# A THOMISTIC THEORY

# of the

# LIBERAL ARTS

Presented in partial fulfillment of the requirements for the doctorate in philosophy

by

Brother Sixtus Robert Smith
Brother of the Christian Schools

licencié en philosophie
de l'Université Laval



Faculty of Philosophy
Laval University, Québec
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## PROPOSITIONES

1. Logica dividitur in materialem et formalem .

2. Logica est ars liberalis.

3. Fortuna est causa per accidens in his quae fiunt secundum propositum propter finem in minori parte.

4. Finis ultimus hominis consistit in operatio propria secundum virtutem in vita perfecta.

5. Anima est actus primus corporis physici organici.

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# CHAPTER ONE

## THE LIBERAL ARTS - DEFINITION and DIVISION.

In the first book of the Metaphysics Aristotle uses the term art in a very wide sense to mean any universal judgment bearing on a large number of objects of our experience. (1) Is it possible for us to make such a judgment because we have memory which enables us to grasp a number of experiences as one and so prepare them for the universalizing judgment of art? Taken in this broad sense art includes not only habits like the doctor's ability to cure and the architect's skill, but also speculative skills like mathematics and logic.

(2) In St. Thomas's commentary this general use is clear.

> "Cum igitur plures artes sint repertae quantum and utilitatem, quarum quaedam sunt ad vitae necessitatem, sicut mechanicae; quaedam vero ad introductionem in aliis scientiis, sicut scientiae logicales: illi artifices dicendi sunt sapientiores, quorum scientiae non sunt ad utilitatem inventae, sed propter ipsum scice, cujusmodi sunt scientiae speculativae."

But immediately thereafter, as St. Thomas again points out, Aristotle, by referring to the Ethics, takes care to distinguish what properly belongs to the notion of science from the proper ratio of art.

> "Sed quia usus nomine artis fuerat et sapientiae et scientiae quasi indifferenter, ne aliquis putet haec omnia esse nomina synonyma idem penitus significantia, hanc opinionem removet, et remittit ad librum moralium, ideat ad sextum Ethicorum, ubi dictum est, in quo differant scientia et ars et sapientia et prudentia et intellectus. Et ut breviter dicatur sapientia et scientia et intellectus sunt circa partem animae speculativam, quam ibi scientificum

animae appellat. Differunt autem, quia intellectus est habitus principiorum primorum demonstrationis. Scientia vero est conclusionis ex causis inferioribus. Sapientia vero considerat causas primas. Unde ibidem dicitur caput scientiarum. Prudentia vero et ars est circa animae partem practicam, quae est ratiocinativa de contingentibus operabilibus a nobis. Et differunt: nam prudentia dirigit in actionibus quae non transeunt ad exteriorem materiam, sed sunt perfectiones agentis: unde dicitur ibi quod prudentia est recta ratio agibilium. Ars vero dirigit in factionibus, quae in materiam exteriorem transeunt, sicut aedificare et secare: unde dicitur quod ars est recta ratio factibilium". (4)

In the Ethics, it is clearly stated that prudence and art (the two practical habits) bear upon the contingent, while science treats of the necessary.

"Est autem considerandum quod quia contingentium cognitio non potest habere certitudinem veritatis repellentem falsitatem, ideo quantum ad solam cognitionem pertinet, contingentia praetermittuntur ab intellectu qui perficitur per cognitionem veritatis. Est autem utilis contingentium cognitio secundum quod est directiva humanae operationis quae circa contingentia est: ideo contingentia divisit tractans de intellectualibus virtutibus solum secundum quod subjiciuntur humanae operationi. Unde et solum scientiae practicae sunt circa contingentia, inquantum contingentia sunt, scilicet in particulari. Scientiae autem speculativae non sunt circa contigentia nisi secundum rationes universales, ut supra dictum est. (5)
"Dicit ergo primo, quod manifestum potest esse quid sit scientia ex his quae dicuntur, si oportet per certitudinem scientiam cognoscere, et non sequi similitudines, secundum quas quandoque dicimur scire sensibilia de quibus certi sumus. Sed certa ratio scientiae hinc accipitur, quod omnes suspicamur de eo quod scimus quod non contingat illud aliter se habere: alioquin non esset certitudo scientis, sed dubitatio opinantis. Hujusmodi autem certitudo, quod scilicet non possit aliter se habere, non potest haberi circa contigentia aliter se habere. Tunc enim solum potest de eis certitudo haberi cum cadunt sub sensu. Sed quando fiunt extra speculari, idest quando desinunt videri vel sentiri, tunc latet utrum sint vel non sint. Sicut patet circa hoc quod est Socratem sedere. Sic ergo patet quod omne scibile est ex necessitate. Ex quo concludit quod sic aeternum: quia omnia quae sunt simpliciter ex necessitate, sunt aeterna. Hujusmodi autem non generantur neque corrumpuntur. Talia ergo sunt de quibus est scientia." (6)

Once this distinction between art in the proper sense and speculative habits is made it may be an object of wonder that some speculative disciplines should still be called arts. Yet there is not only the whole weight of tradition from Roman times to our own to justify calling certain disciplines like logic and mathematics liberal arts, but there are examples of such use by St. Thomas himself. Hence we may well ask why such an appelation can be given to some of the sciences, after all sciences have been sharply distinguished from art. St. Thomas finds the reason ~~in the fact~~ that some speculative disciplines have retained something of art in the fact that a certain construction, a certain making, has been retained as a means of manifesting their object.

> "Ad tertium dicendum, quod etiam in ipsis speculabilibus est aliquid per modum cujusdam operis; puta constructio syllogismi, aut orationis congruae, aut opus numerandi, vel mensurandi; et ideo quicunque ad hujusmodi opera rationis habitus speculativi ordinantur, dicuntur per quamdam similitudinem artes, scilicet liberales, ad differentiam illarum artium, quae ordinantur ad opera corpus exercita, quae sunt quodammodo serviles; inquantum corpus serviliter subditur animae, et homo secundum animum est liber: illae vero scientiae, quae ad nullum hujusmodi opus ordinantur, simpliciter scientiae dicuntur, non autem artes: nec oportet, si liberales artes sunt nobiliores, quod magis eis conveniat ratio artis." (7)

It might be thought that the fact that some speculative disciplines are called arts is a reason for questioning the ordinary definition of art as "recta ratio factibilium" (where it is used properly as applying to physical making). Since what is speculative is higher than the practical, would not the term art be better used if it were defined primarily according to

its use as distinguishing certain speculative disciplines and as extending i/properly and secondarily to physical making? On the contrary, it seems that the notion of art is analogous, and that to which it applies are the servile arts and only secondarily ~~to~~ the liberal arts.

What distinguishes servile arts from the speculative disciplines, it seems, then, is that art is essentially concerned with regulating the contingent and is transitive, while speculative habits are concerned with what is necessary, and they direct purely immanent actions. True as this general formula is, there is a considerable difficulty about applying it to some of the liberal arts, particularly music and even poetry and rhetoric where something physical enters essentially into the art. They are speculative habits, since they are intended to communicate ~~something~~ intelligible, yet they seem at least, partly to involve transitive action. It is obvious that music requires either the voice or some instrument, and poetry and rhetoric depend very greatly for their effect on precisely what is most physical in words, their sound and their quantity.

Before we answer this difficulty, it is necessary to distinguish the arts according to their end and according to their mode. Thus, if we list the arts as follows:

arithmetic
geometry
astronomy
demonstrative logic
dialectic
rhetoric
poetry
grammar
music

dance
painting
sculpture
architecture

it will be possible to consider all of them, as far as sculpture, as liberal in their end, inasmuch as they are ordered to knowledge, but if we consider their mode of operation it will be clear that the first effect of painting is to transform matter and secondarily to convey something to one who sees the painting. Music, on the other hand, uses the instrument or the voice but as a pure instrument somewhat like the philosopher uses words. It is obvious that the philosopher uses words as pure instruments, and that they are something more than that for the poet, and the rhetor, and that the use of the musical instrument or the voice by the musician likewise ~~are~~ is important in what is precisely physical in them. Still the rhetor, the poet and the musician uses what is physical transitively and temporarily as a means of coveying something to a hearer. The sculptor and the painter use their art primarily for transforming something material. It is this transformed material in its permanent physical state that is the first effect of art, and only secondarily does it serve the end of knowledge.

Two further difficulties may be raised concerning the use of the term "art" in the liberal arts. It may be hard to see (1) why the term is appropriate at all or (2) why, if it is, the notion of art here is not identical with that of the several arts.

It is perhaps more difficult to see why arithmetic, geometry, and logic are arts at all than it is to see how poetry, rhetoric and music are liberal arts. St. Thomas speaks of all the liberal arts as being speculative essentially, but, since they include something per modum operis, they are called arts.

> "Ad tertium dicendum, quod omnis applicatio rationis rectae ad aliquid factibile pertinet ad artem: sed ad prudentiam non pertinet nisi applicatio rationis rectae ad ea, de quibus est consilium: et hujusmodi sunt, in quibus non sunt viae determinatae perveniendi ad finem, ut dicitur in 3, Ethic. (cap.3.); quia ergo ratio speculativa quaedam facit; puta syllogismum, propositionem, et alia hujusmodi, in quibus procedisur secundum certas, et determinatas vias; inde est quod respectu horum potest salvari ratio artis, non autem aliqua prudentia." (8)

What is this "work" performed by the liberal arts? St. Thomas illustrates here by reference to the forming of a syllogism. Elsewhere, he speaks of measurement, the making of a correct sentence or measurement.

> "Vel ideo haec inter caeteras scientias artes dicuntur, quia non solum habent cognitionem, sed opus aliquod, quod est immediate ipsius rationis, ut constructionem, syllogismum, et orationem formare, numerare, mensura, melodias formare, cursus siderum computare. Aliae vero scientiae vel non habent opus, sed cognitionem tantum, sicut scientia divina et naturalis, unde nomen artis habere non possunt, cum ars dicatur ratio factiva, ut dicitur VI Eth., vel habent opus corporale, sicut medicina, alchimia, et hujusmodi. Unde non possunt dici artes liberales, quia hujusmodi actus sunt hominis ex parte illa qua non est liber, scilicet ex parte corporis. Scientia vero moralis, quamvis sit propter operationem, tamen illa operatio non est actus scientiae, sed actus virtutis, ut patet V Ethic., unde non potest dici ars, sed magis in illis operationibus se habet virtus loco artis: et ideo veteres definierunt virtutem esse artem bene recteque vivendi, ut dicit August. X De Civit. Dei. (9)

What is meant seems to be that in order that we can

manifest, say, the properties of number, it is necessary to measure one number by another, or in order, that we can demonstrate the nature of a syllogism it is necessary for us first to make one in order that we can reason about it. It is this prior formation or this imaginative construction (in the case of mathematics) that is of the nature of art.

Another characteristic shared by both liberal arts and those concerned primarily with the transformation of matter is that they proceed per vias determinatas, in contrast to the mode of prudence which proceeds precisely per vias indeterminatas through the maze of contingent circumstances in which every human action is involved. Just as the sculptor must find the precise way necessary to the making of a statue he has conceived, so the logician or the mathematician must proceed according to the order of the object of their discipline if they are to demonstrate its properties.

From this similarity between art in its ordinary acceptation and the liberal arts some have wished to conclude that the liberal arts are really not purely speculative at all but that they are really practical like all the other arts. This cannot be since the objects of the logical disciplines are beings of reason and hence are not operable. It might be shown too that the objects of mathematics are conceived likewise in a way that precludes existence, and hence they are not operable either. A further reason for denying that liberal arts are arts simpliciter is that the direction and the making of the strictly logical arts (not rhetorica and poetica utens ) is

effected by reducing propositions to their principles after the manner of speculative discourse, and not of composing the constitutent parts of things in order to bring them into existence. The logical arts tend to their object by a natural and not an artificial likeness of their subject. Thus any suggestion that the liberal arts are really arts in the servile sense must be idealist, since it has to assume that the objects are measured by the mind as they are in the non-speculative arts, and not the mind measured by the object as it must be in any speculative habit. It is in order that it may demonstrate that the mind forms for itself proper representations of the objects of the strictly logical arts and its direction in the case of the logical arts consists in defining these natures, and in demonstrating the properties that belong to them in virtue of their definitions.

In summary then, the liberal arts are speculative habits concerned either with human discourse or with the fundamental species of quantity either as they are in themselves or inasmuch as they help to manifest the properties of natural being. They are called arts because the mind must form within itself either examples of discours upon which to reason and discern the various second intentions or figures and constructions that will better manifest the properties of mathematical objects. They differ from other arts in that they are purely speculative. We must next discover which are arts of discourse, what their order is, and then discuss briefly the arts of quantity.

