. 1, lect. 2, n. 6 : "Et dicit quod etiam assignamus vocabula rebus secundum modum praedictum, quo scilicet perfectio competit ternario. Si enim aliqua sunt duo, dicimus quod sint ambo, et duos homines dicimus ambos ; non autem de bis 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, videntur provenire ex propriis conceptionibus uniuscujusque ; sed id quod observatur communiter apud omnes, videtur ex naturali inclinatione provenire".

3. - The First Imposition of a Word.

"Any sort of ignorance of first or primitive names involves an ignorance of secondary words; for they can only be explained by the primary. Clearly then the professor of language should be able to give a very lucid explanation of first names, or let him be assured he will only talk nonsense about the rest." (Plato, Cratylus. 436.)

"The words of the teacher cause knowledge more directly than do sensible things outside the soul, insofar as words are the signs of intelligible things." (St. Thomas) (1)

In this chapter we come to the crucial point of our investigation of Aristotle's conception of the importance of words in acquiring scientific knowledge of a thing. Having seen how the common notion of a thing can be a principle of knowledge, we now ask how a knowledge of the order of imposition of a word can be a principle of knowledge of the object signified. "Order of imposition" here means nothing more than the ordered relation between two or more meanings of a word. The purpose of this chapter is to show that such a relation exists, and that this relation is important.

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(1) - De Ver. q. 11, a. 1, ad 11 : "Verba doctoris propinquius se habent ad causandam scientiam quam sensibilia extra animam, inquantum sunt signa intelligibilium intentionum." Cf. Ernst Cassirer, Language and Myth, op. cit., p. 61 : "Indeed, it is the Word, it is language, that really reveals to man that world which is closer to him than any world of natural objects and touches his weal or woe more directly than physical nature."

The common meaning of a word tells us what all men know about a thing, and to disregard this meaning would be, in effect, to think in a vacuum shut off from reality — reality as expressed by ordinary, every-day language. To disregard the first imposition of a word when it is necessary to make a scientific study of the thing signified is disastrous in yet another way : one cuts oneself off from what is first known about a thing.

The distinction between the first imposition and the common use of a word (a later imposition) is treated by St. Thomas in distinguishing the word "seeing" :

> "We can speak of a word in two ways, either according to its first imposition, or according to the use of the word. This is clear in the word 'seeing', which is first imposed to signify the act of the sense of sight. But because of the dignity and certitude of this sense, the word is extended in use to all knowledge of the other senses; for we say : see how it tastes, or how it smells, or how warm it is. 'Seeing' is applied even to intellectual knowledge, as St. Matthew says : 'Blessed are the clean of heart, for they shall see God'". (2a)

(2a) - "Dicendum quod de aliquo nomine dupliciter convenit loqui : uno modo, secundum primam eius impositionem; alio modo, secundum usum nominis. Sicut patet in nomine videndi, quod primo impositum est ad significandum actum sensus visus ; sed propter dignitatem et certitudinem huius sensus extensum est hoc nomen, secundum usum loquentium, ad omnem cognitionem aliorum sensuum; dicimus enim : vide quomodo sapit, vel quomodo redolet, vel quomodo est calidum; et ulterius etiam ad cognitionem intellectus, secundum illud Matth. V8 : 'Beati mundo corde, quoniam ipsi Deum videbunt'". Ia, qu. 67, a. 1.

It is impossible, as we shall see, to understand the definition of nature given in the Physics unless one knows the first two imposition of the word "nature". Without this knowledge, one cannot use what is better known to manifest what is less known. We must now enter into a brief examination of the order of learning, asking what it is we know first, then apply what we learn to the corresponding order in naming things according to the principle "we name as we know". (3)

The root of the answer to our inquiry into what is first known in an object and its relation to naming is given by St. Thomas summarily when he considers how our mind proceeds towards a knowledge of the essences of things :

> Our intellect, which takes cognizance of the essence of a thing as its proper object, gains knowledge from sense, whose proper objects are external accidents; hence from external appearances we come to a knowledge of the essences of things. And because we name a thing as we know it, so from external properties names are often imposed to signify essences. Such names are sometimes taken strictly to denote the essence itself, the signification of which is the principal object; but sometimes, and less strictly, to denote the properties from which they are imposed. (4)

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(3) - Ia, qu. 32, a. 2, c. ; "Cognoscamus sicut cognoscimus".
(4) - Id, qu. 18, a. 2, c. ; "... intellectus noster, qui proprie est cognoscitivus quidditatis rei ut proprii objecti, accipit a sensu, cuius propria objecta sunt accidentia exteriora. Et inde est quod ex his quae exterius apparent de re, deve-

The senses give us knowledge only of the accidents of a thing : its color, shape, smell, etc. Thus what we first know about a thing is its accidental properties. It is from these accidental properties (id a quo) that the name of a thing is first imposed on the substance of that thing (id ad quod). If the word be considered apart from its sensible imposition, we depart from our proper mode of knowing, in which there is always a resolutio ad sensum. The first imposition of a word is an instrument in this resolutio ad sensum, and being more manifest than a more abstract imposition, to that extent does it refer more determinately to objective reality; for the certitude of intellectual knowledge depends more or less remotely on the certitude of sense knowledge (4b). If we neglect to

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nimus ad cognoscendam essentiam rei. Et quia sic nominamus aliquid sicut cognoscimus illud, ut ex supradictis patet, inde est quod plerumque a proprietatibus exterioribus imponuntur nomina ad significandas essentias rerum. Unde huiusmodi nomina quandoque accipiuntur propria pro ipsis essentiis rerum, ad quas significandas principaliter sunt imposita ; aliquando autem sumuntur pro proprietatibus a quibus imponuntur, et hoc minus proprie."

(4b) - De Ver., qu. 12, a. 3, ad 2; ibid., ad 3 :
"..... Judicium non dependet tantum a receptione speciei, sed ex hoc quod ea de quibus judicatur, examinentur ad aliquod principium cognitionis, sicut de conclusionibus judicamus eas in principia resolvendo... Sed quia primum principium nostrae cognitionis est sensus, oportet ad sensum quodammodo resolvere omnia de quibus judicamus; unde Philosophus dicit in III Caeli et mundi, quod complementum artis et naturae est res sensibilis visibilis, ex qua debemus de aliis judicare; et similiter dicit in VI Ethic. (cap. VIII in fin), quod sensus sunt extremi sicut intellectus principiorum; extremum appellans illa in quae fit resolutio judicantis."
Here St. Thomas is speaking of resolution in the whole order

consider the first imposition of a word as a principle in manifesting what is first known in a thing, we place ourselves in the position of a man who tries to put up the walls of a house before he lays its foundation. If our use of a word has no relation to the first (sensible) imposition, the word is no longer an instrument of the intellect and cannot but lead to confusion.

In summary, because our knowledge is posterior to the things we know whereas God and the angels know a thing in themselves (5), our proper mode of knowing is an extrinsic one, that is, we learn from (id a quo) the external appearances of things through the senses. It is for this reason that what we know first is the sensible appearance of a thing (6). We name as we know and we know first

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of human knowing; when he says elsewhere (cf. In De Trin., qu. 6, a. 2, c.) that philosophy of nature resolves to sense, mathematics to the imagination, and metaphysics to the intellect, he is speaking only of a part of human knowledge — purely intellectual knowledge, or science, which depends upon principles as related to matter. Resolution to sense, however, is primary.

(5) - De Ver., qu. 2, a. 5, c.

(6) - Lassiter, op. cit., pp. 74-75 : "The spiritual depth and power of language is strikingly evinced in the fact that it is speech itself which prepares the way for that last step whereby it is itself transcended. This most difficult and peculiar achievement is represented by two fundamental, linguistically grounded concepts — the concept of "Being", and the concept of the "I". Both appear to belong, in their complete significance, to a relatively late development of language; both show, in their grammatical forms, clear traces of the difficulties which verbal expression encountered in face of these concepts, and could master only by slow degrees. In regard to the concept of Being, a glance

through the senses. Hence, what we name will not transcend the realm found in sensible things. At the beginning of our intellectual life the name calls to mind the kind of concept which is only an approximation of the what-it-is of a thing. When we do attain that which makes a thing to be what it is, we must keep our link with reality as it can first be known, through the first imposition of the word. Consider, for example, the relation between the form or figure of a thing and its substantial form. (It is by its form or outline that we first know an elephant as distinct from a giraffe; it is by its substantial form that an elephant is really distinct from a giraffe). To ask someone ignorant of the first imposition of form (figure) to explain substantial "form", would be no more fruitful than asking him to explain substantial "xyz".

Now we can see why it is that a later imposition need not forego the wealth of immediacy given by the first imposition, contrary to what Cassirer writes in Language and Myth :

> But although language and art both become emancipated, in this fashion, from their native soil to mythical thinking, the ideal, spiritual unity of the two is reasserted upon a higher level. If language is to grow into a vehicle

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at the development and the original etymological meaning of the copula in most languages shows how verbally oriented thinking arrived only very gradually at a distinction between "being" and "being-so". The "is" of the copula almost unfailingly goes back to a sensuously concrete original meaning; instead of conveying mere existence or a general state of being, it originally denoted a particular kind and form of appearance; especially being in a certain place, at a specific point in space."

> of thought, an expression of concepts and judgements, this evolution can be achieved only at the price of foregoing the wealth, and fulness of immediate experience. In the end, what is left of the concrete sense and feeling content it once possessed is little more than a bare skeleton (7).

If one neglects the first imposition, the real definition one assigns remains open to question: it is as though someone found a bone which he claimed was the thigh-bone of a pre-historic man, yet on being questioned, could not tell where and in what stratum of the earth he had found it.

The question which now comes to mind is this : How does one establish which is the first imposition of a word ? (8) What general rules and criteria can we lay down to determine what it is we first notice and denominate in a thing ? (9) Shakespeare has this to say :

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(7) - Cassirer, Op. cit., p. 70.

(8) - It belongs to the metaphysician to determine the first imposition of any particular word. Here will be given only some general notions connected with the first imposition and the order of imposition; we shall find these notions of value in considering the first imposition and the order of imposition of the word "nature".

(9) - Cassirer. op. cit. pp. 24-25 : "The formulation of a general concept presupposes definite properties; only if there are fixed characteristics by virtue of which things may be recognised as similar or dissimilar, coinciding or not coinciding, is it possible to collect objects which resemble each other in a class. But — we cannot help asking at this point — how can such differentias exist prior to language ? Do we not, rather, realise them only by means of language, through the very act of naming them ? And if the latter be

> The present eye praises the present object ;
> Then marvel not, thou great and complete man,
> That all the Greeks begin to worship Ajax;
> Since things in motion sooner catch the eye
> Than what not stirs (10).

What we notice first must be sensible, since sensation precedes intellection (what is actually sensible is prior to what is only potentially intelligible); and, being sensible, is accidental to the what-it-is of a thing. Now what is the sensible accident which is most the actual for us ? Is it not the movement of a thing ? Though the most perfect actuality implies no real movement, nevertheless, for us, what is most actual is the thing in movement. This is so because of the very nature of sense knowledge. Every act of sensation is the result of an entitative assimilation, a physical, material interaction taking place between the sense and the passive organ; the vividness of the sensation depends, within certain limits, on the movement, the striking force of the stimuli which impinge upon the organ. - is not a blow on the hand more vividly sensed than a slight tap ? - and is it not easier to see a thing in the distance when it is in motion ? (11) Again, movement is a common sensible, and as such, can be known by all the senses. No other acci-

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the case, then by what rules and what criteria is this act carried out ? What is it that leads or constrains language to collect just these ideas into a single whole and denote them by a word ? What causes it to select, from the ever-flowing, ever-uniform stream of impressions which strike our senses or arise from the autonomous processes of the mind, certain pre-eminent forms, to dwell on them and endow them with a particular 'significance' ?"

(10) - Troilus and Cressida, Act. III, sc. iii.

(11) - Cf. Ia, q. 56, a. 1; ibid., q. 85, a. 2, ad 3; ibid., q. 87, a. 3, ad 3.

dant is as actual for us.

A sign of movement's pre-eminent actuality can be found in the fact that for us the most striking species of opposition is that of contrariety, in which there is a movement from one term to another say from black to white. Even though contradictory opposition is better known, it is less striking. Contradiction is perceived by intellect alone, whereas some contradictions are the object of sense.

Confirmation of the pre-eminence of movement in actuality can be seen in a consideration of the very terms "act", "active", "actual", etc. We should not ordinarily say that thinking was so much an "act" as running; nor that a clerk was as active as an athlete. Why should this be if not that, to us, "act" and "active" imply first of all a sensible, physical movement, which is more proportioned to us, and thus more real and vivid than the acts of the intellect or any other act ?

We can see now that the first imposition of a word refers us to sensible reality, and to that which is most striking in sensible reality, namely movement. Hence, when we come to consider the meanings of the word "nature", we shall be able to see why Aristotle tells us that "nature" in its first imposition has to do with movement. Further it is now evident that the objection made by Cassirer

loses much of its force if we keep in mind the relation between the first imposition and the other meanings. There is no need to lose the "wealth and fulness of immediate experience" in later uses of the word; if we use the first imposition of a word and its common use as principles to manifest its later, more abstract meanings, we lose nothing. In short, it is a dangerous thing, as Cassirer points out, to allow the concrete meaning of a word, to become entirely seperated from a later, more abstract meaning; but, as we have seen, this is not necessary, nor will we find that Aristotle in his treatment of the meanings of "nature" falls into this error.

4. - Universals in Significando.

One common criticism of Aristotelian language is that it is word-poor. Aristotle, it is said, makes a few words do the work of a great many; as a consequence, the same word means one thing here, and then again something different in the very next sentence. This, it would seem, is loose writing and not at all adapted to rigorous exposition of philosophy.

We consider this problem here because Aristotle's use of "nature" is one instance which falls under the same general criticism — to give to one word so many meanings is to leave the door open to confusion and misunderstanding. To resolve this difficulty we shall first consider briefly what is meant by, and then give some few examples of, "universal in signifying".

The word is defined in relation to the mind, for it is a sign and instrumental cause of the intellect. Therefore, to judge of the fittingness of a word is to judge it after its measure, the intellect. From the very beginning of the Perihermenias, St. Thomas does substantially this. He argues from the intellect to the word : if it be thus for the intellect, it must be thus for the word. The exterior word must correspond to the interior word or concept. Language suited to the expression of poetic ideas, for example, is not at all adapted

to convey scientific reasoning. What is true of different levels of expression, poetical, political, metaphysical, is true also of different levels of individual intellectual power; the language used by two men, one of whom is more intelligent than the other, will be different even in talking about the same thing. The man with the better knowledge of the thing at hand can make a very few words carry a great deal of meaning — though his words may call for explanation and commentary if his audience does not see into the matter as well as he. This is precisely the case with Aristotle as with every other superior mind. The more powerful the intelligence, the more perfect its ideas, the fewer and more simple its words, and the more universal in signifying are the words it does use correspondingly, the multiplication of words is a sign of inferiority in the realm of intellect. Stultus multiplicat verba sua (1). Thus the writings of Aristotle, if read by beginners without the help of a commentary, will, by reason of their very perfection in signifying appear to be a confused and often self-contradictory mass. It looks easy, in many ways, to read the works of Aristotle; the words are simple — but unfortunately for beginners, theirs is the simplicity of perfection (1a).

Perhaps we can get a better notion of the intelligent man's approximation to the universal in signifying by considering its dimen-

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(1) -

(1a)- The simplicity and perfection of certain of Aristotle's words may be seen from a point of viewother than the one taken in

trical opposite, a man who (per impossibile) could not universalise at all. These two men examine a number of different objects. The first sees that they differ only accidentally and gives them a common name; the other, unable to universalise and see what the objects have in common, gives a different name to each object.

There is a certain similarity between the words of a great thinker and the words of a poet : neither can be perfectly translated, neither can be perfectly given "in other words". Just as something is lost if but one word of a great poem is changed or omitted, or if the order of the words is changed, so there is something lost if the words of a great thinker are summarised, put "in other words.....", or translated : - to such an extent are his words his own.

We are now in a position to appreciate certain criteria which allow us to judge the quality of a mind from the manner in which it uses words to express itself.

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this paper; for in logic one may consider these words as deriving their simplicity and perfection from their status as analogical words, the use of which words belongs to the metaphysician as one who can see the common ratio of a word predicated of many things. Analogical words should not however, be confused with knowledge by analogy, examples of which were given earlier (the use of the matter of artificial things to manifest prime matter) to exemplify, by the process of using a thing more known to manifest some thing less well known, a similar process in the order of imposition.

The most perfect knowledge of all is divine knowledge. God the Father knows Himself so perfectly that He forms but one Word, Which is perfectly manifestative of Himself and of all else. In a like manner, the more perfect the angelic intellect, the less numerous are its intelligible species, which are as mental words; there is no one-to-one correspondence between word and things as there is for man. It seems, then, that the man who lacks a vocabulary as copious as the number of things he knows, will be hampered even in his thinking, (2) which is apparently contrary to the point we are trying to make. Yet this is not the whole of the matter. The man possessed of a superior mind approaches, in a way, the angelic intellect in that he can use one word to mean many things in different contexts. The wise man, the metaphysician, is able to order the meanings of a word; to him alone does it belong to know determinately the intentiones rerum (significations of things) (3).

