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se veut un véhicule d'expression assez diversifié pour offrir le mode de rencontre écrite où chaque membre se sent à l'aise. Une rubrique spéciale répond au type de réflexion que chacun veut livrer : de la suggestion de lecture au point de doctrine approfondi, en passant par le commentaire, le débat, l'outil pédagogique, la traduction, ou même — pourquoi pas? — un texte divertissant, sous mode de conférence ou d'entretien familier.	is intended to be a multi-faceted vehicle for philosophical exchange suited to the needs of all our members. The different sections are meant to reflect this diversity, running from serious philosophical and scholarly articles, to pedagogical texts, translations, talks given by members, exchanges on particular questions, critical studies, book reviews and — why not? — an occasional more popular text.

Κεφάλαια

Les *articles* sont, étymologiquement, les parties principales qui *articulent* une chose. C'est, traditionnellement, l'élément le plus substantiel, le plus sérieux d'une revue. Κεφάλαια l'annonce, en désignant le *capital*, qui a rapport à la tête.	Etymologically speaking, *articles* are those independent principal parts which, joined together, give structure to the whole and are thus, traditionally, the most substantial parts of a journal. Κεφάλαια, in its meaning of *principle* or *chief* expresses this well.

Ἀμφισβητήματα

Le dynamisme de la vie interne de la Société s'observe dans la présentation de découvertes relatives à l'interprétation d'Aristote, susceptibles d'attirer la contestation de membres. — Et dans la contestation de parutions antérieures, suivant un débat continu. Une tribune d'investigation dialectique.	The inner vitality of the Society can best be found in the presentation of discoveries in respect to the interpretation of Aristotle and his school which are apt to bring about lively debates among the members—debates that may extend through many issues of the journal. This is our dialectical Agora.

Ἐξηγήσεις

On réagit par des notes critiques à des parutions plus ou moins récentes en matière de tradition aristotélicienne.	A critical evaluation of recent — and not so recent — writings in the light of the Aristotelian tradition.

Παιδεῖα

Voilà le lieu de réflexions fondamentales sur les principes et le mode de l'apprentissage philosophique. Et d'autres outils, telles des traductions.	The place to go for translations of texts, as well as for reflections on the principles of philosophical teaching and their application.

Ἐντεύξεις

Des conférences présentées à différents publics reçoivent ici une diffusion plus large. Cette rubrique a couleur de vulgarisation, d'application à des situations familières et s'ouvre à des textes plus légers, voire divertissants.	Here we find a diversity of more popular and public works : talks given to various audiences ; lighter works of philosophical reflection. A break from the more serious parts of the journal.

Ἀπογράφεις

Une rubrique un peu *technique*, mais utile, qui signale les dernières parutions susceptibles d'aider l'approfondissement de la doctrine aristotélicienne et thomiste. Ses compte-rendus énumèrent et décrivent simplement, sans commenter ni critiquer.	A more *technical* section devoted to indicating the newest texts in the tradition that may be of use to our readers. These reviews describe, but do not attempt to comment or critique.

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Κεφάλαια

CAN ARISTOTLE'S WOMEN BE PHILOSOPHERS ?

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AS A YOUNG TEACHER to undergraduates of which more and more are women, I very often get the following question : Isn't it somewhat embarrassing to take a serious interest in the philosophy of Aristotle when it is commonly thought that this Ancient Greek was a misogynist ? Did he really believe that it was impossible for women to do philosophy ? Is his position on this question clear ?

In order to try to answer these questions, I will go back to the more fundamental question that is central to Aristotle's conception of a woman's capacity to be a philosopher : What does he think is possible for women to achieve in terms of speculative reasoning ? It is refreshingly new : commentators rarely make the distinctions it presupposes and most of the time simply point out Aristotle's various affirmations of woman's intellectual inferiority. The interpretation of Aristotle's position I am going to propose is also original in the sense that it will emphasize that even in the face of Aristotle's apparent claim that women are less apt than men for speculative reasoning, one cannot conclude that he excludes them from achieving it.

One might, to start with, claim that Aristotle thinks that speculative reasoning is accessible to women simply because he never clearly denies it. There are indeed no texts in the corpus claiming a weakness of woman's speculative intellect : the biological treatises only speak of physical and behavioral inferiority ; the moral ones only of practical intellectual inferiority ; this is what justifies women's exclusion from the political life. In *Politics* I 13, Aristotle indeed affirms that women "have deliber-

ation but that it is *akuron"*, that is, without authority. On the other hand, the fact that Aristotle seems to believe that the practical intellectual virtue of prudence is prerequisite to the speculative virtues[1] would seem to settle the question : women being incapable of practical reasoning, there is not much hope left for speculative reasoning.

I am going to start by proposing an interpretation of the well-known passage of *Politics* I 13 and then comment on where we are left as to Aristotle's opinion about speculative matters and women.

In *Politics* I 13, Aristotle wonders if slaves and subordinates in general have virtue. This is problematic, he says, because, if they do not, it is difficult to understand how they can do their work properly. More generally, it would be surprising indeed that being human and thus necessarily participating in reason, they should have no virtue. On the other hand, if they do have virtue, it is difficult to understand how they differ from the masters and, in general, from the rulers. Aristotle's answer is that they must all possess the intellectual virtue of *phronêsis*, i.e., prudence or foresight, but differently, and that this is not a question of difference of degree but of kind :

> All possess the various parts of the soul, but possess them in different ways ; for the slave has not got the deliberative part (*to bouleutikon*) at all (*holôs*), and the female has got it but without authority (*akuron*), while the child has it, but in an undeveloped form (*ateles*). Hence the ruler must possess intellectual virtue (*dianoêtikên aretên*) in completeness (for any work, taken abso lutely, belongs to the master-craftman, and reason is a master-craftsman) ; while each of the other parties must have that share of this virtue which is appropriate to them. (*Politics* I 13 1260a10-20)

He then goes on to say about the same thing concerning moral virtues.[2]

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[1] See *NE* VI 13 1145a6-9.

[2] Although I use the Oxford Edition of the *Politics* everywhere else, here I am using the Greek text of the Loeb edition, which seems to me to make

Now, in *NE* III 3, Aristotle explains what deliberation is ; in VI 5 and 9, he presents good deliberation (*euboulia*) as the virtue perfecting the first step of the prudential act. In VI 10, he explains how the virtue of judgement (*eusunesia*) must be added to good deliberation. However, this is still not enough to have prudence, for "prudence is able to command (*epitaktikê*)".[3] The prudent man must also be good at following through on the judgment : this is the third step involved in the prudential act, more developed by the Latin tradition.[4] This being the case, it comes spontaneously to mind that in the above passage of the *Politics*, when he says that woman's deliberation being *akuron*, her prudence is different from the one of the male, Aristotle means that it is an incapacity to carry out this commanding step that is responsible for women not fully having prudence. For both *kuros* and *epitassô* convey the idea of authority.[5]

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more sense. Some editions among which the Oxford have these lines (1260a9-24) in a slightly different order and most importantly, have *êthikên* instead of *dianoêtikên*. But whatever version one uses, it must be the virtue of prudence of the rational part of the soul which Aristotle is saying must pertain differently to the slave, the woman and the child in the first line (9), for he clearly contrasts it to the ethical ones of temperance, justice and courage, and attributes its differences to different kinds of deliberation. Now, in the *NE* VI, it is *phronêsis* which, among the intellectual virtues that are contrasted to the moral ones, involves deliberation. Art also is an intellectual virtue involving deliberation, but since Aristotle also asks if the virtue in question must pertain to the craftsmen, it clearly cannot be art he is speaking about. Therefore, it must be the intellectual virtue of prudence which is said to pertain to women in a special way because their deliberation is *akuron*.

