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A STUDY OF DEFINITION

A Dissertation

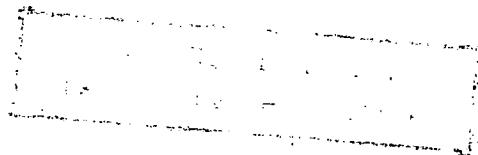
Submitted to the Faculty of Philosophy  
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by

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## PROPOSITIONES

1. Artes quae actiones et passiones humanas imitantur dependent quantum ad veritatem ipsius artificii a synderesi et scientia morali.
2. Moralis philosophia in tres partes dividitur: monastica, oeconomica, et politica.
3. Genus sumitur a materia.
4. In forma superiori continentur eminenter formaliter gradus inferiores vitae.
5. Definitio est terminus primae operationis intellectus.

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PART I  
THE ART OF DEFINING

## CHAPTER I

### THE NATURE OF THE ART OF DEFINING

#### The Necessity of an Art of Defining

In the introduction to his treatise on the predicables, St. Albert divides the subject of logic according to the intention or the end of logic as an instrument of knowledge.

→ Divisio autem logicae, et quae sunt partes ipsius, ut dicunt Avicenna et Alfarabius, accipienda sunt ex intentione ipsius. Sicut vero jam ante dictum est, logica intendit docere principia per quae per id quod notum est, devenire potest in cognitionem ignoti. Est autem incomplexum, de quo quaeritur quid sit: aut complexum, de quo quaeritur an verum vel falsum sit.<sup>1</sup>

St. Albert here considers logic as a modus sciendi common to all the sciences and as having a proper object specifying it as a science. As an instrument of knowledge, it looks to that which is to be manifested as to its end. The division of its subject will therefore follow on the diversity in the unknown object to be manifested. This object as considered sub dictione will be either something complex or incomplex.<sup>2</sup>

If the object is something incomplex it will give rise to the question quid est, "what is it." The adequate answer to this question will be a definition signifying the quiddity or essence of the unknown object. Thus one part of logic will teach us the principles by which we may come to know the definition and quiddity of anything.

Una quidem (pars) ut doceantur principia per quae sciatur diffinitio rei et quidditas: ita quod per principia illa doceatur quae sit vera rei diffinitio, et quae non, et quae videatur esse et non sit.<sup>3</sup>

If the object is something complex, we wish to know whether it is true or false. This can be known (sciri) only by argumentation; thus another part of logic will teach us the principles for proving an enunciation true or false. It will give us the rules for establishing the proof in syllogistic form according to the proper figure and mode as well as for determining its proper matter, and for detecting arguments which are such only in appearance. Therefore, just as the syllogism is an instrument in acquiring knowledge of something complex, so is the definition in acquiring knowledge of in-  
 complex beings. It is from this that St. Albert and Cajetan infer the need of an art of definition.

The importance of this art will be even more evident from the pivotal role which definition has in any branch of philosophy. As St. Thomas points out in his commentary on the Posterior Analytics, definitions are assumed as the middle term in demonstration.<sup>4</sup> In propter quid demonstration the middle term is the real definition of the subject; in a posteriori demonstration, it is the nominal definition of that whose existence is to be proved. Likewise in the Metaphysics in order to argue against those who propose a mean between contradictories, we must start from definitions of the true, the false, or other words.<sup>5</sup> In the seventh book he will use the logic of definition to study substance. The first difficulty in the De Anima in knowing the substance of the soul

involves a difficulty quantum ad modum definiendi ipsam, i.e., in what way do we proceed to the definition, by demonstration, division or composition, and from what do we take the principles of the soul.<sup>6</sup> Boethius notes that any argument or discussion must begin from a definition of the point in question.<sup>7</sup>

If we turn now to the practical sciences, it would seem that the art of defining is relatively less necessary for them than for the purely speculative sciences. The art of defining would thus be less necessary for the study of ethics in view of the contingency of its matter. In support of this we find that in the Ethics descriptive definitions and incomplete divisions ordinarily suffice for the end of the science which is a practical one. Since there is not a properly scientific formal abstraction, it is not necessary to spend a long time searching for strict scientific definitions and divisions.

#### The Position of Such a Treatise Among the

#### Logical Works of Aristotle

Aristotle says in several places that the lack of such an art was the cause of error among the ancients. He remarks also that Socrates was the first to raise the problem of universal definition. Socrates started to look for definitions in the study of ethical matters.



It was natural that Socrates should be seeking the essence, for he was seeking to syllogize, and 'what a thing is' is the starting point of syllogisms; . . . two things may be fairly ascribed to Socrates--induction and universal definition, both of which are concerned with the starting point of science.<sup>8</sup> (p. 21) *Tricot*

Plato accepted the notion of definition from Socrates; but finding nothing in corruptible nature that appeared to be capable of definition, he proposed the existence of separate Ideas as the object of definition.

Many such statements lead us to think that Aristotle would have written a treatise on definition, but we do not know whether he actually did write one. We have the word of Avicenna and Alfarabius that no such work came down to the Arabs. A treatise on the art of defining is not found in any of the extant works of Aristotle. St. Albert rejects unequivocally the suggestion that the ars diffiniendi is found in the Topics or the Metaphysics.

Quod autem quidem dicunt hanc tradidisse Aristotelem in sexto Topicorum, frivolum est: ibi enim partem diffiniendi non tradidit, sed docet terminare problema illud quo quaeritur quid insit ut diffinitio. Adhuc autem quidam alii dicunt haec pertinere ad metaphysicam, et Aristotelem hanc tradidisse in septimo et octavo primae philosophiae; sed hoc absurdum est. Aristoteles enim ibi docet quae sint diffinitio tam substantiam quam accidens, et quae sit diffinitio physica, et qualiter diffinitio est unum et non multa, et talia hujusmodi. / Sed qualiter diffiniendo respondetur ad quaestionem qua quaeritur quid est res per essentiam et quidditatem, non docet: / quia hoc ad logicam pertinet, et non ad primam philosophiam. Patet igitur, quod haec pars nondum ad nos pervenit.<sup>9</sup>

The treatment in the Posterior Analytics is of the definition specifically in relation to demonstration: can the quiddity

which is signified by the definition be demonstrated; is the definition the mean in demonstration and if so, how do we attain the knowledge of it?