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(2) - In William Shakespeare's Richard II (Act. I, sc.ii) Thomas Mowbray, Duke of Norfolk, banished forever by order of King Richard, says :

> "My native English, now I must forgo;
> And now my tongue's use, is to me no more
> Than an unstringed viol or a harp;
> Or like a cunning instrument ceased up,
> Or, being open, put into his hands
> That knows no touch to tune the harmony :
> Within my mouth you have engaol'd my tongue,
> Doubly portcullis'd with my teeth and lips;
> And dull unfeeling barren ignorance
> Is made my gaoler to attend on me.

(3) - In V Metaph., lect. I, n. 710. We shall consider this at greater length in the chapter on the imposition of "nature".

The reason why only a true metaphysician can order those impositions of words is that this ordering requires great perfection of knowledge (4). Inversely, what makes one intellect more perfect than another is its power to order more perfectly (sapientis est ordinare). Aristotelian language is simple inasmuch as the physical words are few. But in another respect it is not at all simple; a single word takes on a kind of universality in significando : it has many significations — not that to a single word there are made to correspond a number of distinct concepts at the same time, but that the word is measured by an intellect which is very perfect. For instance, when we know all the intentiones or significations contained under one word, our intellect is determined by many things. It is a sign of perfection for a philosopher to be able to use one word, e.g. "μορφή" to signify at different times different things. By using a single word, Aristotle could avail himself of the light which that signification most known to us could shed on a later imposition. The advantage given is that of a unity in knowledge; the whole order of learning concerning some object, the very process leading from the more to the less known, is expressed and contained in one word, as it were. In short, there are two sorts of simple language : that which is simple by poverty, as that of an infant; and that which is simple by perfection, such as the universals in significando of the metaphysi-

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(4) - IIIa. q. 60, art. 3. ad 1.

cism (5).

But, one might ask, if Aristotle uses a language so perfectly scientific why is he understood only with great difficulty ? This is due both to the great universality of his language, and to our weakness of intellect. An ordinary intellect cannot seize directly and adequately this universal language pregnant with such a wealth of significations. Again, we are too easily satisfied that we understand Aristotle — we seem to see so many inaccuracies and errors in Aristotle that we too easily find ourselves in the chair of the judge rather than in the cell of the novice.

A question remains as to the best method of reading Aristotle intelligently. If Aristotle's words often have the certain type of universality described above, how is the reader ever to read Aristotle with any degree of comprehension ? The answer to this question is that if one is to understand Aristotle, he must attach himself to the very words of Aristotle through the use of an intelligent verbal commentary. Since the very words Aristotle uses are an expression of

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(5) - According to St. Augustine and St Thomas, there are many litteral senses of Scripture; the implication is that its words manifest a most perfect intellect. We have here, in Scripture, a sort of universale in significando, that is, an oral term having many significations.
Cf. De Pot., q. 4, a. 1, c.

his understanding of a thing in question, his doctrine is limited to his very words. But how better can we come to a knowledge of Aristotle's doctrine than through an intelligent verbal commentary — which is nothing else than a manifestation of the unknown, Aristotle's words and doctrine, by the means of what is better known, namely certain fitting exterior sensible signs (6). The verbal commentary is a means of letting Aristotle speak for himself in words which are more easily knowable than those he had formed himself. If one is seriously to attempt to understand Aristotle, we must go to his very words, but, being disciples, through a medium proportioned to us, and not rest content with monographs or commentaries which purport to abstract the heart of Aristotle's doctrine for our instruction or enjoyment; for any commentary which does not apply the intellect to the very words of the teacher is abstract, is not a real means for the disciple of contact and continuation with the teacher, and , other things being equal, the less application to the text, the more chance for error (7). The verbal commentary is thus necessary for the disciple in the measure of his discipleship.

We have now some general notions of the simplicity and richness of the language of Aristotle. Certain general difficulties have

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(6) - Cf. De Veritate, qu. 11, a. 3.
(7) - S. Th. qu. 106, a. 1, and Cajetan's commentary, especially no. VI.

been answered and certain things presupposed to the study of the definition of nature have, it is hoped, been sufficiently elaborated. The next section of this paper will deal with a type of experience presupposed to and necessary for the understanding of "nature" — internal experience.

Chapter II

INTERNAL EXPERIENCE

1. - The Notion of Internal Experience.

It is the intent of this section to show that the definition of nature as given by Aristotle in Book II of the Physics cannot be properly understood without a definite idea of the type of interiority we know by internal experience; for to oppose the interiority of nature to the exteriority of art one must have a clear notion of what is meant by "being in".

The most common notion of interiority will be, as we have seen in considering the order of knowledge, that which comes from the external senses. For example, on the evidence of our eyes, we say, "the hat is in the box", or "the horse is in the barn". The other senses participate to some extent in verifying this interiority, but sight attains most clearly and distinctly this particular kind of "being in".

Now, according to common use, the same word is employed to signify a type of interiority quite different from the one we know well by sight. For example, in saying "the idea has been in my head for a long time", we have no intention of affirming a spatial presence of the idea in the head, i.e. in the manner in which the brain is within the skull. This type of interiority is not known by the external

senses, and so it is not first known to us yet it is so similar to the knowledge we gain from the external senses that, according to Locke, "an internal sense" gives us this experience (1). To understand the nature of this second type of interiority, it is necessary to consider the experience which enables us to know this type of interiority. We do not say that the matches have internal experience of being in a box, or that the box has internal experience of containing matches; nor again do we say ordinarily that man has internal experience of the process of digestion. We do say, however, that man has internal experience of living, willing, thinking, etc. An examination of "internal experience" will tell us much about the interiority of nature.

We have two different types of experience : we have the sensation of heat, and we have the experience of the sensation of heat. The first, can, within limits, be measured; the latter, though not liable to measure, seems to be at least as important as the former. A man may actually be warm, the thermometer may show it; yet due to the press of some occupation, he may now know, may not be aware of it. This realisation of warmth, whatever it be, clearly plays an important role in human activity. Whether or not it plays an important role in the study of natural things is the question to be answered here.

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(1) - John Locke, Human Understanding, II, chap. 4.

Now it is by internal experience that I know "I" am "I". Further, although my body is changing constantly, renewing itself, we are told, over a period of about seven years, I know that today "I" am the same man "I" was yesterday, last year, or ten years ago. The experience of living by which I know that "I" am "I" cannot be measured by any ruler, or thermometer, or counter -- yet I have this experience and I am certain that what I experience, I do actually experience. In his "Introduction à l'étude de l'âme", Dr. De Koninck writes of the experience of living :

> "The first notion of life, that to which we must always return, comes to us first of all and principally from the internal experience of living. To live is to touch, to taste, to smell, to hear, to see; to distinguish these sensations one from another, to imagine, to remember; to love, to hate, to move from place to place, to rejoice, to be sad; to understand, to reason, to wish. Life is first known to us in the consciousness of the very exercise of these operations; and if the words we use to designate them can signify anything for us, they bring us back readily to the exercise of the operations we experience in ourselves. But the activities which are produced in us without being acts of knowledge, or of desire, or a movement rising from knowledge, are to that extent obscure and can pertain only to external experience. I know that I know in knowing this bread; I know that I want it and that I move towards it to eat it; but in digesting it, I do not know that I digest it : this vegetative activity is not within the range of internal experience". (2)

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(2) - L'abbé Stanislaus Cantin, Précis de psychologie thomiste, "Introduction", p. XIII.
Cf. : De Ver., qu. 10, a. 8, c. : "In hoc enim aliquis

Here is the experience which lies at the root of all knowledge of the soul. Today, however, internal experience is sometimes discounted and held to be of no value (3). Aristotle, in the De Anima and the treatises immediately connected with it, the De Sensu et Sensato, for example, relies principally upon internal experience for verification of what he says. But today the method of mathematical physics is held up as the prototype of scientific method. What therefore is the value of internal experience, if it has any ? Does it have certitude ?

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percipit se animam habere, et vivere, et esse, quod percipit se sentire et intelligere, et alia hujusmodi vitae opera exercere; unde dicit Philosophus in IX Ethicorum : Sentimus autem quoniam sentimus; et intelligimus quoniam intelligimus; et quia hoc sentimus, intelligimus quoniam sumus."
cf. also : IIa-IIae, qu. 112, a. 5, ad 1 ;
In De Anima I, lect. 1, n. 6;
St. Augustine, On the Trinity, Bk. XV, chap. 12.

(3) - Many scientists, however, recognise that metrical science does not include all within the scope of human experience; see Herbert Dingle, Science and Human Experience, (London, Williams & Norgate, Ltd.) p. 76 : "It is of course obvious that a large part of the data of science is non-metrical in character. The schoolboy's name for chemistry is 'stinks', not 'balances' and a very appropriate name it is. Biologists observe the flight of birds very closely, but they do not trouble to apply the Fitzgerald-Lorentz contraction, not because it is too small to be important, but because it has no relation to the kind of observation they are interested in".

In the De Veritate (4), St. Thomas sheds light on the problem by distinguishing between the an est and the quid est in our knowledge of the soul :

> No one has ever erred in not perceiving that he lives [i.e. no one errs in perceiving that he is alive] , which pertains to the knowledge by which one perceives what is happening in his soul. By this knowledge, it was said, the soul is known according to its essence in a virtual manner [i.e. not actually and distinctly] , but many err concerning the proper nature of the soul.

Thus we see that certitude of the existence of my soul is not at all the same thing as certitude about the nature of my soul. "Presence of mind" suffices for the knowledge of the an est of the soul. But for a knowledge of the quid est "a diligent and subtle investigation is required". (5) "Presence of mind" here is nothing other than the consciousness of living.

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(4) - De Ver., qu. 10, a. 8, ad 2 : "... nullus erravit unquam in hoc quod non perciperet se vivere, quod pertinet ad cognitionem qua aliquis percipit quid in anima sua agatur; secundum quam cognitionem dictum est, quod anima per essentiam suam cognoscitur in habitu, sed error quod multos accidit circa cognitionem naturae ipsius animae in specie."

(5) - Ia, qu. 87, a. 1, c.; cf. : De Mala, II, qu. 16, a. 6 ; "... duplex est cognitio animae. Una quidem qua cognoscitur de anima quid est, discernendo ipsam ab omnibus aliis; et quantum ad hoc melius cognoscit animam daemon, qui intuetur eam in seipsa, quam homo, qui investigat naturam ipsius per actus ipsius. Alia autem cognitio est animae, qua cognoscitur de ea quod est; et hoc modo homo cognoscit animam percipiendo ipsam esse ex actibus suis quos experitur; et ad hunc modum cognoscendi pertinet illa cognitio qua cognoscimus nos aliquid cogitare. Quae autem sit natura cogitationis humanae, melius cognoscit daemon quam homo".

We may say then that man experiences through his acts the intrinsic principles of his acts; thus a man attains his life in his experience of living. One might question this conclusion by asking : does not a man become conscious of his own life only after seeing and knowing life as evidenced in others ? If not, it would seem that he would be bound up in subjectivity and never attain definite knowledge of life in others; how would he know he has human nature in common with other men ?

St. Thomas answers that it is in one of the ways in which the similitude of a thing can be in the intellect that we know intellects other than our own, through our own :

> "The similitude of a thing understood is in the intellect in two ways : Sometimes as other from the one knowing; sometimes as the very essence of the one knowing : as our intellect in knowing itself knows other intellects in so far as it is the similitude of other intellects. But the similitude of a stone, though existing in the intellect, is not its essence, because it is received in the intellect as a form in matter." (7)

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(7) - De Ver., qu. 2, a. 3, ad 1 : "Sed similitudo rei intellectae est in intellectu dupliciter : quandoque ut aliud ab ipso intelligente; quandoque vero ut ipsa intelligentis essentia; sicut intellectus noster cognoscendo seipsum cognoscit alios intellectus, in quantum ipse est similitudo aliorum intellectuum; sed similitudo lapidis in ipso existens, non est ipsa essentia intellectus, quia recipitur in eo sicut forma quasi in materia."

It might seem that this resembles Plato's innate ideas; but nothing could be further from the truth. Aristotle and St. Thomas always insist upon the priority of sense experience prerequisite to the reduction of the intellect from potency to act, though as Cajetan points out, in so far as the De Anima is founded on internal experience, it is superior in certitude to other parts of natural philosophy, which are for the most part founded upon external experience (8).

We tend naturally to transfer to the operations of things outside us what we know by internal experience of similar operations within us. Having had experience of reasoning, willing, and having been given the name "soul" to denominate the principle by which we perform these operations, we tend to call the principle of like operations in another, his "soul" (9). Yet we know the operations of another only by external experience, experience gained through

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(8) - Cajetan, In I De Anima, n. 11 (ed. by P. Coquelle, o.p., Angelicum, 1938).

(9) - However, once we narrow the definition of the soul to include only man, we find it hard to understand how a carrot could have a soul. In the Idea of Nature (Oxford, Clarendon Press, 1945) p. 4, R. G. Collingwood writes : "That vegetables and animals are physically akin to the earth is a belief shared by ourselves with the Greeks; but the notion of a psychical and intellectual sic kinship is strange to us, and constitutes a difficulty in the way of our understanding the relics of Greek natural science which we find in their literature."

Collingwood infers further that the reason the Greeks did not consider a natural thing to be a machine of sorts was

our external senses : we see someone act, we hear him speak, and though we cannot see or hear him think or will, we attribute to him an internal principle by which he performs these operations.

Mr. De Raeymaeker explains :

> Nevertheless the life which I experience, the knowledge I have of knowing sensible objects and of experiencing certain of them as parts of myself, as instruments of my knowledge and of my movements — all this makes me recognize in another, in his form, in his movements comparable to my own, a life similar to that which I can experience only in myself (10).

The importance of movement, in recognizing life cannot be over-estimated. In the book Man, On His Nature, Sir Charles Sherrington gives a vivid picture of the relation between life and movement :

> Deep down among human institutions is one that spontaneous movement means life. Our kith and kin among the animals entertain it as well as we, though for them, "life" is, of course, an unconceptualised thought. We know from ourselves that the indirect field of sight will see that moves when we fail to see what does not move. Our horse may shy at a blown leaf on the roadway, not at a

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> that they "were not machine users, except to a very small extent", and consequently machines "were not a prominent enough feature of their life to affect the way in which they conceived the relation between themselves and the world" — a condition which was remedied by the Renaissance. (pp. 8, 9)

(10) - Cf. Cantin, op. cit., p. XIV.

> still one. The frog snaps at the fly that moves, but not at one which is still. The vine-tendril never lives as vividly as when at the climax its clasping is speeded into visible movement. When the cardboard puppet dances it becomes thinkably alive, and Don Quixote's irruption at the puppet theater becomes intelligible. The biologist knows this intuitive inference as native, even to the primitive mind. Movement accepted as spontaneous implies living (11).

The distinction between the certitude of the an est of a thing and the incertitude of its quid est is best manifested in the example of "movement"; the certitude of its existence is beyond doubt, yet the knowledge of its nature, Descartes notwithstanding, is so difficult as to be understood only after long discourse.

Another example of this distinction may be given : the certitude of the an est of vision, and the difficulty in knowing the what-it-is of vision, which implies among other a knowledge of the chemical, physiological and anatomical structure of the eye. The familiarity of the operation of seeing can be strongly contrasted with the unfamiliarity of the complexities of its organ. If we do not know exactly how this organ serves our seeing, we at least know that we do see, that seeing is something other than hearing, or smelling, tasting, or touching. And I know that I see before knowing that

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(11) - Man, on his Nature, (Cambridge University Press, 1940), p. 55.

I see by my eyes; but once I infer some dependence of my vision on my eye, I can establish a relation between the act of seeing and the eye which I see in the mirror, the eye I can touch with my fingers. I know also, that if I were born blind, a knowledge of the intricate physiological and chemical structure of the eye would tell me nothing of sight itself, whose proper object is color; a knowledge of optics and of the structure of the eye would tell me nothing about the act of vision : this form of life would remain hidden. If I am possessed of sight, I know what it is to see because I experience in myself the operation of seeing. The experience of digestion in its relation to the organs of digestion is quite another thing, however : I have no distinct experience of digesting food. Indeed, before I have some science of digestion, I know nothing at all of my own processes of digestion; I require external experience, for internal experience tells me nothing. Because we have no direct internal experience of vegetative operations St. Thomas can say that life in plants is hidden, and that of animals better known, though very much more complex (12). We know of life in animals because we have internal experience of its operations.

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(12) - "In plantis est vita occulta et latens"; In II De Anima, lect. 7, n. 311; cf. Ia, q. 69, a. 2, ad 1; In III Metaph., lect. 6 (ed. Cathala) n. 2544.

