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# SAINT THOMAS ON THE DIVISION OF SPECULATIVE KNOWLEDGE

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# PROPOSITIONS

1. Qui enim facit prooemium tria intendit: primo ut auditorem reddat benevolum; secundo ut reddat docilem; tertio ut reddat attentum.

2. Naturalis in tantum considerat de forma in quantum habet esse in materia.

3. Infinitum est cujus semper est aliquid extra.

4. Coactio non est contraria intellectui secundum suam rationem, sicut et voluntati.

5. Differentia est universale quod essentialiter de pluribus, et specie differentibus in eo quod quale est praedicatur.

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# INTRODUCTION

The exhortation by a professor of natural philosophy to approach the study of modern physics through the ancient philosophers is most likely to be taken as a professional platitude. If the professor be associated in any way with what is regarded generally as Thomistic philosophy, this likelihood approaches certitude. However, when the discoverer of the Uncertainty Principle of quantum mechanics says: "I was gaining the growing conviction that one could hardly make progress in modern atomic physics without a knowledge of Greek natural philosophy," [1] we are inclined to pursue the point further. In the same way, more than passing interest is aroused by the following passage from a textbook purportedly in the Thomistic tradition:

> The basic difference between the Aristotelian and modern line of thought is that Aristotle was convinced that before there could even be a beginning of science, science itself must be the subject of philosophical speculation....
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> When modern science finally did get underway, after many fruitless attempts, it gradually became clear that Aristotle's conviction was wrong. We do not need an elaborate philosophical reflection upon epistemological and ontological problems to start science. The solution of the philosophical problems is not a necessary condition for the

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1. W. Heisenberg, The Physicist's Conception of Nature, trans. A.J. Pomerans (New York: Harcourt, Brace and Co., 1958), pp. 60-61.

> construction of a scientific system. The discovery of this truth is perhaps the greatest discovery in the history of science and in the history of human thought in general. It is the discovery of the independence of the scientific approach. 2

Quotations, especially when taken out of context, are like statistics in that they can be used to support quite disparate positions. Be that as it may, the two quotations cited here point up, in a rather interesting fashion, radically different relationships that have been traced between the historical extremes of scientific endeavor.

Less obvious perhaps, but equally real, is the absence of uniform opinion reflected in the second quotation. The lack of accord implied here obtains among current Thomistic presentations of the nature, order and division of scientific knowledge, philosophical and otherwise. The monolithic front that supposedly unites disciples of the traditional masters at this juncture is rent by striking divergencies. As a result, the impression has been engendered that traditional philosophy and modern experimental science are separated by a vast chasm which is either impossible of spanning or, at the very most, has been spanned by a bridge that can support scarcely any weight.

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2. A.G. van Melsen, The Philosophy of Nature, Duquesne Studies, Philosophical Series, No. 2 (Pittsburg, 1953), p. 83.

It shall not be our concern to attempt to resolve this problem. Assuming that the thought of St. Thomas is amply capable of assimilation with modern experimental science, a more modest venture would be an attempt to discover why, among adherents to this tradition, such a problem should have arisen in the first place.

Circumstance has had its part to play. There was a time in the not too distant past when the wide-scale acceptance of subjectivism demanded, on the part of Thomists, a rigorous defense of vital metaphysical notions. Such an apologetic was required by the intellectual atmosphere of the time. Nor could the teaching of philosophy help but be affected, with the result that a metaphysical justification of problems, methods, and concepts became a kind of introduction to all of philosophy.

Once a certain stability had been re-established, emphasis shifted from concern for a unified system of all knowledge to a more critical evaluation of man's knowledge of nature, focusing in particular on the role played by sense experience. But the world of nature was not to be the exclusive preserve of the philosopher. Before long, a different motif of exposition was to lead to repeated and, at times, embarrassing encounters between the philosopher of nature and the natural scientist. Thus the need to develop a satisfying critique forced the Thomistic philosopher to re-examine the question

of the plurality of sciences. Basically his task was to find different principles of judgment, principles that would explain fields of knowledge which differ not merely in content but in point of view, in method, in the manner of posing questions and in the kind of answers hoped for. In a word, he was looking for principles to distinguish various kinds of scientific knowledge that would be formally irreducible despite the many material differences which may exist within each discipline.

Unhappily, the task was not as simple as the above may make it appear. This is well borne out by the fact that the positions most commonly accepted and taught fall into one or another extreme. Either the division of the sciences has been reduced to a single dichotomy between philosophy and science or it has been complicated by the addition of new sciences whose number is not determined and possibly not determinable.

The frequency with which contemporary Thomists pose this and related questions reveals its importance as eloquently as their often irreconcilable solutions testify to its complexity. To the end we have proposed to investigate, it will be necessary to consider some of these solutions. Obviously, not every one can be so considered. A selection has been made, first of all with the intention of manifesting the above-mentioned extremes and, secondly, of reflecting more clearly

that which we hope to expose as the root of the difficulty.

A consideration of these different opinions has not then been prompted by a disputative intention nor by a desire to disparage. On the contrary, it has been inspired by an observation of St. Thomas on Aristotle's methodology.

> Sed, quia in eligendis opinionibus vel repudiandis, non debet duci homo amore vel odio introducentis opinionem, sed magis ex certitudine veritatis, ideo dicit quod oportet amare utrosque, scilicet eos quorum opinionem sequimur, et eos quorum opinionem repudiamus. Utrique enim studuerunt ad inquirendam veritatem, et nos in hoc adiuverunt. 3

Discussion and difference of opinion often are signs of a philosophy's vitality. In the present context, however, each different position is advanced with the claim of fidelity to the thought of St. Thomas. The supposition is, of course, that such fidelity is desirable, and further, that it is desirable because it is a guarantee of the truth. In view of the fact that the same source is avowed for positions that in themselves are incompatible, such difference of opinion becomes somewhat disconcerting to say the least. Yet at the same time, it is propitious inasmuch as it raises the vital question: What precisely is the thought of St. Thomas? This is something that requires re-examination.

Though the doctrine is woven into the fabric of his

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3. St. Thomas, In Duodecim Libros Metaphysicorum Aristotelis Expositio, XII, lect. II (edit. Marietti), n. 2566. In citing the works of St. Thomas we shall always use the most recent Marietti edition, unless otherwise indicated.

complete work, the best place for St. Thomas's teaching on the distinction of the speculative sciences is his Expositio Super Librum Boethii De Trinitate, Quaestio V. [4] Nowhere else is the question elaborated as completely nor in such detail. Thus every consideration will eventually revert here. However, and this is crucial, the question has to be seen as a whole. It is in the light of the doctrine detailed here that difficulties encountered elsewhere can and must be resolved. But first the doctrine itself must be understood and this cannot be done unless the question is taken in its entirety. The purpose of this dissertation is to indicate the order that integrates the question. This explanation will constitute the greater part of the work.