To determine exactly the position of a treatise on the art of defining among the other logical works, we must first establish that the definition is properly the terminus of simple apprehension, the first operation of the mind. Simple apprehension should be considered as ordained to definition as to its most evolved and perfect product. St. Thomas speaks of the first operation of the mind as the formatio quidditatis. He gives us a striking argument to show that the knowledge of the species is the perfection of this operation. The perfection of intelligible being must be proportionate to that of nature. Just as the species, and not the individual, is that ultimate which nature intends, since it is the species that pertains to the perfection of nature; so in intelligible being it is the knowledge of the species, not of the individual, which pertains to intelligible perfection.<sup>10</sup>

The object, then, of the first operation of the mind is the essence or quiddity of material things, and in the definition that object is perfectly expressed. Thus we look to it as the perfection of the first operation. We know anything more perfectly according as we know more perfectly the differences which set it off from other things. To determine the

proper being of anything, we first place it in a genus which establishes its quiddity in common. To this are added differences which will best distinguish it from other things according as they manifest more perfectly the essential principles themselves of the object to be defined.<sup>11</sup> Such a definition is obviously not arrived at by any immediate intuition but only as the terminus of the first operation; it presupposes an ordering of the objects in categories with their subdivisions so that the object may be adequately defined and the whole essence manifested. From this we can argue that the art of definition will be the terminus of the first operation, preceded by the other treatises which concern themselves with the ordering of the objects as presupposed to the actual definition.

We have the order of these treatises in a concise passage taken from St. Albert:

Incomplexum autem sciri non potest nisi diffinitione. Et complexum sciri non potest nisi syllogismo et demonstratione. Sicut ad diffinitionem habendam necessarium fuit praemittere diffinibilem et diffinientium inventionem et acceptionem; ad quod necessarium fuit ponere ea secundum quorum rationem praedicabilia reducuntur ad ordinem, et secundo fuit necessarium ponere qualiter ipsa praedicabilia ordinata sunt, et tertio qualiter ex divisione colligitur cujuslibet incomplexi diffinitio.<sup>12</sup>

. . . ratio non colligit nisi quae anteposuit, nec componit nisi quae ante ordinavit secundum comparabilium rationem. Propter quod ratio qua fit ordinatio primum in Porphyrio tradita est. Ordinatio autem prout est in ordinatis, traditur in scientia libri Praedicamentorum, et in scientia sex principiorum, et in scientia divisionum.<sup>13</sup>

From these passages we see that the predicables in the Isagoge of Porphyry must first be studied. A <sup>COMPLETE</sup> thorough consideration of them is necessary for the categories as well as for the arts of division, definition, and demonstration. They are the ratio according to which the objects are ordered, a ratio taken ex ipsa forma ordinabilium--ex universali et particulari.<sup>14</sup>

2) The Categories, which order the objects themselves, are likewise presupposed to an art of defining. They are a great help in determining the definition of anything. If we know the properties of a thing, we can then easily find the first genus without an endless search.

3) After studying the order of objects in the above two treatises, we come next to the art of division--et quoad modum educendi unum de alio, inventa est scientia divisionum.<sup>15</sup> It would give us the rules for adequate essential division of a superior into its immediate inferiors. These three parts appear to be a kind of beginning of the art of defining. They are all necessary for the definer and find their application in his art. The treatment of definition properly speaking, however, would seem to follow on them rather than being included in them. Exactly what such a treatise should include is again more difficult to determine.

We cannot agree with Cajetan in including the study of the predicables withing the scope of such a treatise. The

consideration of genus and difference in the ars diffiniendi would only be a particular application of the more general treatment in the Isagoge which must precede the Categories.

The mere quid nominis of the predicables is not sufficient for the study of the categories.<sup>16</sup> John of St. Thomas also indicates that since the definition is not a simple term it must be excluded simpliciter from the notion of a predicable.<sup>17</sup>

The definition is an oratio; it is an ensemble of signs. It cannot, however, properly be reduced to the second predicable, species. Nor is the definition as such included in the categories for then a thing would be in the categories twice: by reason of its species which is placed per se in the category, and then by reason of its definition.<sup>18</sup>

The following are two statements of what in general should be included in a treatise on definition:

. . . logicus docens quaerere scientiam incomplexi, docet instrumentum quo accipiatur notitia illius secundum diffinitionem, et ea quae ad diffinitionem faciunt, et quae diffinitionem circumstant, et quae diffinitionem perficiunt, et ea quae diffinitionem mutant.<sup>19</sup>

Esset autem illius artis determinare quid sit diffinitio et ex quibus constat, et qualibus, et de passionibus ejus, et partibus subiectivis, sicut de demonstratione tractatur in libro Posteriorum.<sup>20</sup>

If we consider some of the older treatises on definition we find that they limit themselves to certain aspects of definition. Boethius in his Liber de Diffinitione considers the definition of definition, the various kinds of definition, and

certain rules for good definition together with errors to be avoided.<sup>21</sup> Avicenna introduces a collection of definitions with a brief study of definition as such. We find here clearly stated most of the scholastic distinctions regarding definition--the real definition as opposed to the description, incomplete definition, definition by causes, errors to be avoided.<sup>22</sup> St. Albert treats much the same questions in a chapter on definition.<sup>23</sup>

The considerations appear to be limited to definition properly as a second intention, and as term of the first operation of the mind. The other parts of the first operation are treated separately as presupposed to this art.

Another problem is to determine whether a treatise on definition should fall under material logic or under formal logic, or whether part would fall under one and part under the other. Would it be possible to apply here the distinction which we use in determining the same in the case of argumentation, another form of modus sciendi? Any considerations of the very form of the argument--which as such is either good or bad--would be part of formal logic, whereas those concerning its truth or falsity would pertain to material logic. Can we have a formal logic of definition in which we would give a general definition of definition or general rules for good definition? When we understand genus and difference in the strict sense we are already in material logic. Considerations of that which

can be defined and of the different kinds of definition appear to be based on the objective concept and would therefore be material logic. The far greater part, therefore, of the treatment of definition seems to fall under material logic.

We shall look briefly at a few of the points which appear to be contained properly in an art of defining--the definition of definition, rules for good definition, and the several kinds of definition. We shall not, however, limit our study to these questions but shall continue beyond them to consider some of the texts bearing on definition in the Posterior Analytics and the Metaphysics. This will help to throw light on the nature of definition not only as a term of the second intention but also in the order of first intentions. Our purpose will be to consider first of all in the latter part of this first section some of the general logical aspects of definition. On this will follow a consideration of definition in relation to demonstration in the Posterior Analytics. The commentaries of St. Thomas, St. Albert, Cajetan and John of St. Thomas will be our principal guide. The study will conclude with a third section devoted to the definition in the Metaphysics--principally the problems arising in the seventh and eighth books.

## CHAPTER II

### THE NATURE OF DEFINITION

#### The Definition of Definition

Before actually defining the definition, it would be well to note that the definition is designated by several names in the works of Aristotle. He refers both to definition and to syllogism as ratio.

... dicitur enim apud illum tam syllogismus quam diffinitio, ratio, eo quod ratio primo modo dicta est virtus cadendi supra occultum: haec autem virtus discurrit in cognitionem occulti supra aliud notum: per quod venit in notitiam ignoti.<sup>24</sup>

thinking  
to connect  
these

Ratio can also mean merely the signification of any name, and this in those things which have a definition will be the definition of the thing. Thus Aristotle will say that the ratio signified by the name is the definition.