In the commentary on the sixth book of the Ethics, St.

Thomas indicates the order of studies to be pursued by any one who wishes to attain wisdom in the natural order.

> "Erit ergo congruus ordo addiscendi, ut primo quidem pueri logicalibus instruantur, quia logica docet modum totius philosophiae. Secundo autem instruendi sunt in mathematicis quae nec experientia indigent, nec imaginationem transcendunt. Tertio autem in naturalibus; quae etsi non excedunt sensum et imaginationem, requirunt tamen experientiam. Quarto in moralibus quae requirunt experientiam et animum a passionibus liberum, ut in primo habitum est. Quinto autem in sapientialibus et divinis quae transcendunt imaginationem et requirunt validum intellectum." (11)

It is to be noted that the first two studies are none other than logic and mathematics, or, in other words, at least some of our liberal arts. In another passage, St. Thomas quotes an objector who divides philosophy into rational philosophy and mathematics (the two divisions of the liberal arts). In his answer to this objection he does not object to calling all the arts of the trivium rational philosophy, but merely says that the division of disciplines into the trivium and quadrivium is not an adequate division of philosophy. Speaking of all the arts he says they are like paths whereby the enlivened mind enters into the secrets of philosophy.

> "Ad tertium dicendu,, quod septem liberales artes non sufficienter dividunt philosophiam theoricam, sed, ut dicit Aug. de St. Vict. in III sui Didascalon, praeter missis quibusdam aliis connumerantur, quia his primum erudiebantur, qui philosophiam discere volebant, et ideo in trivium et quadrivium distinguuntur, eo quod his quasi quibusdam viis vivax animus ad secreta philosophiae introeat. In hoc etiam consonat verbum Philos. qui dicit in III Meta. quod modus scientiae debet quaeri ante scientiam, et Commentator ibidem dicit, quod logicam quae docet modum omnium scientiarum, debet quis ante omnes alias scientias addiscere, ad quam pertinet trivium. Dicit etiam in VI Eth. quod mathematica potest sciri a pueris, non autem physica quae experimentum requirit, ex quo datur intelligi quod primo logica, deinde mathematica debet addisci, ad quam pertinet quadrivium, et ita his quasi quibusdam viis praeparatur animus ad alias physicas disciplinas.

From this it is fairly clear that when St. Thomas speaks of logic in the passage on the order of learning quoted from the commentary on the Ethics he is referring to all the arts of discourse. What makes this quite certain is a long passage from the biginning of the commentary on the Posterior Analytics. St. Thomas first points out the necessity of reason and art for the conduct of human life. What other animals accomplish by nature alone, we accomplish only by the exercise of our powers as perfected by a great number of habitus that allow us to accomplish our natural purposes by the appropriate means. Amongst the powers whose operation must be directed by the proper intellectual habitus is the reason itself. The intellect must reflect on itself in its pursuit of understanding and so discover the proper art whereby we can reason in an orderly, easy, and accurate manner. (13) This art that directs reason itself is logic or rational philosophy. (14) The divisions of logic will follow the divisions of the acts of reason. Directive of the first act of the reason is the first of the treatises of the Organon, the Categories. The second act is directed by the Peri Hermeneias. All the other logical treatises direct the third act of reason. (15) St. Thomas orders all these other logical treatises by means of a comparison with the operation of nature, which art, including logical art, imitates.

> "Attendum est autem quod actus rationis similes sunt, quantum ad aliquid, actibus naturae. Unde et ars imitatur naturam in quantum potest. In actibus autem naturae invenitur triplex diversitas. In quibusdam enim natura ex necessitate agit, ita quod non potest deficere. In quibusdam vero natura ut frequentius operatur, licet quandoque possit deficere a proprio actu. Unde in his necesse est esse duplicem actum; unum, qui sit ut in pluribus,

sicut cum ex semine generatur animal perfectum; aliud vero quando natura deficit ab eo quod est sibi conveniens, sicut cum ex semine generatur aliquod monstrum propter corruptionem alicuius principii. Et haec etiam tria inveniuntur in actibus rationis. Est enim aliquis rationis processus necessitatem inducens, in quo non est possibile esse veritatis defectum; et per huiusmodi rationis processum scientiae certitudo acquiritur. Est autem alius rationis processus, in quo ut in pluribus verum concluditur, non tamen necessitatem habens. Tertius vero rationisprocessus est, in quo ratio a vero deficit propter alicuius principii defectum; quod in ratiocinando erat observandum." (16)

Once this comparison has been made, St. Thomas proceeds to explain its application to all the books of logic.

"Pars autem Logicae, quae primo deservit processui, pars Iudicativa dicitur, eo quod iudicium est cum certitudine scientiae. Et quia iudicium certum de effectibus haberi non potest nisi resolvendo in prima principia, ideo pars haec Analytica vocatur, idest resolutoria. Certitudo autem iudicii, quae per resolutionem habetur, est, vel ex ipsa forma syllogismi tantum, et ad hoc ordinatur liber Priorum analyticorum qui est de syllogismo simpliciter; vel etiam cum hoc ex materia, quia sumuntur propositiones per se et necessariae, et ad hoc ordinatur liber Posteriorum Analyticorum, qui est de syllogismo demonstrativo.

Secundo autem rationis processui deservit alia pars Logicae, quae dicitur Inventiva. Nam inventio non semper est cum certitudine. Unde de his, quae inventa sunt, iudicium requiritur, ad hoc quod certitudo habeatur. Sicut autem in rebus naturalibus in his quae ut in pluribus agunt, gradus quidem attenditur (quia quanto virtus naturae est fortior, tanto rarius deficit a suo effectu), ita et in processu rationis, qui non est cum omnimodo certitudine, gradus aliquis invenitur, secundum quod magis et minus ad perfectam certitudinem acceditur. Per huiusmodi enim processum, quandoque quidem, etsi non fiat scientia, fit tamen fides vel opinio probabilitatem propositionum, ex quibus proceditur: quia ratio totaliter declinat in unam partem contradictionis, licet cum formidine alterius, et ad hoc ordinatur Topica sive Dialectica. Nam syllogismus dialectious ex probabilibus est, de quo agit Aristoteles in libro Topicorum. Quandoque vero, non fit complete fides vel opinio, sed suspicio quaedam, quia non totaliter declinatur ad unam partem contradictionis, licet magis inclinetur in hanc quam in illam. Et ad hoc ordinatur Rhetorica. Quandoque vero sola existimatio declinat in aliquam partem contradictionis propter aliquam repraesentationem, ad modum quo fit homini abominatio alicuius cibi, si repraesentetur ei sub similitudine alicuius

> abominabilis. Ut ad hoc ordinatur Poetica; nam poetae est inducere ad aliquod virtuosum per aliquam decentem repraesentationem. Omnia autem haec ad Rationalem Philosophiam pertinent: inducere enim ex uno in aliud rationis est." (18)

From this text and the one from De Trinitate (18), it is clear that "rational philosophy" includes all the arts of discourse, the artes sermocinales of the trivium. It is this wide meaning of "logical arts" (logicalibus) that is intended in the text from the commentary on the Ethics wherein the order of learning is set forth. (19)

It is important next to make a few remarks on the order of the arts.

In the long passage just quoted from the Commentary on the Posteriora, St. Thomas orders the artes sermocinales according to their perfection. The mind is determinedly in possession of its good, the truth, when it has a certain knowledge through causes of necessary things. It is only partially determined when it knows through only probable premisses and it is still less determined when the arguments used have to be based at least partially on appeals to the passions. It is least of all determined when the adherence of the intellect is secured through the beauty of certain imitations. It is for this reason that St. Thomas begins his list with demonstration and ends with poetry.

In the order of learning, however, the mind begins not with demonstration but with grammar and poetry because of its lack of formation and because of the strong imaginative element in poetry. Only when it has been gradually awakened through poetry and rhetoric can the mind enter seriously into dialectic; and

the sole gateway to demonstration, at least in philoso..ical matters, is dialectic. Since the main importance of the liberal arts is that they prepa.e the mind for wisdom, it is appropriate to consider them in the order of generation rather than in the order of perfection. It is this order that we shall follow throughout.

St. Thomas and Aristotle have pointed out in several passages quoted above that logic must precede the other sciences not because of its greater facility but because of its indispensability. However, if we remember that logic is arrived at through an investigation of the act or reason itself, that it deals with second intentions, it will become perfectly evident that it is impossible to acquire this art without some rather considerable acquaintance with the various kinds of human discourse. In other words the priority of logic is not a simple temporal one. It is impossible to possess the other sciences perfectly without logic, but it is not possible to possess logic without some experience of poetry, human affairs (as revealed by direct experience and by history) dialectical discourse and scientific reasoning. The acquiring of logic and of the experience on which it is based should proceed pari passu, with experience having the absolute priority ~~of~~ IN time, and with logic having a priority of act since the perfection of the other sciences and their critical defense and/or judgment depends on logic.

In more concrete terms, for instance, it is impossible to teach the Posterior Analytics without a rather good idea of geometry or arithmetic. Once the Posterior Analytics are known, one's understanding of Euclid would be deepened and made more perfect, since it would be more possible to defend objections against Euclidean geometry. In this sense mathematics comes after logic, but a fairly thorough study of mathematics may be supposed to have preceded a critical reappraisal by logic.

The reason the mathematical sciences are the first to be studied after logic is, as St. Thomas indicates, that they require little experience. Once they are learned, geometry and arithmetic can be used to study natural phenomena. It is this application that gives us the remaining two arts: astronomy and music, in the traditional sense of the theory of music.

# CHAPTER TWO

## GRAMMAR

The notion of grammar as expounded by most ancient writers is extremely wide. They speak of it as the art of reading, writing, and speaking correctly. For many of them the notion of reading involves not only this ability taken in the ordinary sense of the terms involved, but also the ability to judge historians and poets. Fairly typical of such descriptions is the one given by Nositheus.

> "Grammatica quid est? Scientia interpretandi poetas atque historicos et recti scribendi loquendique ratio...."(1)

To this we should add the longer exposition given by Diomedes in the third century.

> "Grammatica est specialiter scientia et expositio eorum quae apud poetas et scriptores dicuntur; apud poetas ut ordo servetur; apud scriptores ut ordo careat vitiis. Grammaticaepartes sunt duae, altera quae vocatur exegetice, altera horistice. Exegetice est ennerativa, quae pertinet ad officia lectionis: horistice est finitive, quae praecepta demonstrat, cuius species sunt haec, partes orationis, vitia virtutesque. Tota autem grammatica consistit praecipue in intellectu poetarum et scriptorum et historiarum prompta expositione et in recte loquendi scribendique ratione." (2)

Some writers even went further and include in grammar, philosophy, and whatever else is useful as a background for oratory. Notable amongst those who held this view is Quintilian. (3)

All these descriptions of grammar are valid as describing the educational practice of their time, but they do not give us what is formally constitutive of grammar. In order to see this

clearly, it is necessary to distinguish a great number of disciplines which share wholly or in part the same material object as grammar but each of which view it under a different formal light.

It is clear that grammar, poetry, rhetoric, philology, anthropology and logic all study words. If we distinguish between what is entitative, material, physical in words, from what is formal in them, we will see that all except logic are concerned with the first aspect. Most of them are concerned with what is formal, too, but mainly as a means of understanding what is entitative. Let us discuss the formal object of each of these disciplines in order to see that this is true.

Grammar, by its etymology, is concerned mainly with letters, what is necessary to write correctly. It classifies existing ways of speaking and writing and distinguishes good usage from poor. The basis of such classifications must remain practice. The grammarian must always proceed a posteriori; he can never go beyond the warrant of the best spoken and written language he studies. This is evident in the fact that writers and speakers sometimes invent usage and later the grammarians accept it. It is also evident in the difficulties that arise when something written in a language highly developed for the use of abstract thought has to be translated into a language that is not so developed. It is necessary to invent usage and words on the spot, and it is not the grammarian who does it.

The grammarian must study not only what is material in words, but also he must account for their differences through

the meanings that they are designed to express. The distinction between the subjunctive and the indicative mood is not understandable without reference to what is formal in words: their significance. Still, the grammarian does not study this a priori and then descend to what is material, the form that expresses these two moods. On the contrary, he starts with the fact of their distinction and explains the difference, when it exists. In languages where no such distinction is made, the grammarian has nothing to say about it.

The poet and the rhetor both must study words as they are used by their respective arts. Since they both aim to move the passions it is necessary that they consider not only the abstract significance of the words as symbols of an idea but they must also consider what is entitative and physical in them. It is these qualities that first strike the senses and rouse the associations evocatory of emotions. Many words have highly imitative structure. Their sound recalls the objects they signify. Their rythm and quantity suggest things in their concreteness. It is this physical echoing that is important to the poet and the rhetor. He must choose between various words that express the same fundamental idea but with different emotional connotations.