Failure to observe the order within the question is to court the likelihood of misconstruing each or any of its parts. No matter how worthy the motive, be it the haunting memory of past polemics, the complex problems of modern science, or even more practically, the demands of teaching, any aprioristic approach is capable of compromising this order and thus straining the teaching of St. Thomas.

An appreciation of the value of this order comes with seeing how it can be offended. It is from this point

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4. St. Thomas, Expositio Super Librum Boethii De Trinitate, q. 5. Passages cited from this work are taken from the critical edition of B. Decker (Leiden: E.J. Brill, 1959).

of view that in Part One we shall study the opinions mentioned above. Part Two will be a general explanation of the order, followed by a positive exposition of each of the four articles which make up the question. And in Part Three, an appraisal of the selected opinions will be made in view of the exposed order.

# PART ONE

## SOME CONTEMPORARY VIEWS

> Thus we may say of these theorists that they pursued the difficulty up to a point, but not as far as they might have. This is a habit which we all share, of relating an inquiry not to the subject-matter itself, but to our opponent in argument. A man will even pursue a question in his own mind no farther than the point at which he finds nothing to say against his own arguments. Therefore to be a good investigator a man must be alive to the objections inherent in the genus of his subject, an awareness which is the result of having studied all its differentiae. [1]

Aristotle is here explaining the lack of cogency found in reasons assigned apropos of a cosmological opinion. However, the methodological principle he advances is in no way limited to ancient concepts of the world. In any speculative investigation there is a danger of taking the short view, of seeking not so much an explanation of things but rather an answer that will satisfy another's objections or quiet our own doubts. We become distracted by the personal element at the expense of the truth of things. The tendency is universal. By alleging it in the present case we implicate ourselves. Nor is it necessarily a reproach since Aristotle does not even exculpate himself.

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1. Aristotle, On the Heavens, trans. W.K.C. Guthrie, Loeb Classical Library (London: Heinemann, 1960), II, 13, 294b6 ff.

The point is made here to dismiss any pretention that might appear from the discussion of, and subsequent disagreement with, the opinions of others who have previously considered the question of the distinction of the sciences. The doctrine is basic to the teaching of St. Thomas. And each of the men whom we shall consider has done authoritative and serious work which, by their own admission, has been inspired by this teaching. Nonetheless, even in so fundamental a point, preconceived ideas can make the accidental look essential.

Since the discussion of each opinion must of necessity be summary, it is to be hoped that the thought of the respective authors will not be betrayed.

## A. Canon Fernand Van Steenberghen

The first of the four opinions to be discussed is that of Canon Fernand Van Steenberghen, professor at the University of Louvain. Author of several textbooks, Monsignor Van Steenberghen professes his preference for the teaching of St. Thomas without hesitance. [2]

In taking up the question of the distinction or the classification of the sciences he is alert to the problems currently posed in this area, both within and outside the

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2. F. Van Steenberghen, Epistémologie, (Louvain: Editions de L'institut Supérieur de Philosophie, 1945), pp. 6-7; Ontologie, 3ème éd. (Louvain: Publications Universitaires de Louvain, 1961), p. 5.

Thomistic tradition. Of major concern to him is the possibility of presenting Thomism as a philosophical system and thus vindicating its place among the heralded philosophies of history. Hence his interest in a rational systematization.[3]

Mention has already been made of the division of 'speculative' sciences. For Monsignor Van Steenberghen the adjective 'speculative' is unnecessary. All science is speculative, he holds, even that which has human activity for its object. The distinction between speculative and practical science is, he says, without foundation and scientific interest.[4]

The system of science that Monsignor Van Steenberghen elaborates consists of several stages; Epistemology, Positive Sciences, Metaphysics and the Philosophy of Science. There is no need to dwell on the first and last except to mention that it is epistemology which provides the distinction between positive science and metaphysics. It was the inability to effect this distinction properly that hampered previous attempts at classification. " La plus grave lacune

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3. Cf. Epistémologie, p. 13; Ontologie, p. 265.

4. See his " Réflexions sur la systématisation philosophique " Revue Néo-Scolastique de Philosophie, XLI (1938), p. 209.

dont souffrent les classifications scientifiques anciennes et médiévales est sans doute l'ignorance de la distinction entre le savoir positif et le savoir philosophique." [5]

According to Monsignor Van Steenberghen, epistemology assigns as the basis for this distinction the composition inherent in human knowledge, the composition of the perceived element ("l'élément reçu ou perçu") and the element which is grasped or affirmed ("l'élément saisi, compris, posé, affirmé"). By means of this composition complete human knowledge attains a twofold aspect of the real: something given, like a fact, an object of experience, and something properly intelligible, a value of being or of the real. These two aspects, of essentially different orders, are never completely dissociated except by the intellect when it makes positive or metaphysical judgments.

Between the two fields of scientific endeavor thus revealed there is, among others, this striking difference: the positive sciences are in fact a multitude of irreducible sciences, due to the impossibility of reducing the phenomenological aspects of the real to any kind of formal unity. Metaphysics, on the other hand, does have a fundamental unity by reason of its object which is being. "...L'aspect

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5. Ibid., p. 206.

ontologique [of the real] est foncièrement un: c'est l'être, et il constitue l'objet formel d'une science vraiment une, la Métaphysique, plus heureusement appelée Ontologie, et qui est en somme la Philosophie au sens strict ( par opposition aux Sciences positives ), la Philosophie par excellence." [6]

Despite its unity, the object of the science of being is nonetheless differentiated. In the critical analysis of being as the fundamental value of all the real, Monsignor Van Steenberghen tells us, the metaphysician is first struck by the multiplicity and limitation of the things of experience. He discovers the structure of the finite and its essential contingence. Thanks, however, to the unity of being--it is opposed only to what is non-being--this contingency insinuates the noncontingent. " Mais ma connaissance de l'être donné dans mon expérience me permet d'affirmer que, s'il existe un au-delà quelconque de mon expérience, cet au-delà est adéquatement exprimable et exprimé par le concept d'être, sous peine de s'identifier au néant pur et simple." [7]

Far from being an obstacle, contingency is the occasion for the discovery of a necessary and transcendent cause, the source of all reality. This, in schema, is General Metaphysics.

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6. Ibid., p. 207.
7. Epistémologie, p. 154.

But the mind seeks a further unity. It attempts to overcome the duality of the intelligible and the phenomenological by interpreting experience according to the laws of being as known from General Metaphysics. This results in a new duality, introduced by different kinds of experience, i.e., physical experience based on perception of the exterior world, and psychic experience based on perception interior to the human person. This duality is found in all degrees of scientific classification. At the level of metaphysics it constitutes a twofold Special Metaphysics: the metaphysics of nature or cosmology and the metaphysics of consciousness or anthropology. Special metaphysics is thus a prolongation of general metaphysics. It has for its object the ontological interpretation of the corporeal and human world in so far as they are present in our experience.[8]

There is no need here to describe what Monsignor Van Steenberghen considers to be the extension of each of the divisions of metaphysics. Let it suffice to point out that natural theology is the complement of general metaphysics. The metaphysics of nature embraces all living beings, other than man, as parts of the cosmos. Anthropology, as the philosophical study of human nature, considers

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8. Cf. Ontologie, p. 266.

all forms of activity proper to man. This includes not only traditional psychology but also the metaphysics of morals and even the fine arts. The classification of the positive sciences, since they do not have a fundamental unity, is a more complicated affair that need not detain us. While he sees several possibilities, Monsignor Van Steenberghen favors a classification according to the formal objects of the sciences as the most reasonable.