It is also called terminus as the term and perfection of knowledge, or as that which delimits the essence, explaining the whole nature, neither more nor less.<sup>25</sup> The definition as quod quid est and quod quid erat esse are distinguished in the following way by Robert Lincoln:

Vocatur etiam hoc appellatione quod quid est: eo quod explicat de quovis quid ipsum sit. Diffinitio aut (em) formalis dicitur ostendere quod quid erat esse: eo quod forma est vere essentia ipsius rei et dat esse proprie. Materia autem dat proprie potentia essendi: sicut supra plenius expressum est.<sup>26</sup>

When we define the definition we must define it as a second intention, a logical relation. Most authors agree that



the definition is an oratio and that it signifies what a thing is. Aristotle states it thus in the Topics: Est autem definitio oratio, quae significat quid res sit.<sup>27</sup> Boethius gives us another definition substantially the same: oratio quae id quod definit explicat quid sit.<sup>28</sup> It answers the question quid sit, not the questions an sit, or quale sit. The objections to this definition raise several problems which it will be interesting to note.

Some authors object to the use of oratio as the genus in the definition given above. An oratio, they say, is not found without a verb, and is not, therefore, found outside the second operation of the mind. The definition, on the other hand, falls under the first operation. This follows from the fact that a definition can be used as predicate in a categorical proposition, a function proper to a term. St. Thomas likewise insists that definition pertains to the first operation of the mind, while assigning the oratio in the strict sense to the second operation.<sup>29</sup> We do not find in the union of the parts of the definition the composition required for the second operation of the mind. Even the use of several species to form one concept does not necessarily imply the formal comparison or separation which constitute composition and division in the strict sense.<sup>30</sup>

The objection, however, ceases if we recall that the term oratio may be taken in a sense common to both the oratio perfecta and the oratio imperfecta. The latter of these

coincides materially with the complex term. Definition, considered as a certain whole, can be called an oratio although only an imperfect one. There is no more than an inchoatio compositionis. We find a further reason for defining definition as an oratio in the fact that definition is one kind of modus sciendi; and in defining modus sciendi we must use oratio as the matter from which it is formed. That the modus sciendi be a perfect oratio or an imperfect one, or in the manner of a complex term or an oratio, is purely material in relation to that which is formal in it--to be an artefactum logicum manifesting something unknown.

Dicitur tamen communiter 'oratio' quia cum modus sciendi inveniatur tum in oratione perfecta quam imperfecta, et quando invenitur in oratione imperfecta, materialiter solum sit terminus complexus, ut unico vocabulo definiretur, dicitur esse 'oratio.' <sup>31</sup>

Hence the definition by oratio. John of St. Thomas concludes his explanation of this point with a brief summary:

Definitur tamen per orationem, quae pertinet ad secundam operationem intellectus, tum quia in vi orationis etiam teneri potest, si accipiatur per modum totius, tum quia modus sciendi est et modus sciendi communiter per orationem definitur, licet quando est oratio imperfecta, coincadat materialiter cum termino complexo. <sup>32</sup>

By this and other arguments we approach an answer to the difficulty created by defining definition, which pertains to the first operation of the mind, by oratio which pertains "strictly speaking" to the second operation. St. Thomas clearly assigns definition to the first operation because its object

is something simple and not something composite--the quiddity of a thing. Oratio enters its definition only as the oratio imperfecta.

Although definition is defined as an oratio, it cannot be defined as an oratio enuntiativa. This is contrary to the opinion of those who maintain that we cannot have a definition outside a proposition. It is clear, however, that it is in no way necessary that a verb be included in a definition or that a definition be an oratio enuntiativa. To include a verb, either the parts of the definition would have to be joined by the verb--which is clearly false since the parts are related as genus and difference, not as subject and verb; or the parts would have to be applied to the subject defined. This application to the subject, however, presupposes the definition already constituted, a definition which of itself adequately explains the object defined. The application pertains to the actual exercise of predication with reference to the object defined, and does not constitute the definition as such. The definition can be called a definition in act even outside a proposition. It has an actual intrinsic order to the thing defined, although it is not predicated in act of it. John of St. Thomas gives us the reason very succinctly:

. . . definitio etiam extra propositionem actu respicit definitum, non sub ratione subiecti vel praedicati, sed sub praecisa ratione definiti. Ut enim actu respiciat sub ratione definiti, non requiritur, nisi quod respicit illud

ut objectum et materiam definitionis, sicut nomen respiciat suum signatum, etiamsi actu non significet illud. Aliud est enim representari actu, aliud respicere actu signatum tamquam objectum signi.<sup>33</sup>

In his commentary on the Perihermeneias, St. Thomas says explicitly that the definition is not an oratio enuntiativa unless a verb is added to it.<sup>34</sup> In the commentary on the Posterior Analytics he notes that in a definition nothing is predicated of anything else.<sup>35</sup> On the other hand he makes frequent references to the definition as virtually a proposition because once the definition is known, it is apparent that it is to be predicated of its subject.<sup>36</sup> The same point is indicated by the texts which state that in definition there is no composition and no judgment such as is found in knowledge of the true and the false.<sup>37</sup>

We should point out in this connection that a definition can be called true or false only per accidens. Of itself a definition is good or bad. Truth and falsity are found per se in the composition of the intellect, per accidens in the operation by which it knows a quiddity in so far as a certain composition of the intellect intervenes. A definition may be false in two ways: in one way according as the intellect attributes the definition of one thing to something else, as if it attributes the definition of a circle to a triangle; in another way, if it joins together parts in a definition which cannot thus be associated, so that it becomes a definition of

nothing. Such a definition is not only false in respect to a given thing, but also in itself, e.g., animal insensibile, or animal quadrupes volatile, when no animal of that kind exists. A definition is true or false, then, only by reason of an order to affirmation and negation. The parts of a definition should be so joined that they may be predicated both together and separately of the object defined. The definition participates in the truth or falsity of this predication as implying an order and relation to it.<sup>38</sup>

Approaching the question from another point of view, we may say that the intellect is not deceived per se loquendo in regard to its proper object which is the quiddity of a thing. The intellect can, however, be deceived per accidens in regard to the quiddity of composed things. This deception will occur not on the part of an organ, since the intellect is not a power using an organ; but on the part of the composition which intervenes in definition, as noted above. Such a deception can occur only in regard to composed essences, not in regard to simple essences, as St. Thomas explains:

*Et hoc quidem accidit in compositis, quorum definitio ex diversis sumitur, quorum unum est materiale ad aliud. Sed intelligendo quidditates simplices non est falsitas, quia vel totaliter non attinguntur, et nihil intelligimus de eis; vel cognoscuntur ut sunt.*<sup>39</sup>

The quiddity of the separate substance implies no composition ex pluribus about which the intellect could form a false composition or division.