[3] "Οὐκ ἔστι δὲ τὸ αὐτὸ σύνεσις καὶ φρόνεσις. Ἡ μὲν γὰρ φρόνησις ἐπιτακτική ἐστιν· τί γὰρ δεῖ πράττειν ἢ μή, τὸ τέλος αὐτῆς ἐστιν· ἡ δὲ σύνεσις κριτικὴ μόνον." (VI 10 1143a7-10)

[4] See Aquinas IIaIIae q. 47a8 about *praecipere* as the principal act of prudence and IaIIae q. 17a1 on the fact that it is an act of reason.

[5] At 1260a23, Aristotle also speaks of the virtue of the woman in terms which convey the idea of a lack of authority and which I therefore would tend to link with the commanding step of prudence.

The question would then be : what is the extent of this defect ? Many commentators assume that since Aristotle says that he is thinking of a difference of kind and not of degree, he must mean that women are totally incapable of commanding : if they were, we would be in the presence of a difference of more or less. But scholars are then forced to admit that not only does this seem contrary to very basic and common experience—Aristotle himself gives the example of Antigone[6]—but that this does not seem to be reconcilable with the authoritative role that Aristotle gives to women, at least in some fields. How is someone incapable of commanding supposed to be running the household?[7]

I think that there is indeed another, and better, explanation. I would like to suggest that what Aristotle wants to say is that in the same way that the slave is incapable of general deliberation but is capable of particular deliberation, the woman is incapable of general commanding, but is capable of particular commanding. Aristotle speaks much more about the slave's case and many scholars say that we should use these passages to interpret *Politics* I 13 about woman as well.[8] Let us thus look at what Aristotle says about the slave.

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6 *Rhetoric* 1375a30.

7 Aristotle says that some business must be left to women (*NE* VIII 10 1160b32) and that those things are different from those that men should take care of (*Politics* II 5 1264b5). Also, the fact that he criticizes the Barbarians for treating their women as slaves (*Politics* I 2 1252b5) leads to believe that he supports the Greek practice, which indeed consisted in having women running the household. As for the education of children, Aristotle is less clear as to the role he foresees for women. Again, he does not speak against Greek customs which may be a sign that he supports them : having received only very basic, but not intellectual education themselves, Greek women used to take care of the elementary education of their children in the house, the rest being taken in charge by instructors.

8 About Aristotle on women, Kraut says that "it is unclear what sort of deficiency he is talking about. Precisely what is the deliberative faculty ? In what way does it lack authority in women ? These questions will be discussed in the next chapter, when we turn to Aristotle's justification of

By the middle of *Politics* I 5, Aristotle has defined the slave as a human being who does not belong to himself but who, because of his nature or innate makeup, is the human being of another. He also considers that he has established that there exist such individuals naturally apt to belong to others and that these will be "human beings who differ from others as much as the body differs from the soul, or an animal from a man".[9] He then says that he is a slave by nature, "who participates in reason enough to understand, but without possessing it himself".[10] Here, since the slave is a human being, I assume that the word *logos* does not designate the faculty of reason ; I take it in the sense of a certain type of reasoning. It is not overly surprising to learn that whoever is incapable of belonging to himself should also be found incapable of reasoning correctly. One would not expect much of such an individual. Then comes the passage of Chapter 13 we examined in which Aristotle gives more details about the slave's reason, affirming that he is deprived of deliberation.[11] What does Aristotle mean exactly ?

There are many different interpretations of this passage. For my part, I do not think that Aristotle's slave is absolutely unable to deliberate. It seems to me that since the slave is a human being, the deliberation Aristotle says he is incapable of in Chapter 13 is meant to cover only the inquiry which, starting not from just any good, but from the end of life, has as its goal a judgment about the appropriate means to this end. In *NE* VI, Aristotle indeed distinguished between 'particular deliberation'

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slavery, for his defense of this institution depends on his thesis that those who are slaves by nature entirely lack the deliberative faculty. We can learn something about what he thinks is wrong with women if we concentrate on a kindred deficiency that he thinks is more severe in slaves." (*Aristotle : Political Philosophy*, Oxford University Press, 2002, p. 214)

9 1254b16-17.

10 1254b22-23.

11 1260a12.

and deliberation for the whole of life, saying that prudence strictly speaking has to do with the latter :

> It is held to be the mark of a prudent man to be able to deliberate well about what is good and advantageous for himself, not in some one department (*kata meros*), for instance what is good for his health or strength, but what is advantageous as a means to the good life in general (*pros to eu zên holôs*). This is proved by the fact that we also speak of people as prudent in some particular thing, when they calculate well with a view to attaining some particular end of value (other than those ends which are the objects of an art) ; so that the prudent man in general will be the man who is good at deliberating in general (*holôs*). (*NE* VI 5 1140a25-31)[12]

It is true that in *NE* III 3, Aristotle made another distinction, one between the ordering of means to ends in non determined matter, which he calls ‘deliberation’, and the ordering of means to ends in more determined matter. Richard Kraut, for example, thinks that the slave is only capable of this latter kind.[13] But it seems impossible to me that this ordering of means to ends should be the only one of which the slave is capable, since this would be to say that certain human beings are quite incapable of carrying out acts proper to human life. Thus, it seems to me that Aristotle thinks that the slave is capable of deliberation about certain indeterminate things.

Otherwise, we may ask, how could he really help the master ? Let us not forget that Aristotle has gone to great lengths to explain that the slave was going to be an instrument for the actions of life of the master and not an instrument for production. The slave must thus be able to determine by himself some ties between means and ends in indeterminate matters. Moreover, Aristotle does hold that the slave participates sufficiently in reason to understand what is being proposed to him, and that it is precisely in this respect that he differs from the brute animal. (For, as to their utility, they differ little, both serving as

[12] See also 9 1142b29.

[13] See *ibid.*, p. 286, 287, 289.

helpers for those things necessary for the body.[14] The slave, indeed, can obey an order whose meaning he understands, whereas the brute who serves man is only moved by passion. Indeed, the animal can remember the reactions of his master and be directed, in his future actions, by the desire for reward or the fear of punishment.) Now, the slave's understanding of the meaning of orders, however limited, must imply that he sometimes at least understands how the tasks assigned to him will be useful for the actions of the life of the family. Now, this seems to be possible only thanks to some ordering of means to ends in non determinate matter, that is, thanks to some deliberation.

Thus, I think we must affirm that Aristotle's slave does have the faculty of deliberation, and that he can carry out by himself some acts of particular deliberation and understand some of the other particular deliberations that he himself could not have come up with, but that he is incapable of doing so in such a way as to secure his own proper good, that is, universally, with a view to his whole life. For a man who can deliberate about the best way of getting to an apple high up in a tree, or how to repair a broken tool, or even how he should best obey the orders of his master is not necessarily also able to deliberate about how to get to his proper good in life as a whole.

In the same way, Aristotle's woman would have the faculty to command and could carry out some acts of particular commanding, but she would be incapable of doing so in such a way as to secure her good, that is universally, with a view to her whole life. For a woman who can decide which kind of broom will be used in the basement or which kind of pabulum will be given to her child is not necessarily also able to command about how to get to her proper good in life.