More closely related to our discussion, the nature of metaphysics, as thus far described, requires further elaboration. In particular, it is important to see how it attains being, its formal object. Being, we are told, is the fundamental value of every object of experience. This value is attained thanks to the ability of the intellect to transpose 'here and now' experience into a universal representation or concept.

This conceptual process is accomplished by means of an abstraction. In discussing the abstraction of the concept of being it is well to have in mind the assimilative character that Monsignor Van Steenberghen ascribes to human knowing. The intellect, he says, is neither purely receptive nor purely productive in regard to the intelligibility of the real. Rather it is essentially assimilative in the sense that " toute l'activité conceptive tend à cons-

tituer un ordre de concepts qui reproduise aussi exactement que possible l'ordre donné dans l'expérience; à cette fin, l'esprit s'applique à découvrir la véritable structure des 'choses' et à l'exprimer en des concepts de plus en plus adéquats." 9

Human knowledge awakens at the level of experience (whether it be subjective or objective does not matter because either is an immediate contact with the real, with being). An experience that would not be of being could only be an experience of non-being and this is nonsense. In the perception of something blue, for example, the knower experiences in regard to that object something that could be discerned in regard to any other object. He discovers in that object a fundamental value that he has found previously in every object. Such a discovery can be thus expressed: "this blue object is real," "this object exists". In this judgment the object is represented under a new form, i.e., "real", "exist", and is no longer represented as individual, here and now. The individual object has been transposed into a universal concept, abstracted from its individuating conditions.

The concept of being is thus the fundamental concept in which the mind recognizes the fundamental unity of the

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9. Epistémologie, p. 121.

real. The attempt at assimilation does not stop there. By means of a process that is essentially the same as that which gives rise to the concept of being, the mind is able to transpose the various elements of an experience into universal concepts. These concepts, called 'empirical concepts', while they are many, are simply modalities of the primary one. They are determinations or limitations of being as represented in a more precise manner.

> Le seul élément proprement "conceptuel" du concept empirique est donc la référence ou la relation de tel élément d'expérience au concept fondamental d'être...former le concept "bleu", c'est se "représenter" un donné "bleu" comme un mode d'être, c'est reconnaître que l'expérience d'un objet bleu est l'expérience d'un mode d'être. [10]

In view of the preceding, Monsignor Van Steenberghen sees no need for recourse to the traditional teaching of three degrees of abstraction which he views as no more than a progressive subtraction by the mind of individual qualitative and quantitative notes from a concrete object. Allowing that the so-called third degree of abstraction furnishes truly metaphysical concepts, he finds that the concepts resulting from the other two 'degrees' are not so clear. Their precision would determine that they pertain either to the positive sciences or to the metaphysics

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10. Epistémologie, p. 114.

of nature, in which latter case, they would resemble, in their abstraction, the concepts of general metaphysics. "...Les concepts cosmologiques ou psychologiques sont exactement aussi abstraits que ceux de la métaphysique générale." [11]

How this interpretation accords with the traditional distinction between metaphysics and the other philosophical disciplines Monsignor Van Steenberghen tells us. His stand on the unity of metaphysics has been criticized as implying that the intellectual process leading to metaphysics in the strict sense and that of the other philosophical disciplines, especially the philosophy of nature, are identical.[12] The intent of the criticism is to assert that the proper subject of metaphysics in the strict sense is attained by a unique intellectual activity, one that does not pertain to any other discipline. The answer of Monsignor Van Steenberghen is a clear statement of his position and will serve to summarize what has been said.

> En réalité, nous sommes parfaitement d'accord avec l'auteur (et avec saint Thomas) sur la nature de la métaphysique et sa critique n'atteint pas nos positions. La vraie divergence entre nous porte sur le problème indiqué par le P. Ro-

11. "Réflexions", p. 214.

12. J.D. Robert, O.P., "La métaphysique, science distincte de toute autre discipline philosophique, selon saint Thomas d'Aquin," Divus Thomas (Piacenza), XXIV (1947), pp. 206-222.

> bert dans sa note 10: y a-t-il place, en dehors de la métaphysique, pour une 'philosophie de le nature' distincte des'sciences positives de la nature'? C'est ce problème-là qu'il eût fallu résoudre pour rencontrer vraiment notre thèse. 13

## B. Dr. Andrew G. van Melsen

The next author has already been quoted. Dr. van Melsen is professor at the Charlemagne University of Nijmegen and author of several textbooks on the philosophy of nature. There is certainly a kinship of ideas between Dr. van Melsen and Monsignor Van Steenberghen although the former develops more fully the distinction which both sustain between the philosophy of nature and the so-called natural sciences. Whether there be, in fact, an influence of one man upon the other is actually irrelevant since our concern is not so much with the individual opinions themselves as with the Thomistic authenticity alleged by their authors. The position of Dr. van Melsen is of particular interest because of his choice of the text of the De Trinitate to manifest it.

The basic difference claimed by Dr. van Melsen between the philosophy of nature and science is that the former considers the general or the generic nature of matter while the latter examines the specific nature of each particular kind of matter or material phenomenon. The terms 'generic'

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13. F. Van Steenberghen, Ontologie, p. 11, note 1.

and 'specific' in this context will be a source of misunderstanding, he warns, if taken to mean that the philosophy of nature and science operate at the same level. Science does not begin where the general considerations of the philosophy of nature end. Nor does the philosophy of nature generalize the specific results of science. Each is autonomous. In explanation of this autonomy, he states:

> The philosophy of nature analyzes the primary aspects of pre-scientific knowledge, i.e., those aspects which are present in the content of any experience and which reveal, therefore, the basic character of matter. Science, on the other hand, examines those aspects which differ specifically from experience to experience and which can be analyzed by experimental methods only. 14

All science starts with pre-scientific knowledge, i.e., daily experience taken prior to any critical examination. In regard to pre-scientific knowledge Dr. van Melsen distinguishes primary aspects and "those aspects which differ specifically from experience to experience", which he calls its primitive aspects. The reason for the distinction is the fact that it is the latter which supplies the data of daily experience to science as matter for investigation. Primary pre-scientific knowledge is that part of our experience which has to do with the basic pattern of the natural world, while primitive knowledge fills this pattern with a certain content.

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14. van Melsen, op. cit., p. 254.