### The Requirements for Good Definition

All admit that a definition can be called good or bad. This is common to every modus sciendi and consists in the manifesting of that which is unknown by an adequate and fitting explanation. If the explanation is a fitting one, it is designated good; if not, it is designated bad. Certain general rules are given by the later scholastic authors for good definition which would apply in common to all definitions:

→ a) A definition should be made through genus and difference, taking these terms in a broad sense. They will be found properly in the essential definition. In nominal definitions we will have something common as genus, and something distinctive of the particular in place of the specific difference. In general, then, every good definition in explaining a nature should do so by something common to it and to others. In this way it will embrace the whole nature. The parts of the definition must follow in a definite order so that they are related as potency and act.

→ b) Another rule is that the definition should signify more clearly than that which is defined since it manifests it. Therefore, the defined should not enter into the definition. The definition must also be composed of parts which are prior and more known than that which is defined.

→ c) The definition should not contain more nor less than the thing defined; otherwise it will not express the nature

defined. From these rules we can see why the definition is called terminus, as signifying the whole thing and terminating it. St. Thomas states the reason in commenting on the Perihermeneias.

Ideo dicitur terminus, quia includit totaliter rem; ita scilicet, quod nihil rei est extra definitionem, cui scilicet definitio non conveniat, nec aliquid aliud est infra definitionem, cui scilicet definitio conveniat.<sup>40</sup>

The rules concerning errors to be avoided in defining will simply warn against any departure from the requirements for good definition.

Beyond the general rules for good definition, we find also the rules for perfect definition. Such definition must manifest the nature so that the proper accidents may be demonstrated through it of the subject. Through it we should be able to resolve all objections and to see the reason for the errors which others have made.<sup>41</sup> Such also are the rules which we find given for the essential definition. The requirements for definition as found in the works of St. Thomas and St. Albert are ordinarily given in terms of the essential or substantial definition. In the same way the limits of definition (cf. the following paragraph) are given by them for the definition quid rei, that which is definition simpliciter. The question still stands whether we can make the distinction in a treatise on the art of defining of a material and a formal logic of definition whereby we can give, for example, a



of general rules for defining. If such a distinction can be made, the question of definition as an analogical term (chapter three) will arise only in the material logic of definition.

### The Limits of Definition

We may mention here several general conditions required in order that something be capable of definition. In the first place it must be one per se, one essence that is to be defined. All equivocation and confusion of plurality must be removed. That which is defined must also be a universal. Only the quiddity or nature is defined, not the singular. St. Thomas explains that definitions, since they are the principles or conclusions of demonstrations, must, like demonstration, be only of sempiternal things, not of corruptible ones. Definition can be of corruptible things only per accidens inasmuch as in universali these corruptible particular things have a certain sempiternity. Another condition of strict definition is that the thing defined be a species contained under a genus. If a genus is defined, it is defined not as genus but as a species, so that the ultimate genera cannot be defined. Differentiae are as such ultimate and simple, having no superior predicates in a direct line by which they can be defined. A difference as such enters only indirectly into the line of categories.<sup>42</sup>



### CHAPTER III

#### THE DIFFERENT KINDS OF DEFINITION

##### Definition 'quid rei' and Definition 'quid nominis'

The notion of definition appears to be an analogical notion with the definition quid rei as the primary analogue. All other kinds of definition would participate in the notion less perfectly; and in the study of any nature they would be ordered ultimately to the perfect realization of the notion in the definition quid rei. We find this idea reflected by Boethius in limiting the true definition to the substantial definition.

Docēbimus nullam esse diffinitionem certam, integram, approbandam nisi eam quam dicunt philosophi substantialem. . . . Ergo haec substantialis diffinitio a M. Tullio sic explicatur. Oportere nos posito genere ejus rei de qua quaeritur, subjungere species, ut alia quae vicina esse possint discretis communioribus separemus, et tandiu interponamus differentias, quandiu ad proprium ejus de quo quaeritur signata ejus expressione veniamus.<sup>43</sup> p 56

He distinguishes very carefully the substantial definition from the definitions which are used more properly by the rhetor than by the philosopher. This is followed by a list of fourteen kinds of definition which express only the notio rei, not a substantial explanation. They include definition by properties, description, definition by analogy, by a difference, etc. Avicenna designates the essential definition by a special word "hadd" which he applies in an improper sense to other kinds of definition.<sup>44</sup> p 110

When St. Albert gives the five principles or rules for good definition together with the corresponding defects, he

states them explicitly for substantial definition. They are far more specific than the general rules which we gave in the preceding section. The defects are given in terms of a departure from strict substantial definition. Definitions, he notes, which are made by stating the material and formal cause, or the efficient cause cannot be called proper definitions unless they can be reduced to definitions by genus and essential differences. Otherwise they are only qualescumque notificationes. Thus a definition by the matter must take the matter not apart from the form but as it is in first potency to being:

Secundum quod in ipsa est jam forma essentialis inchoata, et in qua potestate formali sunt inchoatae constituentes et dividentes differentiae.<sup>45</sup> p. 186

If we say that man is composed of body and a rational soul, we must take body as corpus animatum sensibile from whose potency the rational principle is produced. In this way we can reduce it to a definition by genus and difference; corpus animatum sensibile is animal, and animatum anima rationali is rational. The same principle holds for definition by efficient cause. Such a cause must be taken not simply as efficient but as a univocal agent in the following way:

Tunc enim agens non sumitur ut efficiens tantum, sed ut agens secundum formam et univoce. Univoce autem agens, dat formam secundum quod de potentia formali exit ad actum.<sup>46</sup>

This position appears more reasonable than that of John of St. Thomas who in his Summulae lists without any distinction such definitions by causes simply as species of the definition quid rei.<sup>47</sup> St. Albert concludes by pointing out that any other explanation made by accidents can only be called a description of the nature, not a definition. This description should be made by proper accidents, and not by common accidents.

When Aristotle and St. Thomas define definition it is ordinarily the definitio quid rei to which they have reference. Definition simpliciter and most properly for them appears to mean the essential definition. They distinguish it carefully from the ratio exponens significationem alicuius nominis.<sup>48</sup> We have here another indication that definition is analogical and that it applies per prius to the essential definition.

The definition of an analogical term will apply perfectly only to that in which it is found per prius. Thus the definition of definition must be given primarily of that which is definition per prius--the definition quid rei. Definition does not appear to be univocal to definition quid rei and quid nominis as the definition given by John of St. Thomas seems to imply--ratio naturam rei aut termini significationem exponens. The first definition should be that of the primary analogue.<sup>49</sup>

The definition quid rei is opposed to nominal definition, the definitio quid nominis. The distinction between the two

has perhaps most clearly been expressed by Cajetan. The two kinds of definition are opposed as the quiddity of the word is opposed to the quiddity of the thing. Cajetan gives us this explanation in his commentary on the Posterior Analytics:

Nominis autem cum ad aliquid sit et essentialiter alterius signum tum praecognoscitur quidditas, quando eius significatio innotescit. Rei autem quidditas, non nisi per essentialia omnia patefit. Unde et proprium interrogativum quid nominis est quid significat: proprium vero interrogativum quid rei, est quid est.<sup>50</sup>

To know the quid nominis is to know what is signified by the word. Such a knowledge can be acquired by proper or common accidents of the thing signified, by communia, by extranea, by logical intentions, by signs, or also by essential principles.