2. - Internal Experience and Touch.

We have distinguished two types of interiority. The second type is known through internal experience. However, this experience is thought to have little value by modern philosophers of nature. Our contention is that for this very reason Aristotle's definition of nature will be meaningless for them and his natural philosophy have no more than a historical meaning. Further, many of those who do accept the definition neglect to point out the kind of interiority upon which it rests, and the manner in which we obtain knowledge of it. For, how are we to understand that nature is an intrinsic principle, whereas art is an extrinsic one ? Our present aim will be, then, to find out why the role of internal experience is so neglected by those who study nature. First, we shall compare the knowledge of the second type of interiority with the knowledge of the proper sensibles, especially the objects of the sense of touch; second, we shall compare the types of experience used by Aristotle in his study of natural philosophy with the experience and experiment of mathematical physics.

External sensation and internal experience, like their primary objects, can be communicated only by way of designation. They are, as it were, first principles. There are no prior notions in terms of which

they may be intrinsically defined. Indefinable, indemonstrable, incapable of immediate analysis, the proper sensibles are merely given. Their mere givenness, however, does not take away either their distinctive character or their certitude. Just as I am certain that I feel warmth, see colors, hear sounds, yet cannot define strictly warmth, color, or sound; so also I am certain that in this it is I who feels warm or cold, who sees, who hears, etc. The relevance of this experience has been disregarded to such a degree that a treatment of what they mean for philosophy must necessarily be a preamble to any study of Aristotelian philosophy. I stand, sit, grind my teeth, rub my beard, find my head hard, find my tongue wet : these things are presupposed to philosophical discourse, and one who does not know the importance of these experiences can never understand the philosophy of Aristotle.

Our first knowledge is had in sensation, and the objects we first and properly attain therein we call proper sensibles, such as warmth, hardness, color, sounds, etc. But the very certitude that color is the proper object of sight comes from internal experience; and inversely, the certitude of internal experience is based on the certitude which the sense of touch implies. Touch is the sense of certitude par excellence. To make sure that what I see is no optical illusion, no mirage, I touch it; and in spite of the imperfection of touch, I am now certain that the object is there. I can have recourse

in a demonstratio ad sensum, to no higher authority than my sense of touch. Again, an animal is not satisfied that an unfamiliar object is present until he has touched and smelled it. Touch is the sense of existence and of presence in time and place, for it is in touching that we experience most immediately and most surely that we exist, as well as our presence according to time and place. "Tange, et tangendo scio me esse" is the Aristotelian counterpart of Descartes' "cogito, ergo sum" (1).

As Dr. De Koninck writes : "... instead of basing ourselves immediately upon the operation which is proper to the highest of our

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(1) - For Dr. De Koninck's analysis of this, cf. : Méthodologie Scientifique, pp. 19, 20 : "C'est pourtant le toucher qui nous enracine le plus directement et le plus surement dans les choses. Il est pour ainsi dire un prolongement en nous des choses telles qu'elles sont dans leur concrétion propre. Il coincide le plus avec elles, dans l'espace et dans le temps; il revet davantage leur condition. Pour cette raison, il est aussi, par excellence, le sens de l'expérience et de l'intelligence. Au point de vue certitude, c'est le toucher qui l'emporte. Un signe en est que nous demandons de toucher les choses comme critere ultime. L'ouie et davantage encore la vue, à cause de leur proximité de l'imagination, peuvent être sujets d'illusion. Le toucher, au contraire, est davantage soumis au choc des choses dans leur concrétion épaisse. Il est d'après l'expression des anciens "grossier" et "crassier", mais cette grossièreté lui donne des avantages au point de vue de la sobre certitude. En tant qu'elle implique 'subir', la connaissance expérimentale est essentiellement imparfaite, mais elle l'emporte chez nous en tant qu'elle est pour nous origine de toute connaissance, et principe de toute certitude : 'veritas principiorum quantumcumque per se nota, in nobis semper est reducibilis ad sensus ex quibus originatur, et eorum universalitas ex inductione facta per sensus dependet'. (J. de St. Thomas, Curs. Theol., T. 1. p. 392b)

faculties, we rest first of all and with great assurance in the experience of touching, in which we have at the same time an experience of existing. To be sure, this consciousness is not without thought, but it is a thought which depends upon touch and which does not as yet reveal itself as thought. It is the tangible qualities which are to us first principles of thought and action. If we had to venture an Aristotelian counterpart to Descartes' 'Cogito, ergo sum', we would say without hesitation : 'Sedeo, ergo sum' : I am sitting, therefore I am". (2) The experience of my existence, which I have when I touch an object, is an internal experience, as opposed to the external sensation of touching this stone, which implies a form of contact. It is true that thought, the intellectual operation, which is set in motion in this consciousness of existing does not immediately reveal itself to us as thought; it is only after a long process of reflection that we begin to know the nature of consciousness, the nature of this internal experience. But the very consciousness of this experience is sufficient for our present inquiry.

Having examined above, with the help of Aristotle's doctrine on the sense of touch, certain salient characteristics of internal experience, we are now in a position to examine more closely the experience of interiority, the experience by which I know that I am within my-

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(2) - "Sedeo, ergo sum" : Chas. De Koninck, Laval Theologique et Philosophique, Vol. VI, no. 2 (1950).

self, that I have a nature. In other words, we are now ready to examine and answer the question : how does internal experience go about telling me that I owe my being-myself to an intrinsic principle called nature or soul ?

However, before we can arrive at the interiority of a principle such as nature, we must have a clear idea of the interiority in question. Where do we first get a notion of this interiority ? Plainly in the sense of touch. An interiority I can see (the interiority of matches in a box) will give me no help in comprehending the interiority I cannot see, but feel. I must get a notion of an interiority which I cannot see, yet which I can know with certitude. The sense of touch furnishes me with this very interiority.

> "A visible object, if you consider it as merely visible, consists merely of outsides. If you call it 'solid', you are using that word in a purely geometrical sense; you mean merely that a 3-dimensional volume of space is completely surrounded by color expanses. Even if the object breaks into bits or is cut open, you see nothing but new 'outsides'... But the tangible object (i.e. the object revealed by muscular sensation and contact sensation combined) is actually experienced as having an inside... As Locke said, 'If anyone asks me what a solidity is, I send him to his senses to inform him. Let him put a flint or a football between his hands and then endeavor to join them, and he will know !' ... it may ... be true that although visual experience is more extensive, tactuo-muscular experience is more profound. (3)

(3) - H. H. Price in Proceedings of the Aristotelian Society, n. s. Vol. 44, "Touch and Organic Sensation", Journal of Aesthetics and Art Criticism, Vol. 7, n. 3, March, 1949, Francis W. Harring, "Touch, the Neglected Sense".

Comparing touch and internal experience we find them both obscure, but certain. In mathematical-physics there is a rationality implied in an operational definition because of its implication of measure; we can establish no such measure to check internal experience, or touch. They are given, and cannot be reduced to something more known in their order.

If we push internal experience too far, if we say that thought is absolutely first, disregarding the priority of the object, as Descartes did, there is no recourse from idealism. Thus we are bound on the one hand by materialism with its denial of the distinctive nature of internal experience, and on the other by idealism which denies the priority of the so-called "secondary" (Locke) qualities, with its reliance on the common sensibles alone, on the quantitative, on the domain where sight is most at home (4).

Summing up, we find that the proper sensibles, and primarily those of touch, are prior to internal experience because our knowledge comes first from the senses; internal experience, in its turn, is prior to the external experience of the common sensibles for in my knowing the proper sensibles, I have already internal experience. The attempt to minimize the proper sensibles in favor of the common sensibles, or the sense of touch in favor of the sense of sight, or

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(4) - In I Metaph., lect. 1, n. 8.

internal experience in favor of the external experimentation of the physicist, is disastrous both to philosophy and to the philosophy of science. In confirmation, let us consider the parallel between experience and experimentation, between the knowledge of quality and the knowledge of quantity.

In the experimentation of mathematical-physics, because of the effort of the intellect to shake itself loose from its dependence on the conditions of sense, one begins and ends in : the impersonal contact of the measure to the measured. Movement as a state is for the physicist a coordinate (possible because of the divisibility of the space covered by the moving thing); he is interested only in what he can measure — all else he very properly leaves behind. The natural philosopher, on the other hand, uses both internal and external experience in his researches. He accepts the results of the physicist, but as philosopher, he wants to know the <u>why</u> of the universe, and it is only in according a relative primacy to internal experience that he attains a knowledge of the veritable term both of the philosophy of nature and of nature itself (5). He attains in this way that which in a sense rises out of nature, namely the human soul which is spiritual and separable. Here is a domain which, but for internal experience, would be closed to man (though many of the techniques of

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(5) - The term of philosophy of nature is, of course, all the <u>species especial animae</u>, of which man is the first in the order of importance.

mathematical-physics have been applied with fruit to experimental psychology). And it must be pointed out that this method of investigating problems is neither anthropomorphic nor subjectivist. On the contrary, it enjoys a high degree of objectivity, for one's own internal states and experiences are as objective as anything in the universe.

All the other external experimental sciences, biology, for example, tend to imitate the method of mathematical-physics, which tends towards the most pure exteriority possible — homogeneous exteriority. But since in this latter, "objectivity" is defined as separation from the qualitative, both physicists and biologists find and use impersonal measures which make abstraction, to the extent possible, from proper sensation. And it is only because the common sensible cannot be completely separated from the proper sensible that there is retained in mathematical-physics and the sciences which imitate it, a necessary minimum of proper sensibility. Thus, methodologically, biology abstracts from life. Closed in upon itself by reason of its minimum of experience, mathematical-physics separates us from nature and from life which cannot be known without the internal experience of living. This is not to say that mathematical-physics is wrong methodologically so long as it does not exclude a priori every other form of knowledge. But as a matter of fact, there is a

certain anthropomorphism involved in the very attempt to reduce experience to a minimum which we can know best — to quantity, which we know best through sight.

> When we have eliminated all superfluous senses, what have we left ? We can do without taste, smell, hearing, and even touch. We must keep our eyes — or rather one eye, for there is no need to use our faculty of stereoscopic vision. The eye need not have the power of measuring or graduating light and shade; I think it is sufficient it can just discriminate two shades so as to detect whether an opaque object is in a certain position or not... In 1915, Dr. Einstein made another raid on their sensory equipment. He removed all the retina of the eye except one small patch. The observer could no longer recognise form or extension in the external world, but he could tell whether two things were in apparent coincidence or not (6).

We say that internal experience touches immediately that which is most noble in nature : the human soul, which is as the form, the term, the end of all the other subjects of natural science (7). For the inorganic is ordered to the living thing, the lower

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(6) - A. S. Eddington, New Pathways in Science, (Cambridge University Press), 1935, pp. 12, 13.

(7) - External experience of proper sensibles is superior to internal experience in that it bears upon objects and not upon operations. It is first in the order of generation since we start from what we know through the senses — objects. But in so far as operation is of itself higher than object, internal experience gives us knowledge of what is more noble in nature.

living species to the higher, and finally this hierarchy is ordered to man and to that which is most noble in man, his soul. Life is attributed first of all to the plant, as sensation is attributed first of all to touch, both plant life and touch being common denominators for life and sensation (8). It must be remarked that intelligence is required to know that one is experiencing warmth. The brute which feels heat has a sensation, but it does not know that it is having a sensation — it has but a pragmatic knowledge of life. All those qualities the consideration of which would be anthropomorphic for the physicist are here the most important (9).

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(8) - In I De Anima, lect. 14, n. 210 : "Animalia enim et plantae in vegetabili conveniunt solummodo. Item vegetabile potest esse sine sensibili et intelligibili, sed haec non possunt esse sine vegetabili. Nullum enim animal habet sensum seu intellectum 'sine hoc' scilicet vegetabili. Ergo sic vivere attribuitur isti principio, scilicet vegetabili, sicut sentire tactui. Non tamen quod animal per solum vegetabilem vivat, sed quia est primum principium in quo manifestatur vita."

(9) - Dr. Charles De Koninck, "Réflexions sur le problème de l'indéterminisme", Revue Thomiste, 1937, p. 374 : "La science expérimentale débouche là où les êtres se touchent et se confondent : l'échelle graduée sur la balance n'indique aucune différence entre 150 livres d'homme et 150 livres de briques. Si maintenant le temps physique touchait les êtres dans leur fond ontologique et spécifique, si le temps épuisait le réel, ne fût-ce qu'au point de vue de la durée, les différents degrés d'êtres ne seraient que des épiphénomènes de complexité matérielle croissante. Même si les choses sont plus que du dehors, cela n'empêche pas que la mesure de leur extériorité homogène soit connue et vraie. Ces deux perspectives ne sont point contraires, elles se complètent l'une l'autre. Sans connaître la complexité expérimentale d'une chose on ne peut saisir la richesse de son unité ontologique".

It is from this we see that without internal experience life in its fullest sense is unknowable. Further it is only upon comparison with our own experience that one can predicate life and the soul of others. Since the method of mathematical-physics expressly abstracts from the utility or even the possibility of any such experience, it closes its door to any knowledge of nature, or life, or of the soul.

In external experience we tend towards the negation of all life, towards empty matter; in internal experience, we tend to the science of the human soul, to the knowledge of intellection, or willing. Relying on external experience, we look upon life as one manifestation of the running-down of the universe; (10) relying on internal experience, one sees life as an organization.

Further, it would be an error to believe that internal ex-

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(10) - Even if the [illegible]nal picture of the universe be inaccurate, life holds [illegible] some place in an hypothesis such as this: "May it not be the case that the modern picture of a running-down universe, in which energy is by degrees ambanging a non-uniform and arbitrary distribution (that is, a distribution not accounted for by and laws yet known to us, and therefore in effect a given, ready-made, miraculously established distribution, a physicist's Golden Age) for a uniform distribution, according to the second law of thermodynamics, is a picture based on habitual observation of relatively short-phase processes, and one destined to be dismissed as illusory at some future date, when closer attention has been paid to processes whose time-phase is longer ?" R. G. Collingwood, op. cit., p. 27.

periance is required only for the treatises on living nature. It is also used in the Physics, in manifesting the definition of nature, for example. In addition, in Book III, when Aristotle is seeking to illustrate motion, he gives the example of a man building a house. One might wonder why he chose the example of the production of an artifact and not of a natural generation. But the choosing of this example has a profound significance : in the production of the artifact we have a motion in which both internal and external experience enter. The striving of an agent for an end, which is so essential to the true concept of motion, is best known to us in our own internal experience. If this internal experience be set aside, it would be all too easy to lose sight of the fact that motion involves the coming into being of a new actuality, and to look upon it simply as a coordinate of time. Change and time must be joined with the idea of an agent acting for a certain end in order to have the generation of a new being (11). The same thing is true of movement which terminates in absolute becoming. With internal experience, I perceive that I am a substance, an acting principle, etc., and then I can conceive of a movement whose term is something substantial.

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(11) - If we abstract from the agent of motion and from its intention, time is a debasing factor : "mutatio est ad pejora ex natura sua". In IV Phys., lect. 20, 22.

Chapter III

THE SIGNIFICATIONS OF "NATURE"

1. - The Expositions of the Word "Nature".

As has been pointed out, it belongs to the metaphysician to treat of the various significations of words and of the order of the significations. For since metaphysics, being wisdom, is the term of philosophy - both in the order of importance and in the order of learning - it is within the power of the metaphysician to treat the order of the various significations of words ; for "sapientis est ordinare". Thus it is that Aristotle as metaphysician can treat the significations of certain words, and reduce them to a certain primum significatum. As St. Thomas explains :

> But although things are said in many ways, nevertheless it belongs to one science, namely metaphysics, to know what is signified by each of these names... For all these meanings are referred to one principle. For the significations of the word "one", although they be diverse, are reduced nevertheless to one first signification; and the same thing can be said of the words "same", "different", "contrary", and the like. And therefore the Philosopher must do two things with regard to each of these : namely first of all divide each one into as many modes as each is said; next assign this division to "each predicate", that is, determine for each of these names predicated of many things that of which it is first said; for example, to find out what is signified by the

name "same" or "diverse"; and how all the other significations are referred to it (1).

The metaphysician can treat objects signified whether univocally, analogously, or equivocally, and refer them to one first signification. Further, St. Thomas argues that the metaphysician treats of first principles precisely because he treats of the common terms of which these principles are composed (2).

St. Thomas gives the division of the matter of the fourth, fifth and sixth books of the Metaphysics in the following concise

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(1) - In IV Metaph., lect 3, n. 568 : "Sed tamen quaevis multipliciter dicuntur omnia, tamen quae significantur per quodlibet horum nominum est cognoscere unius scientiae, scilicet philosophiae... Haec autem omnia referuntur ad unum principium. Sicut enim quae significantur per hoc nomen Unum, licet sint diversa, reducuntur tamen in unum primum significatum; similiter est dicendum de his nominibus idem, diversum, contrarium, et hujusmodi. Et ideo circa unumquodque istorum philosophus duo debet facere : videlicet primo dividere quot modis dicitur unumquodque. Et haec divisio consequenter assignatur in 'unoquoque praedicato' idest in unoquoque istorum nominum de pluribus praedicatorum, ad quod primum dicatur; sicut quod est primum significatum hujus nominis Idem vel Diversum et Quomodo ad illud omnia alia referuntur".