To exemplify this distinction he offers the ordinary experience of wood, of iron, of snow, etc., in which the two aspects can be distinguished. First, the typical features of iron differ from those of wood. Secondly, the concept "wood" refers to different pieces of wood, as does the concept of iron, etc., in regard to its individual instances. This latter aspect reveals little concerning the distinctive character of wood. It merely reveals its species-individual structure, i.e., that all types of material things have in common specific properties that are present in different individuals. The fact that this is always true of natural things reveals something fundamental or primary. This aspect of pre-scientific knowledge is not affected by the scientific elaboration and correction of the data of ordinary experience. The primitive aspect, the specific content, on the other hand, is in a continual process of purification and change due to the development of science. The progress of science consists precisely in correcting the way daily experience classifies and explains this primitive data. The scientific concepts of wood and iron give a more systematic view of what is going on in nature than the primitive concepts do. This change and correction result from efforts to focus attention on features that are essential to a systematic explanation of a given phenomenon. It is only with repeated experimental analysis that it becomes possible to determine what really is primitive in the data of daily experience.

Any concrete experience in itself is one and undivided. We never have a primary experience apart from a primitive one because the two are simply aspects of the same reality. Yet, Dr. van Melsen maintains, the philosophy of nature and science are mutually independent. The two are different systems of knowledge, each with its own problems and its own methods of solving them. The reason for this mutual independence is abstraction. Our mind can consider the basic structure of matter separately from its more detailed character without violating reality. In both systems the mind abstracts but the abstractions are at different levels or of different degrees.

For an analysis of the degrees of abstraction Dr. van Melsen looks to St. Thomas's commentary on the De Trinitate. In doing so, he judges it necessary to resolve what he finds to be a seeming inconsistency in the presentation of St. Thomas. The difficulty occurs, he states, as a result of two different expositions that St. Thomas offers for distinguishing the degrees or levels of abstraction. The first is in Question V, article one, and the second is found in the second article of Question VI.

According to the first presentation, based upon differences of things relative to their dependence on or independence from matter, it would seem that both science and the philosophy of nature belong to the same level of abstraction, namely, the

first. In this presentation, objects of the first degree of abstraction are those which depend upon matter for their existence since they cannot exist except in matter. Now the philosophy of nature is concerned, as is science, with those objects which cannot exist without matter.

Dr. van Melsen sees St. Thomas in the second presentation distinguishing between the beginning and the end of the knowing process. All knowledge has its origin in sensation but its term is not uniform. The term of knowledge depends upon the judgment of the mind, and sometimes the mind judges things according to the way the senses reveal them, sometimes according to the way they are conceived in the imagination, and at other times according to the way they are attained by the intellect. When what can be known of a thing through sensation is sufficient to express the very nature of that thing the judgment of the mind should conform to what the senses reveal about it. Since this is true of all natural things, natural science is said to terminate in sense experience. This brief presentation of St. Thomas is, according to Dr. van Melsen, an accurate description of modern science, which not only starts with sense experience but ends with it. The ultimate confirmation of a scientific judgment is to be found in observation and experimentation. In rather sharp contrast, he finds that the Aristotelian teaching of matter and form, for example, has its origin in sense know-

ledge but the final judgment of its truth or falsity must be based on intellectual considerations alone.

Does the philosophy of nature then belong to the first or to the third degree of abstraction? The two expositions appear to be at variance. But the difficulty is only apparent. Its reconciliation, we are told, consists in appreciating how accurately the second exposition describes philosophy and science, traditional and modern, as well as developments in mathematics.

> So our conclusion is once again that, considered from the view-point of the developments of science, mathematics and philosophy, St. Thomas' reference to a difference in terminus of cognition in order to characterize the three degrees of abstraction is undoubtedly correct. From this it follows that the philosophy of nature does not belong on the same level of abstraction as science. 15

The source of the difficulty must then rest with the interpretation given to the first exposition. According to that interpretation, the philosophy of nature was thought to belong to the same degree of abstraction as science because both consider things existing in matter. But the manner in which the philosophy of nature considers matter must be properly understood. The philosophy of nature is not concerned with the specific nature of matter, but with its general nature, or as Dr. van Melsen says, with what kind of <u>being</u> it is. It analyzes matter not with physical but with metaphysical concepts

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15. <u>Ibid</u>., p. 97.

and can thus be properly called a special metaphysics. There is, of course, a difference between metaphysics in general and the philosophy of nature. Natural philosophy is concerned exclusively with matter in so far as it is changeable, quantitative, qualitative, with its species-individual structure, but always under the aspect of being. Metaphysics, while it considers things which exist without matter, does so under this same aspect. Hence while it goes beyond the philosophy of nature, it uses the same concepts and the same methods. And so, Dr. van Melsen concludes, natural philosophy belongs to the same degree of abstraction as does metaphysics, the third degree.

Herein is to be found the basis for communication between the natural philosopher and the metaphysician. They speak the same language. So too, the lack of communication between the philosopher and the scientist, when the latter uses his own language, derives from a difference in levels of abstraction. Dr. van Melsen considers unwarranted the affirmation of some Thomists that science is outside the realm of theoretical knowledge. What purpose would there be in considering the degrees of theoretical knowledge if it were to result in the exclusion of this important sector? Such an attitude is plainly foreign to the solicitude shown by St. Thomas for the prototypes of modern science, the <u>scientiae mediae.</u>

## C. L. M. Régis, O.P.

The purpose of this introductory chapter is to provide a contrast. That is to say, the actual teaching of St. Thomas on the distinction of the sciences is to be presented only after having seen certain interpretations of it. The direction of these interpretations thus far has been retrospective. But there is another way. Ancestry can be as revealing as posterity. The seed of contemporary Thomistic thought was itself the fruit of its own origins. In the study of St. Thomas this, of course, means Aristotle.

A comparison between Aristotle and St. Thomas on the precise point in question has been sketched by L.M. Régis, O.P., professor at the University of Montreal. The comparison is developed by Father Régis in elucidating one of the anxious doubts in an interesting article, "La philosophie de la nature: quelques apories". [16]

Again the emphasis is on abstraction since it is the attribution of "three degrees of abstraction" to Aristotle that produces the doubt. To ascribe to the teaching of Aristotle three degrees of abstraction as taught by Cajetan or John of St. Thomas, is, according to Father Régis, an oversimplification both doctrinally and historically. Historical circumstan-

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16. L.M. Régis, O.P., "La philosophie de la nature. Quelques 'apories'," Etudes et Recherches, Philosophie, Cahier I (Ottawa: Le Collège Dominicain, 1936), pp. 127-156.

ces influence both the manner in which a problem is raised and the aspects of it which are accentuated. When the same problem has been repeatedly broached, a disregard for such circumstances can obfuscate doctrinal differences in its various resolutions. The effects of different epistemological preoccupations are indicated in the present case, according to Father Régis, by a marked difference in the vocabulary employed by Aristotle and subsequent Latin writers, including St. Thomas. Seeing that the use of the historical method, textual criticism and related means may be helpful in attaining certain precisions in philosophical inquiry, he is aware that philosophical problems are much more complicated than that. They must be judged in the light of proper principles and in relation to the ensemble of any given doctrine. For this reason, whatever difference in vocabulary there may be is merely the exterior manifestation of something more fundamental.17