To know the quid rei is to know the quiddity of that which is signified--what it is. The question quid est can be answered only by predicating adequately what pertains in the first mode of per se predication to the nature signified. This must be an essential definition; and since only beings have an essence, a definition quid rei can be given only of beings. Nominal definition can be given of non-beings as well as of beings since all that is involved is the signification of the word. We cannot formally know the quid rei of a thing unless we first know that it is. [We can give such a definition only of real beings.] No nature has the ratio entis unless it be always, or frequently or rarely, imperfectly or perfectly, or for some time. Thus if we do not know that a thing is, we may give a

definition of it by proper essential principles which will coincide materially with the definition quid rei, but will be formally only a nominal definition.

A definition quid rei can be given only of entia incomplexa and must explain the thing from first potency to ultimate act. Even complex beings may have a nominal definition, but this applies to them not as complex but in so far as they can be brought under some form of incomplexity. Provided that some name can be given to a complex whole, as for example Iliad to the history of Troy, any oratio explaining that name would be a definition.

We find the essential difference between the two kinds of definition in this that the quid nominis is the relatio nominis ad signatum, whereas the quid rei is the essentia rei relatae seu significatae. All definitions which are not essential definitions are only nominal definitions. Descriptive definitions are one kind of nominal definition and not a species of definition quid rei as John of St. Thomas would have it.<sup>51</sup> The nominal definition is not limited to definitions which approach an etymology of a word. Cajetan's explanation is in complete harmony with the principal texts on this subject in Aristotle and St. Thomas.<sup>52</sup>

Another aspect of definition as an analogous notion is found in the way definition is applied per prius et posterius

to the definition of substance and of accident. The complete definition of an accident could likewise be called a definition quid rei, but only per posterius, in the same way as essence is said per prius of substance and per posterius of accident, as is explained in the Metaphysics.<sup>53</sup>

The Distinction of the Real, the Logical, and  
the Complete Definition

In distinguishing the real definition from the dialectical or logical definition we may follow the principle enunciated by St. Thomas in his commentary on the De Anima:

Si quis ergo assignet definitionem, per quam non deveniatur in cognitionem accidentium rei definitae, illa definitio non est realis, sed remota et dialectica. Sed illa definitio per quam devenitur in cognitionem accidentium, est realis, et ex propriis, et essentialibus rei.<sup>54</sup>

To determine exactly what is a real definition in each of the sciences, we must ask ourselves what it is that answers the question quid sit with reference to the particular genus subjectum. The Philosophus, who is interested in the existence of things, will answer with the quod quid est which for him means the intrinsic causes of a being, matter and form. The Logicus, accepting the term, cause, in its common sense, can define also by the extrinsic causes, i.e., the end and the agent cause. The quod quid est for him extends to all four causes.

We must note also that in the definition of a substance or subject, a real definition will not necessarily be a complete definition, although a complete definition will always be a real one. A complete definition is one which embraces all the causes of a thing. There can be only one complete definition of any given thing.<sup>55</sup>

In natural philosophy the natural or real definition should be given by matter and form. A definition which is given by matter but which ignores the form is natural but imperfectly so. Only the naturalis considers sensible matter as having nature for its principle. The artist considers matter but with art as his principle. A definition by the form alone without a limitation to such matter would be a logical or dialectical definition. The dialectician proceeds ex communibus; and form, in that which it is of itself, is common. We do not here mean the proper form, for a definition by it would necessarily involve a relation to such a matter.<sup>56</sup> In like manner definition by efficient or final causes alone, in so far as such definitions cannot be reduced to definitions indicating the proper matter and form, will be only logical definitions.

A complete definition in natural philosophy will be one which includes all four causes. In such a definition the whole process of generation of the thing as natural would be included.

In defining the species alone of the natural substance, we would have to include only common sensible matter. The generative process would not have to enter this definition, since "the definitive character and form of each being precedes the material."<sup>57</sup> The place of physical genus in natural definition will be discussed in the third section of this study.

In mathematics a real definition will be according to the formal cause, but it must include likewise intelligible matter.<sup>58</sup> A real definition in metaphysics must be by the form. It may, however, include also the efficient and final causes.

In determining the nature of real definition for accidents we must take into consideration the fact that essence, together with definition which signifies it, are primarily said of substances and only secundum quid of accidents. Definition, therefore, will be found in a different way in substance and in accident, and not univocally in both. We cannot have a true definition of an accident inhering in a subject without including the proper subject in its definition. Accidents have being only as inhering in a subject; their quiddity depends on their proper subject. A formal definition by the essential principles alone is only a logical definition, as St. Albert states.<sup>59</sup> The definition of thunder as sonus communis or sonus in nubibus is not limited to thunder; not



every sound in the clouds is thunder. An accident has its species not per seipsam but as constituted in matter or its subject. In order to designate the genus and difference adequately, we must go beyond the intrinsic principle of the essence of the accident and add to the definition its proper subject as proper cause and principle. The real definition will be the complete definition. In comparing the two kinds of definition of an accident to demonstration, we should note that the definition by the quiddity alone is as the conclusion of a demonstration. It is demonstrated but does not itself demonstrate anything. The definition including both the quiddity and the proper subject, the quid and the propter quid, differs from a demonstration only in the position of the terms.<sup>60</sup>

P A R T II

THE DEFINITION IN THE SECOND BOOK OF

THE POSTERIOR ANALYTICS

## CHAPTER I

### THE FOUR QUESTIONS PERTAINING TO SCIENCE (Chapters 1 and 2)

#### The Ordering of all Questions to the Question of the Middle Term

The definition will be considered in this section precisely in relation to demonstration. After determining the nature of the demonstrative syllogism in the first book of the Posterior Analytics, Aristotle devotes the second book to a study of the principles of the demonstration, namely, the middle term and the indemonstrable first principles. He intends to determine exactly what these principles are and how we come to know them. Except for the last chapter, the whole book is given to the study of the former principle, the mean. Since the mean in the demonstration propter quid must be a definition, we can see why questions about the definition should occupy so much of Aristotle's time in this second book.

→ In considering the definition in relation to demonstration two questions will immediately come to mind; what precisely is the role of definition as principle in a demonstration? Can a definition itself be demonstrated, and if not, how do we arrive at one? A more adequate solution can be given  
→ to these problems if we approach them with Aristotle through the four possible 'questions' about an object of knowledge, which he enumerates in the first chapter.