(2) - Ibid., lect. 5, n. 595 : "Et ideo istae propositiones sunt primae demonstrationum principia, quae componuntur ex terminis communibus, sicut totum et pars, ut, Omne totum est majus sua parte; et sicut aequale et inaequale, ut, Quae uni et eidem sunt aequalia, sibi sunt aequalia. Et eadem ratio est de similibus. Et quia hujusmodi communes termini pertinet ad considerationem philosophi, ideo haec principia de consideratione philosophi sunt.... Determinat autem ea philosophus non demonstrando, sed rationes terminorum tradendo, ut quid totum et quid pars et sic de aliis. Hoc autem cognito, veritas praedictorum principiorum manifesta relinquitur".

fashion :

> In the preceding Book [IV] the Philosopher determined what pertains to the consideration of this science; here [Book V] he begins to specify the things which this science considers. And because what are considered in this science are common to all things, and are said not univocally but according to an order of priority and posteriority as different things, as was said in the fourth Book; therefore he first distinguishes the significations of the names of those things which fall under the consideration of this science (3).

Already we see why certain names were chosen for treatment in this book while others, seemingly as important, were left out ; because we are concerned here only with the names of those things which metaphysics considers. (The significations of matter and form, being proper to natural philosophy, are not considered; act and potency, on the contrary, are considered.) These terms were not chosen at random to constitute some sort of incomplete philosophical dictionary.

St. Thomas says that since it belongs to a science to consider its subject and passions and causes, Book V is divided into three parts which treat : first, the distinctions of names which signify

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(3) - Ibid., V, lect. 1, n. 719 : In praecedenti libro determinavit Philosophus quid pertineat ad considerationem hujus scientiae; hic incipit determinare de rebus, quas scientiae ista considerat. Et quia ea quae in hac scientia considerantur, sunt omnibus communia, nec dicuntur univoce, sed secundum prius et posterius de diversis, ut in quarto libro est habitum; ideo prius distinguit intentiones nominum, quae in hujus scientiae consideratione cadunt."

the causes of being; second, the distinctions of names which signify the subject of metaphysics; and third, the names which signify the proper passions of the subject (4). Of the names having to do with causes, Aristotle first treats those having to do with causes generally ; secondly, "distinguit quoddam nomen, quod significat quamdam causam in speciali, scilicet hoc 'nomen natura'" (5).

In his commentary on chapter 4, Book V, St. Thomas explains that Aristotle here distinguishes the word "nature" though it might seem to pertain more to natural philosophy, because one of the acceptations of nature is predicated of every substance; and since universal substance falls within the consideration of the metaphysician, so also does "nature" (6). We shall see, in considering the order of imposition of "nature", whether Aristotle's "characteristic method in philosophical lexicography" has been adequately described as follows :

> Aristotle has a characteristic method in philosophical lexicography. He recognises that a single word has several different meanings, and never falls into the stupid mistake of supposing that one word means one thing ; on the other hand, he recognises that these various meanings are connected among themselves,

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(4) - Cf. : Ibid., n. 749;
In I Post. Anal., lect. 2.
(5) - In V Metaph., lect. 1, n. 749.
(6) - Ibid., chap. 4, lect. 5. n. 808.

> and that the word is not equivocal because it has more than one meaning. He thinks that of its various meanings one is the deepest and truest meaning; the others are approximations to it arising from varying degrees of failure to grasp this deepest meaning. Consequently he arranges his meanings in a series like shots on a target which gradually creep in and find the bull (7).

Aristotle gives five principal impositions, significations, of the word "nature". The first imposition is "generation of things that come to be by birth" (8). Saint Thomas explains :

> He [Aristotle] says first of all that nature in one sense is called the generation of things generated, or as a better text reads, "of things born". For not all things which are generated but only living things, such as plants and animals and their parts, can be said to be "born". Now, according to the common use of the word, the generation of non-living things cannot be called "nature" properly speaking, but only the generation of living things; so that the birth itself, or the very things born, is called "nature", as the sound of the word itself [in Greek and Latin] seems to indicate (9).

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(7) - R. G. Collingwood, op. cit., p. 80. As a matter of fact, the meanings of the word "nature" are equivocal, as we shall see. Perhaps Collingwood means, by equivocal, "misleading", which is today the usual understanding of that word.

(8) - Op. cit., 1014b17.

(9) - In V Metaph., lect. 5, n. 808 : "Dicit ergo primo, quod natura dicitur uno modo generatio generatorum, vel ut alia litera habet melius, 'nascentium'. Non enim omnia generata nascentia dici possunt; sed solum in viventibus, sicut in plantis, sive in animalibus, et in partibus eorum. Non autem generatio rerum non viventium potest dici natura proprie loquendo secundum communem usum vocabuli, sed solum generatio viventium; ut dicatur natura ipsa nativitas vel ipsa nascentia, quod ipsum nomen sonare videtur".

St. Thomas emphasises the fact that word nature is not originally chosen to mean every kind of generation, but only that of plants and animals. Such is the common use of the word, and, presumably, the very sound of the word "nature" (natura — φῦσις) conveys a certain process, a coming forth (nativitas — φῦσις). St. Thomas then points out that although the Greeks commonly used the word φῦσις to signify the principle of generation of a living thing, as well, if the υ in φῦσις is lengthened to φῦσις the word signifies the very generation of the living thing (10).

At this point, a number of difficulties arise : why is the first imposition of nature "birth" ? why is it not the principle of birth (since it seems that this was a more common use among the Greeks) or the principle of any kind of motion (as nature is defined in Book II of the Physics) ? We shall keep these questions in mind and attempt to arrive at satisfactory answers after we have seen the second and third impositions of "nature".

The second imposition or meaning of nature is "principle of generation from which something is generated", or in other words, "that

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(10) - Collingwood, op. cit., p. 60 : "Origin or birth ; 'as if' says he [Aristotle], 'the υ were pronounced long'. The υ is actually short; and Sir David Ross points out that in actual Greek literature the word never has this meaning and conjectures, no doubt rightly, that this is a sense speculatively forced upon the word by mistaken etymologising in the fourth century. Thus the first shot recorded by Aristotle misses the target altogether".

from which the thing born is generated, first of all, as from an intrinsic principle" (11).

The third imposition of nature arises from the similitude of birth to other notions, so that nature is "the source of motion in any natural being whatsoever, when it is in the natural thing as such" (12). The third imposition will be analysed more fully in this paper when the pertinent passage in Book II of the Physics is considered.

The first imposition refers to the notion of birth. Aristotle then proceeds towards a more extensive notion. He explains first that birth implies the union or conjoining of the generator with the thing generated; there is not the same union in the generation of inanimate things, say of fire. St. Thomas points out

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(11) - Op. cit. 1014b18. Cf. Collingwood, op. cit., pp. 43, 44 : "In modern European languages the word 'nature' is on the whole most often used in a collective sense for the sum total or aggregate of natural things. At the same time, this is not the only sense in which the word is commonly used in modern languages. There is another sense, which we recognise to be its original and, strictly, its proper sense : when it refers not to a collection but to a "principle", again in the proper sense of that word, a principium, ἀρχή, or source. We say that the nature of ash is to be pliant, the nature of oak to be tough. We say that a man has a quarrelsome or affectionate nature. We say, 'Let dogs delight to bark and bite.. for 'tis their nature too'. Here the word 'nature' refers to something which makes its possessor behave as it does; this source of its behaviour being something within itself".

(12) - Op. cit., 1014b20.

that the generation of the living thing is preceded by the appearance of an increase or growth, as when fruit or foliage is produced on a tree; there is a certain increase of, or a "growing along with", the principle of generation (13). Two questions come to mind : what sort of growth or increase is proper to the generation of living things ? and, why does St. Thomas take his example from plant life, since life seems to be more manifest in animals ?

St. Thomas answers the first question in distinguishing the meaning of growth or increase ("augmentum") (14). There is a motion in things already born, by which what is taken through the roots or by mouth passes into the substance of that to which it was added, as food passes into the substance of the one fed. In the generation of a living thing, however, there is another type of "augmentum", which does not pass into the substance of the generator, but remains diverse and other in substance, and comes about through the apposition of the generator and the generated. Now "apposition" must be distinguished and can be understood in two ways (15) : there is an apposition by contact alone; there is beyond this a second and more perfect type of apposition, that of two things

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(13) - In V Metaph., lect. 5, n. 811.
(14) - Ibid., n. 812.
(15) - Ibid., n. 813.

fitted together : that which is apposed is adapted to what pre-exists, as hair is adapted to the scalp, and teeth are adapted to the gums. Thus in the generation of living things, the apposition is effected not merely through the contact of touch, but even through a certain coaptation (or "connascentia"), by which the thing in the process of generation not only touches but is united intimately and interiorly to the principle of generation, as by the umbilical cord in mammals. There is, on the contrary, no such unifying principle in things which touch each other only (fire heats water — no apparent interiority) (16). The ligament binding together "connata vel adnata" — the tree and its fruit, makes them one in quantity and continuity, but not in quality, since such a ligament does not alter the dispositions of the things joined.

Further, since what is born is first interiorly joined to that from which it is born, nature is always called an intrinsic, never an extrinsic, principle : "because what is born is always joined with that from which it is born, nature is never taken for an extrinsic principle, but in all its acceptations is an intrinsic principle"(17). Here is an example of the extent to which the first meaning of a word influences all consequent meanings : because "nature" first means birth and because birth always implies a previous

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(16) - Ibid., n. 814.
(17) - Ibid., n. 815 : "quia quod nascitur semper est conjunctum ei ex quo nascitur. Ideo natura numquam dicit principium extrinsecum, sed secundum omnes suas acceptiones dicit principium intrinsecum".

interiority, of that which is given birth to all consequent meanings of nature imply some kind of interiority (18).

The question to be answered now is : why should the first imposition of nature mean the birth of a living thing ? From what we have seen, the first imposition of a word must come from what is most manifest to the senses, and thus not solely from internal experience. But we have seen that nature has reference to an intrinsic principle. Thus nature will refer first to a thing which at once imports interiority, but at the same time is manifest to the senses, an intrinsic principle known sensibly. It must be shown now that "birth" can be known by the senses and comports interiority.

We must first of all precise the interiority at issue here : the interiority of birth is not, properly speaking, the relatively extrinsic interiority by which the keel is the intrinsic principle in the generation or building of a ship.

In the first lesson of Book V, St. Thomas explains Aristotle's reduction of all the impositions of "principle" to one, which is : "that which is first either in the being of a thing, or in the becoming of a thing, or in the knowledge of a thing" (19). So then

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(18) - Interiority is applied analogously or proportionally to all meanings of nature, ranging from the purely physical interiority of the first analogue (first imposition) to that other type of interiority described in a previous chapter (third imposition).

(19) - In V Metaph., lect. 1, n. 761 : "illud quod est primum, aut in esse rei... aut in fieri rei... aut in rei cognitione".

explains that a principle can be either intrinsic or extrinsic, and points out that there are two different kinds of intrinsic principles : "nature, as that from which movement begins; element, as the first part in the generation of a thing" (20). The keel of the ship, or the heart of an animal is the "first part in the generation of a thing" — and, while they are intrinsic principles of generation, they are not intrinsic principles in the way in which nature is. Thus the production of an artifact, say the building of a ship, does not comport the interiority proper to nature, although it fulfills the requirement that the thing signified by the first imposition be knowable to the senses.

We must inquire further why it is that the generation of living things, or birth, is "most known to us". In speaking of the first imposition of nature, St. Thomas says : "Because the forms and powers of things are known from acts, generation itself or birth is the first meaning of nature, and the last meaning is form" (21).

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(20) - Ibid., n. 762 ; "natura quidem, sicut illud a quo incipit motus ; elementum autem sicut pars prima in generatione rei".

(21) - Ibid., lect. 5, nn. 824, 825 ; "Quia enim formae et virtutes rerum ex actibus cognoscuntur, per prius ipsa generatio vel nativitas, naturae nomen accipit, et ultima forma". Cf. : Ibid., IX, lect. 3, n. 1805 ; "Secundo ibi 'venit autem' ostendit quid sit esse in actu; et dicit, quod hoc nomen actus, quod ponitur ad significandum entelechiam et perfectionem, scilicet formam, et alia hujusmodi, sicut sunt quaecumque operationes, veniunt maxime ex motibus quantum ad originem vocabuli. Cum enim nomina sint signa intelligibilium conceptionum, illis primo imponimus nomina, quae primo intelligimus, licet sint posteriora secundum ordinem naturae. Inter alios autem actus, maximus est nobis notus et apparens motus, qui sensibiliter a nobis videtur. Et ideo ei primo impositum fuit nomen actus, et a motu ad alia derivatum est".

Thus as we have seen, the order of imposition follows the order of our knowledge, and only by first knowing and naming the acts of a thing can we come to know, and name, the forms and powers of things. But our first knowledge is sense knowledge : consequently, the word is first imposed on something known sensibly. It is true that living things are known as living through internal experience, but the way in which we first distinguish a living thing from a non-living thing is through self-motion (22). The notion of nature, to be sure, requires a notion of interiority for all its impositions. But when it is a question of determining the order of imposition, that which is more known to the senses is first known. It is for this reason that in explaining "nasci", St. Thomas gives as an example : "from a tree, fruit or foliage is born". Though by internal experience we know more about animal life (23), this example

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(22) - IIa-IIae, q. 179, art. 1, c. ; "... illa proprie dicuntur viventia quae ex seipsis moventur seu operantur. Illud autem maxime convenit alicui per seipsum quod est proprium ei, et ad quod maxime inclinatur. Et ideo unumquodque vivens ostenditur vivere ex operatione sibi maxime propria, ad quam maxime inclinatur; sicut plantarum vita dicitur in hoc consistere quod nutriuntur et generantur; animalium vero in hoc quod sentiunt et moventur; hominum vero in hoc quod intelligunt et secundum rationem agunt".

(23) - Ia, q. 78, art. 1, 1 ; "Plantae enim habent imperfectissimam vitam et occultam. Unde in earum productione nulla mentio fit de vita, sed solum de generatione, quia secundum hanc solum invenitur actus vitae in eis; nutritiva enim et augmentativa generativae deserviunt.
.... Et ideo pisces vocat non 'animam viventem', sed 'reptile animae viventis'; sed terrena animalia vocat 'animam viventem' propter perfectionem vitae in eis".

is taken from plant life. This is because the process of animal birth or generation is less evident to the senses than the generation of fruit or foliage on the plant. Animal birth is, however evident to the senses to some extent and therefore is included in the first imposition. But because one can follow more easily by the senses the process from bud to leaf or from bud to fruit, than from egg to embryo to animal, the example chosen by St. Thomas is taken from plant generation. Following the general principle : the lower the form, the better the knowledge, I can see more of generation in the plant than I can in the animal. The plant is less complicated than the animal; the vital process in plants does not involve interiority to the degree found in animals ; its life is hidden, but the sensible appearances of birth, of growing outward from within, are more readily received than the operations of the animal, the functioning of the eye, for example. And generation is the most natural, though not the most perfect or the most proper, characteristic of living things (24); for if we did not know nature through generation, we could not know it at all, just as we could not know an artifact as artifact except from some acquaintance with the artistic process. It is through generation as fulfilling most

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(24) - In II De Anima, lect. 7, n. 312 : "Dicit ergo, quod idee generare est opus animae vegetativae, quia inter alia opera est magis naturale omnibus viventibus. Et dicitur naturalissimum, quia in hoc convenit etiam cum aliis rebus inanimatis, quae generationem habent, licet alio modo : habent enim inanimata generationem ab extrinseco generante; sed viventia a principio intrinseco, inquantum generantur ex semine, quod proficit in rem vivam". Cf. Ia, q. 27, art. 2, c.

properly the requisites of interiority and observability that we first know nature.

This becomes clearer as we reconsider with St. Thomas what is properly meant by "nasci". Birth is more known to us, because it is known even before we attach it to a principle. The very fact that "nasci dicuntur quaecumque augmentum habent", an example of which would be bifurcation in monocellular animals("augmentum" signifies here termination in another) points up a note of observability which is not so readily found in the "augmentum" which passes into the substance of that to which it is added. Again, the very fact that this "augmentum" is accomplished in a way other than by contact — namely, by "colligatio sive connascentia", — "whereas in contact nothing besides the things touching is necessary to make them one" (25), points out the interiority proper to the generation of living things, an interiority which is not evident in the generation of inanimate things (26).