As we saw, according to Kraut the slave is completely deprived of any form of deliberation. As for the woman, he thinks that she only has private deliberation : Kraut takes *akuron*

[14] *Politics* I 5 1254b23-26.

as Aristotle's way to deny the object or matter which is political affairs :

> *Holôs* is used in this line in order to contrast the defect of slaves with that of women, who do have the deliberative faculty, even though it is 'without authority'. Precisely what does that female deficiency amount to ? I take Aristotle to mean that women cannot deliberate about matters that are removed from the sphere of the household. They can oversee slaves and the work that must be done in the house, but cannot become skilled as political deliberators, because, like slaves, their reason has a natural deficiency. Free women are in possession of only one part of the deliberative faculty (the part that lacks authority), whereas slaves (male and female) entirely lack it. Their deliberative faculty is without authority because the sphere in which they can develop competence as deliberators is subordinate to the authority of the polis.[15]

I, on the contrary, hold that the slave must have some deliberation—about particular areas—and that it makes more sense to think that it is universal deliberation that Aristotle denies totally of him. Furthermore, it seems to me much more natural to associate Aristotle's affirmation of the lack of authority of woman's deliberation with the third aspect of the private prudential act, which follows deliberation and judgment,[16] than with the most general object of deliberation, the political one. One can also say that since the context of Chapter 13 is clearly domestic or familial, it is better to suppose that Aristotle is affirming a difference or defect of the woman's private prudence, not of her political prudence. Finally, my contention that women do not have universal private commanding but have particular commanding, is able to explain as

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[15] *Ibid.*, p. 286.

[16] As for Aquinas, it is not clear if he thinks the invalidity of woman's deliberation occurs with judgment or with commanding. For he speaks of a failure to stick to (*inhaere*) the results of deliberation (*consiliatis*). Now, those means that the woman cannot firmly adhere to may be the only efficient means to reach the end, or they may be the best ones. See *In Libros Politicorum Aristotelis Expositio*, Marietti, I 10 #159.

well as Kraut's position that Aristotle often speaks of men and women as though they were almost equals and as not so far apart in prudential capacity,[17] and that he seems to accept the Greek practice of putting her in charge of the household. There she can command.

Where does all of this leave women regarding theoretical intellectual matters ? If I am right, the problem that Aristotle sees with women's practical intellect concerns one step of the prudential act, one which follows deliberation and judgment, which other two he does not seem to question : something is imperfect in the act of commanding. Now, two faculties could then be at fault, since two faculties are involved in choice. Aristotle says indeed that it is either an *orektikos nous* or a *dianoêtikê orexis*.[18]

Now, Aristotle never says anything in the *Politics* nor in the *NE* that would indicate that woman's intellect is the cause of her incapacity to command, whereas he is clearer that this is what is responsible for the slave's incapacity to deliberate.[19] It is also striking that no text of the *De Anima*, in which he pursues his official inquiry about the potencies of the soul, makes allusion to a difference between male and female intellects. On the other hand, Aristotle does often mention a weakness of woman's appetite both in the moral treatises and the biological ones. He often says that she is naturally more easily moved[20] and softer (apparently both physically and morally) than men.[21] It is easy

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17 See *Magna Moralia* I 1194b23 and *NE* VIII 11 1161a23.

18 See *NE* VI 2 1139a33-34 ; 1139b4-5. It is also a recurrent idea in Aquinas's work that prudence is both a moral and an intellectual virtue : see for example IaIIae q. 58a3.

19 For example, in *Politics* I 2, he says that it is because the master can foresee with his mind (*tê dianoia prooran*) and the slave execute with his body that they are necessary to each other's survival. And in *Politics* I 5, the slaves are said to be men whose *ergon* is the use of the body and from whom this is the best that is forthcoming.

20 See *Historia Animalium* IX 608b8.

21 See *Historia Animalium* IX 608b8 and *NE* VII 7 1150b10.

to infer that passions in general and fear of pain or love of comfort may influence her reason and prevent it from commanding the means that it judged to be the best. Even if Aquinas does not indicate as clearly as I do that it is the commanding step of the prudential act where things start to go wrong, he does say that intervention of emotions is what causes woman's deliberation to be invalid.[22] The details of my interpretation of *Politics* I 13 are also coherent with this hypothesis : the more general and the less particular the object of the prudential act is, the more numerous the possibilities for passions to interfere and prevent someone from commanding.

So what about women philosophers ? Well, in a positive vein, if, according to Aristotle, it was the intellect that was cause of the woman's difficulty to perform the act of the practical intellect, there would of course be no hope for any eventual speculative knowledge, which does not depend on anything else than intellect and which is about more difficult objects. But if it is not, one can envisage the possibility that women could overcome their emotionalism and softness so as to permit their intellect to achieve some practical wisdom, and eventually also some speculative reasoning. On a more negative note, however, it seems that even if Aristotle would admit that it may be possible for women to speculate, he would still hold that it is not desirable, given that differences of natural talents, even though not radical, must be taken seriously as signs of differences of natural finalities. In other words, Aristotle believes that since women are better than men for some functions which are essential to their common goal as a couple, they should devote themselves to these, instead of struggling to perform some other function for which men are better suited.

My final take on this is that, while Aristotle's principle about nature not acting in vain seems true enough, I am not at all convinced that women are so inept at universal commanding. Aristotle takes experience as the criterion of truth, and it seems

[22] See *In Libros Politicorum Aristotelis Exposition*, Marietti, I 10 #159.

that our experience for quite some time now has been that many women have been taking responsibility for their whole life and not just areas of it. I at least do not have clear evidence that men are better at this. Now, maybe I am simply refusing an idea because it touches a raw nerve. Here again, I am going to fall back on the slave's case.

For, if someone denies the existence of men who naturally lack universal deliberation, one could always fall back on an argument based on the principle that nature furnishes the necessary. If human instruments of action are necessary, and if instruments must belong to the family, as Aristotle has been assuming since Chapter 4 and as seems reasonable, then nature must have made some human beings apt to be instruments of action and to belong to others. Now, these must be individuals who are unable to fix their own life goals through universal deliberation. And they should be men, since much time and bodily strength are required ; in fact, the stronger, the better. Women, because of child bearing and rearing, have less time, and are generally weaker than men.

In the same way, if someone denies that most women are by nature deprived of universal commanding, one could obtain some illumination by the use of a parallel argument. Here is how it would run : It seems necessary that for more or less each man who is destined to do philosophy and politics, there be also some human being destined to spend more time and energy than he will with the generation and then the caring of his children. And tools being more efficient when they have only one function,[23] nature should have provided someone else than the slave for this role. Women, able to bear children, are all indicated for this.[24] Such a role would certainly also require particular commanding

[23] *Politics* I 2 1252b.

[24] In fact, whereas time spared from vegetative fonctions is the reason for nature to give a male body, which is therefore not exclusive to servile souls, bearing children seems to be the only reason for nature to give a soul a female body. So that the argument is going to establish the lack of universal commanding of most women and not only of some of them.

but not necessarily universal commanding. In fact, it might require that the woman be deprived of it, given that social groups, like other natural wholes, work better when directed by a single leader. Thus, having universal deliberation and judgment, these women would be more apt to raise the children and collaborate proximately with their husbands than would any slave. Now, because reproduction is a natural function of human beings,[25] the slave will also need a wife. In the same way, the free men who are not citizens, not destined to philosophy or politics, who therefore do not need slaves, will also need wives.[26] Since some diversity can be expected among females as among males, women who, in addition to lacking universal commanding have less aptitude for deliberation and judgment than the wives of the citizen, might play this role. (For example, if the wife of the citizen can combine a lack of universal private commanding with the possession of universal private deliberation and judgment, maybe she can even do so with political deliberation and judgment.) Women with difficulty in even reaching the particular level of commanding would be the ones apt to marry the slaves.