In his treatise on the Posterior Analytics, St. Albert refers to this part of logic as communicating the ability to demonstrate, an ability which consists in the art of finding the demonstrative mean.

. . . oportet tradere demonstrandi facultatem in quolibet demonstrabili, quae (inquam) ars consistit in inventione medii demonstrativi.<sup>1</sup>

This mean is employed in order to have scientific knowledge of some conclusion. Thus Aristotle will proceed to reduce all things about which we entertain doubts, all things which are truly knowable (vere scibiles) through demonstration or in demonstration, to a knowledge of the mean. The genera of things knowable in the above way must correspond, then, to the doubts or questions which can be entertained about them. We do not form these questions, as St. Thomas points out, about immediata, which, although they are true, have no mean. These doubts, all of which relate in some way to a knowledge of the mean, can be reduced to these four questions: quia, propter quid, si est, and quid est. It will be necessary to see how these questions are ordered to the question of the mean and to consider certain difficulties which arise from them apropos of the definition.

The questions quia est and si est both seek the same thing--is there such a cause or mean? Can such a cause, which would be the middle term in a demonstration, be found? The

former question, quia est, asks it in a complex way, (i.e., as a complex question). Is there a cause to be found why this thing is "such," e.g., why man is white? The latter question, si est, presents the inquiry as a simple question. Is there a mean or cause to be found why this is, e.g., why man is?

The question propter quid follows immediately on the question quia est and is, like it, a complex question. When we ask propter quid, we are seeking the mean itself and formally as middle term in a demonstration--the reason why this thing is such, why man is white. The question quid est follows immediately on the question si est. It is similarly a simple question. When we know that a thing is, we ask what it is, e.g., what man is. When we ask quid est, we are seeking that which is de facto a mean, but we are not seeking it formally as a mean in demonstration.<sup>2</sup>

All are questions in some way ordered to a knowledge of the mean, the middle term. The questions si est and quia est inquire whether such a mean exists or can be found. The other two inquire about the nature of the cause or mean itself. If I ask, "why does the moon undergo an eclipse," (propter quid) my answer will be the same in subiecto as if I should inquire, "what is an eclipse," (quid est).

I will seek it, however, under a different formality in each case: in the latter question, as the essence signified by

the definition; in the former, formally as the cause, the middle term in a demonstration.

The questions quia est and propter quid refer only to the passions of a subject. The question si est (an est) inquires primarily about a subject. It inquires about a proper passion, not formally as it is the passio of a subject, but as it is a certain thing in itself.

. . . quaestio an est, quaerit de subiecto et passione non ut passio est, sed ut res quaedam in se est, quoniam dubitare contingit de rebus illis, quae passionibus sunt, an sint, et possunt res illae accipi ut substantia aliarum passionum, et consequenter de eis tunc supponetur an est, ut patet de triangulo de quo quaestio an est, formatur: et tamen passio est ut dixit Aristoteles in principio primi.<sup>3</sup>

Before taking up the particular difficulties it will be well to determine the sense in which the answers to the four questions are vere scibiles. A text from St. Albert explains this briefly:

Quaecumque enim vere scimus, . . . sunt scita vel per demonstrationem, ut complexa, vel per ea quae sunt in demonstratione, sicut per medium quod est definitio: sicut 'quia est,' scitur ex conclusione demonstrationis: scientia autem 'propter quid,' scitur per medium demonstrationis potissimae secundum quod actu mediat inter extrema: scientia autem 'quid' habetur per definitionem non in quantum mediat, sed in quantum est definitio: et scientia 'si est,' relinquitur ex illa.<sup>4</sup>

#### The Definition and the Question 'quid est'

Several difficulties will have to be resolved to clarify the relation of the question quid est to the definition.

a) Does the question quid est inquire about something complex or something incomplex? If the answer to this question is something knowable (scibile), it should be stated in an enunciation, which alone has formal truth. But the enunciation is something complex, whereas the definition--which properly answers this question--is something incomplex.

This apparent contradiction finds its resolution in the notion of the way in which truth or falsity can be applied to the definition. It is evident that each question must seek that which is the proportionate response to it. To the question quid est, what is it, we must respond with the definition of the subject in question. This definition is something incomplex and Cajetan gives us the reason for this:

Quaestio quid quaerit formaliter de incomplexo, quoniam quaerere de complexo iuxta secundum adiacens pertinet ad quaestionem an est, et iuxta tertium adiacens ad quaestionem quia est, et propter quid.<sup>5</sup>

The definition, therefore, is something incomplex and refers strictly to the question quid est. The definition, moreover, is the ratio of the truth of the complexum sought by the question an est. The complexum which is the answer to the latter question is stated as an enunciation and it alone formally has truth. Because the definition is the ratio of this truth, the definition as well can be called scibile and true.<sup>6</sup>

b) Before the whole definition can be had in answer to the question quid est, one must first investigate the

essence by single quidditative predicates. But to all appearances the latter should be answers to the question quia est rather than the question quid est. Since they inquire about the composition of two things, the subject and this or that quidditative predicate, they necessarily involve a complex question (quia est).

The following principle must be accepted as fundamental in resolving this doubt: any question which inquires in a complex manner (complexe, i.e., according to the tertium adiacens) about the quod quid est or essence, pertains to the question quia est. Quidditative predicates considered absolutely according to their existence in their subject pertain simpliciter to the question quia est; to inquire, however, about the mode of this existence (inexistentia) by which they are parts of a definition, pertains primarily to the question quid est because the latter question alone investigates the essence as a whole. But because of the form of the enunciation involved in investigating them, quidditative predicates, considered as parts, also pertain by a secondary intention to the question quia est. The form of this enunciation is the form of the tertium adiacens. They remain, however, fundamentally ordered to the question quid est.<sup>7</sup>

The above conclusion (that a question inquiring complexe about a quiddity pertains to the question quia est) is also indicated by the fact that the four dialectical questions



or problems enumerated in chapter four of the first book of the Topics, one of which is the question de definitione, are all included under the present question, quia est. Here, however, in the Posterior Analytics the definition is sought formally as something incomplex. Only the whole essence itself, the quod quid est, pertains as such to the question quid est. For the dialectician, on the other hand, any question about quidditative predicates (genus, difference, etc.,) can be reduced to the question quid est, the question de definitione, precisely because it does not matter to him whether the question is solved through a common or a proper reason.<sup>8</sup>

c) It should be evident that these questions are not as such ordered to the praeognita of the demonstration. The use of these four questions to determine the praeognita is very misleading.<sup>9</sup> That the question quid est, as here used, does not include the definitio quid nominis, the pre-existent knowledge of the predicate, and that the question quia est does not include the truth of any immediate principles is clearly indicated by Cajetan in his analysis of these questions.<sup>10</sup>

## CHAPTER II

### THE MIDDLE TERM IN RELATION TO DEMONSTRATION:

#### PROCEDIT DISPUTATIVE (Chapters 3 to 7)

##### The Problem

After showing that all the questions are in some way a question of the middle term, Aristotle considers how we come to know this middle term. He discusses the question according to the two formalities of the mean, i.e., the quod quid est and the propter quid. Of these two, the former will be more to our purpose, since it necessarily involves a study of the definition, an oratio signifying the quod quid est.