The most striking difference that Father Régis finds in his study is that, for Aristotle, the Greek equivalent of the word 'abstraction' is used univocally to designate the mode of knowledge proper to mathematics. Abstraction does not function in the hierarchy of the sciences in the role that Father Régis sees it playing for Latin authors. Instead, Aristotle

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17. Cf. p. 129.

assigns this function, in the interpretation of Father Régis, to certitude, understood in an ontological sense to mean the nobility and the simplicity of the reality known. Accordingly there are two grand genera of realities and three genera of knowledge. There are the non separata which give rise to two distinct kinds of knowledge according as they are considered concretely (physics) or abstractly (mathematics). There are also the separata and the separabilia which are studied by first philosophy. Admittedly brief, this schema suffices to show Aristotle's emphasis on the role of the res, the thing, in the division of the sciences.

The transition from Aristotle To St. Thomas, he says, can be represented as a movement from the elements to their systematic integration. But the difference between the two does not end there. Compared with Aristotle's accent on the thing, the objectivity of knowledge, St. Thomas's concern is with its subjectivity, the psychological mechanism of the acts of the mind. The word abstraction for St. Thomas is not restricted to mathematics. It has many meanings. This fact alone is indicative of a more complete and elaborate notion of abstraction on the part of St. Thomas. "Mais il y a plus qu'une diversité de lexique et de contenu; c'est tout le problème qui reçoit une orientation spécifiquement différente;

...c'est le sujet, l'acte et son fonctionnement qui accapare l'attention de l'Angélique et non plus la 'res' comme chez son Maître."[18]

This is not to say that the subjective approach of St. Thomas is not founded on the objective and the real. It is, of necessity. But the point that Father Régis wishes to stress is that here is a doctrine of abstraction based, not on the things known, but on the operations of the intellect. Defined and divided on the basis of the acts of the mind, he offers the following outline of St. Thomas's doctrine of abstraction:

I) Abstraction, in the strict sense, is accomplished only in the operation of simple apprehension. In this operation the mind abstracts in two different manners:

a. by distinguishing a whole from its parts (a universal from particulars). This is accomplished by leaving aside the particular sensible aspects of the real. The result is a physical definition implying common sensible matter. Such a definition is a principle of physics.

b. by distinguishing an accidental form from even its common sensible matter. This is done by leaving aside the sensible entirely and retaining only the imaginable. The result of this formal abstraction is a mathematical definition which is a principle of mathematical science.
Analogous to this abstraction is another formal abstraction by which the intellect distinguishes the essence or the quiddity, as an abstract concept, from individuals. This is done by considering only the essential formal aspects of the thing. This results in an ontological or quidditative definition of material realities and pertains to metaphysics.

2) Through the operation of judgment the mind does not abstract in the strict sense of the term, but separates, in the case of things separable or separated.

> This mode of 'abstraction' is employed by first philosophy, which, dealing with indefinables, attains them only by successive negations or separations. Separation is not accomplished by leaving something aside, but by encompassing all of the real. Hence it does not result in a formal definition by genus and difference but in a definition by 'proportion'. This is the analogical knowledge proper to Wisdom or first philosophy.

Comparing this notion of abstraction with that of Aristotle, Father Régis sees it as "un aristotélisme poussé jusqu'à ses dernières implications par une géniale intuition. C'est une exploitation admirable de tout ce que les positions aristotéliciennes contenaient de virtuel. Ce n'est pas de l'aristotélisme ni de l'anti-aristotélisme, c'est du supra-aristotélisme." 19

For a more detailed examination of this "supra-aristotélisme", Father Régis finds Q. V of the De Trinitate particularly helpful. In the first article St. Thomas divides the sciences according to the point of view which is strictly Aristotelian. Here the criterion of the division is the aspect of separation or non-separation from sensible matter. In articles two to four St. Thomas develops his own point of view. Whereas the word 'abstraction' was not even mentioned in the first article, it now assumes capital importance. 20

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19. Ibid., p. 138.

20. Ibid., p. 132, note 2.

## D. L.B. Geiger and J. D. Robert

Interesting differences among the articles of Q.V, discerned by Father Régis, have been detected by others. As a means of bringing this introductory chapter to a close the interpretation of these differences as proposed by two other eminent members of the Order of Preachers, L.B. Geiger [21] and J.D. Robert [22], shall be discussed.

It will be recalled that Father Régis was taken by the objectivity of the Aristotelian division of the speculative sciences as opposed to the more subjective approach of St. Thomas based on the distinction of the operations of the mind. It is then in article three of the question that we should look to find the explicit presentation of St. Thomas's own thought. It would seem that both Father Geiger and Father Robert are in agreement on that point. [23]

Both would likewise concur that the emphasis given to the operations of the mind in this article is evidence of the problem envisaged by St. Thomas: What are the subjective acts by which the mind attains the hierarchically arranged scientific objects and what is the value of these acts in regard to the real? The answer is not without consequence. Hanging

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21. L.B. Geiger, O.P., "Abstraction et séparation d'après s. Thomas," Revue des sciences philosophiques et théologiques, XXXI (1947), pp.3-40.
22. J.D. Robert, O.P., op. cit.
23. Cf. Geiger, p. 7; Robert, p. 220.

in the balance is the objectivity and fidelity of the Aristotelian division.

Once this viewpoint is adopted, it becomes imperative to reassess the whole question of the distinction of the sciences in light of the newly recognized role of the intellectual operations. Emerging quite clearly from this realigned view is the inadequacy of a theory of three degrees of abstraction that provides for no more than a progressive distillation of concepts. Such a notion might be recommended for its simplicity but hardly for its validity. A desire for uniformity cannot explain away the multiplicity and the diversity that St. Thomas's investigation here reveals. The clearest manifestation of this is the case of metaphysics and the unique act by which it is constituted, namely, separation.

According to Father Geiger, an attentive reading of the text will alleviate any scruples to accepting this interpretation. St. Thomas is quite emphatic. To designate the ensemble of what is usually called three degrees of abstraction he uses the term 'distinction'. This term is common to what is called abstraction properly speaking and to separation. It can be applied indifferently to both simple apprehension (simple appréhension) and to judgment (jugement). Abstraction relates only to the first operation while separation is performed in the second operation. Abstraction corresponds to natural philosophy and mathematics, separation to metaphysics.