The intellectual part of the soul is thus what distinguishes natural slaves from masters, Aristotle says. Now, nature does try

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[25] *Politics* I 2 1252a28.

[26] Men destined to politics and philosophy seem to need someone else to help them with their personal actions of vegetative and sensitive life, for the intellectual life to which they will consecrate themselves is radically different. Whereas craftsmen, businessmen and laborers are not so called because of another life they have which would prevent them from taking care of their vegetative and sensitive ones, but because of a special direction or orientation which their sensitive life itself takes. In other words, as craftsmen, business people and laborers, they are not doing anything essentially different than what Aristotle calls the 'necessary tasks' (*tanagkaia* 1254b25). They may need help to do it, but for that, free subordinates of whom they can dispose at times, when it is time to craft, build, transact or labor, will suffice. It seems that only instruments for action must pertain to their agent, as is shown by our usage of the word *ktêma* (1254a2) which first signifies 'belonging to' (1253b23).

to give a body appropriate to each soul.[27] A sign of this is the rather general agreement that very great bodily differences are not by accident or chance, but rather are intended by nature ; we must also admit that some of the smaller bodily differences are intended by nature to serve the soul.[28] But this often fails to come about, adds Aristotle, so that servile souls have bodies which should belong to free souls, and free souls have bodies which should serve servile souls.[29] It seems to me that Aristotle thinks that, in the same way, the intellectual part of the soul is what distinguishes natural citizens, free men and slaves from their wives. And that nature tries to harmonize bodies to go with these souls.

But here too, one should expect this to fail, although perhaps less often than in the other case, since the differences aimed at—sexual organs etc—are more essential and less accidental.[30] So that occasionally the souls of citizens, freemen and slaves have female bodies and wives' souls have male bodies. And maybe, apart from my susceptibility and lack of experience or adequate reflection on it, this also explains that I do not have clear evidence that women lack universal commanding. I surely hope so.

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[27] *Politics* I 5 1254b27.

[28] *Politics* I 5 1254b34.

[29] *Politics* I 5 1254b32.

[30] This, and also the fact that male bodies will belong to the souls of citizens, free and slaves may explain that Aristotle considers more excusable to have doubts about the slaves. He does not indeed try to explain why some people might doubt that women lack universal commanding, as if it was more evident.

THE DISTINCTION BETWEEN NATURE AND REASON OR WILL

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ARISTOTLE CONSIDERS the distinction between a natural ability and a reasonable ability or an ability with reason (either reason itself or the will) in the ninth book of the *Metaphysics*. A natural ability is determined to one, but a reasonable ability is for opposites.[1] This distinction is important for our understanding of ability, but it is also a beginning for understanding many other things. Thomas speaks of this distinction when contrasting will and nature :

> Will and nature differ in causing in this way: nature is determined to one, but the will is not determined to one. The reason for this is that an effect is likened to the form through which the agent acts. But it is manifest that there is but one natural form of a thing by which that thing has existence. Whence, such as it is, so does it act. But the form by which the will acts is not only one, but there are many, insofar as there are many reasons understood. Whence what is done by will is not such as is the agent, but such as the agent wills and understands. Will then is a beginning of those things which are able to be thus or otherwise. But nature is a beginning of those things which can only be thus.[2]

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[1]*Metaphysic*, 1046b4-7: "Καὶ αἱ μὲν μετὰ λόγου πᾶσαι τῶν ἐναντίων αἱ αὐταί, αἱ δὲ ἄλογοι μία ἑνός, οἷον τὸ θερμὸν τοῦ θερμαίνειν μόνον ἡ δὲ ἰατρικὴ νόσου καὶ ὑγιείας."

[2]*Summa Theologiae*, I, q. 41, a. 2, c.: "Voluntas et natura secundum hoc differunt in causando, quia natura determinata est ad unum; sed voluntas non est determinata ad unum. Cuius ratio est, quia effectus assimilatur formae agentis per quam agit. Manifestum est autem quod unius rei non est nisi una forma naturalis, per quam res habet esse: unde quale ipsum

This distinction, however, is often misunderstood. Only when it is correctly understood does it become a beginning for understanding these other things.

Our aim is to understand correctly this distinction and then use it to understand some other things. What are these ?

A true understanding of the distinction between a natural ability and a rational ability leads to the understanding of two other distinctions: the distinction between reason as reason and reason as a nature, and the proportional distinction between the will as will and the will as a nature. We must also correctly understand these two distinctions. And after seeing these distinctions, it is important to consider which is more known to us : reason as reason or reason as a nature, and the will as will or the will as a nature. The denial of reason as a nature and the will as a nature[3] would seem to point to reason as reason and the will as will as being more known to us. When these distinctions have been understood, many other things can be understood better.

First, we can understand better what is being defined by the first definition of reason in Shakespeare's *Exhortation to Use Reason* and what we are being urged to use therein. Perhaps, there could also be a first definition of the will proportional to this.

Second, we can understand better the reason which is directed by logic and logistic and what is the second road in our looking knowledge (after the natural road from the senses into

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est, tale facit. Sed forma per quam voluntas agit, non est una tantum, sed sunt plures, secundum quod sunt plures rationes intellectae: unde quod voluntate agitur, non est tale quale est agens, sed quale vult et intelligit illud esse agens. Eorum igitur voluntas principium est, quae possunt sic vel aliter esse. Eorum autem quae non possunt nisi sic esse, principium natura est."

[3]A house divided against itself cannot stand. In modern times, reason as reason has denied reason as a nature. Hence, reason is a divided house and cannot stand. Thus, the negation or denial of reason has become characteristic of our age. Perhaps the root of this denial is reason as reason denying reason as a nature. Reason without wisdom misses the distinction.

reason). And proportional to this, we can see the will which is directed (in a remote way) by ethics, domestics and political philosophy.

Third, we can understand better the order in which Aristotle distinguishes reason from the senses and the imagination in the third book *About the Soul* (the *De Anima)* and also to some extent how the will is first distinguished from sense desire therein.

Fourth, we can understand better the division and order in which Aristotle considers the five virtues of reason in the sixth book of the *Nicomachean Ethics.* And we can consider how the virtues of the will are to will as will and will as a nature.

Fifth, these distinctions are important for theology in understanding God and the Trinity.

A Misunderstood Distinction

When Aristotle distinguishes the rational or reasonable powers or abilities from the natural ones in the ninth book of the *Metaphysics*, he does so by pointing out that a natural ability is determined to one[4] while a rational ability is open to opposites. The fire will always burn what is placed before it. But the doctor can heal or make sick by his art.

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[4]Shakespeare touches upon this in the words of Aufidius as to the possible causes of Coriolanus' intransigence and downfall (*Coriolanus*, Act IV, Sc. 7) :

> .....First he was
> A noble servant to them, but he could not
> Carry his honours even; whether ‘twas pride,
> Which out of daily fortune ever taints
> The happy man; whether defect of judgment,
> To fail in the disposing of those chances
> Which he was lord of; or whether nature,
> Not to be other than one thing, not moving
> From the casque to the cushion, but commanding peace
> Even with the same austerity and garb
> As he controll’d the war.....