Philology studies words in their material aspect with little or no attention to their significance. Its intention is to lay bare the rules that govern the mutation of vowels and consonant sounds from one language to another or historically within the same language. Out of philology has arisen the

the anthropological investigation into the origins of language and speculations as to whether all later languages have evolved from one common form of speech. These investigations are part of natural doctrine since they aim to study the phenomena of human speech in order to discover the laws that have governed its formation, as far as this can be traced in what is physical. This procedure is very different from that of grammar where the end is reached when there is a mere constatation of correct usage.

Logic too must concern itself with words inasmuch as they are the means of expression of the second intentions that are its proper object. Aristotle speaks at length of noun and verb at the beginning of the Peri Hermeneias. (4) In commenting on this same treatise, St. Thomas says of words that they are purely conventional signs of the ideas they represent. (5) In saying this, St. Thomas as always is placing himself in the formal viewpoint of the treatise under consideration. Logic can neglect all that is natural in words: their onomatopoietic character, their quantity and quality, their emotional overtones. Hence it can regard words as pure signs ad placitum, which found certain second intentions. It would be an error to extend this view to all considerations of the word, since thereby poetry, rhetoric, and linguistics would be destroyed.

The ancients who made the study and interpretation of poetry part of grammar were led to do this because of their common material object. St. Thomas placed himself at the point of view of the formal object and found poetry to be the art

of imitation in words just as rhetoric to be the art of persuasion in practical matters. Hence the study of the rules that govern poetry (and rhetoric) belongs to rational philosophy, "the inquisition that reason makes into its proper act" in order that it may proceed without error.

Another reason for this confusion of the ancients is that for many of them, particularly the Romans, rhetoric was the highest exercise of the human mind. All other disciplines prepared for it. Thus the reading that supplied vicarious experience and models of elegant language were all regarded as serving that end and so could be grouped under the single heading of the art that taught the fundamentals of reading and speaking. However as Aristotle points out man is not the highest thing in the universe, and so rhetoric, the instrument of politics, is of lesser importance than many other studies.

St. Thomas accepts and defends the Aristotelian view of the ordination of all practical concerns to contemplation and so all studies are ordered to wisdom. Grammar is a pure instrument necessary in order that we can communicate accurately. It is not even the proper instrument of reason that guides it in its own act. This belongs to arts that constitute rational philosophy: demonstrative logic, dialectics, rhetoric and poetry. All of the arts have a relatively humble role. Their end is not in themselves but to prepare the mind for philosophy, as St. Thomas, following Hugh of St. Victor, realized. Amongst these arts the humblest is grammar. Logic at least can be scientific, since it can discover the necessary reasons that order human discourse; grammar can only order

what is given, when it is given. Its reasons are always the contingent ones of use.

Even St. Augustine shared the notion of Quintillian that all the arts were ordered to eloquence rather than to science.(7) For him eloquence in view was sacred eloquence, and grammar, inclusive of all the other arts except rhetoric, was intended to make the reading of the text of the scriptures possible. It was because astronomy, poetry, and all the other arts could throw some light on obscure passages that they should be studied. This broad Augustinian notion of grammar as fundamental to the sacred sciences dominated most of the period between him and St. Thomas. (8) It was only the later adaptation of the Aristotelian notion of science to theology that enabled scholars in the Thomistic tradition to order all the arts to philosophy and philosophy itself to theology.

One way of expressing the Augustinian notion of grammar is to say that it is the art of reading signs. It calls to its aid all the other arts, and even philosophy, in its effort to penetrate the obscurity of some of the signs in sacred scripture that contain God's revelation. It is perhaps a mistaken continuation of an aspect of this tradition that is responsible for the proliferation of "speculative grammars" in the middle ages. (9) These treatises attempt to find necessary reasons for the facts of morphology and syntax of Latin grammar. It is obvious that there are possible a certain number of forms of expressing things. This eternal possibility founds not grammar but the science of second intentions, logic. In attempting to

make this necessity inhere in the works of the Latin language as it had developed, they ignored the purely contingent and historical character of language and submerged grammar in logic.

# CHAPTER THREE

## POETRY

Poetry is defined by Aristotle as the art of imitating human actions in words. (1)

Imitation is an extremely complex notion, defined generally as similitude expressed from something else. (2) By similitude is meant sameness with respect to quality, just as identity is sameness of substance and equality is sameness in quantity. Imitation is not mere similitude, however. Two eggs may be similar, in shape, but one is not an imitation of the other. To have an imitation we must have a similarity that comes by way of origination from an exemplar. (3) The quality of an original must be the source of the likeness in the imitation.(4)

Action, which poetry imitates principally, is not itself a quality if we consider it as influencing its term. A quality is that which modifies either by ennobling or deforming, a subject. Since an action in its transitive aspect tends to modify something outside the subject, it belongs to another category than that of quality. If, however, we consider the action in its principle, as something produced by a power and not only a power, but by a more or less permanently disposed power, which in action is brought to a new kind of actuality, it becomes plain that action is reducable to habit or disposi-

tion. This is the first species of quality. The interest we find in all human actions is attributed to the fact of this reducibility of the transitive to an immanent principle. Mere physical action is not interesting, but we are always intrigued by any manifestation of the inner determination of a will and of the mind that directs it or of the turbulence of the passions as they play their obligato of accord and discord alongside our rational processes.

It may seem strange to insist that poetry deals with human actions. We are accustomed to think of poetry as rivalling philosophy in the breadth and profundity of its subject matter. There are, or seem to be, poems dealing with nearly all subjects, including God. Dante has written an epic that conveys a great deal of Scholastic theology; Chaucer has written profoundly of free-will and Lucretius has written a passionate plea for atheism. Would not all these profound themes show that poetry is not confined to an imitation of human action? Besides this there are poems about nature and about animals. Thus it seems that poetry not only imitates man's actions, but what is above and below him.

This objection seems stronger than it is. The first thing to remark is that poetry treats of all objects, man's actions and the things above and below him in the poetic mode and not the scientific one. What this poetic mode is will be explained shortly. Later chapters will make it possible to compare other kinds of doctrine with the poetic. Secondly, poetry

tends to treat of nature and animals as having qualities that are properly human or as affecting somehow or other man's feelings or causing him to make some decision. In other words what is treated is human action or passion in its cause. Even when treating of God or free-will or atheism the great poets succeed in relating them personally to the individual so that what is uppermost is the determinations of an individual's destiny by ultimate reality. What is conveyed is not theology, but an imaginative presentation of the effect of certain truths in their application to individuals in their temporal existence. St. Thomas has an important text wherein he says that poetry uses images essentially because of the weakness of the objects portrayed, whereas theology uses them incidentally because of the weakness of our minds. What is weak and uncertain is the destiny of the individual even as determined by grace. The individual is subject to contingency. Hence, about him there can be no science. There can and should be poetry. This will become more evident if we investigate the meaning of the scholastic dictum that poetry is an infima doctrina.

If we take a statement like "every triangle has its angles equal to two right angles", we have a truth that can be seen upon evidence. By making certain constructions it will be seen that the other two angles are precisely equal to the complement of the third angle. The constructions have served to manifest this as a property of the nature of triangle. In view of the nature thus manifest, we see that it must be so.

In other words, we have seen the evidence for the statement and our adherence is compelled. As we shall see it is the various ways of causing our adherence to a proposition that distinguishes the kinds of doctrine.

Poetry, unlike geometry, does not present the mind with evidence that compels the assent. The poet does, far more than the geometer, make constructions. In fact he constructs his whole subject. It is essential to him to proceed by fictions. It is not things as they are in the ordinary world that are poetic. A bird considered biologically or taxonomically is an exceedingly prosaic thing. It is not thus that the poet presents him. His lark at Heaven's gate arises, or his raven croaks everlastingly on top of battlements as a symbol of despair. Men too as they appear in poetry appear only as interesting beings - either as attractive or repulsive, or pitiable, but never merely neutral as in the statement that in man the cogitative sense is the basis of induction. The reason for this is that poetry essentially requires the adherence of our appetite to make us accept the truth of its fictions. It is this adherence of the appetite that serves in lieu of evidence. It is for this reason also, that poetry is called <u>infima doctrina.</u> Because, adherence of the mind solely because the appetite is attracted is the lowest kind of adherence in a scale that has as its natural summit adherence because of the perfect possession of evidence.

If the motive for our adherence causes poetry to be the lowest of the intellectual disciplines, it causes it to be

very important indeed in the list of things that dispose us for the moral life. Poetry is an imitation of human actions, an imitation that is an imaginative representation that allows us to become aware of them in their sensible character. We become aware of struggle, effort, achievement or frustration as it is for some character envisioning his own ends. The fact that actions are so imaginatively presented makes it possible for the representation to engage the sense appetites. We see a character whom we admire achieving a certain success or suffering frustration, and so we are moved to joy or to pity, or we see some one we disapprove failing or succeeding and so we are moved contrariwise. This is to say that our sense appetites are moved in a way conformable to reason. St. Thomas following St. John Damascene, defines the passions as the movement of the sense appetites according to a suspicion of good or evil.(5) The good or evil spoken of is the good of the appetite. Such a movement is morally good when it follows the judgement of reason and evil if counter to reason. Poetry is precisely a means of exciting us to appropriate feelings. This is the primary sense in which poetry is said to lead toward virtue.

The importance of this function can be seen from some of the things that St. Thomas says about the role of passionsin the moral life. He speaks of the fact that temperance cannot be attained except in a certain mean of feeling about the objects of the concupiscible appetite. (6) Insensitivity is a vice also just as over-indulgence in sense pleasures. (7) To rejoice with those that rejoice and to mourn with those that mourn is

a christian formula, but it is also an essential constituent of friendship which is an important and necessary virtue for the social life. (8) St. Thomas also says that anger is important for the acquiring and preserving of virtue, and hope and boldness are obviously needed. (9) Boldness is so important that fortitude is actually denominated from it as the principle constituent of the irascible appetite.

Negatively too, this same importance of the passions can be shown. The effects of lust in obstructing all the essential acts of prudence have been noted by St. Thomas. (10) The same is true of the effects of accidia. (11) The list could be prolonged until all the vices contrary to either temperance or fortitude have been mentioned. This is not necessary. The point that is important now is that poetry portrays the object in such a way that passions are aroused conformably to reason and the constriction of the appetite to a single customary aspect of an object can thus be obviated. This is the true sense of catharsis.

Poetry cannot certainly engender virtue. Only a repetition of voluntary acts performed under varying circumstances can be the proper cause of natural virtues. (12) It can however, arouse our sense appetites with respect to certain objects by introducing a special kind of order into their objects and so render these appetites themselves less gross and less indiscriminate. The discovery of alternate objects causes them to be less determined to one thing as they are in the case of animals.

One special kind of poetry, the fable, conduces toward virtue in another way, that is by directly preaching it. The manner of preaching remains poetic. Good conduct is portrayed as essentially desirable and evil as unpleasant or foolish.

It may be objected that there is bad poetry as well as good poetry. Pornography too may be beautiful and there can be poetry leading to hate. The list can be multiplied.

The essential principal to be kept in mind is that poetry is a doctrine, a means of leading people to the truth. Its means is not evidence, but beauty in representation. The appetite leads us to adhere because the representation is beautiful. If poetry can remain poetry and yet cause us to adhere to something as good when that thing is essentially evil, then poetry becomes sophistry. It is the sophist whose role it is to lead to error by artful processes. True poetry is always distinguished from sophistry by Aristotle and St. Thomas. Perhaps there might be a distinction within sophistry of deception effected by means of a misuse of discourse and deception effected by a false use of imitation.

Further, it ought to be pointed out that the effect of poetry upon appetite depends in large measure upon the appetite. A consideration of the erotic, that might be a means of evil pleasure for a young man might lead to a purgation and release for another man more experienced or perhaps for one already given to vice.

Lastly, certain presentations of the object are so intense as to prevent the continued use of the intelligence and the

imagination. This is particularly true of pornographic writing. Such an excitation is contrary to the rational control of imager that belongs to poetry.

If moral development, disposition toward virtue is the chief effect of poems - or *poetica utens*, to use the scholastic term, the importance of *poetica docens* is speculative. By *poetica docens* is meant the attempt to define and analyze poetry. In its more general consideration are found a discussion of the nature of the poetic effect, and of the main kinds, indeed, the kind of language proper to poetry - in other words, such discussions as those of Aristotle in the *Poetics*.