Aristotle had determined in the first book of the Posterior Analytics that from the real definition of the subject is deduced its first proper passion, and that from the definition of the first property is deduced the second, etc. In a posteriori demonstration as well, the middle term must be the nominal definition of that whose existence is to be proved. If, as is evident, the whole demonstration must depend on the middle term, signified by the definition, how can the authenticity of the definition be guaranteed? Can we have the same certitude in regard to a definition as we have in demonstration; or, in other words, can a definition be known through demonstration, and if it cannot be known in this way, how must it be arrived at?

Looked at from another point of view the problem will resolve into the question of a method of proceeding from a nominal definition, presupposed in any investigation, to an exact real definition by the proximate genus and specific difference. It is a question of how to arrive at a distinct concept of a given essence when we have only the confused concept with which to start.

In accord, then, with the purpose of the second book--to establish the principles of demonstration--Aristotle will limit himself to a consideration (a) of the definition and its significatum, the quod quid est, in their immediate relation to demonstration (chapters three to nine) and (b) of the general rules for determining the elements of a definition within the cadre of the predicables and the categories (chapter twelve). The correspondence of the parts of the definition to the parts of the thing defined will be clarified only in those books of the Metaphysics where the definition is used to determine dialectically the nature of substance and of its parts. The question of what is properly definable and of the unity of the definition will be clarified in the same section. The use of the logic of definition in those books remains an excellent example of dialectica utens, proceeding formally from the habitus of logic.

In chapters three to seven of this book Aristotle inquires disputative whether the definition can in any way be arrived at by demonstration. He does this by opposing demonstration and definition, and by reasoning from common arguments. Chapters eight and nine will be devoted to determining what is true in these arguments.

Whether the Same Thing Can be Known by Definition  
and by Demonstration

In chapter three the question is raised whether the same thing can be known both by demonstration and by definition. The difficulties are considered on the part of the object to which demonstration and definition can apply.<sup>11</sup> That what is known by definition is not also demonstrable is first arrived at by the following series of arguments:

1) Not everything that is demonstrable can be defined.--

The initial proof supposes that every definition manifests the essence. Whatever is predicated of the essence is predicated affirmatively and universally; but not all demonstrations conclude affirmatively and universally; therefore not all definable things are demonstrable.

For the cases where demonstrations do conclude affirmatively and universally, we can argue that for one thing, as one, there seems to be only one scientia, one mode of

knowing, be it demonstration or definition. Cajetan explains that the argument rests on the knowledge which the knowable object demands or generates ex se.<sup>12</sup> In a definition taken by itself, we know only the principle of demonstration; knowledge, however, of the principle does not imply knowledge of all deducible conclusions.

Another argument stems from a point established in the seventh book of the Metaphysics--that definition is principally of substances, and that it is of accidents only as signified in the manner of substance. Demonstration on the contrary is only of things signified in the manner of an accident, i.e., as inhering in a subject.

2) Not everything definable can be demonstrated.--The argument that for any one thing there is only one mode of knowing, is again applied. Furthermore, the definition as first principle of demonstration, must be indemonstrable; there cannot be an infinite regression in demonstration.

3) Definition and demonstration are mutually exclusive.--  
 X Definition reveals essential nature, but demonstration assumes this. Another argument is that every demonstration proves a predicate of a subject either as attaching or as not attaching to it; in definition there is no predication of one part of another part. There can be no essential predication between genus and difference since they are formally different.  
 X X

XX X Demonstration and definition also differ in that they  
 answer respectively the two questions quia est and quid est,  
 neither of which is a part of the other. If the definable  
 is not demonstrable, it follows clearly that definition and  
 demonstration cannot be identical, nor can one be contained  
 within the other.

Whether the 'quod quid est' Can be Syllogized or Demonstrated

In chapters four to seven Aristotle discusses seven  
 possible ways of arriving at the quod quid est, the essential  
 nature signified by the definition. The question will be  
 whether the quod quid est can be syllogized or demonstrated  
 through any of them. Of these possible approaches the first  
 will demand a more extended treatment because of its importance  
 in "determining the truth" in the eighth chapter.

(1) By true demonstration: through convertible terms.--

At first sight this method may appear to be nothing more than  
 a repetition of the question discussed by Aristotle in the  
 immediately preceding chapter (whether the same thing can be  
 known by definition and by demonstration). To account for  
 this renewal of the question in chapter four after the con-  
 clusions of chapter three, which we noted in the above paragraphs,  
 St. Thomas gives the following brief explanation:

Fuit autem necessaria haec disputatio post praemissam, quia in definitione attenditur non solum ut illud quod significatur, sit quod quid est, sed etiam ut tali modo tradatur qui competat ad manifestandum quod quid est; ita scilicet quod sit ex prioribus et notioribus, et alia huiusmodi habeat quae in definitione sunt observanda.<sup>14</sup>

To distinguish the definable and the demonstrable it is not sufficient merely to show that it is the quod quid est which falls under definition. We must go further to consider the particular requirements for the proper manifestation of the quod quid est.

In distinguishing the fourth chapter from the third, Cajetan offers an explanation which goes beyond that of St. Thomas while not disagreeing with it. The above-cited paragraph points rather to such an interpretation.

De quod quid est igitur, quod per diffinitionem constat significari, duplex est quaestio ab Aristotele mota secundum eius duplicem acceptionem et quaestio quidem prima in capitulo praecedenti tractata, de ipso absolute sumpto quaesivit an posset attingi demonstratione, ut ex dictis ibi approbantis patet. Praesens autem de ipso relato ad id cuius est inquiri an possit demonstratione sciri ipsum esse huius quod quid, id est, an applicatio diffinitionis, ut sic, ad diffinitum, possit per demonstrationem sciri, etc. Notanter autem dicitur 'ut sic' quoniam praesens quaestio non est an id quod significatur per diffinitionem possit processu demonstrativo concludi quod insit rei significatae per nomen diffiniti, puta an possit demonstrari quod homo sit animal bipes, ut ex textu colligitur et ab omnibus expositoribus unaminiter dicitur, sed an id, quod significatur per diffinitionem possit processu demonstrativo concludi quod insit, ut quod quid est seu per modum quo quod quid est inest ipsi rei significatae nomine diffiniti, unde quaestio ista est formaliter de modo inexistentialae, an possit demonstrari et non de ipsa inexistentialia simpliciter. . .<sup>15</sup>

Whereas the third chapter considers the quod quid est absolute in reference to definition and demonstration, the fourth will ask whether the significatum of the definition can be demonstrated as such of that of which it is the essential nature; can the quod quid est be demonstrated precisely as such, i.e., as predicated in quod quid erat esse? The particular method of demonstrating the quod quid est which occupies this chapter is that of accepting convertible terms in the syllogism. The quod quid est which is concluded in such a syllogism must be (a) proper to this subject, since everything must have its proper essence; it must also be (b) predicated in quid, essentially, since not everything that is proper belongs to the essence. From this it follows that the quod quid est must be (c) convertible with that of which it is such.