Since there is the same knowledge of opposites, one is able by the same art to do opposite things. But the natural form is in matter and excludes its opposite. Since the art is open to opposites, but one cannot do both opposites at the same time, the rational ability does not, like the natural one, go automatically into act in the presence of its material. Rather, there is need of desire to determine which opposite will be done.

Since the above distinction between a natural ability or power and a reasonable one seems to determine the fundamental division of movers, there is significance in the examples Aristotle gives when distinguishing the four kinds of causes. In the second book of *Natural Hearing*, the *Physics*, and in the fifth book of the *Metaphysics*, Aristotle gives as examples of the mover, one from nature and the other from reason. The father or seed is given as an example of a natural cause and the doctor or the advisor as a cause by reason.

The division also appears exhaustive because it is by opposites. An active ability is either determined to one of two opposites or it is not. It is either capable of both opposites or it is not. Reason by dialectic and rhetoric can argue to opposite conclusions And men often come by their reason to opposite conclusions and even the same man sometimes goes from affirming to denying or vice-versa. The will, like reason, is capable of opposites for we can will to do or not do, to do in this way or even in an opposite way.

Some thinkers understand this distinction between nature on the one hand and reason or the will on the other hand, such that there is no part or side of any contradiction (neither the affirmative, nor the negative) which reason must assent to and cannot agree to its opposite; and likewise that there is nothing that the will must will and cannot will its opposite. John Stuart Mill, for example, in his defense of liberty of thought sees such liberty as respecting reason which is nowhere determined necessarily to one side of a contradiction. And Jean Paul Sartre sees man's will with no determination to any object. There are, of course, many others who share these positions. Indeed, the many who think, in

accord with scientific customs, that every thought is an hypothesis to be tested by its consequences (as Claude Bernard taught) would hold this position, especially when it is realized that even the confirmation of an hypothesis does not force reason to accept the hypothesis. (One cannot affirm necessarily the antecedent because the consequent has been affirmed.) And these positions would at first sight seem to agree with the above distinction of a natural and a rational ability going back to Aristotle, if not before. Indeed, it seems to be a case of the excluded middle. Either an ability is determined to one of the opposites or it is not.

But Thomas Aquinas, the best of Aristotle's pupils, often points out that our reason or understanding knows some things naturally. Some understandables are known naturally while the others are known by reasoning and study :

> For our understanding knows some things naturally, as the first beginnings of understandables of which the understandable thoughts, which are called the inward words, naturally exist in it and proceed from it. There are also some understandables which our understanding does not know naturally, but comes to a knowledge of them by reasoning. And the thoughts of these do not exist naturally in our understanding, but are sought with study.[5]

These natural beginnings of reasoned out knowledge and the virtues in reason are as seeds by which man can get into act :

> But in reason itself, there naturally preexist some seeds and beginnings of reasoned out knowledge and the virtues by the

[5] *Summa Contra Gentiles*, IV, 11: “Intellectus enim noster aliqua naturaliter cognoscit : sicut prima intelligibilium principia, quorum intelligibiles conceptiones, quae verba interiora dicuntur, naturaliter in ipso existunt et ex eo procedunt. Sunt etiam quaedam intelligibilia quae non naturaliter intellectus noster cognoscit, sed in eorum cognitionem ratiocinando pertingit: et horum conceptiones in intellectu nostro naturaliter non existunt, sed cum studio quaeruntur.”

> power of which man is able somewhat to go into the act of reasoned out knowledge and virtue.[6]

The use of the word *seed* here emphasizes the natural character of these beginnings for nothing is more natural than a seed. Positive laws as well as the virtues should proceed from something natural:

> It is necessary that laws laid down proceed from a natural instinct if they are human: just as also in the demonstrative sciences all human discovery takes its origin from beginnings naturally known.[7]

The same Thomas tells us can be said of the will and indeed everywhere, in every order of acts, the natural act is before :

> In every order of acts, the natural act is before. Thus in understanding, the first beginnings are first understood, and through them other things are understood. And in willing likewise, we first will the last perfection and the last end, the desire for which is naturally in us, and we desire other things for it.[8]

But if this is so, what about the distinction between nature and reason or will in the ninth book of the *Metaphysics*? The problem of the distinction of nature and reason, or nature and will, as causes, arises as an objection in those texts of Thomas where he maintains that reason knows or understands some things naturally and cannot think the opposite and where he maintains that the will naturally wills something and cannot will

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[6]*In IX Metaphysicorum*, VII, #1855: “Sed et in ipsa ratione, naturaliter praeinsunt quaedam semina et principia scientiarum et virtutum, virtute quorum potest homo aliqualiter exire in scientiae et virtutis actum.”

[7]*Contra Gent.*, III, 123: “Leges autem positae oportet quod ex naturali instinctu procedant, si humanae sunt: sicut etiam in scientiis demonstrativis omnis humana inventio ex principiis naturaliter cognitis initium sumit.”

[8]*Super Ioannem*, VIII, L. VI, #1246: “In quolibet autem ordine actuum prius est actus naturalis ; sicut in intelligendo, primo intelliguntur prima principia, et per ipsa intelliguntur alia, et in volendo similiter, primo volumus ultimam perfectionem et ultimum finem, cuius appetitus naturaliter nobis inest, et propter ipsum appetimus alia.”

its opposite. The will naturally wills happiness and cannot will its opposite, misery or wretchedness. The will can will something only if it is good in some way. The reason naturally knows and assents to the axioms, especially the statement about contradiction. Having distinguished between nature and reason and between nature and will, how can one assert that reason knows some things, or assents to them, naturally and the will wills something naturally ?

There are two ways in which Thomas explains how this is possible. The first way is given in response to an objection:

> A natural agent is divided against a voluntary agent, as is clear in the second book of the *Physics*. The will, therefore, is not moved naturally to anything.[9]
>
> It should be said to the first that the will is divided against nature, as one cause against another: some things come to be naturally and some things come to be voluntarily. There is another way of causing proper to the will, which is mistress of its act,[10] besides the way which belongs to nature which is determined to one. But because the will has a foundation in some nature, it is necessary that the motion proper to nature be shared in the will to some extent, as what belongs to the cause before is shared by the cause which comes after. For in each thing, existence which is by its nature is before willing which is by its will. And hence it is that the will naturally wills something. [11]

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[9] *Summa Theol.,* IaIIae, q. X, a. 1, obj. 1: "Agens enim naturale dividitur contra agens voluntarium, ut patet in principio *II Physic*. Non ergo voluntas ad aliquid naturaliter movetur."

[10] The will would seem to be mistress of its act which is choice. Thus The Poet in *Hamlet*, Act III, Sc. 2:

> Since my dear soul was mistress of her choice
> And could of men distinguish, her election
> Hath seal'd thee for herself.....

[11] *Summa Theol., ibid.*, ad 1: "Ad primum ergo dicendum quod voluntas dividitur contra naturam, sicut una causa contra aliam: quaedam fiunt naturaliter, et quaedam fiunt voluntarie. Est enim alius modus causandi proprius voluntati, quae est domina sui actus, praeter modum qui convenit

In this text, Thomas says the will is founded in some nature, the nature of man or the soul and that it partakes of the proper motion of this cause which is before, as any cause which comes after another partakes of the motion of that cause which is before. The same could be said of reason. In this solution, neither reason nor the will is said to be a nature because they know or will something naturally. Rather they do so insofar as they partake of the motion of nature as a cause before them. That nature is before will (or reason) is evident because a thing must exist before it can will (or think) and existence is by nature and willing by the will (and thinking by reason).