Such considerations seem to be part of logic, because they are an analysis of second intentions in view of finding how the act of reason is directed. Along with the theoretical aspect of rhetoric, *poetica docens* has to borrow from ethics and psychology certain considerations of the passions since an essential aspect of both rhetoric and poetry is an appeal to the emotions. This borrowing from other disciplines does not mean that poetry in its scientific aspect is any the less logical. What is borrowed is not treated for its own sake, but is used only to reveal the nature of the act of reason in making poetry. In fact, the nature of the passions is never discussed formally in poetry. A nominal definition suffices, as it does in rhetoric.

The theoretical importance of poetical speculation is manifold. Positively, poetry terminates in science at least about certain definitions and certain fundamental demonstrations that

are reducible to these definitions. Furthermore reasoning about poetry is an excellent dialectical exercise, especially for the young who have little experience. Along with this there is the satisfaction of making valid judgments about poetry.

Negatively, speculation about poetry enables us to isolate poetical procedure from other ways of knowing and so enables us to be on our guard against using it where it has no place (in scientific discourse for instance). Not only will we learn to avoid this confusion ourselves, but we will be less exposed to being taken in by others who do so either knowingly or not.

The bad repute which theories of poetry have acquired may be ascribed to several causes. One of them is the illusion that they are proposed as guides to writing poetry. Like all parts of logic, poetry is a critique, something useful in judging an intellectual production after it has been made. It enables us to detect flaws and to recognize excellence, and guides the poet only remotely.

Another reason for the low opinion often held of poetical criticism is the confusion between certain propositions and demonstrations (usually very general) which are scientific, and dialectical considerations based upon the taste of a particular writer or a particular age. An example of the first sort of consideration is the Aristotelian consideration of tragedy; of the second discussions of scenery and lighting.

It ought to be remarked also that <u>poetica utens</u> has also considerable intellectual importance, both speculatively and

practically. In poetry there are collations of apparently disparate facts in virtue of a relationship that might otherwise not be noticed. This use of the imagination and its control by the intelligence is fundamental in many types of investigation. Not the least of these is the dialectical considerations involved in modern experimental research and in much practical thinking.

There can be little doubt upon the separateness of the habitus of poetica utens and poetica docens. The poet possesses as his primary characteristic a great sensitivity. In his consciousness his awareness of the affective qualities of things is given with greater immediacy and vividness. On the one hand he has greatly developed senses and on the other he is more conscious then most of the relationship of the objects of his senses to his appetites. By "developed senses" is meant particularly the internal senses, imagination, memory and above all the cogitative. Through the cogitative sense one is aware of the relationship of things to one's welfare. It is this awareness of this connatural aspect of things that allows the poet to seize upon apt means to"seduce the intellect" into accepting his fictions.

This in no way denies the intellectual character of the poetic work. Directing and coordinating all this awareness of sense quality is the mind. Metaphor, the great resource of the poet, involves an awareness of relation. This alone of all the categories is purely intellectual. Even substance is a sensible per accidens.(13) Furthermore, the fictions of the poet are not confined in the haphazard of the"va-et-vient" of sense impressions,

but they are ordered in a highly rational and intelligent way.

In this connection, it may be interesting to note that the object as presented by the poet represents a special kind of universality that is to say a special kind of spirituality. Aristotle made the cryptic remark that poetry is more universal than history. (14) One of the reasons for this is that the event as recounted by the historian does not possess eminently the characteristics proper to objects that have been abstracted by the mind. The discussion of the battle of Waterloo does relate events that possess at least some of their unity from the mind, but "the Battle of Waterloo" isn't something whose nature I can state in an essential definition anymore than, "Napoleon" or King John" can so be defined short of losing their individuality in "Man".

The poetic object is not the abstract concept of speculative science either. Poetry dies when it strays too far in directions where imagination cannot follow. Yet the "Skylark" in the poem is not the "Skylark" in the fields, nor does "Ozymandias" refer to some individual tyrant. The "Battle of Waterloo" does designate however confusedly some particular event in its particularity. The poetic object is the more intelligible object that the mind has invented. Poetry proceeds by fictions, and so it is inferior to sciences, which grasp the essences of things. For the very reason that it is, does proceed by fictions that is superior to a kind of discourse that designates vaguely things in their concreteness. The fictions of poetry are intermediate between the facts of the historian and the concepts of the scientist. They

are fictions, but fictions that bear the marks of their origin in the mind. These mark a greater spirituality and, as a consequence, greater intelligibility and universality.

The hearing of poetry in childhood is an important step in the intellectual life. It excites wonder, disciplines the imagination and the passions. No less important in its way is the critism of poetry. The mind is therein exercised in arguments on familar subjects. Also in seeing the difference between poetry and the other modes of intellectual life we are freed from that evil tendency that wishes to see all thinking reduced to the poetic mode. This is the greatest service rendered by poetica utens.

# CHAPTER FOUR

## RHETORIC

"Rhetoric is the art of discovering the possible means of persuasion in reference to any subject whatever." (1) Just as in poetry there is a poetica utens and a poetica docens, so we may distinguish the actual practice of the Rhetor and the critical work of evaluating this work. This last aspect, like poetica docens is part of logic. The liberal art of Rhetoric consists in both habitus.

In the first chapter of his treatise on the subject, Aristotle compares rhetoric to dialectic. They are both alike in not being confined to a single type of object. Geometry is concerned exclusively with extended quantity, and music is concerned only with passions, but rhetoric and dialectic are disciplines that enable one to discuss a very large number of matters. Indeed, in discussing both of them Aristotle says that they have a universal object. (2)

As we shall see in a later chapter dialectics is used in discussing anything inasmuch as it may be the object of speculative consideration. Rhetoric is a means of persuasion about everything that belongs to political life. Since everything that man knows is either ordered to political life or is the term to which political life is ordered, rhetoric has a truly universal object.

That Aristotle really considers the object of rhetoric to be materia civilis, the ensemble of subjects that belong to political life is abundantly evident from reading his treatise. He divides rhetoric into (1) deliberative, or the art of persuading about future events, (2) epideictic, the art that deals with praise and blame, and (3) forensic oratory, the art of sustaining accusations and defense. (3) It is evident that all of these matters belong to the practical life and not to the speculative.(4)

That St. Thomas accepts this view is clear from the meager references to rhetoric that he makes in various contexts. He speaks of it as being a means of persuasion and he says that the object of rhetoric is the singular actions of men. (5) Obviously, then rhetoric can not be a form of argument adopted to speculative science, since the singular as such is not the object of science. He also says that rhetorical argument leads to suspicio, (6), and in the treatise on prudence we see how closely this is bound to the moral choice that constitutes prudence. (7)

Rhetoric differs from poetry mainly by being an argument. Poetry seduces the intelligence by the beauty of its fictions.(7a) Rhetoric too depends upon the support of the emotions in order to persuade. The speaker must give his hearers confidence in him as being a morally good person, as being wise, and he must also attempt to enlist their emotions on the side he supports.(8) This, however, is not enough. The rhetor must engage in argument.

Rhetorical arguments consist mainly in enthymemes and in examples. The enthymeme is a syllogism that proceeds from signs and probabilities. (9) Signs belong to two great classes: necessary signs and what may be called simple signs.

Necessary signs are those wherein there is a necessary connection between the sign and the signified. Aristotle exemplifies this by saying that milk is a necessary sign of pregnancy. The two are invariably connected.

Simple signs imply no such necessary connection. Paleness may be a sign of pregnancy or it may not. That a man walks alone in the night may be a sign that he is a thief, or, it may not.

The first kind of sign is called by Aristotle tekmarion (10) and it can be used by the demonstrator, the dialectician and the rhetorician. The reason for this will appear from a consideration of the syllogistic form proper to an argument. If I say, for instance:

Those that are pregnant have milk,
X has milk.

the proper syllogistic form is lacking, for in the second figure, one premiss must be negative. (11) But since in necessary signs conversion is possible, I can rearrangethe major so that the syllogism will be in the first figure thus:

Those that have milk are pregnant,

X has milk.

Thus the requisite form is present and the argument holds. Even the rhetorical syllogism, when it proceeds from such signs is unanswerable, (11a) except by denying the existence of the sign.

If we take simple signs though, the case is different. For instance, if I say:

Those that have tuberculosis have fever,

John has a fever.

it is impossible to get the true syllogistic form by conversion. Hence the dialectician and the demonstrator cannot use simple signs. The rhetor can and does use them very often, and hence it is that St. Thomas says that the rhetorical enthymeme is a syllogismus detruncatus. (12) He means that the proper syllogistic form is lacking. The usual interpretation of this mutilation is that the enthymeme is a syllogism where one of the premisses is not expressed. It may very well happen that the rhetor will say that "X is pregnant because she has milk", or, "he is a robber because he walks by night", but the first statement is capable of becoming a syllogism by a proper and legitimate statement of the major, but the second is not. The major there cannot become a universal proposition and so the syllogism cannot conclude. This is the "mutilated syllogism" that St. Thomas ascribes to the rhetor. If the rhetor uses a necessary sign his argument is virtually a true syllogism and can only be refuted by denying the existence of the sign. In the rhetorical syllogism refutation is possible by ascribing the sign paleness, walking by night, etc., to some other cause than the one proposed.

The enthymeme is a syllogism that springs from signs or probabilities. By probabilities are meant what appears to be true to all, or some, or a few without the evidence being clear. The probable is opposed to the certain, that is to what is known to be true because one knows the proper cause of the inherence of a predicate in a subject. I can know for instance that God is eternal because He is immutable, and eternity is a species

of immutability. If I say that all mothers love their children, my statement is based on experience and is true, ut in pluribus, but it isn't certainly true, in advance of further experience, concerning any given mother. The mind possesses no evidence for the necessary and invariable connection of love of children and every mother. We will go into this question of probability at some length in the Chapter on "Dialectics". Suffice for the present to contrast the certainty of the evidence of propositions like "God is eternal" from things true ut in pluribus and to this we should add that the rhetor can use arguments that are much weaker, much less probable than those used by the dialecticians, because of the less intellectual character of rhetoric. The rhetor very often says such things as "Surely she loves her, for, after all she is her mother". Here we have the same assumption of a major that is capable of being a universal proposition and hence of constituting a syllogism in which the necessary form is present. This summary discussion will be completed also in the Chapter on 'Dialectics," when we treat of the use of insufficiently proved propositions. The enthymeme, whether springing from signs or from probable propositions is a syllogismus detruncatus.

The second form of argument proper to the Rhetor is the example. Just as the rhetorical enthymeme is an imperfect form of the syllogism, so the example is an imperfect form of induction. (13)

In induction we have some such argument as this. Horse, man, mule, etc., are long lived.

Horse, man, mule, etc., have no bile.
Bileless animals are long lived.

It will be seen immediately that this argument is invalid unless "Horse, mule, man, etc.," include all the animals that have no bile. If this is so the minor premiss is convertible and so we have a valid syllogism in the first figure. Another way of saying that the minor premiss is convertible is to say that there must be a complete enumeration of particulars. Only through such an enumeration can the convertability of bileless animals and "horse, mule, man, etc." be assured. (14)

Induction is of various kinds. There is a special form of induction whereby we come to the knowledge of first principles. This is an important instance of the principle that all our knowledge comes through the senses. The various knotty problems involved in discussion of this kind of induction are not germane to a discussion of rhetoric, so we can leave them out of the present considerations.

Still another use of induction is not precisely proper to rhetoric. When the individuals to be enumerated are species, say the kinds of triangles, for example, induction can very easily become a strictly scientific instrument. Here the conversion of the minor premiss is immediately possible and induction is reducible to the syllogism.

Besides these forms there is another much commoner one where the induction must cover a great number of sense particulars. Here the enumeration can never be complete. We say, for instance, that snow is white in view of a very great sense experience. We cannot know with absolute certainty that this

is so unless we can extend our experience to cover all instances of snow past, present, and future; or, and this is another case, unless we can discover something about the nature of snow that guarantees that white would be an invariable predicate. In fact we have neither of these grounds for being sure that all snow is white. Hence this proposition is what St. Thomas calls an universale ut nunc. (15) This will be discussed in its proper place in the chapter on dialectics.

It is to this last kind of induction that the example used by the rhetorician bears the greatest resemblance. The use of the example may be illustrated simply. Suppose we wish to argue against a measure making illegal the use of mild narcotics like tea, coffee, and tobacco. We might argue thus:

> Prohibition of alcoholic beverages in the United States proved to be unenforcable. This prohibition was an attempt on the part of the State to invade the field of strictly private morals.
> Prohibitions of tea, coffee and tobacco are likewise in the field of private morals.
> Therefore, the prohibition of tea, coffee, and tobacco would be unenforcable.

Prohibition, of alcoholic drinks, here is chosen as an example of an unenforcable law. Its value as an example depends primarily on its being well known and admitted by all. It must be better known than the object of immediate concern - tea, coffee, and tobacco. (16) Because it was a failure and because a common predicate - namely belonging to the sphere

of private morals, attaches to it and to the object of present interest, we conclude that the prohibition of tea, coffee, and tobacco would be unenforcable.