We have now examined the first three impositions of nature and given special attention to the fittingness of the first imposition and of the example chosen by St. Thomas to illustrate it. The fourth principal signification of nature given by Aristotle is

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(25) - In V Metaph., lect. 5, n. 814.
(26) - Ia, qu. 80, art. 2, c.

"matter", and St. Thomas explains it as follows :

> From this third definition of nature a fourth follows. For if the principle of the notion of natural things be called nature [third definition], and the principle of the notion of natural things seems to some to be matter; consequently, matter is called nature, which indeed is the principle both of the becoming and of the being of a thing. It is considered without any form, and does not move itself, but is moved by another. And therefore he [Aristotle] says that nature is called that from which a being first is or becomes (27).

The reason of this imposition is that nature signifies the first intrinsic principle of that which comes to be; and objectively, prime matter is the first principle of both the being and the becoming of a thing. Matter is what is most fundamental, most stable in nature, for without a permanent subject there is no absolute becoming. It is evident that prime matter fulfills the requirement for all impositions of nature, namely that it be an intrinsic principle. For, this first subject is indeed interior to the thing, and that is why matter and form are universally called the very intrinsic principles of that thing. Further reasons why mat-

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(27) - In V Metaph., lect. 5, n. 816 ; "Et hac autem tertia ratione naturae sequitur quarta. Si enim principium motus rerum naturalium natura dicitur, principium autem motus rerum naturalium quibusdam videbatur esse materia, consequens fuit ut materia natura diceretur, quae quidem est principium rei, et quantum ad esse et quantum ad fieri. Ipsa etiam absque omni forma consideratur, nec a seipsa movetur, sed ab alio. Et ideo dicit quod natura dicitur ex quo aliquod entium primo est aut fit".

ter is called nature, and why it must be considered as nature, even prior to form, will be considered in the analysis of the first chapter of Book II of the Physics, where Aristotle treats this at length.

The last principle mode of nature is form : "But because the movement of natural things is caused more from form than from matter, the fifth imposition of nature is form" (28). And St. Thomas points out that "according to the order of things, the notion of nature first belongs to form, because, as we have already mentioned, nothing is said to have a nature unless it has a form"(29). One can see that form is the most striking principle in generation, and that it is the substantial form of the thing engendered which after all is important (30). Aristotle takes up this point again in the Physics, as we shall see, and there he gives three arguments to show that form is more nature than matter;

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(28) - Ibid., n. 819 : "Quia vero motus rerum naturalium magis denominatur ex forma quam ex materia, ideo superaddit quintus modus quo ipsa forma dicitur natura".

(29) - Ibid., n. 825 : "sed secundum rerum ordinem, formae prius competit ratio naturae, quia, ut dictum est, nihil dicitur habere naturam, nisi secundum quod habet formam".

(30) - However, we know substantial form (and prime matter) only by analogy with artificial things : "Quia enim formae artificiales accidentia sunt, quae sunt magis nota, quoad nos, quam formae substantiales, ut patet sensui propinquiora : ideo convenienter rationem animae, quae est forma substantialis, per comparationem ad formas accidentales manifestat".
Cf. : Meteorologicorum IV, lect. 16.

however, this priority of form over matter is known best to us through internal experience (31).

Aristotle now adds two adjoined modes. The first is related to the fourth mode. This new imposition of the word nature makes it signify what we call "raw material". Steel plate might be called the raw material of a ship; iron ore, the raw material of steel plate. St. Thomas explains this in terms of the experimental sciences of his time :

> And [Aristotle] says that not any matter is called nature, but only first matter [in the sense of raw material or "matière première" in the French sense]. This can be understood in two ways, either according to the genus of a thing, or according to what is wholly and simply first. The generic raw material of bronze artifacts is the bronze; but their ultimate material is water. For everything which liquefies when hot and hardens when cold is [reduced] mostly to water, as is said in the fourth book of the Meteorology (32).

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(31) - Cf. IIIa, q. 35, art. 1, c. : "Sed sicut termino attribuitur nativitas naturae. Terminus enim generationis, et cuiuslibet nativitatis, est forma. Natura autem per modum formae significatur. Unde 'nativitas dicitur esse via in naturam', ut patet per Philosophum, II Physic. : terminatur enim naturae intentio ad formam, seu naturam speciei".

(32) - In V Metaph., lect. 5, n. 821 : "Et dicit, quod materia dicitur natura non quaecumque, sed prima. Quod potest intelligi dupliciter aut quantum ad id quod est genus; aut ex toto vel simpliciter prima. Sicut operum artificialium quae fiunt ex aere, prima materia secundum genus illud est aes. Prima vero simpliciter est aqua. Nam omnia quae liquescunt calido et indurantur frigido sunt aquae magis, ut dicitur quarto Meteororum".

Another mode, this time adjoined to the signification of nature as form, is here given by Aristotle as the very species which is the form of the whole — as when we say that humanity is the nature of man. St. Thomas points out that the species of a thing is called its nature, because it is the term of generation :

> But just as form or matter is called nature because it is the principle of generation.... so species or substance is called nature because it is the term of generation. For generation terminates in the species of the thing generated, which term results from the union of form and matter (33).

Once we have seen the principal significations of matter and form as nature, these two adjoined modes will become clear. We shall see, for example, that it was with this "raw material" that the ancients were concerned, when, following the analogy taken from art, they posited matter as the first principle of the notion of natural things.

Further, following the principle that two things each of which is equal a third, are equal to each other, substance is called nature metaphorically and by extension : nature is the term of generation, but the term of generation is substance; therefore,

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(33) - Ibid., n. 822 : "Sicut autem forma vel materia dicebatur natura, quia est principium generationis... ita species et substantia dicitur natura, quia est finis generationis. Nam generatio terminatur ad speciem generati, quae resultat ex unione formae et materiae."

nature is substance (34).

> And from this [species as nature] metaphorically and by extension of the name every substance is called nature; because nature as the term of generation is a substance (35).

It is to arrive at this signification which is that of a nomen commune that Aristotle considers "nature" in the Metaphysics : "It is by reason of this imposition that 'nature' is distinguished here as a nomen commune. For it is thus as universal as substance" (36).

Thus it was certainly no more this which determined Aristotle to consider "nature" in the Metaphysics. He distinguishes in this book only the names of those things which fall under the consideration of this science. Now, the word "nature" is used to denominate every substance. Further, there is a definite order in the impositions of nature : from nature as the generation of living things we proceed to the very intrinsic principle of such gene-

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(34) - Also, metaphorically and by extension, nature is used to mean the universe of natural things, the first principle of such a universe, etc.

(35) - In V Metaph., lect. 5, n. 823 : "Et ex hoc secundum quandam metaphoram et nominis extensionem omnis substantia dicitur natura; quia natura quam diximus quae est generationis terminus, substantia quaedam est".
Cf. : Ia, q. 29, art. 1, ad 4;
IIIa, q. 2, art. 1, c.;
Ia-IIae, q. 10, art. 1, c.

(36) - In V Metaph., ibid. : "Rationem autem istius modi distinguitur hoc nomen natura inter nomina communia. Sic enim commune est sicut et substantia."

ration; then to the principle of any movement whatsoever; third, to those things which are objectively the principles of movement, matter and form; fourth, we have two meanings adjoined to those of "matter" and "form", namely the raw material and species of a thing; and, finally, we use the word nature for the substance of a thing.

What then is the importance of the order of imposition of this particular term "nature" ? Precisely the importance of starting with what is best known to us, with what is a principle and measure of subsequent impositions. If we do not attend to what is more known to us, how shall we see what is less known ? For what we know best is the superficial aspect of things; we always depend upon things as we know them first. What is prior in the things themselves we know afterwards. From this mode of knowing arises the necessity of changing the impositions of words as we come to a more quidditative knowledge of things. We use the same physical word throughout, preserving some unity in our knowledge; the first impositions help us to understand the later ones (37). Precisely

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(37) - IA-IIae, lect. 7, a. 1, c. : "Dicendum quod quia nomina, secundum Philosophum, sunt signa intellectum, necesse est quod secundum processum intellectivae cognitionis, sit etiam nominationis processus. Procedit autem nostra cognitio intellectualis a notioribus ad minus nota. Et ideo apud nos a notioribus nomina transferuntur ad significandum res minus notas. Et inde est quod, sicut dicitur in I Metaph., ab his quae sunt secundum locum, processit nomen distantiae ad omnia contraria; et similiter nominibus pertinentibus ad motum localem, utimur ad significandum alios motus, eo quod corpora, quae loco circumscribuntur, sunt maxime nobis nota. Et inde est quod nomen circumstantiae ab his quae in loco sunt, derivatur ad actus humanos".

how a knowledge of the first two superitions is necessary for the understanding of the very terms in the definition of nature such as it is given in the Physics, we will show in the following chapter.

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2. - The Definition of Nature in Book II of the Physics.

In Book II, chapter three of the Metaphysics, Aristotle inquires into the method to be followed in manifesting truth in a science. He says that since there are diverse methods of inquiring into truth, a man must be instructed in that which is proper to each science. (1) Just a man cannot do two things well at the same time, so neither can he inquire into science and the method of that science at the same time; just as a man must learn logic first, since it gives that general method which is common to all sciences, so must he at the beginning of anyone science inquire into the method proper to it. Then he points out that the method which is absolutely speaking the best and proper to mathematics, cannot be used in every science, as is clear from the method to be employed in the study of nature. The mathematical method can be used only in sciences whose subject comprises intelligible matter as subject; but all natural things have sensible matter in their make-up, and this may make all the difference. What then is the mode to be used in the study of nature ? St. Thomas explains :

> .... because this most certain method of reason does not belong to natural science, it will be necessary to investigate first of all what nature is; for then will

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(1) - Metaph., II, ch. 3, 995a15.

> be made manifest what things this science is concerned with. And again, we must try to find out whether all the causes and principles belong to the consideration of this one science, namely natural science, or to some other sciences. In this way one will be able to know what method of demonstration is proper to natural science. And he [Aristotle] observes this order of proceeding in the second book of the Physics, as will be clear to the diligent inquirer (2).

Thus the purpose of Book II of the Physics is to find the method of demonstration best suited to the study of nature. But we must start with the definition of nature in order to find out what things natural science is to treat of; for only after knowing the proper notes of the subject can we seek the method appropriate to that subject. Further, only by the real definition of nature can we be sure that we grasp all its essential notes. Thus Aristotle, in Book II, first treats of the definition of nature, and then discusses "things called natural" in order to bring aut whatever identity "quoad rem" there may be between the principles of mobile being and the principles of nature (3).

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(2) - In II Metaph., lect. 5, n. 337 : "... quia in scientia naturali non convenit iste certissimus rationis modus, idee in scientia naturali ad cognoscendum modum convenientem illi scientiae, primo perscrutandum est quid sit natura : sic enim manifestum erit de quibus sit scientia naturalis. Et iterum considerandum est, 'si unius scientiae', scilicet naturalis, sit causas causas et principia considerare, aut sit diversarum scientiarum. Sic enim poterit scire quis modus demonstrandi conveniat naturali. Et hunc modum ipse observat in secundo Physicorum, ut patet diligenter intuenti."

(3) - The substitution of "natura" in Book II of the Physics for the "ens mobile" of Book I is treated explicitly by John of St. Thomas, Cursus Philosophicus, T. II, (ed. Reiser), p. 171a31-b12.

In this paper we will apply what we have discussed concerning Aristotle's method in using words, to Book II, chapter 1, of the Physics, and show that the definition of nature as "principium et causa.... etc." is justified, and further, that this is the real definition of the subject of natural philosophy.

Aristotle opens his investigation of the definition of nature by a division of terms. (4) As St. Thomas explains :

> He [Aristotle] says first that among all beings we say that some are from nature, and some from other causes, say, from art or from chance. We say that animals and their parts such as flesh and bones are from nature; and plants and simple bodies as well, namely the elements, such as earth, fire, air and water, which are not resolved into some prior body. We say that these things and things like them are from nature (5).

Aristotle first investigates the notion of nature by appealing to the common use of the word "nature", and this is plain from the expression "we say". The purpose is to find out what the ordinary use of certain words can teach us.

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(4) - Cf. Post. Anal. II, ch. 13, 96b15-97b6;
In II Post. Anal., lect. 14, 15.

(5) - In II Phys., lect. 1, n. 2 : "Dicit ergo primo quod inter omnia entia, quaedam esse dicimus a natura; quaedam vero ab aliis causis, puta ab arte vel a casu. Dicimus autem esse a natura quaelibet animalia, et partes ipsorum, sicut carnem et ossa, et etiam plantas et corpora simplicia, scilicet elementa, quae non resolvuntur in aliqua corpora priora, ut sunt terra, ignis, aer et aqua : haec enim et omnia similia a natura dicuntur esse".

He divides things into two groups ; of some things we say that they are due to nature; of others that they owe their existence to art or to chance. We do, as a matter of fact, distinguish between natural things and artificial things, such as between natural teeth and false teeth. The difference between nature and art is in a sense well known to us; but just what it is that makes a natural thing natural is not so readily expressed.

There is a strict order in the way we speak of things as coming from nature ; we should say that animals come from nature before we should say minerals come from nature. Why is this ? As we have seen, we know first more about an animal as an instance of a "natural" being and as one that has a nature, because of our internal experience of being alive, just as we know first that we have a soul and then call any such principle a "soul" inasmuch as it is a principle of operations of this kind - such as in animals, who show signs of sensation. So do we first know from internal experience certain operations called "natural", such as the desire for food when hungry, or anger, and consequently we call the principle of these operations "nature" — a term which we then apply to the principle of similar operations in brute animals. We know <u>better</u> the interiority of nature in animals, though as was pointed out concerning the first imposition of nature in Book V of the <u>Metaphysics</u>, it is plants we first know to possess the interiority of nature; this is because

they have the kind of interiority which is better known by external experience, owing to their relatively simple structure, one which is more on the surface than in animals. It is externally more observable - provided we already have some notion of interiority through internal experience. Because we know less about the interiority of inanimate things, we denominate them last in this order. Today we do not consider earth, fire, air and water as the ultimate material constituents of things, but whatever things are the "elements", we would still say they have "nature".

Comparing the classes of things which are called natural or artificial, Aristotle says that the first differ from the latter in so far as the natural thing has within it a principle of some motion or rest. St. Thomas explains:

> And all these things differ from those which are not from nature, because all these things seem to have in themselves a principle of some movement and rest: some, a movement according to place, as heavy and light bodies, and even heavenly bodies; others, a movement according to augmentation and decrease as animals and plants; and still others, a movement according to alteration, as simple bodies and all composed of these. But these things which are not from nature, as a bed, clothing, and the like, which receive such predication because they are artificial, have no principle of change in them except accidentally — insofar as the matter and substance of artifactitious bodies are natural things. Thus therefore insofar as it happens that artificial things are made of iron or stone, they have a principle of movement in themselves — but not insofar as they are artificial;

> the knife has in it a principle of downward movement, not insofar as it is a knife, but insofar as it is made of iron (7).

Aristotle then gives examples of natural movement, going again from what is more known to us to what is less known. The order of the things mentioned is the inverse of the order he gave above, since here Aristotle starts with the movement more known to us, movement being known best from external sensible experience; whereas above, Aristotle considered things as implying an intrinsic principle of movement, which because of its interiority is known best by internal experience.

The answer to a difficulty arising from the fact that St. Thomas, in the De Anima, opposes nature to the vegetative soul, brings

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(7) - In II Phys., lect. 1, n. 2 : "Et differunt haec omnia ab his quae non sunt a natura, quia omnia huiusmodi videntur habere in se principium alicuius motus et status; quaedam quidem secundum locum, sicut gravia et levia, et etiam corpora caelestia; quaedam vero secundum augmentum et decrementum, ut animalia et plantae; quaedam vero secundum alterationem, ut corpora simplicia et omnia quae componuntur ex eis. Sed ea quae non sunt a natura, sicut lectus et indumentum et similia, quae accipiunt huiusmodi praedicationem secundum quod sunt ab arte, nullius mutationis principium habent in seipsis nisi per accidens, inquantum scilicet materia et substantia corporum artificialorum sunt res naturales. Sic igitur inquantum artificialibus accidit esse ferreas vel lapideas, habent aliquod principium motus in seipsis, sed non inquantum sunt artificiata : cultellus enim habet in se principium motus deorsum, non inquantum est cultellus, sed inquantum est ferreus".

out one sense according to which nature is said first of inanimate things, and still another sense which applies first to living things. St. Thomas says :

> He shows first of all that generation pertains to the vegetative part.... Secondly he shows that the works of the vegetative potency are from the soul; which was necessary because.... it could seem to someone that they were from nature and not from the soul; and principally because in plants life is obscure and hidden (8).