A syllogism which would properly demonstrate the quod quid est must be such as to have all its terms convertible with each other. This can be deduced from the fact that the quod quid est is proper to the subject. Moreover, since the essence must be predicated in quid, the major term must be predicated in eo quod quid est of the middle term and the middle term in like manner of the minor term. If these conditions are not fulfilled, it does not necessarily follow that the quod quid est will be concluded.



If, however, all these conditions are fulfilled, the demonstration will still fail because there will necessarily be a petitio principii. If that which is predicated in both propositions is predicated not only in eo quod quid as the genus is predicated of the species, but is also the quod quid erat esse signified by the definition, it follows that the definition has already been assumed in the middle term.

The question immediately arises whether the syllogism which is here rejected because of the petitio principii is the one in which one definition is demonstrated through another definition of the same subject. If Aristotle does not here refer to that process, the question still remains, what process does he exclude because of the petitio.

In resolving this doubt it will be necessary to point out first of all that if the demonstrative process described by Aristotle did not involve a petitio principii, it would formally demonstrate the quod quid est of its subject.

It is likewise clear that this process assumes two definitions as the major and middle terms. This follows from the convertibility of definition and quod quid est as here used, an interpretation confirmed by the example in the text of the Platonic definitions of the soul.

Before proceeding to the answer, the several ways in which a petitio principii might possibly occur in a syllogism of the quod quid est must be investigated.

1) Is the petitio principii merely on the part of the nature of the thing considered secundum se, although not if considered quoad nos? Thus we could say that of the thing considered in itself there is only one definition; so that in a syllogism involving several definitions of the same object, there would be a discourse ab eodem ad idem. But the petitio would not necessarily follow if we considered the thing according to the concepts which we form of it, in which case we could have some concepts more known than others.<sup>16</sup>

2) Or is there a petitio principii not according to the propositions themselves but only according to that which is principally and formally sought in the syllogism. In this way we would grant that the major is the quod quid est of the middle term and the middle the quod quid est of the minor, ruling out any defect in the propositions themselves. The petitio would then lie, not in the assuming of the quod quid est which is concluded, but in the fact that one quod quid est has already been assumed as middle term in a case where we are seeking to demonstrate a quod quid est of that of which it is simpliciter, and not this or that quod quid est.<sup>17</sup>

3) A third way in which the petitio can be understood is as stemming from the fact that there cannot be a quod quid est of a quod quid est, just as there cannot be a definition of a definition; otherwise there would be an infinite regression

in definitions. If, then, a syllogism were so arranged that the major would be the quod quid est of the middle term, and the middle term of the minor, there would be a quod quid est of a quod quid est. This would leave only a verbal difference between the two. They would be the same not only secundum rem but also formally.

But the question remains; is the process which Aristotle here disclaims the one which demonstrates one definition through another definition of the same subject? It appears that this is not the demonstration in question. The latter process, as St. Thomas expressly teaches in lesson seven, does not sufficiently demonstrate that what is concluded is the quod quid est of the subject, although this is syllogized logice, as will be explained in that section. The present process, as formulated by Aristotle, would demonstrate the quod quid est if it were not for the petitio principii necessarily involved. The process which Aristotle actually rejects is the third one explained above where the major is actually the quod quid est of the mean, and the mean of the minor. In such a syllogism there would be three terms only secundum vocem, and therefore a petitio principii. This is the interpretation favored by St. Thomas, St. Albert, and Cajetan.<sup>18</sup>

If anyone should insist that Aristotle speaks here of that process by which one definition is demonstrated through another, he might use the first or second of the above expla-

nations to account for the petitio principii, but he would have to account likewise for other aspects of the question which present a formidable difficulty. If this demonstration concluding the quod quid est is not to be rejected because it involves a petitio principii, and if the objection to it must stem from some other reason, why does Aristotle never mention this other reason? Whenever Aristotle rejects in this book the demonstration of the quod quid est, it is because of the petitio principii. Moreover, how can the difficulty presented by the third explanation be overcome?

(2) By a process of division.-- The second possible method of demonstrating the quod quid est is by way of division beginning from the supreme genus and descending to the ultimate difference. This method likewise fails to be demonstrative because of a petitio principii. Aristotle rejects it first of all for a common reason drawn from the Prior Analytics, that nothing can be syllogistically proved by way of division since the conclusion will not follow necessarily from the premisses.<sup>19</sup> Why this is necessarily true is succinctly explained by Sylvester Maurus:

. . . Vel enim divisio est per membra contradictoria, ut cum animal dividitur in rationale et irrationale; vel non est per membra contradictoria, ut cum animal dividitur in rationale, hinnibile, rugibile, etc.; si divisio fit per membra contradictoria, petitur principium; si non fit per membra contradictoria, nisi petatur principium, conclusio non sequitur necessario ex praemissis; ergo, etc.--

Probatur prima pars minoris; dum enim arguimus: 'homo vel est rationalis vel irrationalis; non est irrationalis; ergo est rationalis';--si irrationale contradictorie opponitur rationali, idem est 'non esse irrationale' ac 'esse rationale,' cum duae negationes affirmant, atque idem sit auferre unam partem contradictionis, et ponere aliam partem contradictionis; ergo si argumentamur per divisionem ex membris contradictoriis, petimus principium et probamus unam partem contradictionis per negationem alterius, quod est probare idem per idem.-- Probatur jam secunda pars minoris; si enim argumentamur ex divisione per membra non contradictoria, ex tali divisione non constat membra enumerata esse omnia; sed si membra enumerata non sunt omnia, non sequitur ex necessitate conclusio.<sup>30</sup>

The petitio principii which necessarily enters any such proof is evident from the above text. If the division is made by contradictory members, the only thing that could strictly be syllogized is something superior to that which we intended to prove. We would have to conclude disjunctively of the inferior member both differences by which we divide the superior whole. For example, animals are either rational or irrational; man is an animal; therefore, man is either rational or irrational. If we should wish to conclude one or the other member, we would beg the question. On the other hand if we do not divide by contradictory members, we cannot prove that the division exhausts the genus, and we must, therefore, assume what we intend to prove.

In comparing division with induction it becomes evident that in each we must assume that all the members contained under some common factor have been accepted. Otherwise induction could not conclude the universal from singulars, nor