The relationship of the example to induction is clear. In an induction we would have to say:

Prohibition of alcoholic beverages etc. was unenforcable.

Prohibition of alcoholic beverages etc. belongs to private morals.

Hence public prohibitions of what belongs to private morals are unenforcable. The value of this as an induction would depend either on the completeness of the enumeration of terms indicated by the "etc." of the above example, or upon the discovering of a relationship between the major and minor terms. By this last phrase is meant that the induction might suggest a true middle term and then the argument would belong to the true syllogistic form and not to the inductive. Once established, the conclusion could serve as a major term of a new syllogism whose minor would be "the prohibition of tea, coffee, and tobacco belongs to private morals". From this the desired conclusion could be drawn.

The example uses one striking instance instead of the complete enumeration of particulars. We might call the example a very incomplet e induction.

These two arguments, enthymeme and example constitute the proper mode of rhetorical argument. This is the core of rhetorical proof as we have seen. Associated with rhetorical arguments proper are attempts on the part of the speaker to cause the hearer to regard him as a reliable and just person.

Also there must be attempts to arouse the passions of the hearer in a direction favorable to the pleader's cause. These three attempts together - argument, establishment of the speaker's trustworthiness, and the stirring of the hearers' emotions are what are called artificial proofs. (17) They are artificial because they depend upon the work of the rhetor for their existence. Unless he works them up they do not necessarily exist. They are the proper object of the rhetorical art.

Associated with these artificial proofs are natural ones like the testimony of witnesses, mute evidences like blood-stained garments etc. (18) These must be joined with the artificial proofs and used skillfully by the rhetor to support his case. The way these natural things are used belongs to the rhetor's art. Their existence belongs to nature. They are material for presentation in one form or another by the rhetor.(19)

Though rhetorical argument proper is the central part of the rhetor's work, Aristotle insists very much on the importance of those devices whereby a speaker can insinuate his own reliability and good will and a great deal of his treatise is concerned also with the means of making a satisfactory emotional appeal. The reasons for this are fairly obvious if we consider either the nature of rhetoric or the nature of rhetorical argument proper.

Rhetoric is the art of persuading any hearer, including even an uninstructed one concerning practical matters, that is concerning things that involve the appetite. This is true of

each of the main divisions of rhetoric. Speeches concerned with praise and blame involve standards of conduct not theoretically or remotely, but as they have governed some individual. The hearer who is asked to praise or blame some one must see the conduct of the other as somehow conforming to or deviating from his own standards of conduct or at least those he can be made to admire or despise for the time being. This is to say the rhetor must portray the action as desirable or undesirable, and the man he is praising or blaming as being either good or bad. The same is true in the case of trials of accused criminals, for the second species of rhetoric very closely resembles the first. The main difference is that in the second kind, the hearer, judge or jury, has to decide here and now about infliction of a punishment.

Likewise in deliberative speeches, those wherein someone speaks for or against a proposed course of action, we are essentially involved with things as determinants of choice. The rhetor must not only portray the course of action he advocates or the one to be followed because it is desirable, but he must also overcome fears, arouse courage, and otherwise enlist the passions of his hearers on his side, since this is essential to securing their adherence to his plan. People do not, on the whole make decisions contrary to their sympathies, or if they do, their adherence is only half hearted.

As Aristotle says, and as experience shows so clearly, men in general live by their senses. (20) They follow their sense impressions of what is good and evil. Only in the case of a

few is the apprehension of reason a sufficient guide. To follow reason steadfastly involves the possession of all the virtues and experience shows that this is a rare thing.

Even for the few who can and do follow their reason, there can be very little certainty about individual actions of men. We are so completely involved in contingency, our actions are opened to so many contradictions that it is very difficult to have any speculative certainty about them. (20a) This is most obvious in the case of future actions. Is a given course really expedient or will it bring disaster? This is something only God who sees all things in eternity can know. For Him all determined causes as well as contingency lies open, but for us there is little certain about the future. (21)

Even past actions are very imperfectly knowable to us. Praise or blame are given on essentially flimsy grounds except in the case of the Saints. Even here a general statement of praise runs far less risk of being beside the point than a judgment of a particular action.

Because then of the essential indetermination of the matter of rhetorical argument, individual actions of men, the rhetor has to appeal to the passions of his hearers. This isn't an argument at all. Besides this he must manifest himself as a reliable character. This is only indirectly an argument. Lastly, the arguments that he uses are in the main not of such a character as to be finally convincing. The rhetorical enthymeme is a mangled syllogism, (if we may so translate St. Thomas's Syllogismus detruncatus) in which the proper form is not present, and hence one that does not compel our assent even

if we grant the certainty of the premisses. The example is an extremely imperfect induction. Its main merit is that in presenting a particular example, the imagination is more surely aroused and hence the appetite is aroused. In its use of example, rhetoric is less intellectual than poetry. As we have seen the fictions of poetry have a certain superior universality over the facts of history.

All this emphasis on the uncertain nature of the object of rhetoric, the inconclusiveness of its arguments, the unintellectual character of appeals to the passions, plus the consequence of all this, namely that rhetoric can only beget an imperfect kind of assent, may lead one to conclude that rhetoric is a low art, one that merits contempt. Such a conclusion can only be justified if the whole of the practical order, the whole of politics is despicable. Rhetoric, is according to Aristotle, a kind of likeness of dialectics, a likeness begotten of the association between dialectics and politics. The offspring, rhetoric, has lost the essentially speculative character of dialectics, and stands forth as an instrument of the politician.

Politics obviously is involved in all the imperfection that belongs to the divided nature of men. It is the art of governing those who for the most part follow their senses and so fall into evil. Malum ut in pluribus in specie humana, (22a), is the sober judgment of Aristotle, accepted by St. Thomas. Despite this politics is not per se an evil thing. On the contrary it is the art of achieving as far as possible the common good. Government is the indespensable instrument for the establishing of those conditions wherein the life of virtue will be possible

at least for the few. Besides this, politics in the sense of sharing in the life of the state is the highest life open to the majority of men. The delights of the contemplative life are higher, but they are not for the majority. If we were to say that political life was, per se, low, we would condemn the great mass of men to a life that could in no way be good. Experience does not bear this out. The good of the city, the order and tranquility that come from law are precarious and imperfect. They are not non-existent.

It may also be objected against rhetoric that it is not only the apt instrument of the politician who aims at the common good, but that it is also ready to hand for any evil intentioned person who has the shrewdness and the unscrupulousness to use it. Aristotle answers this charge, by pointing out that not only rhetoric but all human things are capable of being perverted except virtue. From the fact that it can be misused we can argue to the imperfection of both man and rhetoric, but not to the essential badness of either.

In all, completely practical matters there is only one certainty possible to man, that namely, which comes from prudence. Speculative error is not only possible a out practical matters, but is often unavoidable as we have seen. The prudent man can have certainty about the rightness of his actions, since prudence does not depend upon the adequation of the judgment and things as the speculative reason does, but rather on the conformity between things and the rectified appetite. We may very well take poison for medecine and not be guilty of moral error. Indeed, if our intention was good and we make normally

prudent investigations beforehand, we are certain to have done morally well.

Rhetoric used by the prudent man is then a valuable instrument. It takes on a nobility that belongs to the high purposes for which it is used. It would be wrong to despise either it or politics. A sense of this dependence of rhetoric upon prudence for its right use is involved in Aristotle's injunction that the orator must succeed in getting his hearers to accept him as a good man. It is this use by a man with appetites rectified at least with respect to the matter in hand that justifies oftentimes the following of arguments not in themselves conclusive.

If it is wrong to despise rhetoric and with it politics, it is likewise wrong on the other hand to exalt either of them unduly. If man were the highest thing in the universe politics would be the highest of all ways of life and rhetoric would be the most important kind of human discourse. It is because there are higher objects than man that the purely speculative uses of the reason have a preponderant importance for the life of man. Those educational systems that exalt rhetoric and the arts, both fine and servile are based on the false notion of the supreme importance of man.

A discipline that has a close kinship with rhetoric is history. History not only offers the rhetor a great number of examples, but oftentimes historical writing itself tends to have a rhetorical character. This of course, is improper to history as such, since it has no concern, with anything except the accurate presentation of the facts. Nonetheless, few his-

torians have completely avoided value judgments and a selection of facts that seem to bear these out. This practice makes their work fall more or less completely, according to the degree this dependancy is pushed, into rhetorical arguments of the "praise and blame" type.

The mistaken attempts to coordinate the multiple facts of history and so to show the pattern that guides events over wide periods belongs neither to history nor to rhetoric but to poetry, where poetry has no proper place. A full discussion of these philosophies of history would take us too far afield here. (23)

A discussion of the relationship between rhetorica docens and rhetorica utens will be entered into the chapter on dialectics, since even though the problem of the relationships of these two aspects is similar in rhetoric and dialectic, many of the ideas involved are better explained in relationship to dialectics than in relationship to rhetoric.

# CHAPTER FIVE

## DIALECTICS

The object of the Topics, according to Aristotle, is to discover a method whereby we may argue from probable premisses about any question that arises and whereby we may avoid saying any thing improbable when defending our own position. More briefly we may say that dialectics is the art of arguing probably about any question where our interest is in knowing rather than in persuading someone that he ought to act in a given way. As we have seen this last function belongs to rhetoric.

Two other things that are traditionally said about dialectics are illuminating: dialectics is a form of logica inventiva (indeed the most eminent form), and dialectics is called logica utens. Both these appellations help to manifest the function of dialectics by helping us to discover the truth when we do not have an adequate enough knowledge of a subject to study it according to its proper principles. In lieu of proper principles, we use probable ones in order that we can, if possible, discover the truth or at least know what is like the truth: the probable.

It is according to the nature of its principles that the dialectical syllogism is defined. Just as the scientific syllogism is defined as one that proceeds through certain, necessary and primary principles, so the dialectical syllogism is one

that proceeds from probable principles. The probable is defined as that which is like the true. We possess the truth when we are able to compare one of our judgments with reality and find an adequation. The comparison may be based on immediate sense evidence, as when we say that it is a sunny day; or on the immediate evidence of the term, as when we say that the whole is not greater than the sum of its parts; or on a chain of reasoning, as when we say that God is eternal because he is immutable. However the reduction is made, truth consists in the adequation we are able to see between our judgment and reality. When we are not able to make a full reduction of our judgment to reality, but must rest in the statement that what we say seems to be true, we have the probable. It is defined as being like to the true, because it is based on what seems to be so, while truth is based on what is so.

Probability may be ascribed to a proposition for two reasons: either because of the objective indetermination of the subject in question with respect to a given predicate, or because our knowledge of the connection is based on a mere sign instead of a proper understanding of the nature which causes the property ascribed. St. Albert distinguishes these two forms of verisimilitude very clearly.

> "Probabilia autem (ex quibus fit syllogismus dialecticus) sunt verisimilia. Dupliciter autem verisililia: aut enim in se sunt verisimilia, eo quod ipsa habitudo praedicati ad subjectum verisimilis est, eo quod nec praedicatum est in subjecto per se, nec subjectum in praedicato per se, nec utrumque in utroque, nec praedicatum necessariam et essentialem inhaerentiam habet cum subjecto, set verisimile est in signis non in causis necessariis acceptum. Aut quia necessariam habet inhaerentiam, sed non accipitur nisi per signum: et hoc est probabile secundum modum

acceptionis, quamvis in se sit necessarium: sicut solem esse majorem terra (eo quod ubique unius quantitatis apparet) probabiliter acceptum est. Solem autem esse majorem terra per quantitatem diametri acceptum est necessarium et non probabile, secundum quod probabile et necessarium opponuntur." (1)

These two foundations of the probable resemble somewhat the distinction between propositions per se nota quoad se and propositions per se nota quoad nos. (2) Just as one concept, when adequately understood objectively involves another, so some things may be thought to be probable rather than certain merely because we possess an imperfect knowledge of their natures, a knowledge based on signs.

On the basis of the difference of signs St. Albert accounts for the various kinds of probable premisses assigned by Aristotle in the beginning of the Topics. Signs that are easy to see can be grasped by all. To these correspond the propositions accepted by all. Propositions based on less evident signs are grasped by the few. Those based on recondite signs are held only by the wise. Even among these last there are varying grades of awareness.