In this passage St. Thomas seems to oppose the vegetative soul to nature. But is not then the vegetative soul nature, and indeed more so than the inanimate thing ? In answer, let us consider once again the order of the imposition of the word "nature" : (a) - birth; (b) - intrinsic principle of birth; (c) - intrinsic principle of any kind of movement. Now once we have this third imposition, we can consider apart the things to which this third definition refers. Of these, some are living things, but some are not. So although nature remains an intrinsic principle in this third definition, we can

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(8) - In II De Anima, lect. 7, n. 311 ; In prima ostendit, quod generare pertinet ad partem vegetativam : ... in secundum ostendit, quod opera potentiae vegetativae sint ab anima ; quod ideo necessarium fuit, quia... posset alicui videri, quod essent a natura, et non ab anima; et praecipue quia in plantis est vita occulta et latens, et hoc ibi."
Cf. Ibid., lect. 3, n. 256, 257 ; "omnia (vegetalia) enim in seipsis habent potentiam quamdam, et principium, quo suscipiunt motum augmenti et decrementi. Et quod hoc principium non

oppose the soul as referring to living things (first and second impositions) to nature as referring to inanimate ones (third imposition), since nature is not always an intrinsic principle of emanation. Once given the third definition, we find the principle of movement first of all in the inanimate world in local motion, as has been pointed out; nature being defined as a principle of motion, and the most evident motion being local motion, we can see why St. Thomas says that nature is somehow proper to inanimate things. Again, "the higher the nature, the more intimate is that which emanates from it" (9). But if we follow the order of knowability for us, we attribute emanation first to that which is less intimate. For according to the order of generation, whereby sense is anterior to intellect, inanimate things have precedence over animate nature. But according to the real order, animate nature has precedence over inanimate nature, in so far as animate nature is the term of inanimate nature. Thus it is that St. Thomas contrasts the soul to nature, living to non-

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(8-continued) - sit natura sed anima, manifestum est. Non natura non movet ad contraria loca ; motus autem augmenti et decrementi est secundum contraria loca. Augentur enim vegetabilia omnia, non solum sursum et deorsum, sed utroque modo. Manifestum est ergo, quod principium horum motuum non est natura, sed anima. Nec solum vegetabilia vivunt, dum augentur et decrescunt, sed quaecumque nutrimentur tamdiu vivunt, quamdiu possunt accipere nutrimentum per quod fit augmentum".

(9) - Contra Gentes, IV, c. 11 : "quanto aliqua natura est altior, tanto id quod ex ea emanat, magis ei est intimum".

living things, for, in the latter, there is a measure of exteriority-- as when, for example, fire engenders fire (10).

Nature is always an intrinsic principle; but it can be extrinsic with respect to that which emanates from it. The movement which proceeds from an intrinsic principle remains extrinsic in comparison to the emanation of a living thing, or of a living thing of greater interiority. St. Thomas gives the example of a fruit falling from a tree, to point out that there is a degree of exteriority even in plants (11). Just as one can oppose the generation of inanimate things, whose emanation is purely exterior to the other three types of emanation (namely that of plants, animals, and human beings, where the emanation is more or less interior) so can one oppose nature to soul.

For the understanding of the term "principle" in the phrase "principium motus et status" already quoted (12), only a nominal def-

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(10) - Ibid. : In rebus enim omnibus inanimatis corpora infima locum tenent ; in quibus emanationes aliter esse non possunt nisi per actionem unius eorum in aliquod alterum. Sic enim ex igne generatur ignis, dum ab igne corpus extraneum alteratur, et ad qualitatem et speciem ignis perducitur".

(11) - Ibid.

(12) - In II Phys., lect. 1, n. 2 : "Et differunt haec omnia ab his quae non sunt a natura, quia omnia hujusmodi videntur habere in se principium alicujus motus et status; quaedam quidem secundum locum... etc.".

inition of principle is required — that which is first in some way. This is not to say however, that we do not require internal experience to see how natural things differ from artificial things. Artifacts, we see, do not have within them a principle of motion or of rest, except per accidens in so far as the bed or chair happens to be made of wood. If "bed" as "bed" had a natural principle of motion and rest, then whether or not the bed were made of wood or of metal or of stone, its properties, say its rate of fall or its resistance to fire, would be, within narrow limits, the same. But as a matter of fact, a wooden bed will burn because it is wooden, not because it is a bed — otherwise, if a bed were combustible because of its "bedness", a metal bed or a stone bed would burn just as well as a bed made of wood.

We might ask at this point why Aristotle, in addition to contrasting natural with artificial things, did not further set off natural things by contrasting them with things that happen by chance. The answer is simple. Artifacts are much better known to us than chance events, for we are the exemplary, efficient, and final cause of artifacts, but we bear no such relation to things that happen by chance. Further, the cause of chance events intrinsic in much the same way as nature is intrinsic, and thus chance events are of much less value than artifacts for purposes of contrast with natural things.

The contrast between nature and art is so well-defined precisely because it is the intellect of man which determines the form of the artifact, and since the intellect is exterior to the artifact, the principle of movement is extrinsic; and the form "since it is impressed by the direction of the intellect through art, cannot, by force of such a principle, have the intrinsic formality of nature and principle of movement, because no intellect, save the divine, is productive of nature through the medium of idea and art" (13).

At this point, St. Thomas produces an objection : in some natural events, the principle is an extrinsic one, as in the alteration and generation of simple bodies. For instance, when water becomes warm, the principle of change is from an exterior agent (14). This seems to destroy the universality of Aristotle's assertion that all natural things have an intrinsic principle of movement, and to challenge the distinction between the artificial and the natural.

St. Thomas refers to the apparent solution of those who considered that "principle" here means an <u>imperfect</u> active principle, an <u>inchoatio formae</u> which they called privation. This might seem at first glance to answer the difficulty but this apparent solution rests upon a distortion of the notion of privation, and even granted

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(13) - John of St. Thomas, <u>Curs. Phil.</u>, T. II, p. 186a5-12.
(14) - <u>In II Phys.</u>, lect. 1, n. 3.

this distortion, the difficulty cannot be answered without introducing in nature a passive principle. For if it is the composite which moves in alteration, the composite will act upon itself, something which is possible only if a distinction is made between an active and a passive principle within the composite; if there is no passive principle the composite cannot change.

St. Thomas then gives his own solution, which calls to mind the text of the Contra Gentes, which we have already examined above.

> And therefore it must be said that there is a principle of movement in natural things according to the way in which movement belongs to them. To some therefore it is proper to move, and there is in them an active principle of movement; to others it is proper to be moved, and there is in them a passive principle which is matter (15).

Thus, although it is necessary that the principle of a natural movement be intrinsic, the active and the passive principle need not both be internal. One intrinsic principle corresponding to the movement proper to the thing is enough. If the being has an aptitude to move, the active principle suffices; if the thing has an aptitude to be moved, the principle will be passive. That the artifact has no

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(15) - Ibid., n. 4 : "Et ideo dicendum est quod in rebus naturalibus eo modo est principium motus, quo eis motus convenit. Quibus ergo convenit movere, est in eis principium activum motus; quibus autem competit moveri, est in eis principium passivum, quod est materia".

such passive principle is made clear by St. Thomas :

> This principle indeed, inasfar as it has a natural potency for such a form and movement makes the movement natural. And because of this the construction of artifacts is not natural; for although there is a material principle in that which comes to be, it has no natural potency for such (an artificial) form (16).

The active principle of the bed as artifact, is not in the bed, but in its maker; nor do we attribute the passive principle to wood inasmuch as it is a bed, but to wood as wood (17). Natural and artificial things are alike in having a passive intrinsic principle of movement, but this likeness exists only because the matter of artificial things is natural. Natural signifies intrinsic, thus a natural aptitude is an intrinsic aptitude coming directly from the intrinsic principle, nature. While iron possesses a fitness to become a knife, this fitness is not natural, for the iron has no in-

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(16) - Ibid., :"Quod quidem principium, inquantum habet potentiam naturalem ad talem formam et motum, facit esse motum naturalem. Et propter hoc factiones rerum artificialium non sunt naturales : quia licet principium materiale sit in eo quod fit, non tamen habet potentiam naturalem ad talem formam".

(17) - Cf. In VII Metaph., lect. 6, n. 1437 : "Oportet namque in materia quamlibet esse aptitudinem ad formam. Non enim quodlibet artificiatum potest fieri ex qualibet materia, sed ex determinata. Sicut serra non fit ex lana, sed ex ferro. Ipsa ergo aptitudo ad formam artificiati, quae est in materia, jam est aliqua pars artificiati, quae est in materia; quia sine aptitudine artificiatum esse non potest. Sicut serra non potest esse sine duritie, per quam ferrum est ordinatum ad formam serrae".

intrinsic ordination to the form of knife, whereas it does have an intrinsic ordination to fall : the true intrinsic ordination of iron is to fall, inasmuch as it is a heavy body. Again, there is no active power in the wood by which it moves itself to the form of the house (18).

Aristotle then treats of heavenly bodies as having a nature. According to the hypothesis of the Ancients, the heavenly bodies must be moved by an extrinsic intellectual agent. Although this theory is no longer held, we have not abandoned the notion of universal causality in nature — (witness its necessity in accounting for the evolution of higher forms, and, what is more important, its necessity in accounting for <u>any</u> absolute natural becoming). It suffices to say that the movements of things including heavenly bodies, are as natural when depending on a passive intrinsic principle as when depending on an active intrinsic principle. Thus, according to Aristotle, although heavy and light bodies have in themselves no active principle of movement, they have nevertheless, a passive intrinsic principle, a natural potency for a certain type of movement;

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(18) - Ibid., n. 1136 : "Sed haec pars dupliciter invenitur in materia. Quandoque quidem ita, quod per eam materia potest moveri a seipsa per partem formae in ea existentem. Quandoque vero non. Sicut in corpore humano, quod est materia naturalis, inest virtus activa, per quam corpus potest seipsum movere seipsum. In lapidibus autem et lignis non est aliqua virtus activa, per quam possit moveri materia ad formam debitam".

and so they do have a nature and a proper natural movement.

Aristotle next infers the definition of nature. St. Thomas explains :

> From what has been said [Aristotle] infers the definition of nature in this way : natural things differ from non-natural things insofar as they have a nature; but they differ from non-natural things only insofar as they have an intrinsic principle of movement; therefore nature is nothing else than a principle of movement and of rest in that in which it is primarily and in virtue of itself [per se] , not in virtue of an accidental attribute (19).

To understand the terms of this definition we must bear in mind the first two impositions which are explained in Book V of the Metaphysics. If we speak of nature as it should be understood according to this third imposition, and could ignore the original one, we would be like the man born blind who speaks of color. Further, this third definition is comprehensible only by reference to an interiority which is not known in terms of mere external sense experience.

An objection might be raised at this point. Why could not all the things we know be only arrangements of more fundamental sub-

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(19) - In II physic., lect. 1, n. 5 ; "... concludit ex praemissis definitionem naturae hoc modo. Naturalia differunt a non naturalibus inquantum habent naturam; sed non differunt a non naturalibus nisi inquantum habent principium motus in seipsis; ergo natura nihil aliud est quam principium motus et quietis in eo in quo est primo et per se et non secundum accidens".

tances ? There are certainly things we name as if they were substances, whereas they are mere accidental arrangements such as a house, a machine, etc. Why is it not thus for natural things ? How do we know that such things as dogs, trees, etc., are properly substantial ?

By internal experience, we have consciousness of our substantial unity and know that we are within ourselves. The first self I know as a self is my own, and others I know by comparison. How does the definition of nature presuppose knowledge of this interiority ?

Except in its very first imposition, nature is defined as being in the genus of principle — that from which something proceeds in some way. But to "principle" Aristotle adds "cause" : nature is both principle and cause. He thereby points out the difference between active and passive principle. "Principle" here signifies passive principle; "cause", active principle. In its common use "principle" is more universal than "cause"; every principle is not a cause, i.e. not every principle is such that a thing depends upon it for its very being, but every cause is a principle.

Aristotle calls the cause which is least cause — namely the passive cause — merely "principle", whereas the term cause is here used to signify the one which is active. As St. Thomas explains :

> "Principle and cause" are used to emphasize the fact that nature is not principle in that which is moved in the same way in all movements, but in different ways, as has been said (20).

It might seem however that St. Thomas would have done better to identify principle with active principle, and cause with passive principle, for in Book I of the Physics (21), "principle" is identified with efficient cause, "cause" with formal and final cause, and "element" with material cause. But there he considers the four genera of causes, bringing them together under the three terms "principles","causes" and elements. And in that concept, final and formal causes have more of the nature of cause than efficient and material causes, since final cause is the cause of causes, and the form is that because of which a thing is what it is. But here, where only active and passive causes are considered, it is clear that we call "principle" that one of the two which is less cause, and "cause" that which is more cause. There is no contradiction between the two texts ; the opposition merely serves to bring out the differences between things without a multiplication of words. They are used equivocally,

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(20) - Ibid. : "Dicitur autem principium et causa, ad designandum quod non omnium motuum natura est eodem modo principium in eo quod movetur, sed diversimode, ut dictum est."

(21) - In I Phys., lect. 1, n. 3.

but the unity of knowledge is served and the common usage is followed.

It might be asked why, when St. Thomas reproduces the definition of Aristotle, he omits "and cause" from the phrase "principle and cause". The answer is found in the next few lines, where St. Thomas answers a difficulty connected with "principium". It may be that he simplifies the text in view of the objection he is there concerned with. But then he turns to Aristotle's own reason for using "principle and cause".

The objection is one which would cut off at its roots the true notion of nature as principle :

> In the definition of nature, "principle" is posed as genus and not as something absolute, because the name "nature" implies the condition of principle. For because those things are said to be born [nasci] which are generated joined to the generator, as is clear in plants and animals, therefore the principle of generation or of movement is called "nature". Whence it is that those who wish to correct Aristotle's definition by trying to define nature through something absolute, saying that nature is a force implanted in things [vis insita rebus] or the like, are to be scorned (22).

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(22) - In II Phys., lect. 1, n. 5 : "Ponitur autem in definitione naturae principium, quasi genus, et non aliquid absolutum, quia nomen naturae importat habitudinem principii. Quia enim nasci dicuntur ea quae generantur coniuncta generanti, ut patet in plantis et animalibus, ideo principium generationis vel motus natura nominatur. Unde deridendi sunt qui volentes definitionem Aristotelis corrigere, naturam per aliquid abso-

As we have seen from Book V of the Metaphysics, nature always has reference to an intrinsic principle. Precisely, if we neglect the first two impositions, we will not see why one might not replace "principle", a connotative term, by something absolute such as a "force implanted in things". (Witness the substitution of "energy" by some modern scholastics for principle — perhaps an attempt to transfer to a physico-mathematical level something which has nothing to do with it). The point is plainly made by St. Thomas when he so briefly dismisses those who attempt to substitute for "principium" a "vis insita rebus" (23). The very aptness of the word "principle"

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(22) continued - intus definire conati sunt, dicentes quod natura est vis insita rebus, vel aliquid huiusmodi." Aristotle did not find it necessary to treat any of the terms of the definition except the last, and that last because of the similarity between nature and some arts; he supposed the other terms to be "per se nota". Hence it is that the commentary of St.Thomas is of such value in explaining the definition of nature, since the terms of the definition are not for us "per se nota".

Something like a "vis insita rebus" is found in this text from the Idea of Nature, by R. G. Collingwood, op. cit., pp.8, 9 : "The Renaissance view of nature as a machine is equally analogical in its origin, but it presupposes a quite different order of ideas. First, it is based on the Christian idea of a creative and omnipotent God. Secondly, it is based on the human experience of designing and constructing machines. The Greeks and Romans were not machine-users, except to a very small extent : their catapaults and waterclocks were not a prominent enough feature of their life to affect the way in which they conceived the relation between themselves and the world. But by the sixteenth century the Industrial Revolution was well on the way. The printing-press and the windmill, the lever, the pump, and the pulley, the clock and the wheelbarrow, and a host of machines in use

to express the connotative sense of nature is brought out by St. Thomas through an argument based on the fact that the word is derived from "to be born" (nascd, natum, nature). Only those things are said to be born which in the process of coming to being are joined with the generator, such as plants and animals (known by us in that order). Therefore, the principle of such a generation,

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(22) continued - among miners and engineers were established features of daily life. Everyone understood the nature of a machine, and the experience of making and using such things had become part of the general consciousness of European man. It was an easy step to the proposition : as a clockmaker or millwright is to a clock of mill, so is God to Nature".

(23) - Paul Weiss, Nature and Man, op. cit., p. 21 : "The things in nature seem to be passive. We find them moving and changing only under pressure of external compulsions. The things, to which these compulsions seem to be traceable, appear on examination also to be passive and inert — mere places where an external force once entered and later departed.

No theory, therefore, sounds so plausible and so right as one which asserts that whatever occurs is the result of a single force passively exhibited by specific things. It checks with what seems to be observed; it is simple, direct, clear-eyed. There is little difficulty in giving it a mathematical form or in shaping it so that it becomes a mainstay of a science intolerant of mysteries and vagueness, a science which tries to make successful predictions and to control nature.

Laplace stated the view in its simplest form. According to him, the cosmic force is a single physical power prescribing the position and velocity of whatever bodies might exist. He thought that if we know where all the bodies in nature were and the velocities with which they moved, our knowledge of the laws of motion — laws perfectly fulfilled by the cosmic force — would make it possible to predict precisely what the future would be".