To understand why something of nature must be found in reason and the will, it is good to recall some truths. First, since a thing cannot be without being what it is, what is first in each thing is its nature :

> What is first in each thing is its nature or essence.[12]

A thing must be *what it is* before it can be anything else. A second thing to recall is that the first is always saved in the second:

> It is always necessary that the first be saved in the second.[13]

I think this is to be understood in the second or *fifth* sense of *first*.[14] Thomas puts these two thoughts together and speaks of

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naturae, quae est determinata ad unum. Sed quia voluntas in aliquid natura fundatur, necesse est quod motus proprius naturae, quantum ad aliquid, participetur in voluntate; sicut quod est prioris causae, participatur a posteriori. Est enim prius in unaquaque re ipsum esse, quod est per naturam, quam velle, quod est per voluntatem. Et inde est quod voluntas naturaliter aliquid vult."

[12]*Contra Gent.*, III, 107: "Primum autem in unoquoque est eius natura vel essentia."

[13]*Summa Theol.*, I, q. 62, a. 7, c.: "Semper autem oportet salvari primum in secundo."

[14]Since *first* is defined by *before*, it has as many meaning as *before*. The second sense of *before* in the *Categories* is what can be without another, but not vice-versa. The fifth sense to be given there, which I do not think

nature as being first in each thing and therefore being a beginning and exemplifies in reference to reason and the will in this text:

> Always what pertains to the before has reason to be a beginning. Whence, since nature is what is first in each thing, it is necessary that what pertains to nature be the beginning in each thing.
>
> And this can be seen in man, both in regard to the understanding and in regard to the will. For the understanding knows the beginnings naturally. And from this knowledge is caused in man the reasoned out knowledge of conclusions which are not known naturally but by discovery or teaching.
>
> Likewise, in the will, the end is in the same way as the beginning in the understanding, as is said in the second book of the *Physics.* Whence the will naturally tends toward the last end. For every man naturally wills beatitude. And from this natural willing are caused all other willings since whatever man wills, he wills for the sake of the end. The love therefore of the good which man naturally wills as the end is a natural love. But the love derived from this, which is of a good that is loved for the sake of the end, is a chosen love.[15]

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is fifth in order but in some way like the second, is the sense in which the cause is before the effect.

[15]*Summa Theol.*, I, q. 60, a. 2, c.: "Semper id quod pertinet ad prius habet rationem principii; unde, cum natura sit primum quod est in unoquoque, oportet quod id quod ad naturam pertinet, sit principium in quolibet. Et hoc apparet in homine et quantum ad intellectum et quantum ad voluntatem. Intellectus enim cognoscit principia naturaliter : et ex hac cognitione causatur in homine scientia conclusionum, quae non cognoscuntur naturaliter ab homine, sed per inventionem vel doctrinam. Similiter in voluntate finis hoc modo se habet, sicut principium in intellectu, ut dicitur in II *Physic*. Unde voluntas naturaliter tendit in suum finem ultimum: omnis enim homo naturaliter vult beatitudinem. Et ex hac naturali voluntate causantur omnes aliae voluntates: cum quidquid homo vult, velit propter finem. Dilectio igitur boni quod homo naturaliter vult sicut finem, est dilectio naturalis: dilectio autem ab hac derivata, quae est boni quod diligitur propter finem, est dilectio electiva."

This solution could be compared to and manifested by the way that reason is moved by the will or the will by reason. Reason can be moved by the will as well as by nature :

> Nothing prevents some power to be commanded by the will to some act and to be inclined to another by nature; as our understanding is inclined to believing by the will and is led to understanding the first beginnings by nature. [16]

One would not say that reason is a will because it is moved by the will. Hence, likewise, one should not say that reason is a nature because it is moved by nature. One could also say that, when the will is moved by reason or partakes of the order which is proper to reason, it is not a reason. Hence, it should not be called a nature when it wills something naturally, being moved by nature. When the reason knows something naturally, it is not a nature although it partakes of the movement proper to nature because nature is a prior cause. And when the will wills something naturally, it is not a nature, but partakes of the movement proper to nature, as a second cause partakes of the motion of the first. In this way, one can maintain that both reason and the will do something naturally, in which they are determined to one as is nature, without denying that nature and reason, or nature and will, are distinct causes.

There is a difficulty with this first way of solving the problem that will lead us into Thomas' second solution and a more complete understanding of the distinction between these kinds of cause.

The difficulty in Thomas' first solution is that, in maintaining the opposite ways in which these causes work (nature being determined to one and the reason and will being open to opposites), the way in which reason is determined to one in assenting to the axioms, or the will to one in willing happiness, seems to

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[16]Thomas Aquinas, *Q. D. de Potentia*, q. 2, a. 6, ad 1: “Nihil prohibet aliquam potentiam ad aliquem actum imperari a voluntate et ad alium inclinari a natura. Sicut intellectus noster ad credendum inclinatur a voluntate, et ad intelligendum prima principia ducitur ex natura.”

be a violent or forced necessity. But Thomas speaks of this determination to one as being natural necessity, not a violent or forced necessity.

The will (and the understanding or reason) is first determined to one which natural act is before all the rest of its acts.

> The will of a reasonable creature is determined to one in what it is moved to naturally, as every man naturally wills to be and to live and beatitude. And these are things to which the creature is first moved naturally, either in understanding or willing, because always the natural action is presupposed to other actions.[17]

Thomas speaks of the will as will as being free, but with regard to its first and natural act it is not.

> The will, insofar as it is a will, since it is free, has itself to either one. For the will is able to act or not act, to make thus or thus, to will and not will.
>
> And if this does not belong to the will with respect to something, this happens to the will, not insofar as it is a will, but from the natural inclination which it has to something, as to the last end which it is not able not to will ; just as the human will is not able to not will beatitude, nor is it able to will misery…
>
> The will, although it has itself to either with respect to some things, nevertheless with respect to the last end, it has a natural inclination; and likewise, the understanding has a certain natural motion with regard to a knowledge of the first beginnings.[18]

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[17] *Q.D. de Malo*, q. 16, a. 4, ad 5: "Voluntas rationalis creaturae determinata est ad unum, in quod naturaliter movetur; sicut omnis homo naturaliter vult esse, et vivere, et beatitudinem. Et ista sunt ad quae primo movetur naturaliter creatura vel intelligenda vel volenda, quia semper actio naturalis praesupponitur aliis actionibus."

[18] *Q.D. de Pot.*, q. 2, a. 3, c.: "Voluntas, inquantum voluntas, cum sit libera, ad utrumlibet se habet. Potest enim voluntas agere vel non agere, sic vel sic facere, velle et non velle. Et si respectu alicuius hoc voluntati non conveniat, hoc accidet voluntati non in quantum voluntas est, sed ex inclinatione naturali quam habet ad aliquid, sicut ad finem ultimum, quem non potest non velle; sicut voluntas humana non potest non velle beatitudi-

Why would not this *determination to one* of reason and will be not more like St. Paul's description of faith where reason is led captive by the will rather than be a natural necessity. Indeed, the modern revolt against Christian belief is followed by the modern revolt against natural understanding. Freedom, the supreme good for many modern thinkers, leads them to revolt both against Christian belief and against nature.