> "Probabile autem sic dictum verisimile est quod per suiipsius veritatis figuram videtur omnibus aut pluribus aut sapientibus, et his sapientibus videtur omnibus aut pluribus aut maxime notis et probabilibus: ita quod sapientibus et his vel omnibus sapientibus vel pluribus vel maxime notis vel probabilibus, totum pro uno membro ponatur.
>
> Signa vero verisimilitudinis, aut occurunt statim in superficie et in exterioribus rei quae accipit sensitiva potentia comparans sensata ad statim in superficie et in exterioribus rei quaeaccipit sensitive potentia comparans sensata ad invicem: et si talia sunt signa, probabile est quod videtur omnibus, sicut nivem esse albam per hoc quod nix est parvae partes perspicui in parva conjuncti, in cujus partibus undique lux diffunditur : hoc enim signum sensui est medium. Si autem signa indicium facientia de verisimilitudine sunt non in superficie, sed aliqualiter profundata, non ad necessaria, sed nec in superficie

extrinsecus manentia: tunc est id quod videtur pluribus: quia sensui aliquid miscent rationis, sicut quod stella in cauda minoris ursae sit polus, eo quod non deprehenditur ejus singularis motus: hoc enim rationis judicium sensui est permixtum. Si autem signum verisimilitudinis profundatur in essentialium et convertibilium causas quae sunt convertibilia sicut causae: tunc est quod videtur sapientibus, sicut est, quod luna moveatur in epicicolo: quia profundius et altius transit per umbram terrae: hoc enim non est causa sed signum.

Ideo illud quod videtur sapientibus gradus habet, quia aut videtur omnibus, aut pluribus, aut maxime notis vel probabilibus. Quia signum convertibile cum causa, vel apparet mixtum sensui, et tunc videtur omnibus: vel in ipsis substantialibus profundatur, et tunc non videtur nisi probatis et probabilibus sapientibus: vel medio modo est acceptum, et hoc dupliciter. Si enim plus est inclinatum ad sensum: tunc videtur pluribus sapientibus. Si autem plus est profundatum ad necessaria essentialia et intellectualia: tunc est quod videtur maxime notis, qui exppotestate scientiae et artis hoc deprehendere noverunt. Hoc igitur est probabile, ex quo fit syllogismus dialecticus, quod tali et taliter diversificato deprehenditur signo. (3)

As we said at the beginning of this chapter, dialectics, the art of reasoning from probable principles is also called logica utens. This requires considerable explanation, since the reason for this appellation is closely connected with the nature of dialectics itself. One of the most important texts to consider on this subject is found in St. Thomas's commentary on the Fourth book of the Metaphysics.

> Dialectici et sophistae induunt figuram eamdem philosopho, quasi similitudinem cum eo habentes: sed dialectici et sophistae disputant de praedictis: ergo et philosophi est ea considerare. Ad manifestationem autem primae ostendit quomodo dialectica et sophistica cum philosophia habeant similitudinem, et in quo differunt ab ea.
>
> Conveniunt autem in hoc, quod dialectici est considerare de omnibus. Hoc autem esse non posset, nisi consideraret omnia secundum quod in aliquo uno conveniunt: quia unius scientiae unum subjectum est, et unius artis una est materia, circa quam operatur. Cum igitur omnes res non conveniant nisi in ente, manifestum est quod dialecticae materia est ens, et ea quae sunt entis, de quibus etiam philosophus considerat.
>
> Differunt autem abinvicem. Philosophis quidem a dialectice secundum potestatem. Nam majoris virtutis est consideratio philosophi quam consideratio dialectici. Philosophus enim de praedictis communibus procedit

demonstrative. Et ideo ejus est habere scientiam de praedictis, et est cognoscitivus eorum per certitudinem. Nam certa cognitio sive scientia est effectus demonstrationis. Dialecticus autem circa omnia praedicta procedit ex probabilibus; unde non facit scientiam, sed quamdam opinionem. Et hoc ideo est, quia ens est duplex: ens scilicet rationis et ens naturae. Ens autem rationis dicitur proprie de illis intentionibus, quas ratio adinvenit in rebus consideratis; sicut intentio generis, speciei et similium, quae quidem non inveniuntur in rerum natura, sed considerationem rationis consequuntur. Et hujusmodi, scilicet ens rationis, est proprie subjectum logicae. Hujusmodi autem intentiones intelligibiles, entibus naturae aequiparantur, eo quod omnia entia naturae sub consideratione rationis cadunt. Et ideo subjectum logicae ad omnia se extendit, de quibus ens naturae praedicatur. Unde concludit quod subjectum logicae aequiparatur subjecto philosophiae, quod est ens naturae. Philosophus igitur exprincipiis ipsius procedit ad probandum ea quae sunt consideranda circa hujusmodi communia accidentia entis. Dialecticus autem procedit ad ea consideranda ex intentionibus rationis, quae sunt extranea a natura rerum. Et ideo dicitur, quod dialectica est tentativa, quia tentare proprium est ex principiis extraneis procedere.

Licet autem dicatur, quod Philosophia est scientia, non autem dialectica et sophistica, non tamen per hoc removetur quin dialectica et sophistica sint scientiae. Dialectica enim potest considera ri secundum quod est docens, et secundum quod est utens. Secundum quidem quod est docens, habet considerationem de istis intentionibus, instituens modum, quo per eas procedi possit ad conclusiones in singulis scientiis probabiliter ostendendas; et hoc demonstrative facit, et secundum hoc est scientia. Utens vero est secundum quod modo adjuncto utitur ad concludendum aliquid probabiliter in singulis scientiis; et sic recedit a modo scientiae. Et similiter dicendum est de sophistica; quia prout est docens tradit per necessarias et demonstrativas rationes modum arguendi apparenter. Secundum vero quod est utens, deficit a processu verae argumentationis.

Sed in parte logicae quae dicitur demonstrativa, solum doctrina pertinet ad logicam, usus vero ad philosophiam et ad alias particulares scientias quae sunt de rebus naturae. Et hoc ideo, quia usus demonstrativae consistit in utendo principiis rerum, de quibus fit demonstratio, quae ad scientias reales pertinet, non utendo intentionibus logicis. Et sic apparet, quod quaedam partes logicae habent ipsam scientiam et doctrinam et usum, sicut dialectiva tentativa et sophistica; quaedam autem doctrinam et non usum, sicut demonstrativa." (4)

After pointing out that there is a resemblance between

the dialectician and the metaphysician, St. Thomas points out that the ground of this resemblance is that they both treat of all things. Being is the material subject of both considerations. They differ in that metaphysics proceeds demonstratively and so causes certitude while the dialectician proceeds "ex probabilibus" and can therefore only engender opinion. This difference in proceddre is based on a fundamental division of being into a) ens naturae and b) ens rationis. These two are coextensive since all real beings fall under the consideration of reason and so can found second intentions. Thus, the philosopher proceeds according to principles attaching to real being and the dialectician uses principles belonging to the being of reason.

The difficulty here is to understand what is meant by the second intentions, the being of reason, that found dialectics. The dialectician does not use proper principles but rather common ones, yet his intention is to attempt to say something about real things. He does this by using an argument based on principles whose terms are second intentions. All sciences use logical argument, but the dialectician uses principles that are logical. The text of St. Thomas under consideration implies that the expression "procedere ex communibus, ex extraneis, and ex probabilibus" are interchangeable and that all of them are synonomous with the use of second intentions. As we proceed in our consideration we must attempt to explain why this is so.

Before proceeding it is important to note the difference between the use of second intentions in logic and their use in other considerations. Since logic has as its proper function to study second intentions, their use in logic is proper and not dialectical. The considerations in the Topics are as scientific as those in the Posterior Analytics; both proceed from proper principles and are part of logica docens. They differ though in this: there is no use of the principles of demonstration as such in other sciences or disciplines. These all proceed from their proper principles and only use the rules of demonstration as an extrinsic guide. The considerations in the Topics, though, apart from being part of the science of logic, are used to help discover what may be held probably with respect to other matters than logic. Hence it is that St. Thomas says that there is no logica demonstrativa utens but only docens. While dialectics has both a scientific aspect to be distinguished as dialectica docens and a use in investigating other matters called dialectica utens.

As a confirmation of what we have found in the important text from the commentary on the fourth Metaphysics, let us consider briefly another one taken from the commentary on the first book of the Posterior Analytics.

> "Sciendum tamen est quod alia ratione dialectica est de communibus et logica et philosophia prima. Philosophia enim prima est de communibus, quia eius consideratio est circa ipsas res communes. scilicet circa ens et partes et passiones entis. Et quia circa omnia quae in rebus sunt habet negotiari ratio, logica autem est de operationibus rationis; logica etiam erit de his,

> quae communia sunt omnibus, idest de intentionibus rationis quae ad omnes res se habent. Non autem ita, quod logica sit de ipsis rebus communibus, sicut de subiectis. Considerat enim logica, sicut subiecta, syllogismum, enunciationem, praedicatum, aut aliquid huiusmodi. Pars autem logicae, quae demonstrativa est, etsi circa communes intentiones versetur docendo, tamen usus demonstrativae scientiae non est in procedendo ex his communibus intentionibus ad aliquid ostendendum de rebus, quae sunt subiecta aliarum scientiarum. Sed hoc dialectica facit, quia ex communibus intentionibus procedit arguendo dialecticus ad ea quae sunt aliarum scientiarum, sive sint propria sive communia, maxime tamen ad communia. Sicut argumentatur quod odium est in concupiscibili, in qua est amor, ex hoc quod contraria sunt circa idem. Est ergo dialectica de communibus non solum quia pertractat intentiones communes rationis, quod est commune toti logicae, sed etiam quia circa communia rerum argumentatur. Quaecunque autem scientia argumentatur circa communia rerum, oportet quod augmentatur circa principia communia, quia veritas principiorum communium est manifesta ex cognitione terminorum communium, ut entis et non entis, totius et partis, et similium." (5)

The same doctrine as that expressed in the commentary on the Metaphysics finds its confirmation here. In the logic of demonstration we must distinguish the use, which belongs to each of the sciences and the doctrine which belongs to the science of logic properly. In dialectics the doctrine is scientific and belongs to logic; the use proceeds from second intentions to manifest something about the beings of nature. It is for this reason, the extraneousness of its principles, that dialectics engenders only opinion.

There is a third important text wherein the same view of the relationship between dialectica docens and dialectica utens is expressed. We will cite this too, not only because it is confirmatory of the other two texts cited, but because it raises a special problem about the use of common principles outside of logic.

"Respondeo dicendum ad primam quaestionem, quod processus aliquis quo proceditur in scientiis, dicitur tripliciter rationalis. Uno modo ex parte principiorum quibus procedit itur, ut cum aliquis procedit ad aliquid probandum ex operibus rationis, hujusmodi sunt genus, et species, et oppositum, et hujusmodi intentiones quas logici considerant: et sic dicitur aliquis processus rationalis, quando aliquis utitur in aliqua scientia propositionibus quae traduntur in logica, prout scilicet utimur in logica, prout est docens in aliis scientiis. Sed hic modus procedendi non potest competere proprie alicui particulari scientiae, in quibus peccatum accidit, nisi ex propriis procedatur: convenit autem haec proprie fieri in metaphysica et logica, eo quod utraque scientia communis est, et idem subjectum quodam modo habent. Alio modo dicitur processus rationalis ex termino in quo sistitur procedendo. Ultimus enim terminus, ad quem rationis inquisitio perducere debet, est intellectus principiorum, in quae resolvendo judicamus: quod quidem quando sit, non dicitur processus, vel probatio naturalis, sed demonstratio. Quando autem inquisitio rationis usque in ultimum terminum non perducit, sed sistitur in ipsa inquisitione, quando scilicet quaerenti adhuc manet via ad utrumlibet, et hoc contingit quando per probabiles rationes proceditur, quae natae sunt facere opinionem et fidem, non autem scientiam; et sic rationalis processus distinguitur contra demonstrativum. Et hoc modo procedi potest rationabiliter in qualibet scientia, ut ex probabilibus paretur via ad necessarias conclusiones: et hic est alius modus logicae, quo logica utitur in scientiis demonstrativis, non quidem ut est docens, sed ut utens: et his duobus modis denominatur processus rationalis a scientia nostra, his enim duobus utitur logica, quae rationalis dicitur scientia, in scientiis demonstrativis, ut dicit Commentatator I Physicor." (6)

In general the same doctrine is expressed. The use of logical principles in other sciences is improper and engenders only opinion. Logic enters into demonstration only in the sense that it directs the application of proper principles in each of the sciences. The difficulty is that St. Thomas says that the use of principles based on second intentions is proper not only in logic but also in Metaphysics. This seems to contradict the general principle that beings of reason cannot furnish proper principles except in logic. Let us see how this doctrine that their use is proper also the the metaphysician is applied in the

Metaphysics. First let us cite a passage from the commentary on the seventh book of the Metaphysics wherein the principle of the legitimacy of the use of logical principles is set forth.