(second imposition), or of motion (third imposition), is called nature. Hence, inasmuch as it is derived from "nasci", the noun "nature" must signify (though in a different mode) what the verb signifies; but the verb connotes the relation of the generator to the generated; The noun, too, will signify this relation of principium ad principiatum. Take a more obvious example : "to join", which means to link or connect, implies a relation between two things to be joined. The noun "joining" will import the same relation; it will not be an absolute term.

Even in the examination of the first words of the definition, we can see how necessary it is to have some notion of internal experience, and that the impositions and the relation between the impositions of nature be well known.

Now let us turn to the words "motus et quietis".

> He [Aristotle] says "of movement and of rest" because those things which are naturally moved to a place similarly or even more naturally rest in that place; it is because of this that fire naturally moves upward, because it exists there naturally, and it is for this reason also that each thing is most naturally there (24).

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(24) - In II Phys., lect. 1, n. 5 : "Dicit autem movendi et quiescendi, quia ea quae naturaliter moventur ad locum, similiter vel magis naturaliter in loco quiescunt : propter hoc enim ignis naturaliter movetur sursum, quia naturaliter ibi est, et propter quod unumquodque et illud magis."
Cf. : In IX Metaph., lect. 7, n. 1845 : "Est enim natura

Some movements are attributed to nature, others to art. By nature we mean the principle of the first kind of movement. However, in the definition of nature, we say that is a principle of both movement and rest, which is quite the opposite of movement. John of St. Thomas has faced this difficulty :..."The name 'rest' must not be understood for a pure lack of movement, but for a lack of movement attended by an actual possession of the very term of movement" (25). It is rest as the term of a movement whose principle is nature; the opposition between movement and rest is the opposition between "via ad terminum" and the "terminus" itself. Thus if nature is the principle of movement, it will be even more the principle of the end of movement. "Propter quod unumquodque et illud magis". The explanation of why, though nature is the principle of both movement and rest, it is more a principle of the latter than of the former is given by St. Thomas in the de Potentia :

> For since nature always tends determinately in unum, having no regard to many things, it is impossible that some nature incline to motion for its own sake; for from the fact that there is in every movement a certain uniformity, inasmuch as what is moved is not always moved in the same way, a uniformity in the

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(24) continued - in eodem genere cum potentia ipsa, quia utrumque est principium motus, licet natura non sit principium motus in alio, sed in eo in quo est, inquantum hujusmodi, ut manifestatur in secundo Physicorum. Et tamen natura non solum est principium motus, sed etiam quietis. Et propter hoc potentia intelligenda est non solum principium motus, sed etiam principium immobilitatis. Omni ergo tali potentia, actus prior est, et ratione, et substantia, et etiam tempore quodammodo, alio vero modo non".

(25) - John of St. Thomas, Curs. Phil., T. II, p. 172ab2-45 ; "nomine vero 'quietis' non intelligitur pura carentia motus, sed carentia illius cum possessione termini..."

> moving thing would be contrary to the notion of movement. Whence it is that nature never tends to movement for the sake of movement, but for the sake of something determined which follows upon movement; as the nature of something heavy tends to rest in the "middle", and consequently tends to downward movement, inasmuch as by that kind of movement it reaches such a place (26).

And further St. Thomas remarks :

> Movement of its very notion includes the notion of end, because movement is a tendency towards something other; whence it is that movement is not an end, but rather that which is for an end [quod est ad finem] . This is confirmed by what is said in Book III of the De Anima, namely that movement is an imperfect act. The end, on the other hand, is the ultimate perfection of a thing (27).

Nature as principle of movement is ordered in unum. But movement itself is of its very nature indeterminate and therefore nature cannot tend to movement as to an absolute term.

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(26) - De Pot., I, q. 5, art. 5, s. : "Cum enim natura semper in unum tendat determinate, non se habens ad multa, impossibile est quod aliqua natura inclinet ad motum secundum se ipsum; eo quod in quolibet motu differentiae quaedam est, in quantum non eodem modo se habet quod movetur; uniformitas vero mobilis est contra motus rationem. Unde natura nunquam inclinat ad motum propter movere, sed propter aliquid determinatum quod ex motu consequitur; sicut natura gravis inclinat ad quietem in medio, et per consequens inclinat ad motum qui est deorsum, secundum quod tali motu in talem locum pervenitur".

(27) - Ibid., : "motus enim, ex ipsa sui ratione repugnat ne possit poni finis, eo quod motus est in aliud tendens; unde non habet rationem finis, sed magis ejus quod est ad finem. Qui etiam attestatur, quod est actus imperfectus, ut dicitur in III De Anima. Finis autem est ultima perfectio."

St. Thomas next answers an implied objection :

> But it must not be thought that, in everything which is moved, naturally, nature is also the principle of rest; because the heavenly body is indeed moved naturally, but has no natural rest. But the words "movement and rest" are used because nature is the principle not only of movement, but also of rest (28).

St. Thomas explains why, although nature is not to be understood as being always and everywhere the principle and cause of movement and rest (for a heavenly body moves naturally but has no natural rest) (28a) Aristotle used the conjunction "and" — "et"; for the definition here is of nature as an "ensemble" (29), i.e. the total collection of natural things and their unity, and this "et" guarantees the universal character of Aristotle's definition. Coming to the words : "in eo in quo est" — "in that in which it is", St. Thomas explains that they are used

> to differentiate from the principle of artificial things, in which motion is found only per accidens. He [Aristotle] adds primarily [primum] because nature, although it is the principle of the movement of composed things, is however not the first principle. Thus the fact that an animal moves

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(28) - In II Phys., lect. 1, n. 5 : "Non tamen intelligendum est quod in quolibet quod movetur naturaliter, natura sit etiam principium quiescendi; quia corpus caeleste naturaliter quidem movetur, sed non naturaliter quiescit : sed hoc pro tanto dicitur, quia non solum motus, sed etiam quietis principium est".

(28a) - Ibid., n. 5.

(29) - Cf. John of St. Thomas, op. cit., p. 172a7-33.

downwards does not come from the nature of animal as such, but from the nature of the predominant element (30).

It is for the understanding of these words that the notion of an interiority other than that of place is most pertinent. The principle and cause of motion and rest is within the very being; it is intrasubstantial. Though the senses attain things which have this sort of principle, the senses do not know this principle. The interiority is of a kind which is not, as such, perceptible to the senses, as has been shown.

Further, this text brings out the fact that nature is the inner principle of the movement, or rest, which is in that movement or rest in which the principle is primo, etc. For the intrinsic principle is not called nature because something may proceed from it outward to another being, or because another being may proceed from it, as in generation. The intrinsic principle is called nature inasmuch as it is the first principle of the movement that is in the thing in which it is. As John of St. Thomas explains (31), fire is said to have a nature not because fire actively heats water, but because there is a principle of movement in fire by which it tends to rise; in relation to its

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(30) - In II Phys., op. cit. : "Dicit autem 'in quo est' ad differentiam artificialium, in quibus non est motus nisi per accidens. Addit autem primum, quia natura, etsi sit principium motus compositorum, non tamen primo. Unde quod animal movetur deorsum, non est ex natura animalis inquantum est animal, sed ex natura dominantis elementi".

(31) - John of St. Thomas, Curs. Phil., T. II (ed. Reiser), pp. 172b1-173a7.

heating power, its movement upwards is from nature primo. For artificial things too can move something other than themselves, and fire's heating water is called natural only in consequence of the movement primo, only because it follows upon the very nature of fire, and not upon a form imposed by an artist. In other words, there is an "incese" of this movement upwards, and an "incese" of the principle of this movement — both in the same thing in which there is movement or rest.

We see then that nature is to be taken in the sense of an intrinsic radical or ultimate principle, and since substance itself is the ultimate principle, nature is a substantial principle. The example given by St. Thomas of an animal falling downwards shows in what sense nature is to be taken as the radical or ultimate substantial principle. We say that the fall of the animal is natural, that if flows from the very nature of the animal. What then is it in the nature of the animal which compels it to fall downward ? It is not animal as animal nor as living, but as heavy body; an animal is substantially a body — body is radically of the substance of animal. Again, if the growth-movement of the animal were described, we would attribute this movement to the nature of animal, as living material substance; if sensation were described, we would attribute this property directly to the very nature of animal as animal. This is not to say that an animal has many natures, but rather that the one nat-

ure it has includes the others supereminently, in much the same way as we attribute both sensitive operations and intellectual operations to the human soul -- but not always in a reduplicative manner.

"Per se et non secundum accidens" -- St. Thomas explains the need for this last qualifying phrase with an example drawn from art :

> Sometimes it happens that a doctor is the cause of his own health; and in that case the principle of his healing is in him, but only accidentally; therefore the principle of health in him is not nature, because he does not have the medical art as a sick man but as a doctor. It is only by accident that he is at the same time sick man and doctor -- the healer is healed not as healer but as sick man.... As it is with the doctor healing, so it is with all artificial things; for none has in itself the principle of its own production : some come from an extrinsic principle, such as a house and those other things which are carved by the hand; others come from an intrinsic principle but accidentally, as was explained (32).

We say that it is natural for a doctor to heal, but we also say that

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(32) - Ibid., n. 5 ; "Contingit enim aliquando quod aliquis medicus est sibi ipsi causa sanitatis; et sic principium suae sanationis est in eo, sed per accidens ; unde principium sanationis in eo non est natura. Non enim secundum quod sanatur habet medicinam, sed secundum quod est medicus; accidit autem eundem esse medicum et sanari; sanatur enim secundum quod est infirmus. Et ideo, quia per accidens coniunguntur, aliquando per accidens dividuntur ; contingit enim alium esse medicum sanantem et alium infirmum qui sanatur... Et sicuti est de medico sanante, ita est de omnibus artificialibus. Nullum enim eorum habet in seipso suae factionis principium ; sed quaedam eorum fiunt ab extrinseco, ut domus et alia quae manu inciduntur; quaedam autem fiunt a principio intrinseco, sed per accidens, ut dictum est".

it is only per accidens that the doctor heals himself. For that he be sick and require healing has nothing to do with his being as doctor. Now the purpose of the last phrase of the definition and of the example explaining it is to point up the distinction between natural things and artifacts.

The natural movement of fire is upwards. Why ? The ancients said : because of its nature as a light body, which nature is never separated from its movement. Thus fire has a nature as a light body and a characteristic movement upwards which are never separated (33). On the other hand, the doctor's proper function is to heal the sick. But that the doctor be sick has nothing to do with being a doctor.

The doctor cures the patient, and this patient happens to be himself. The movement of which nature is the proper principle, is subjected in the same being. Now, inasmuch as the doctor heals himself, the healing takes place in the one in which the principle of this process resides, and hence the definition of nature applies here in part. However, the connection between the doctor as healer and the doctor as patient is only accidental.

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(33) - Ibid., : "Sed principium motus naturalis est in corpore naturali quod movetur, inquantum movetur : inquantum enim ignis habet levitatem, fertur sursum. Hae dividuntur ad invicem, ut aliud sit corpus quod movetur sursum et aliud leve, sed semper unum et idem".

Still another analogy may be used to show what nature is :

> If the art of making a ship were intrinsic to the wood, the ship would be made by nature as it is now made by art. And this is best manifested in the art which is in that which is moved, though accidentally, as the doctor who heals himself; for nature is most like this art (34).

Nature itself, in living beings, tends to health and often succeeds in this. It is the doctor's business to cooperate with nature, and to this extent the doctor heals naturally.

It is by a like comparison of nature with divine art that Aristotle gives another definition of nature in the last chapter of Book II of the Physics. This definition of nature in terms of final cause is in terms of very first principle of nature and of its operation, since final cause is the "causa causarum" and therefore "potissima". One might say that the whole processus of Book II of the Physics, the explanation of nature, the different relations of cause and effect, the species of regularity to the treatise of chance in the light of fortune, the causes of natural demonstration — all are preparations for the understanding of nature's acting for an end. Thus it is that the definition of nature in terms of final

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(34) - In II Physic., lect. 14, n. 8 : "Si enim ars factiva navis esset intrinseca ligno, facta fuisset navis a natura, sicut modo fit ab arte. Et hoc maxime manifestum est in arte quae est in eo quod movetur, licet per accidens, sicut de medico qui medicatur se ipsum : huic arti enim maxime assimilatur natura".

causality is, in a sense, the goal of Aristotle's study of the principles of natural science. For the purpose of this new definition is to show why things have a nature -- so that they may act for an end.

> Thus it is evident that nature is nothing else than the ratio of a divine art implanted in things by which the things themselves move to a determined end : just as if the artisan who makes the ship could give to the wood the power of moving itself to produce the form of a ship (35).

If wood were to have the power of moving itself to the form of a ship, if the "ars factiva navis" were intrinsic to the wood, the ship as such would be natural. But there is no essential connection between the processes proper to wood and the form of a ship; the wood might just as easily be made into a bed or a chair.

We shall now discuss briefly the next section of chapter one of Book II of the Physics, in which Aristotle considers the phrases "having a nature" and "according to nature", as well as the impossibility of demonstrating the definition of nature.

Aristotle says that a thing "having a nature" is a thing whose principle is nature. St. Thomas explains :

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(35) - Ibid. : "Unde patet quod natura nihil est aliquid quasi ratio cuiusdam artis, scilicet divinae, indita rebus, qua ipsae res moventur, ad finem determinatum : sicut si artifex factor navis posset lignis tribuere, quod ex se ipsis moverentur ad navis formam inducendam".

> ... he [Aristotle] defines these things denominated by nature. He says that things having a nature are those things which have in themselves a principle of their own motion. And all such subjects are natures because nature is subject insofar as matter is called nature; it is also in a subject insofar as form is called nature (36).

A thing is said to have a nature when it has a principle, active or passive, of its own motion. Natures are said to be either subjects or in subjects : subjects, when the nature is considered as matter — for example, the wooden statue is said to have a nature in that its matter is wood —; in subjects, where the nature is considered as form — for example, the tree has a nature in that its form is a natural form.

What is it to be "according to nature" ?

> ... Not only subjects whose being is from nature, but also accidents which are caused in subjects by such a principle [nature] are according to nature. For example, "to be carried upwards" is not the nature itself, nor is it that which has nature, but is caused by nature (37).

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(36) - In Phys. II, lect. 1, n. 6 : "... definit ea quae a natura denominantur. Et dicit quod habentia naturam sunt illa quae habent in seipsis principium sui motus. Et talia sunt omnia subiecta naturae : quia natura est subiectum, secundum quod natura dicitur materia; et est in subiecto, secundum quod natura dicitur forma".

(37) - Ibid., n. 7 : "... exponit quid sit secundum naturam. Et dicit quod secundum naturam esse dicuntur tam subjecta, quorum esse est a natura, quam etiam accidentia quae in eis insunt causata ab huiusmodi principio; sicut ferri surSum non est ipsa natura, neque habens naturam, sed est causatum a natura."

"According to nature" has a wider application than "having nature", since the former can be said of everything included in the latter, and moreover, includes attributes of the subject. The plant "has" a nature and is "according to" nature; but the growth of a plant has no nature, though it is according to nature. The whole difference between the two is the difference between our use of the phrase "has a nature" and the word "natural". Many more things are natural than have a nature. Note however that in both there is included the notion of an intrinsic principle, thus fulfilling Aristotle's injunction that the nature always have reference to an intrinsic principle (38).

The question now asked by Aristotle is : can the existence of nature be demonstrated ? He answers that the very wish to attempt such a thing is ridiculous. St. Thomas explains that the existence of nature is so manifest to sense that any attempt to demonstrate its existence would imply a recourse to a medium less known than the very conclusion to be inferred.

> And he [Aristotle] says that it is ridiculous to try to demonstrate the existence of nature, since it is evident to sense that many things, those which have a principle of their own movement in themselves, exist by nature. Moreover, the man who wishes to demonstrate the evident by the inevident is one who cannot judge what is known of itself and what is not

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(38) - Cf. In Metaph., lect. 5, n. 815.

> known of itself; for when he wishes to demonstrate something known of itself, he uses this as not known of itself (39).

Just as the fact of motion is manifest to the senses, so it is manifest that there are many things which have the principle of their motion within themselves -- the principle we call nature. We accept the existence of nature as a principle; if it is denied, the natural philosopher cannot as natural philosopher refute the denial, for his science not being wisdom proper, he cannot defend his first principles. Aristotle makes a comparison between one who attempts to prove the existence of nature and a blind man who attempts to syllogize about colors. St. Thomas explains :

> One who is born blind sometimes reasons about colors. For such a man, that which is used as principle is not known of itself simply because he has no understanding of the thing; rather he uses names only. The fact is that our knowledge arises from the senses and he who lacks a sense lacks a science. Thus those born blind, those who never saw a color, can have no understanding of colors; thus [in syllogising] they use what is unknown as if it were known (40).