The possibility of further demur is rendered less likely by a study of the autograph manuscript of St. Thomas's commentary on article three. Tracing the thought of St. Thomas through the various redactions, each with several beginnings, Father Geiger averts us to its direction. The original proposal was a threefold abstraction, whose principle of division was to be sought in different relations existing between the constitutive elements of essences. The way from here to the definitive text was neither direct nor unencumbered. It was traversed only by a gradual realization of the role of the different operations of the intellect and by the suppression of triplex abstractio in favor of duplex distinctio. The direction in which St. Thomas's mind moved, Father Geiger holds, was strongly influenced by the distinctive immateriality of the object of metaphysics. The immateriality of 'being as being' cannot be attained by a simple abstraction. Because the immateriality of being is an immateriality that is real, not logical, it can be attained only by an intellectual operation that is in contact with the real. This, as it turns out, is a negative judgment of separation.

Separation does not differ from abstraction properly so-called merely because the two are performed by different operations. Father Geiger further manifests the nature of this negative judgment which establishes the proper immateriality of metaphysics by showing that it depends for its objective

value upon the demonstration of the existence of immaterial being prior to the beginning of the science.

Of the importance of separation in the presentation of St. Thomas there can be no question according to Father Geiger. Nor can there be doubt of its being Thomistic in the strict sense of the term. "S. Thomas, en assignant à la métaphysique comme acte constitutif un jugement négatif, au sens qu'on vient de dire, n'a donc fait qu'achever sur le plan plus réflexif de l'épistémologie et de l'acte du sujet, un progrès amorcé par Aristote sur le plan objectif...."[24]

The unique character of separation and the role of the subjective acts in the distinction of the sciences, stressed by Father Geiger, are similarly maintained by Father Robert whose approach is, nonetheless, somewhat different.[25] Father Robert's principal concern is to show that the science of metaphysics is sui generis in comparison to the other sciences. To this end, he underlines the distinctive intellectual process on which it is founded.

Paraphrasing the thought of St. Thomas, he says that one science is distinct from another by the fact that it is specified by a distinct formal object. Now wherever there is a different intellectual process there is a distinct formal object. Consequently, St. Thomas makes of metaphysics a science

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24. Geiger, p. 27.

25. Cf. Robert, p. 222, note 57.

sui generis and clearly distinct from all others by constituting it as dependent upon an intellectual activity which is irreducible to those which he establishes as the basis of the other sciences.

Father Robert is plain about the importance that he accords to separation in particular and to the subjective operations in general in regard to the distinction of the sciences. "Le commentaire du De Trinitate le montre assez clairement. Le principe de division des sciences s'y révèle unique; c'est le processus intellectuel qui se situe à leur base. Pour la métaphysique, ce processus est la separatio." [26]

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26. Robert, p. 220.

# PART TWO

## SAINT THOMAS

Does St. Thomas's teaching differ in any respect from that of Aristotle? Can the 'subjective' and 'objective' approaches be reconciled? Is the philosophy of nature a special metaphysics completely distinct from experimental science as understood today, or is it a science completely distinct from metaphysics? How are the sciences, whatever and howsoever many they be, actually distinguished? By respective degrees of abstraction? Are there degrees of abstraction? If not distinguished by types of abstraction, by what means? What is the role, if any, of abstraction? These are but a few of the questions that remain unanswered even after the foregoing sampling of current presentations of the division of science. Against the alternative of concluding that St. Thomas himself either left them unanswered or answered them badly, we have opted for a closer look at his own words in the matter.

As indicated, the locus of this investigation is De Trinitate, Q. V. It is to be noted that St. Thomas develops his presentation in the midst of his commentary on the celebrated theological tractate of Boethius. From the preface to the second chapter we learn that the subject of our inquiry is introduced preparatory to determining the proper mode of the theological investigation which is to follow. The exposition

of this mode is in contradistinction to the modes of the other sciences. Question V (the division of these sciences) and Question VI (the determination of their respective modes) are devoted to establishing this distinction.

> ...Inquirit modum congruum huic inquisitioni per distinctionem a modis qui observantur in aliis scientiis. Et quia modus debet esse congruus rei de qua est perscrutatio, ideo dividitur haec pars in duas. In prima enim distinguit scientias secundum res, de quibus determinant. In secunda ostendit modus singulis earum congruos....[1]

The disadvantages of restricting the present consideration to Q.V are many. The discussion in Q.V is preparatory to the doctrine of the methods of the speculative sciences treated in Q. VI. In fact, the special method appropriate to each of the sciences affords a further criterion for distinguishing them. Nevertheless, our primary interest is with the sciences considered in themselves. And just as any modification, generally speaking, presupposes its subject, so the mode follows upon the science and does not constitute it. This, together with other considerations, would seem to justify the restriction of the present study to Q.V, in so far as possible, despite the shortcomings that might ensue. Nor is this meant to be the only demarcation. Within the question itself a variety of subjects are introduced, including the nature of logic, the liberal arts, subalternation of sciences, the principle of individuation, and many others, none of

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1. St. Thomas, In Boeth. de Trin., Expositio Capituli Secundi.

which will find their place in the subsequent discussion aimed at manifesting the order of the question and not all of the topics it contains.

When he assigns the objects which specify each of the sciences St. Thomas assumes some knowledge of these sciences and so mentions only what is necessary without always bothering to make plain how one arrives at these objects. The matter at hand somehow presupposes all the sciences, even logic, up to and inclusive of metaphysics, since it pertains to the science of metaphysics in its sapiential function to defend the principles of the other sciences and to show their ultimate division. [2]

> ...Sapientia est quaedam scientia, inquantum habet id quod est commune omnibus scientiis, ut scilicet ex principiis conclusiones demonstret. Sed quia habet aliquid proprium supra alias scientias, inquantum scilicet de omnibus iudicat; et non solum quantum ad conclusiones, sed etiam quantum ad prima principia: ideo habet rationem perfectioris virtutis quam scientia. [3]

To insist upon the vantage point of metaphysics in ordering the sciences is of some importance. This ordering implies, among other things, a defense and a justification of scientific knowledge. The scientific character of natural philosophy cannot be defended by the natural scientist. All he can do is look to experience as Aristotle did in the second book of the Physics. Neither can the possibility of scientific learning be

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2. Aristotle distinguishes the sciences in Bks. VI and XI of the Metaphysics.

3. Summa Theologiae, Ia-IIae, q. 57, a. 2, ad 1.

defended by the logician even though it be he who provides the instruments. He can do no more than accept the fact of experience. The sapiential task of ordering belongs to the metaphysician who exercises it in view of the ensemble of known truths and the developments that led to their discovery in order to certify and to sign with the seal of validity their principles, processes and conclusions.

What then is the basic unity that organizes the work? Briefly, it reduces to the following: St. Thomas first determines the basis for the division, that according to which each of the speculative sciences is distinct from the other. As will be seen, they are distinguished by their modes of defining. Science, according to its specific nature, does not consist in the intuition or the apprehension of some truth, but in a demonstrative process which produces knowledge of a truth having mediated intelligibility. The principles which are the source of such reasoning are contained in the premises, ultimately in the definitions. The definition, by providing the proper intelligibility of the object of a science, proportions the object to the mind. Sciences are then specified by the proportions that obtain between any object and the mind. Diverse intelligibility, deriving from different definitions as from different, irreducible principles, diversifies the habitus of science.