> "Dicit ergo primo, quod de substantiis sensibilibus primo dicendum est, et ostendendum est in eis quod quid erat esse: ideo primum dicemus de eo quod est quod quid erat esse quaedam logice. Sicut enim supra dictum est, haec scientia habet quamdam affinitatem cum Logica propter utriusque communitatem. Et ideo modus logicus huic scientiae proprius est, et ab eo convenienter incipit. Magis autem logice dicit se de eo quod quid est dicturum, inquantum investigat quid sit quod quid erat esse ex modo praedicandi. Hoc enim ad logicum proprie pertinet." (7)

Next let us cite a concrete example of such a use taken from the commentary on the same book.

> "Et quia posset alicui videri, quod ex quo Philosophus ponit omnes modes, quibus dicitur substantia, quod hoc sufficeret ad sciendum quid est substantia; ideo subjungit dicens, quod nunc dictum est quid sit substantia "solum typo", idest dictum est solum in universali, quod substantia est illud, quod non dicitur de subjecto, sed de quo dicuntur alia; sed oportet non solum ita cognoscere substantiam et alias res, scilicet per definitionem universalem et logicam: hoc enim non est sufficiens ad cognoscendum naturam rei, quia hoc ipsum quod assignatur pro definitione tanguntur principia rei, ex quibus cognitio rei dependet; sed tangitur aliqua communis conditio rei per quam talis notificatio datur." (8)

Thus it would seem that the use of logical principles is proper to the metaphysician in the sense that since both logic and metaphysics have a subject with the same universality, the metaphysician may use logical principles to manifest his own subject. It is the metaphysician as metaphysician who uses dialectics but when he does so he is at least materially speaking as a dialectician. A somewhat parallel case is that of the theologian who speaks materially as a metaphysician when he

demonstrates the existence of God, but since he not only uses but also judges the principles he uses, he remains formally a theologian.

We must attempt to answer the difficulty proposed earlier about the nature of the second intentions that are used in probable argument. We must attempt to see how it is that whenever we proceed from probable principles we are really proceeding from second intentions. In order to do this we will consider a few passages from the commentaries of St. Thomas on various works of Aristotle. First let us consider a passage from the commentary on the third book of the Physics.

> "Postquam Philosophus removit opinionem antiquorum qui de infinito non naturaliter loquebantur, illud a sensibilibus separantes, hic ostendit non esse infinitum, sicut philosophi naturales ponebant. Et primo ostendit hoc per rationes logicas; secundo per rationes naturales, ibi: Physice autem magis etc. Dicuntur autem primae rationes logicae, non quia ex terminis logicis logice procedant, sed quia modo logico procedunt, scilicet ex communibus et probabilibus, quod est proprium syllogismi dialectici.
>
> Ponet ergo duas logicas rationes. In quarum prima ostenditur quod non sit aliquod corpus infinitum. Definitio enim corporis est, quod sit determinatum planitie, idest superficie, sicut definitio linese est quod eius termini sint puncta. Nullum autem corpus determinatum superficie, est infinitum: ergo nullum corpus est infinitum; neque sensibile, quod est corpus naturale, neque intelligibile, quod est corpus mathematicum. Quod ergo dicit rationabiliter, exponendum est logice: nam logica dicitur rationalis philosophia.
>
> Secunda ratio ostendit quod non sit infinitum multitudine. Omne enim numerabile contingit numerari, et per consequens numerando transiri; omnis autem numerus, et omne quod habet numerum, est numerabile; ergo omne huiusmodi contingit transiri. Si igitur aliquis numerus, sive separatus, sive in sensibilibus existens, sit infinitus, sequetur quod possibile sit transire infinitum; quod est impossibile.
>
> Attendendum est autem quod istae rationes sunt probabiles et procedentes ex iis quae communiter dicuntur. Non enim ex necessitate concludunt; quia qui poneret aliquod corpus esse/terminari superficie, nisi forte secundum potentiam; quamvis hoc sit probabile et famosum. Similiter qui diceret

infinitum, non concederet quod de ratione corporis esse

aliquam multitudinem esse infinitam, non diceret eam esse numerum, vel numerum habere. Addit enim numerus super multitudinem rationem mensurationis: est enim numerus multitudo mensurata per unum, ut dicitur in X Metaphys. Et propter hoc numerus ponitur species quantitatis discretae, non autem multitudo; sed est de transcendentibus." (9)

Here St. Thomas opposes ex terminis logicis to modo logico. They are not the same thing. There are logical principles that may not contain logical terms like genus and species. These logical principles are not proper to the subject under consideration and so they yield only probable conclusions.

Next let us consider a text from the commentary on the De Coelo.

"Postquam Philosophus ostendit universaliter non esse corpus infinitum rationibus physicis, idest quae sumuntur ex propriis scientiae naturalis, hic ostendit idem ra ionibus logicis, idest quae sumuntur ex aliquibus communioribus principiis, vel ex aliquibus probabilibus et non necessariis. Et hoc est quod dicit; est, idest contingit, conari ad propositum ostendendum rationabilius, idest magis per viam logicam, sic, idest secundum rationes sequentes. Unde alia littera planior est quae sic habet: magis autem logice est argumentari et sic. Primo autem ostendit propositum de corpore infinito consinuo; secundo de infinito non continuo, idi: Si autem non continuum, etc.

Circa primum duo facit. Primo ostendit quod corpus infinitum, similium partium existens, non potest moveri circulariter. Quod quidem probat per hoc, quod infiniti non est aliquod medium, sicut nec extremum: motus autem circularis est circa medium, ut supra habitum est: ergo etc.

Secundo ostendit tribus rationibus quod non est possibile quod tale corpus infinitum moveatur motu recto. Quarum prima talis est. Omne corpus quod movetur motu recto, potest moveri naturaliter et par violentiam. Quod autem movetur per violentiam, habet aliquem locum in quem movetur violenter; et omne quod movetur naturaliter, habet aliquem locum in quem movetur naturaliter. Locus autem omnis est aequalis locato. Sic ergo sequetur quod sint duo loca tanta quantum est corpus infinitum, in quorum unum movetur violenter, et in alium naturaliter. Hoc autem est impossibile, scilicet quod sint duo loca infinita, sicut et quod sint duo infinita corpora, ut supra habitum est.

> Relinquintur ergo quod nullum corpus naturale sit infinitum. Dicitur autem utraque ratio logica esse, quia procedit ex eo quod contingit corpori infinito inquantum est infinitum, sive sit mathematicum sive sit naturale, scilicet non habere medium, et non habere aliquid aequale extra se. Supra autem posuit aliqua similia, sed non tanquam principalia, sed tanquam assumpta ad manifestationem aliorum." (10)

St. Thomas distinguishes between proper principles, in this case physical ones, and those which are taken from something common or probable. In number 3 above he speaks of the principles as common because one of them takes a definition of body that is common to the notion of the mathematician and that of the natural philosopher. A little further along he says the third reason proceeds from induction, that is from a partial experience of the phenomena in question. Thus we have arguments that are logical because they proceed from principles that are not completely proved.

> "Tertiam rationem ponit ibi: Adhuc si ubi etc. Et dicit quod locus ad quem movetur aliquid praeter naturam, vel in quo quiescit praeter naturam, necesse est quod sit cuiusdam alterius secundum naturam, ad quem scilicet naturaliter moveatur, et in quo naturaliter quiescat. Et hoc credibile fit ex inductione: nam terra movetur sursum praeter naturam, ignis vero secundum naturam; et e converso ignis deorsum praeter naturam, terra vero secundum naturam. Videmus autem quaedam moveri deorsum et quaedam sursum. Si autem illa quae moventur sursum, moventur praeter naturam, oportebit dicere aliqua alia esse quae moventur sursum secundum naturam; et similiter, si ponatur quod ea quae moventur deorsum, moventur praeter naturam, necesse est ponere alia quae moventur deorsum secundum naturam. Unde neque omnia habent gravitatem, neque omnia levitatem, secundum positionem praedictam: sed haec quidem habent gravitatem quae naturaliter moventur deorsum; haec autem non, quae naturaliter moventur sursum. Ultimo autem epilogando concludit manifestum esse ex praedictis quod omnino non est corpus infinitum, scilicet infinitum continuum neque infinitum distinctum per interpositionem vacui. Dicuntur autem hae ultimae rationes logicae, quia procedunt ex quibusdam probabilibus nondum plene probatis." (11)

Here we have material for an investigation of probable principles that will lead to an understanding of our problem. We have seen that St. Thomas distinguishes between proceeding from logical terms and a logical mode. The logical mode includes any reasoning from common principles and from those that are insufficiently proved. Let us see how each of these last two kinds of principle are examples of the use of second intentions despite the fact that they do not seem to contain any logical terms like genus or species. Let us first examine the idea of community involved in the expression ex communibus, and then let us consider how second intentions lie concealed even in propositions that are insufficiently proved. It should be noted that sometimes the expression ex communibus is used to signify both principles that spring from terms that have a certain logical kind of community and principles that are insufficiently proved. We will treat first of the first of these two meanings.

Let us note some texts from the commentary on the Posterior Analytics where certain principles are referred to as common.

> "Postquam Philosophus ostendit quod si sit status in extremis, necesse est esse statum in mediis, et si sit status in affirmativis, nedesse est esse statum in negativis; hic intendit ostendere quod sit status in affirmativis in sursum et deorsum. Et dividitur in duas partes: in prima parte, ostendit propositum logice, idest per rationes communes omni syllogismo, quae accipiuntur secundum praedicata communiter sumpta; in secunda, ostendit idem analytice, idest per rationes proprias demonstrationi; quae accipiuntur secundum praedicata per se, quae sunt demonstrationi propria; ibi: Analytice autem manifestum etc. Prima autem pars dividitur in duas partes: in prima, ostendit quod non sit procedere in infinitum in praedicatis, quae praedicantur in eo quod quid; in secunda, ostendit quod non sit procedere in infinitum universaliter in praedicatis affirmativis; ibi: Universaliter autem sic dicimus etc.

> Dicit ergo primo, quod cum ostensum sit quod in privativis non est ire in infinitum, si stetur in affirmativis; hic iam manifestum erit quomodo aliqui speculantur in illis, idest in affirmativis, esse statum per logicas rationes. Et dicuntur hic logicae rationes, quae procedunt ex quibusdam communibus, quae pertinent ad considerationem logicae. Haec autem veritas manifesta est in his, quae praedicantur in eo quod quid est, idest in praedicatis, ex quibus quod quid est, idest definitio constituitur. Si enim huiusmodi praedicata dentur esse infinita sequitur et quod si definitur aliquid, eius definitionon possit esse nota. Et hoc ideo, quia infinkta non est pertransire. Non autem contingit definiri, neque definitionem cognosci, nisi descendendo perveniatur usque ad ultimum, et ascendendo perveniatur usque ad primum. Se ergo contingit aliquid definire, vel si contingit definitionem alicuius esse notam, ex utroque antecedenti sequitur hoc consequens, quod in praedictis praedicatis non sit procedere in infinitum, sed in eis contingat stare." (12)

Despite the fact that we are in logic, St. Thomas speaks of proving "logically" that is to say probably, and later he says the reasons are logical because they spring from common considerations which belong to the consideration of logic.

To these texts let us add two others from the same book in order to see what is meant a little more clearly.

> Quintam rationem ponit ibi: Amplius autem et sic, quae talis est. Quanto medium demonstrationis est propinquius primo principio tanto demonstratio est potior. Et hoc probat, quia si ille demonstratio, quae procedit ex principio immediato, est certior ea quae non procedit ex principio immediato, ex mediato, necesse est quod quanto alique demonstratio procedit ex medio propinquiori principio immediato, tanto sit potior. Sed universalis demonstratio procedit ex medio propinquiori principio, quod est propositio immediata. Et hoc manifestat in terminis. Si enim oporteat demonstrare A, quod est universalisimum, puta substantiam de homine, et accipiantur media B et C, puta animal et vivum, ita quod B sit superius quamC, sicut vivum quam animal; manifestum est quod B, quod est universalius, erit immediatum ipsi A, et per hoc magis cognoscetur quam per C, quod est minus universale. Unde relinquitur quod demonstratio universalis potior sit quam particularis. Addit autem quasdam praedictarum rationum logicas esse: quia scilicet procedunt ex communibus principiis, quae non sunt demonstrationi propria; sicut praecipue tertia et quarta, quae accipiunt pro medio id quod est commune omni

cognitioni. Aliae vero tres praedicterum rationum, scilicet prima, secunda et quinta, magis videntur esse analyticae, utpote procedentes ex propriis principiis demonstrationis." (13)

"Deinde cum dicit: Contingit quidem igitur etc., ostendit quo modis potest hoc variari. Est autem sciendum quod falsa conclusio non concluditur nisi falso syllogismo. Syllogismus autem potest esse falsus dupliciter. Uno modo, quia deficit in forma syllogistica. Et hic non est syllogismus, sed apparens. Alio modo, quia utitur falsis propositionibus. Et hic quidem est syllogismus propter syllogisticam formam, est autem falsus propter falsas propositiones assumptas. In disputatione ergo dialectica, quae fit circa probabilia, usus est utriusque falsi syllogismi, quia talis disputatio procedit ex communibus. Et ita in ea error attendi potest et circa materiam quam assumit, quae est communis, et etiam circa formam, quae est communis. Sed in disputatione demonstrative, quae est circa necessaria, non est usus, nisi illius syllogismi qui est falsus propter materiam; quia, ut dicitur in I Topicorum, paralogismus disciplinae, procedit ex propriis disciplinae, sed non ex veris. Unde, cum forma syllogistica sit inter communia computanda, paralogismus disciplinae, de quo nunc agitur, non peccat in forma, sed solum in materia, et circa propria, non circa communia.