A second solution of Thomas involves seeing that reason is a nature and the will is a nature. Here one understands *nature* in the broadest sense where everything that is has a nature. Thomas touches upon this broad sense in many places :

> As Boethius says in the book *about the Two Natures* and the Philosopher in the fifth book of the *Metaphysics, nature* is said in many ways. Sometimes it names the beginning within movable things. And such a nature is either matter or a material form, as is clear in the second book of the *Physics.* In another way, each substance or even any thing, is called a *nature*. And according to this, that is said to be *natural* to a thing which belongs to it by its substance. And this is what is in the thing through itself. Everywhere, however, those things which do not exist in a thing through itself are reduced to something as a beginning that is in it through itself. And therefore it is necessary that, taking *nature* in this way, always the beginning of what belongs to a thing is natural. And this clearly appears in the understanding. For the beginnings of the understanding's knowledge are naturally understood. Likewise, the beginning of the motions of the will must be something naturally willed.[19]

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nem, nec potest velle miseriam… Voluntas licet respectu aliquorum ad utrumlibet se habeat, tamen respectu finis ultimi naturalem inclinationem habet; et similiter intellectus respectu cognitionis principiorum primorum, naturalem quemdam motum habet."

[19]*Summa Theol.*, IaIIae, q. X, a. 1, c.: "Sicut Boethius dicit in libro *de Duabus Naturis* et Philosophus in *V Metaph.*, natura dicitur multipliciter. Quandoque enim dicitur principium intrinsecum in rebus mobilibus. Et talis natura est vel materia vel forma materialis, ut patet ex *II Physic.* - Alio modo dicitur natura quaelibet substantia vel etiam quodlibet ens. Et

Nature in this second and broadest sense means what a thing is. But *what a thing is* is first said in substance and then extended to the other Categories. Hence, Thomas says "quaelibet substantia vel etiam quodlibet ens." So general is this sense of *nature* that even grace can be called a nature.[20]

Every power or ability of the soul is a nature in this sense as Thomas explains when speaking of the natural desire or inclination of a power :

> To desire by animal appetite belongs to only the concupiscible appetite ; but to desire by natural appetite belongs to every power : for every power of the soul is a particular nature, and is naturally inclined to something.[21]

And this is said of the will in particular :

> The will is a particular nature and has a natural order to something.[22]

Nature in this broad sense is what a thing is. Every thing is what it is and *what a thing is* is one. Hence, every thing has a determination to one

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secundum hoc, illud dicitur esse naturale rei quod convenit ei secundum suam substantiam. Et hoc est quod per se inest rei. In omnibus autem ea quae non per se insunt, reducuntur in aliquid quod per se inest, sicut in principium. Et ideo necesse est quod, hoc modo accipiendo naturam, semper principium in his quae conveniunt rei, est naturale. Et hoc manifeste apparet in intellectu: nam principia intellectualis cognitionis sunt naturaliter nota. Similiter etiam principium motuum voluntariorum oportet esse aliquid naturaliter volitum."

[20]*Scriptum super I Sententiarum*, dist. XVII, q. I, a. 1, ad 8: "Natura dicitur multipliciter, secundum Boetium *de Duabus Naturis* : dicitur enim uno modo natura omne quod est vel substantia vel accidens ; et hoc modo gratia est natura quaedam. Alio modo dicitur natura quod est principium motus et quietis ipsius in quo est."

[21]*Q.D. de Veritate*, q. 25, a. 2, ad 8: "Concupiscere appetitu animali, ad solum concupisciblem pertinet ; sed concupiscere appetitu naturali, pertinet ad quamlibet potentiam: nam quaelibet potentia animae natura quaedam est, et naturaliter in aliquid inclinatur."

[22]*Q.D. de Ver.*, q. 23, a. 4, c.: "Voluntas natura quaedam est, et naturalem ordinem ad aliquid habet."

Hence, in this solution, the will or reason can be determined to one insofar as each is a nature. Thomas gives, and replies to the common objection from the distinction of abilities in the *Metaphysics* thus:

> Moreover, rational powers are for opposites according to the Philosopher. But the will is a rational power for it is in reason, as is said in the second book of the *De Anima*. Therefore, it is open to opposites; and thus it is not by necessity determined to anything.[23]
>
> It should be said to the fifth that the will, insofar as it is rational, is for opposites; for this is to consider what is peculiar to it. But insofar as it is a particular nature, nothing prevents it from being determined to one. [24]

Thus, the will naturally desires existence, life and happiness, as Thomas often notes. Thomas also points out another way in which determination to one from the nature of the will is understood to be compatible with a known indetermination of the will in replying to the standard objection :

> Moreover, nature is determined to one. But the will is open to opposites. Therefore, the will wills nothing naturally.[25]
>
> It should be said to the third that something one always corresponds to nature, but proportioned to the nature. To the generic nature corresponds something one in genus, and to nature taken in the species corresponds

[23] *Q.D. de Ver.*, q. 22, a. 5, sed c. 5: "Praeterea, potestates rationales se habent ad opposita, secundum Philosophum. Sed voluntas, rationalis est potentia; est enim in ratione, ut dicitur in *II de Anima*. Ergo se habet ad opposita; et ita non de necessitate determinatur ad aliquid."

[24] *Ibid.*, ad 5: "Ad quintum dicendum quod voluntas, in quantum est rationalis, ad opposita se habet: hoc enim est considerare ipsam secundum hoc quod est ei proprium; sed prout est natura quaedam, nihil prohibet eam determinari ad unum."

[25] *Summa Theol.*, IaIIae, q. X, a. 1, obj. 3: "Praeterea, natura est determinata ad unum. Sed voluntas se habet ad opposita. Ergo voluntas nihil naturaliter vult."

> something one in species and to the individual nature corresponds some individual one.
>
> Since the will therefore is a particular immaterial power, just as the understanding, there corresponds naturally something one that is common, namely, the good; just as also to the understanding some common one, either true, or being, or the what it is. But many particular goods are contained under good in general to none of which the will is determined.[26]

But there would seem to be a greater problem with this second solution than with the first. If reason is a nature and the will is also a nature, what happens to the distinction between a natural ability and a rational one, between nature and reason or nature and will.

Thomas explains the distinction more fully in another giving of, and replying to, the common objection :

> Moreover, what is necessarily determined to something, is naturally determined to it. But the will is divided against natural desire. Therefore, the will does not will anything necessarily.[27]
>
> It should be said to the sixth, that the will is divided against natural desire taken with exactness, that is, what is natural only, as man against that which is animal only. It is not however divided

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[26]*Ibid.*, ad 3: "Ad tertium dicendum quod naturae semper respondet unum, proportionatum tamen naturae. Naturae enim in genere, respondet aliquid unum in genere, et naturae in specie acceptae, respondet unum in specie; naturae autem individuatae respondet aliquid unum individuale. Cum igitur voluntas sit quaedam vis immaterialis, sicut et intellectus, respondet sibi naturaliter aliquod unum commune, scilicet bonum: sicut etiam intellectui aliquod unum commune, scilicet verum, vel ens, vel quod quid est. Sub bono autem communi multa particularia bona continentur, ad quarum nullum voluntas determinatur."

[27]*Q.D. de Ver.*, q. 22, a. 5, sed c. 6: "Praeterea, quod de necessitate determinatur ad aliquid, naturaliter est determinatum ad illud. Sed voluntas contra naturalem appetitum dividitur. Ergo voluntas non de necessitate aliquid vult."