But how do the objects of the several sciences achieve

their proper intelligibility and their respective proportionment to the intellect? Since the intellect is immaterial, its objects must be proportionately immaterial. As objects of science they must likewise be necessary. Thus objects are or become diversely intelligible to us according as they are diversely immaterial. But this is an immateriality which enables the mind to grasp the formality of the object in itself and in giving rise to its properties or their equivalents. And so, if abstraction is a factor in describing this properly scientific intelligibility, it must be given a meaning in relation to the third operation of the mind. The alternative is to attempt to specify different scientific habitus in terms of the objects of the first or second operations of the mind. The part played by the various kinds of abstraction employed in scientific knowledge has to be seen in relation to reasoned intelligibility.

St. Thomas's thoroughgoing analysis of abstraction leaves no doubt as to the inadequacies of "three degrees of abstraction" if this is taken to mean that the second degree would be the product of the first degree, considered more generally, and the third degree a further continuation, in the direction of generality, of the second. Nor is any mention made, throughout the entire detailed study, of total and formal abstraction as introduced by the commentators and long since canonized by popular usage.

Once the principle of division has been established,

its verification in each of the particular sciences is the occasion of a specific problem. The greater part of the work is given to these problems and their solution. Of the four articles that make up the question, the latter three illustrate difficulties encountered in reaching the conclusions of the first article. That the exposition be so heavily weighted in this direction is not at all surprising once it is seen that these three articles relate to proper principles whose contribution to their respective science is in some degree measured by the considerable difficulties involved in their discovery and manifestation.

## ARTICLE ONE

**Utrum sit conveniens divisio qua dividitur speculativa in has tres partes: naturalem, mathematicam et divinam**

The wording of this title has misled some readers of St. Thomas. At first brush it might seem that the traditional division is based on no more than reasons of fittingness discovered or invented by its earliest proponents. The article itself does not justify such hasty observation. St. Thomas shows that far from being the result of subjective decisions on the part of Aristotle or Ptolemy, the division derives from the nature of the human intellect and its relation to things which it knows in a scientific way.

As a means of first locating them within the genus of science, St. Thomas compares the speculative sciences to the practical sciences. This comparison reveals the former as habits whose subject is the speculative intellect, whose end is the knowledge of truth for its own sake and whose matter is something that can be known but is in no way a mere product of the knower. Having the same subject and the same end, if the speculative sciences are to differ among themselves, the reason for their differences must be sought on the part of their matter, that is, among things, the knowledge of which is incapable of practical orientation. Such things,

in virtue of their relation to the speculative intellect, constitute its object. They are that at which the intellect aims and to which it directs its proper activity. They terminate this activity and make the act of knowledge to be such or such.

In speaking of activity relative to the intellect one might confuse this with transitive activity which is more known. This is particularly so when mention is made of objects that specify or terminate an operation. Such confusion must be avoided. As immanent, intellectual activity terminates in and perfects the same agent whence it originates. For this reason its object must somehow be united to the agent.[1] The object must be present to the intellect. As a result, the object of the speculative intellect is not extramental reality taken absolutely, in its proper being, but extramental reality qua known, i.e., as it is present in the mind. Though thing and object are one and the same, they are not so in the same respect. And it is by reason of their objects, or more precisely, by reason of the differences of their objects that the speculative sciences must be distinguished. (Henceforth, unless otherwise indicated, the word 'science' refers to speculative science.)

Not any difference, however, on the part of the object will suffice. Habits, like powers, are distinguished according

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1. Ia, q. 56, a. 1, c.

to per se differences of their objects in so far as they are objects. To manifest the differentiae per se objectorum inquantum sunt objecta, St. Thomas appeals to sense experience. That things be animals or plants is actually incidental to them in so far as they are objects of sensation (although to the things themselves sensed, these differences are quite essential). The distinction of the external senses is not based on such differences. "Accipienda est ergo ratio numeri et distinctionis exteriorum sensuum, secundum illud quod proprie et per se ad sensum pertinet."[2] The sense of sight differs from the sense of hearing within the genus of what is sensible. That there is something more to consider than simply the differences among the things themselves which are sensed, is clear from the fact that heterogeneous sensible things like a man and a bell can both be seen and heard. By thing (res) here is meant that which is sensed, but considered in itself, in its purely entitative state, without reference to the knowing power. Considered in this manner, one thing will differ from another in innumerable ways, none of which characterizes it as the per se object of a particular sense. This latter difference is something formal, i.e., the particular formality according to which the cognitive power lays hold of the

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2. Ia, q. 78, a. 3, c.

thing.

> ...Non quaecumque diversitas objectorum diversificat potentias animae; sed differentia eius ad quod per se potentia respicit. Sicut sensus per se respicit passibilem qualitatem, quae per se dividitur in colorem, sonum et huiusmodi: et ideo alia potentia sensitiva est coloris, scilicet visus, et alia soni, scilicet auditus. [3]

A thing becomes the object of sensation only in being known by a particular sense in a determined way. Thus the eye can perceive this man or this bell because they are colored. Likewise, the two can be heard because of the sounds they produce. The fact that one is a bell and the other a man is purely accidental as far as the senses are concerned. The color of the one and the other constitutes the two as objects of sight per se different from the same two things sensed according to the sounds they emit. Visibility and audibility are per se differences which distinguish them precisely in so far as they are sensible objects (objecta inquantum objecta sunt).

To say, "Similarly, the division of the sciences is according to the per se differences of their objects as objects (speculabilia inquantum speculabilia sunt)," and let it go with that, would be to overlook the great dissimilarity between the senses and the intellect. "...Sensus secundum actum, sunt singularium quae sunt extra animam, sed scientia est universalium

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3. Ia, q. 77, a. 3, c.

quae quodammodo sunt in anima."[4] The object of speculative science is somewhat more complicated than the object of the external senses because of its universal character. Universality is a condition demanded of it by both the nature of the intellect and that of science. As a result, in establishing the orientation of the scientifically known object (speculabile) to the speculative power, two factors are of consideration: the knowing power that is the intellect, and the habit by which it is perfected, namely, science.