Et ideo primo, ostendit quomodo huiusmodi syllogismus procedat ex duabus falsis; secundo, quomodo procedat ex altera falsa; ibi: Sed alteram contingit etc. Primum autem contingit dupliciter, quia falso propositio, aut est contraria verae, aut contradictoria. Primo ergo ostendit quomodo huiusmodi syllogismus procedat ex duabus falsis contrariis veris; secundo quomodo accipitur contradictio; ibi: Potest autem sic se habere etc." (14)

Here we are told that if we make an argument based on a consideration common to all forms of knowledge and apply it to demonstration, we have only a logical argument. This seems to meansthat the dialectical and the demonstrative syllogism share the notion of syllogism only analogously and therefore an argument based on what is common to them cannot apply properly to either one.

The dialectician uses terms which are common to many things but neglects what is proper to each. Thus his argument cannot be proper. Let us consider some passages wherein St. Thomas

speaks of this.

> "Consequenter cum dicit "differenter autem".
> Insistit circa definitiones. Quia enim ostendit, quod in difinitionibus passionum animae, aliquae sunt, in quibus ponitur materia et corpus, aliquae vero in quibus non ponitur materia, sed forma tantum, ostendit quod hujusmodi definitiones sunt insufficientes. Et circa hoc investigat differentiam, quae invenitur in istis definitionibus. Aliquando enim datur aliqua definitio, in qua nihil est ex parte corporis, secut quod ira est appetitus vindictae; aliquando assignatur aliqua definitio, in qua est aliquid ex parte corporis seu materiae, sicut quod ira est accensio sanguinis circa cor. Prima est dialectica. Secunda vero est physica, cum ponatur ibi aliquid exparte materiae; et ideo pertinet ad naturalem. Hic enim, scilicet physicus, assignat materiam, cum dicit, quod est accensio sanguinis circa cor. Alius vero, scilicet dialecticus, ponit speciem et rationem. Hoc enim, scilicet appetitus vindictae, est ratio irae.
> Quod autem definitio prima sit insufficiens, manifeste apparet, nam omnis forma, quae est in materia determinata, nisi in sua definitione ponatur materia, illa definitio est insufficiens: sed haec forma, scilicet "appetitus vindictae" est forma in materia determinata: unde cum non ponatur in ejus definitione materia, constat quod ipsa definitio est insufficiens. Et idec necesse est ad definitionem, quod in definitione ponatur hoc, scilicet forma, esse in materia hujusmodi, scilicet determinata." (15)

It is impossible to understand what a passion is, unless we include something that belong to matter, since the proper subject of a passion is a body. Thus the dialectical definition leaves aside something which is proper to the subject and considers only what is formal. Thus the definitionsof the dialectician are called formal and the definitions of the philosopher of nature are called natural because one excludes matter and the other includes it.

St. Thomas speaks of this most clearly when he is discussing the difference between logical and physical genera. There is, for instance, a passage from the commentary on the <u>De Trinitate of Boethius.</u>

"Respondeo. Ad evidentiam hujus quaestionis, et eorum quae in littera dicuntur, opertet videre quae sit causa hujus triplicis diversitatis quae in littera assignatur. Cum enim in individuo composito in genere substantiae non sint nisi tria, scilicet materia, forma, et compositum, oportet ex aliquo istorum cujuslibet harum diversatum causas invenire. Sciendum igitur, quod diversitas secundum genus reducitur in diversitatem materiae: diversitas vero secundum speciem in diversitatem formae, sed diversitas secundum numerum partim in diversitatem materiae, et partim in diversitatem accidentis. Cum autem genus sit principium cognoscendi, utpote prima definitionis pars,, materia autem secundum se sit ignota, non potest secundum se ex ea accipi diversitas generis, sed solum illo modo quo cognoscibilis est. Est autem cognoscibilis dupliciter. Uno modo per analogiam, sive per comparationem, ut dicitur in I Phisi. Hoc est ut dicamus hic esse materiam, vel quod materia hoc modo se habet ad res naturales, sicut signum ad lectum. Alio modo, cognoscitur per formam per quam habet esse actu. Unumquodque enim cognoscitur secundum quod est actu, non secundum quod est in potentia, ut dicitur IX Metaphys. et secundum hoc sumitur duplex diversitas generis ex materia. Uno modo ex diversa analogia ad formam, et sic penes materiam distinguuntur prima rerum genera. Id enim quod est in genere substantiae comparatur ad materiam sicut ad partem sui: quod vero est in genere quantitatis non habet materiam partem sui, sed comparatur ad ipsum sicut mensura, et qualitas sicut dispositio. Et his duobus generibus mediantibus omnia alia.genera consequuntur diversas comparationes ad materiam, quae est pars substantiae, ex qua substantia habet rationem subjecti, secundum quam ad accidentia comparatur. Alio modo, penes materiam sumitur generis diversitas, secundum quod materia est perfecta per formam. Et cum materia sit potentia pura, et Deus sit actus purus, nihil aliud est materiam perfici in actum, qui est forma, nisi quatenus participat aliquam similitudinem actus primi, licet imperfecte, ut scilicet id quod est jam compositum ex materia et forma, sit medium inter potentiam purem, et actum purum. Non autem materia ex omni parte aequaliter recipit similitudinem actus primi, sed a quibusdam imperfecte, a quibusdam vero perfectius, utpote quaedam participant divinam similitudinem, secundum quod tantum subsistunt, quaedam vero secundum quod intelligunt. Ipsa igitur similitudo primi actus in quacumque materia existens, est forma ejus. Sed forma talis in quibusdam facit esse tantum, in quibusdam esse et vivere, et sic de aliis in uno et eodem. Similitudo enim perfectior habet omne id quod habet similitudo minus perfecta et adhuc amplius. Aliquid igitur invenitur commune in utraque similitudine, quod in una substernitur imperfectioni, et in alia perfectioni, sicut materia substernitur actui et privationi, et ideo materia simul accepta cum hoc communi, est adhuc materialis respectu perfectionis, et imperfectionis

praedictae, et ex hoc materiali sumitur genus, differentia vero ex perfectione et imperfectione praedicta. Sicut ex hoc communi materiali, quod est habere vitam, sumitur hoc genus quod est animatum corpus: ex perfectione vero superaddita, haec differentia, sensibile; ex imperfectione, vero, haec differentia insensibile: et sic diversitas talium materialium inducit diversitatem generis, sicut animalis a planta. Et propter hoc dicitur materia esse principium diversitatis secundum genus, et eadem ratione forma est principium diversitatis secundum speciem, quia a praedictis formalibus quae habent addita materialia unde genera sumuntur, per comparationem formae ad materiam sumuntur differentiae quae constituunt species. Scientamen quod cum illud materiale, unde sumitur genus, habeat in se formam et materiam, logicus considerat genus solum ex parte ejus quod formale est, unde ejus definitiones dicuntur formales, sed naturalis considerat genus ex parte utriusque. Et ideo contingit quandoque quod aliquid communicat in genere secundum logicum, quod non communicat secundum naturalem. Contingit enim quandoque quod illud de similitudine primi actus quod consequitur res aliqua in materia tali, aliud consequitur sine materia, aliud in alia materia omnino diversa. Sicut patet quod lapis in materia quae est secundum potentiam ad esse, pertingit ad hoc quod subsistat, ad quod idem pertingit sol secundum materiam, quae est in potentia ad ubi, et non ad esse, et angelus omni materia carens. Unde logicus inveniens in his omnibus illud ex quo genus sumebat, ponit omnia haec in uno genere substantiae. Naturalis vero et metaphysicus qui considerant principia rerum, omnia non invenientes convenientia in materia, dicunt ea differre genere, secundum hoc quod dicitur Metaphys., quod corruptibile et incorruptibile differunt genere, et quod illa conveniunt genere, quorum est materia una et generatio ad invicem." (16)

The natural genus is matter in which all physical things share. The logical genus is something which the intellect discovers, something which follows not the natural mode of existence of things, but follows the mode which they have in the intellect which grasps them. Thus angel and stone can be included in the logical genus of substance although they are not in the same natural genus. Thus it becomes clear that arguments from common terms are logical even though they contain no logical terms. The community is not something found

as such in things, but rather it is something formed by the mind, something that attaches to our mode of apprehension. Thus it is that arguments, based on what is common, employ second intentions. (17)

Let us next investigate the question of premisses that are not sufficiently proved and see how second intentions are hidden there too. At first sight there would seem to be even less of second intentions involved here than in common terms. When I say that "all snow is white", for instance, I seem to be saying something that belongs completely to the natural order. There are no logical terms used and there is no community that lets fall what is natural to the subject. How then can I say that an argument that uses this as a principle springs from beings of reason? The answer is rather simple: the universality which I necessarily attach to this proposition in order to make a valid scientific argument springs not from the nature of the subject, but it is attached to our consideration of the subject. It is not something that I find completely in things, but it is something that I add to them in order that my argument may be valid. Since in my experience all snow is white I feel justified in saying that all snow is white simpliciter. It is this last addition that attaches to the proposition in virtue of my mode of understanding it and not to the thing as it is in itself. However it is precisely this added universality which gives formal validity to my argument and makes it improper and capable of engendering only opinion. This seems to be what St. Thomas had in mind when he referred to an universale ut nunc. (18)

Thus, it becomes evident that whenever principles do not derive completely from the subject about which we are reasoning, whenever there is something added by the mind, we have overtly or in a concealed fashion second intentions introduced into our reasoning. They are patently present in arguments that use logical terms in reasoning about real being. They are more or less concealed in propositions that employ common terms in the sense given above. They are most completely concealed in arguments that use insufficiently proved premisses. Yet, in all these cases they are present, and so we can say that dialectic is logica utens in the sense that it uses arguments that contain beings of reason of the kind that logic studies. When these beings of reason are studied for their own sake, we have logical science, whether of demonstration or of dialectics or even of sophistic. This is logica docens.

We must next investigate what is meant by the term "topics", since the Aristotelian treatise on probable reasoning bears that name and also because all the suggestions given in that treatise for discovering what is probable are given under the heading of topics. This will not only help us to understand probable reasoning a little better, but it will also make clear that characteristic of probable reasoning that makes it be called logica inventiva.

In the fourth book of the Physics Aristotle assigns a double character to place. He speaks of it as exterior to what is in place, and he speaks of it as measuring. (19) If we remember that topic comes from the Greek word for place, it

will appear that the two characteristics of place just mentioned have a remarkable application to topics as they are understood in logic. We have seen that second intentions are something founded on but exterior to first intentions, and further we have seen that second intentions are coextensive with beings of nature since all first intentions can found second intentions. (20)

To see how fully this topical character of dialectical argument reveals its essential nature we have only to repeat what we have said earlier about the derivation of all scientific arguments from the intrinsic principles of the subject in question. There is something in the nature of each thing that gives it a certain fundamental abstractability, that makes it suitable to be the object of one science or another. The same thing may be considered under many formal lights, but there is always something in the subject that makes it apt to be considered under the given formal light. Since whatever is attained in a science is attained through its principles, it is necessary that the formal light of that science should first be manifest in the principles. Hence it is that in science the mind finds its principles in the thing as manifest by the appropriate formal light.

> "Recte assignari pro ratione formali specificativa scientiarum diversam abstrahibilitatem objecti, et diversitatem medii; et utrumque recte componitur, ut late ostendimus in Logica (q.27, art. 1); concurrit enim diversa abstrahibilitas ad specificandum, quatenus redditur objectum diverso spirituale et intelligibile ex diversa immaterialitate seu abstrahibilitate materiae: et ita ex diversa hac abstractione sumit Div. Thomas diversitatem scientiarum (in prologo libri de Sensu et Sensato, et in opusculo LXX). Sed quia in scientiis objectum non attingitur nisi ut deductum ex aliquo medio, seu in virtute principiorum,