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(39) - In II Phys., op. cit., n. 4 ; "Et dicit quod ridiculum est quod aliquis tentet demonstrare quod natura sit, cum manifestum sit secundum sensum quod multa sunt a natura, quae habent principium sui motus in se. Velle autem demonstrare manifestum per non manifestum, est hominis qui non potest iudicare quid est notum propter se, et quid non est notum propter se ; quia dum vult demonstrare id quod est notum propter se, utitur eo quasi non propter se nota".

(40) - Ibid. ; "Aliquis enim caecus natus aliquando syllogisat de coloribus ; cui tamen non est per se notum id quo utitur ut principio, quia non habet intellectum rei, sed utitur solum nominibus; eo quod cognitio nostra certum habet a sensu, et cui deficit unus sensus, deficit una scientia. Unde caeci nati, qui nunquam senserunt colores, non possunt aliquid de coloribus intelligere; et sic utuntur non notis quasi notis."

Color for the man born blind is nothing more than a meaningless vocal sound. Though he may be able to write a poem about color, or may be able to measure it, he knows no more about the subject of his poem than about its use and connotative overtones; or if he learns about color from physics, he will know it only in terms of measurement. He does not know at all what makes color to be what it is. Why ? Because he lacks the proper sense. The very principle of learning about the whole realm of colors is non-existent.

The blind man uses what he does not know as though he knew it. The man who attempts to demonstrate nature, on the contrary, uses what he knows as though he did not know it.

> The contrary happens to those who wish to demonstrate the existence of nature, because they use what is known as though it were not known. For the existence of nature is known of itself insofar as natural things are evident to sense (41).

54. Thomas now makes the distinction which at once explains the reason for the attempt to demonstrate the existence of nature, and shows how unreasonable is that effort. The existence of nature is known of itself.

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(41) - Ibid. : "Et e converso accidit his qui volunt demonstrare Naturam esse : quia utuntur notis ut non notis. Naturam autem esse, est per se notum, inquantum naturalia sunt manifesta sensui".

> But what the nature of each thing is or what the very principle of motion is, this is not evident. It is plain from this that Avicenna who tried to disprove Aristotle's saying, was wrong, inasmuch as he would have the existence of nature demonstrated, though not by the natural philosopher, since no science proves its own principles — But ignorance of the proper nature of things does not prevent the existence of nature from being self-evident (42).

Descartes was among the first to overlook the distinction between knowledge of the existence of a thing and knowledge of its essence. Somehow the evidence of the fact of movement was identified by him with an immediate perception of the very nature of movement itself. Today Mansion makes a similar mistake : the existence of nature is not self-evident, he holds, as should be plain from the fact that the definition of nature is not immediately evident (43).

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(42) - Ibid. : "Sed quid sit uniuscuiusque rei natura, vel quod principium motus, hoc non est manifestum. Unde patet per hoc quod irrationabiliter Avicenna conatus est improbare Aristotelis dictum, volens quod naturam esse possit demonstrari, sed non a naturali, quia nulla scientia probat sua principia. Sed ignorantia principiorum movantium non impedit quin naturam esse sit per se notum, ut dictum est".

(43) - Augustin Mansion, op. cit., p. 101 : "Dans un passage antérieur de la Physique, il avait posé en hypothèse contre les Eléates qu'il fallait, sous peine de détruire la physique en même temps que son objet, prendre comme point de départ que les êtres naturels étaient en mouvement, soit tous, soit quelques-uns en moins : il en appelait alors à l'expérience ou à l'induction. C'est là, en effet, une constatation qui s'impose : mais ici la thèse va plus loin et porte sur l'existence d'un principe en somme transcendant à l'expérience. Seulement l'inférence en vertu de laquelle on y arrive, est pour le sens commun si immédiate qu'Aristote a été amené à en faire une évidence. Il n'en reste pas moins que tout

He argues in effet that while experience suffices to convey the existence of mobile being, it is not of itself sufficient to make known the existence of natural things.

In his criticism, Maurice seems to confuse the an est and the quid est of nature. Experience does not attain "nature as clearly known" but it does establish the fact of the existence of natural things inasmuch as we distinguish them from artificial things. However the root of the difficulty resides in the fact that the two experiences, that of the existence of mobile being, and that of the existence of nature are different. The existence of mobile being can be known by external experience alone. The existence of natural things as distinct from artificial things can be known only through both external and internal experience. By the first we perceive natural and artificial things; whereas the latter furnishes us with the notion of an interiority we then apply to natural things, and which, by comparison with the artifact, we recognise as proper to them.

The quid est of nature is certainly not evident at first glance; otherwise, why would Aristotle treat at such length the defini-

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(43) continued - ce qu'il ajoutera, dans la suite, à sa théorie de la nature, participera à la faiblesse du début et, pour tout dire, n'aura, comme fondement dernier, que l'analyse fort succincte de l'expérience journalière et du langage ordinaire que nous avons résumés; or cette expérience, traduite dans le langage, implique une interprétation qui dépasse les faits. The translation of this passage appeared in the preface of this paper.

tion of nature ? But the existence of nature as an intrinsic principle of movement is known without demonstration. Maréchal's complaint about the weakness of "l'expérience journalière et du langage ordinaire" arises from a misunderstanding of the function of daily experience and ordinary language, as has been already shown.

There is one question which still remains : if the third imposition of nature is dependent on the first two, how can this nature be a per se notum ? The answer is simply that the definition of nature is per se notum once the terms are known. But the terms of this definition cannot be known without a knowledge of the first two impositions. There is an orderly progression in the apprehension even of principia per se nota. Both the principle of contradiction and the principle of causality are per se nota, yet the one is known prior to the other. In summary, the definition of nature is per se notum only when we have knowledge of the terms; the terms of this definition can be known only with the help of internal experience and a knowledge of the first two impositions of the word nature.

3. - Nature as Matter and as Form

In the concluding section of chapter one (1), Aristotle answers the questions : can the matter of a natural thing be called nature ? can the form of a natural thing be called nature ? We shall briefly consider here only the highlights of this reply namely those features which bring home the probative value of the common use of words, the help given by the primary impositions, and the importance of internal experience for the understanding of nature.

In the first book of the Physics (2) it was shown that the early Greek naturalists did not attain the notion of prime matter, and in consequence they held that the substratum, the "raw material" of all things, is some sensible body such as fire, air, or water. From this it followed that all forms were to be considered as accidental determinations and that whatever could be said of the forms of artifacts could be said of natural forms. Thus it seemed to the early philosophers that the substance and nature of natural things was matter. Antiphon suggests a sign of this by pointing out that if a wooden bed be planted in the earth, and if the circumstances are favorable, the wood will take on new life, become green and sprout. New wood will grow forth, but not a new bed. And because

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(1) - Phys., II, ch. 1, 193a9-193b22.
(2) - Phys., I, ch 7, Cf. : In I Phys., lect. 12, n. 2.

it is substance which remains and because nature generates its like, Antiphon concludes that the nature of the bed is wood and that its form is accidental. This is true, since we are here in the realm of artifacts, where the artificial form is accidental. But the early Naturalists inferred by analogy that as wood is to bed, so is water (or fire, or air) to any substances we call natural. Thus it is the matter of a thing which is nature; and all forms are accidental (3).

St. Thomas points out that this position is partly true and partly false : true inasmuch as matter is nature; false in asserting that all forms are accidental (4). Matter is nature because it enters into the constitution of the very substance of a natural thing; not all forms are accidents, for there is such a thing as absolute becoming and there are natural forms really distinct from artificial forms, as Aristotle shows by those arguments.

But before considering form as nature, let us note how well the sign taken from Antiphon corresponds with Aristotle's own notion that the generation of living things is the first and most evident meaning of nature. Both sign and meaning are evident for the same reason : both come from sense-experience.

Again, there are two questions which must be borne in mind.

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(3) - Cf : In II Phys., lect. 2, n. 1
(4) - Ibid., n. 4.

First, why is nature as matter known before nature as form ? Second, why does Aristotle rest the burden of his proof upon the assertions of the early Naturalists in showing that matter is nature ? The two questions are closely connected, as we shall see.

Aristotle has already shown that we first know the matter and form of a natural thing by analogy with the matter and form of an artificial thing. Now certainly it is the form of the artificial thing which makes the thing artificial. But the artificial form is accidental and thus not nature. So in artifacts the matter is known to be nature than its form, which we recognise to be artificial. A sign that matter is first known as nature can be found in the history of early Greek philosophy : actually the Physiologues did arrive at the notion of nature as matter, but failed to see form as nature. They all agreed that nature was some sort of material element, but id did not occur to them that form too was nature. It is a general method of procedure with Aristotle to consider the opinions of his predecessors before undertaking his own solution of a problem. He follows this procedure for two reasons : first, he was intellectually humble, and he recognised his dependence on them; secondly, as a teacher he knew that the doctrine of the Ancients gives us what was de facto first known in things, and that any mind, at any time, studying these problems would naturally pass through these same

phases before recognizing the truth. In other words, Aristotle was amply justified in treating of nature as matter before treating of it as form.

In giving the doctrine of the Ancients on nature as matter, and then distinguishing the truth from error, he is following a procedure that is perfectly adapted to our minds. The argument is not "matter is nature because the Ancients declared it to be thus"; we are not faced here with an argument from authority. Rather it is "the Ancients said matter is nature for such and such a reason; they were right in the main; they were wrong only when they concluded more than their premises permitted". It is because matter fulfills the definition of nature, because matter is an intrinsic principle of change that Aristotle says it is a nature. But to manifest this, what better procedure could he follow than that of Naturalists, using artifacts to manifest natural things ?

Aristotle next gives three reasons to show that form is nature (5). The first is taken from an analogy with artificial things (6) : just as it is art which characterises a thing in so far as it is made by art, so it is nature which characterises a thing in so

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(5) - Phys. II. ch. 1. 193a3-193b19.
(6) - In chapter two of this book, Aristotle gives the foundation justifying the analogy between nature and art. Cf. In II Phys., lect. 4, n. 5, 6.

far as it is natural; but we do not say that a thing which is only potentially an artifact, is characterised by art; therefore in natural things that which is only potentially flesh or bone has not the nature of flesh or bone before it receives its form, and is not characterised by nature (7).

Note here that although Aristotle cannot draw directly on the Naturalists for help in proving that form is nature (since they said that all forms were accidental), nevertheless he makes use of their argument proving that matter is nature, to prove his own thesis. By means of analogy with artifacts they showed that matter is nature; by means of the same analogy Aristotle shows that form is nature, though he emphasised, in his arguments, points other than those considered by the early Greeks. For although we recognise that wood is an essential constituent of a wooden bed, we also recognise the fact that it is the artificial form of bed which makes the bed an artifact. The same thing holds for natural things; for it is by their external figure and shape or form that we first know the natural thing, and it is the substantial form of a thing which determines its nature, i.e. which establishes its kind or species. True enough, the form and matter of a natural thing are not really separate; but just as the matter and the form of table are considered separately by the

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(7) - Ibid., lect. 2, n. 3.

mind, so too the modes in which matter and form are called nature.

Aristotle says further that from the proof that form is nature, one can infer that form is a nature even more so than matter. Put simply, we denominate a thing as such and such when it is actually that thing. But form, according to which something is actually natural, is more nature than that according to which something is only potentially natural, namely matter. Note here, at the very basis of this inference, the part played by our common use of words. For one who is unacquainted with Aristotle's use of words, this must seem like saying boldly : we speak of it this way, therefore it is this way.

Someone might infer that since both matter and form are nature, the composite of the two is also nature, just as matter, form, and composite are all called substance. But this comparison cannot be allowed since nature here is taken as principle, and although both matter and form are principles, the composite is a principiatum. The composite is denominated as that which has a principle, as natural or having nature, as that which (id quod), rather than denominated as that by which (id a quo) as nature (8).

Aristotle's second argument is based on the example used

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(8) - Ibid., n. 4.

by Antiphon to show that matter is nature (8a). Antiphon said that a wooden bed does not generate a bed but under certain conditions may grow wood. Therefore, he concluded, matter is nature and form is only accidental. Aristotle shows that although it is true that a wooden bed would not produce the form of bed, it does produce the form of wood, which is a natural form. The term of this generation can be considered as matter with regard to the artificial form, but it must also be considered in its natural form. Thus, if the reason for excluding the figure of the bed from being a nature is that it is not the product of generation, then the fact that the form of wood is the product of generation is proof that such a form is nature. This is an argument which confirms the first argument by showing that the very example Antiphon used to point out that matter alone is nature can be used to make evident the contradictory of what he tried to prove. But this argument is not only an argumentum ad hominem, since by it Aristotle proves from the generation of a living thing (the first imposition of nature) that this generation has as its term a form, since it is always form and through the form, the composite, that is generated, just as man always generates man. Antiphon showed that matter was permanent throughout generation, and thus gave a note of stability to matter; Aristotle gives a like stability to form by showing that it is always present as the term of generation, whether

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(8a) - Ibid., n. 6.

it be the generation of that which is as matter to artificial form, which matter yet has a natural form; or whether it be the generation of something natural both by reason of matter and form, as man.

The third proof is an argument taken from the first imposition of nature as birth or nativity (8b). But whereas in the second proof nativity was used as the means of distinguishing between the natural and the artificial form, with emphasis on the term of generation, Aristotle here devotes his attention to the process of generation itself. The argument is this : birth or nativity is, we might say, a "road to nature" for it is the nature of a thing which is the term of birth. What is born, in so far as it is born, goes from its principle to its term but is denominated by its term, which is form, and not by its principle. Socrates is called a man first of all because he <u>is</u> a rational animal and not because he was <u>generated by</u> a rational animal. The reason for the denomination of birth from its term is found in the application of the principle : actions are denominated by their principles, passions by their terms. Compare the word "medication" with the word "healing". Medication is denominated by its principle, medicine, and not by its term, health; "healing" on the contrary is denominated by its term, health, and not by its principle, medicine. Now compare "generation" and "nativi-

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(8b) - Ibid., n. 7.

ty" : "generation" refers to the principle of generation, i.e. the generator; "nativity" (nativitas) refers to the term of birth, to nature (natura) (9). Both "medication" and "generation", being active, are denominated by their principles; both "healing" and "nativity", being passive, are denominated by their terms. "Healing" is a road to health just as "nativity" is a road to nature.

In short, it is in virtue of its term that nativity is denominated nature. But the term of nativity is form as was shown in the first proof. Therefore, Aristotle concludes, form is nature.

In this last part of Aristotle's treatment of nature, we have seen briefly how Aristotle shows that both the matter and the form of a thing can be called nature. We have seen the answers to certain objections and difficulties which were raised concerning the text itself. And finally, we have seen the importance of Aristotle's use of words and of internal experience in the understanding of this text.

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(9) - Further, "generare" is in the active voice, but "nasci" is in the passive voice.

SUMMARY

In the introduction to this paper it was pointed out that the definition of nature given in the Physics (1) is, according to A. Mansion, open to serious criticism. Mansion says that for Aristotle the absolute existence of nature is based on ordinary experience and ordinary language, but that these grounds are insufficient to prove the existence of nature, and that any developments based on this definition cannot but participate in its flimsiness. With the aim of answering these criticisms, we examined first Aristotle's use of words, second, his notion of internal experience, and third, we commented briefly on certain texts in the Metaphysics and Physics where Aristotle treats "nature" ex professo.

In our consideration of Aristotle's use of words, we saw first of all what relation there is between the word, the concept, and the thing. It was shown that the spoken or written word, being sensible and artificial, has a certain power of manifesting the mental word or concept. Next, there was a brief examination of the intrinsic ordination of our intellects to the formation of the word, an ordination based, as we saw, on man's natural desire to manifest things to himself. Finally, it was pointed out that the human word is imperfect because man's mode of acquiring knowledge is imperfect.

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(1) - Physics., II, chap. 1, 192b23.

Next there were brief chapters on the common use of words and the first imposition of words. We examined these notions, their distinction, the various ways in which they can be considered as principles of knowledge, and their importance for the philosopher.

We were then in a position to examine why it was that Aristotle was justified in using one word to signify different things, and how in this he approached the angelic universale in representando. In summary, the importance of the verbal commentary was shown, and how this type of commentary permits us to grasp Aristotle's doctrine through a medium proportioned to us, without losing or minimizing any of the doctrine itself.

It was the intent of the next section of this paper to point out the different ways in which one thing can "be in" another. To this end, we examined the different kinds of interiority and the notion of internal experience, through the means of the "experience of living", our knowledge of the soul, and the properties of the sense of touch. Further, we contrasted internal and external experience, and saw the respective importance of each in Aristotle's philosophy of nature.

The final chapter of this paper was taken up with an examination of the text from the Metaphysics, where the order of imposition of "nature" was investigated in order to arrive at a signification of nature proper to the metaphysician. Finally we commented briefly on

the first chapter of Book II of the Physics and applied to the definition of nature given there, all we had learned from an examination of Aristotle's use of words, internal experience, and the order of imposition of nature.

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INDEX