1. The object of science is immaterial and necessary.

The intellect being immaterial, the speculabile must be immaterial. Immateriality is the basis of all knowledge, sensation as well as intellection. The difference between a knowing and a non-knowing being is the ability of the former to have the form of another as other while retaining its own form, whereas the latter is incapable of having any form except through physical composition which renders a form incommunicable to another subject. Now immateriality is not equally realized by all knowing powers. The external senses, for example, require the physical presence of their objects in such manner that in the absence of these objects external sensible knowledge ceases. The reason is that sensation is exercised in conjunction with a corporeal organ through which the sense

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4. St. Thomas, In Aristotelis Librum de Anima Commentarium, II, lect. 12, n. 375.

faculty is in contact with its object. "Est autem sensus quaedam potentia passiva, quae nata est immutari ab exteriori sensibili."[5] Sight attains individually existing material things as they are visible. "Dicendum quod colores habent eundum modum existendi prout sunt in materia corporali individuali, sicut et potentia visiva: et ideo possunt imprimere suam similitudinem in visum."[6] It is this original experiential contact with the real as it is in itself that guarantees the validity of human knowing. But if each of the senses attains a certain aspect of the real, it can attain that and no more. Its sphere of activity is limited by the organ to which it is affixed. As a result, the object of each of the external senses is of a definite kind, to which the sense is determined and beyond which it is ineffectual.[7]

The intellect, a more perfect knowing power than the senses, illustrates the principle that a superior agent enjoys, commensurately, a more unified principle of activity and a more extensive influence. The intellect exercises its proper

5. Ia, q. 78, a. 3, c.
6. Ia, q. 85, a. 1, ad 3.
7. "Cum autem potentiae quae sunt actus determinatorum organorum, non possint se extendere ultra suorum organorum dispositionem (non enim potest esse organum corporale unum et idem omnibus naturis cognoscendis accommodatum); oportet de necessitate quod potentiae quae sunt organis affixae, circa quasdam naturas determinatae sunt:scilicet circa naturas corporeas....Ex hoc igitur quod pars sensitiva animae utitur organo in operando, duo ipsam consequuntur: scilicet quod non potest ei attribui aliqua potentia respiciens commune objectum omnibus entibus; sic enim iam transcenderet corporalia; et iterum quod possibile est in ea inveniri diversas potentias secundum diversam naturam obiectorum propter conditionem organorum, quae aptari potest huic vel illi naturae." Quaestiones Disputatae De Veritate, q. 15, a. 2, c.

activity without a corporeal organ. Freed from determination in this regard, it is the reason for that certain infinity according to which the soul is said to be all things. Hence it is not limited to knowing only certain, definite natures, but attains an object common to all things.[8]

Just as the intellect is capable of reaching an object common to all beings, so the habitus perfecting it have, as their specifying objects, things which terminate intellectual activity, not in themselves and according to their proper natures, but secundum rationem objecti. "Ratio objecti" is an expression appearing throughout the works of St. Thomas that, in the present context, can be interpreted in terms of 'proportion'. "Ratio autem objecti sumitur secundum proportionem rei circa quam est operatio habitus vel potentiae, ad actum animae in qua sunt habitus vel potentiae."[9]

This brings us to the second characteristic of the speculabile mentioned above. Because of the particular habit by which it is attained, the scientifically known object

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8. "Illa vero pars animae quae non utitur organo corporeo in opere suo non remanet determinata, sed quodammodo infinita, in quantum est immaterialis; et sic eius virtute se extendit ad obiectum commune omnibus entibus. Unde commune obiectum intellectus dicitur esse quod quid est, quod in omnibus generibus entium invenitur. Unde Philosophus dicit quod intellectus est quo est omnia facere, et quo est omnia fieri." Ibid.

9. Scriptum Super Libros Sententiarum, ed. Mandonnet-Moos (Paris: P. Lethielleux, 1929-47), L. III, dist. XXVII, q. 2, a. 4, qua 2, sol.

must be necessary since science is of the necessary. "...Concludit quoddam corollarium ex definitione posita, scilicet quod illud, de quo simpliciter habetur scientia, oportet esse necessarium, scilicet quod non contingat aliter se habere." 10 In the measure that it cannot be otherwise than it is, the object of science must, in that respect, be unchangeable, for whatever is changeable, in so far as it is changeable, can be other than it is. 11

The subject of necessity is here introduced owing to the possibility of many different kinds of habit in the intellect and the consequent need of determining the ratio objecti of the particular one under consideration, namely, science, and more particularly, speculative science. From the point of view of the intellect, the relation between the acts of the mind and things in virtue of which they are exercised is one of potency to object. The intellect is compared to its objects as an absolute principle of acting; in this case, the act of knowing, and its objects are attained under the aspect of their intelligibility. On the other hand, science as a habit proportions the acts of the mind to things. It is a principle of knowing promptly and with facility. "...Operationes ex habitu procedentes delectabiles sunt, et in promptu habentur, et

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10. St. Thomas, In Libros Posteriorum Analyticorum Expositio, I, lect. 4, n. 7.

11. Cf. St. Thomas, In IX Metaph., lect. 9, nn. 1868-70.

faciliter exercentur, quia sunt quasi connaturales effectae." 12 But this is true of all intellectual habits. To distinguish the habitus of science it is necessary to show the kind of prompt and facile intellectual activity it is responsible for by indicating the sort of things in whose regard it is exercised.

By science is meant knowledge that is certain and according to which we are said to know. This in itself is not very enlightening. For someone with a toothache there is no question as to the certitude of his knowledge that things are not as well as they might be. Such, however, is not the meaning intended here. The sense is rather of the knowledge characterized by certitude that something is so and that it cannot be otherwise. Such knowledge is not possible is regard to things capable of being other than they are, that is, changeable things. The apparent certitude accompanying even the most elementary sensation is no guarantee that the present experience could not be other than it is. "...If science were of the thing that changes as changing science would not remain true except by changing with the thing as it changed so that was true at one instant would be false at another." 13 For this reason necessity becomes a consideration in discussing the speculabile.

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12. De Veritate, q. 20, a. 2, c.

13. C. De Koninck, "Abstraction from Matter," Laval théologique et philosophique, XVI (1960), No. 2, p. 169.

## 2. The meaning of speculabile

While extremely terse in the text of the De Trinitate, St. Thomas does explain the speculabile (or scibile) elsewhere. "Scibile enim dicitur aliquid, propter hoc, quod habetur scientia de ipso. Et similiter sensibile dicitur aliquid quod potest sentiri." [14] An appreciation of the speculabile presupposes some idea of science in the Aristotelian sense of the term. For this, the proper place of inquiry is his Posterior Analytics. Science is obtained by syllogistic demonstration and it is the demonstrative syllogism that is the subject of this treatise. However, in preference to broaching the work itself, a brief summary of the points consonant with the dimensions of the present study will suffice. To this end, the commentary of St. Thomas is indispensable.

On the basis of what the word generally is understood to imply, Aristotle explains what is meant by 'to know'. "We suppose ourselves to possess unqualified scientific knowledge of a thing, as opposed to knowing it in the accidental way in which the sophist knows, when we think that we know the cause on which the fact depends, as the cause of that fact and of no other, and, further, that the fact could not be other than it is." [15] Whether they actually know in this sense, or only

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14. St. Thomas, In V Metaph., lect. 17, n. 1026.

15. Aristotle, Posterior Analytics, in The Basic Works of Aristotle, ed. R. McKeon (New York: Random House, 1941), Book I, ch. 2, 71b 8ff.