> against natural desire absolutely, but includes it, as man includes animal.[28]

When reason is divided against nature, or will against nature, it is divided against what is nature only or nature *cum praecisione sumptum*, just as man is divided against animal. Another text that touches upon this is the following:

> In ordered things it is necessary that the first way be included in the second, and there be found in the second, not only what belongs to it by reason of itself, but also what belongs by reason of the first; as it belongs to man, not only to use reason, which belongs to him by his own difference which is reasonable, but to use sense or food which belongs to him by his genus which is animal or living.
>
> And likewise we see in sensing things that, since touch is as the foundation of the other senses; in the organ of each sense is found, not only what is the property of that sense, but also what is the property of touch: as the organ of the sense of sight not only senses white and black insofar as it is the organ of sight, but it also senses hot and cold, and is corrupted by their excess as it is the organ of touch.
>
> Nature however and will are ordered in this way, so that the will is a particular nature because everything found in things is said to be a particular nature. And therefore it is necessary to find in the will, not only that which belongs to will, but also what belongs to nature.
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> But it belongs to every created nature to be ordered by God to the good, naturally desiring it. Whence also in the will there is a natural desire for the good suitable to it. And besides this, it desires something according to its own determination, not by necessity, which belongs to it in so far as it is a will.

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[28] *Ibid.*, ad 6: "Ad sextum dicendum, quod voluntas dividitur contra appetitum naturalem cum praecisione sumptum, id est qui est naturalis tantum, sicut homo contra id quod est animal tantum; non autem dividitur contra appetitum naturalem absolute, sed includit ipsum, sicut homo includit animal."

The Distinction between Nature and Reason or Will

As is the order of nature to will, so also is the order of those things which the will naturally wills to those things to which the will is determined by itself, and not from nature. And therefore, as nature is the foundation of will, so the desirable which is naturally desired is the beginning and foundation of other things desired.

In desirable things however the end is the foundation and beginning of those things which are for it; since those things which are for the end are not desired except by reason of the end. And therefore what the will necessarily wills, as determined by a natural inclination in it, is the last end, as beatitude and those things which are included in it, as is the knowledge of truth and other things of this kind. To other things it is not necessarily determined by a natural inclination, but by its own disposition without necessity.[29]

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[29] *Ibid.*, c.: "In rebus ordinatis oportet primum modum includi in secundo, et in secundo inveniri non solum id quod sibi competit secundum rationem propriam, sed quod competit secundum rationem primi; sicut homini convenit non solum ratione uti, quod ei competit secundum propriam differentiam, quae est rationale, sed uti sensu vel alimento, quod ei competit secundum genus suum, quod est animal vel vivum. Et similiter videmus in sensibilibus ; quod cum tactus sit quasi fundamentum aliorum sensuum; in organo uniuscuisque sensus non solum invenitur proprietas illius sensus cuius est organum proprium, sed etiam proprietas tactus: sicut organum sensus visus non solum sentit album et nigrum, inquantum est organum visus, sed sentit calidum et frigidum, et corrumpitur ab eorum excellentiis, secundum quod est organum tactus. Natura autem et voluntas hoc modo ordinata sunt, ut ipsa voluntas quaedam natura sit; quia omne quod in rebus invenitur, natura quaedam dicitur. Et ideo in voluntate oportet invenire non solum id quod voluntatis est, sed etiam quod naturae est. Hoc autem est cuiuslibet naturae creatae, ut a Deo sit ordinata in bonum, naturaliter appetens illud. Unde et voluntati ipsi inest naturalis quidem appetitus sibi convenientis boni. Et praeter hoc habet appetere aliquid secundum propriam determinationem, non ex necessitate; quod ei competit in quantum voluntas est. Sicut autem est ordo naturae ad voluntatem, ita se habet ordo eorum quae naturaliter vult voluntas, ad ea respectu quorum a seipsa determinatur, non ex natura. Et ideo, sicut natura est voluntatis fundamentum, ita appetibile quod naturaliter appetitur, est aliorum appetibilium principium et fundamentum. In appetibilibus autem finis est fundamentum et principium eorum quae sunt ad finem; cum quae sunt propter finem, non appetantur nisi ratione finis. Et ideo,

Although we distinguish the sense of touch from the other senses, it is included in the organs of the other senses.

Now it may seem strange that an ability to do something in a non-natural way is also an ability naturally determined to do something. But there are many reasons why the natural is always before what is not natural. As we have seen, nature in the sense of *what it is* is always first in a thing. First, it seems obvious that a thing must be what it is before it can be anything else. And second, we have seen Thomas reasoning that, since a thing must exist before it can do something, its nature through which it exists must be before its abilities to do something. And third, what belongs to a thing through its nature belongs to it through itself. And to this can be joined the following statement :

> In every order, what is through itself is before that which is through another and its beginning.[30]

Thus the statements known through themselves by all would seem to be first and naturally known by us and likewise what is willed through itself would seem then to be first and naturally willed by us. Such natural necessity is not opposed to the will or to reason:

> Nor is natural necessity repugnant to the will. Nay rather it is necessary that, just as the understanding necessarily adheres to the first beginnings, so the will necessarily adheres to the last end which is beatitude. For the end is in things to be done, as the beginning is in things to be looked at, as is said in the second book of the *Physics*.
>
> For it is necessary that what belongs to something naturally and immovably, be the foundation and beginning of all other things

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quod voluntas de necessitate vult quasi naturali inclinatione in ipsum determinata, est finis ultimus, ut beatitudo, et ea quae in ipso includuntur, ut est cognitio veritatis, et alia huiusmodi ; ad alia vero non de necessitate determinatur naturali inclinatione, sed propria dispositione absque necessitate."

[30]*Contra Gent.*, III, 46: "In quolibet ordine, quod est per se est prius eo quod est per aliud, et principium eius [VIII *Phys.*,V, 7, 257A]."

> because nature is first in each thing and all motion proceeds from something immovable.[31]

Thomas here joins the natural and the immovable and gives us a fourth reason why the natural is first : that all motion proceeds from something immovable. And a sign that the first things understood are understood naturally is their being common to all (and the same could be said of the will for all men want to be happy):

> If knowledge of conclusions were natural to the soul as is the knowledge of the beginnings, there would be the same judgment about conclusions among all, as there is about the beginnings. For the things which are natural are the same among all. But there is not the same judgment among all about conclusions, but only about the beginnings. It is clear therefore that the knowledge of beginnings is natural in us, but not the knowledge of conclusions.
>
> What is not natural in us we acquire through what is natural ; just as also in exterior things, we begin all artificial things through our hands. Therefore, there is no knowledge of conclusions in us except what is acquired from the beginnings.[32]

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[31] *Summa Theol.*, Ia, q. 82, a. 1, c.: “Nec necessitas naturalis repugnat voluntati. Quinimmo necesse est quod, sicut intellectus ex necessitate inhaeret primis principiis, ita voluntas ex necessitate inhaereat ultimi fini, qui est beatitudo: finis enim se habet in operativis sicut principium in speculativis, ut dicitur in *II Physic*. Oportet enim quod illud quod naturaliter alicui convenit et immobiliter, sit fundamentum et principium omnium aliorum : quia natura est primum in unoquoque et omnis motus procedit ab aliquo immobili.”

[32] *Contra Gent.*, II, 83: “Si ita esset animae naturalis cognitio conclusionum sicut principiorum, eadem esset sententia apud omnes de conclusionibus, sicut de principiis: quia quae sunt naturalia, sunt eadem apud omnes. Non est autem apud omnes eadem sententia de conclusionibus, sed solum de principiis. Patet igitur quod cognitio principiorum est nobis naturalis, non autem conclusionum. Quod autem non est naturalis nobis acquirmus per id quod est naturale; sicut etiam in exterioribus per manus instituimus omnia artificialia. Non ergo conclusionum scientia est in nobis nisi ex principiis acquisita.”

Thomas has a beautiful *manuductio* here from the more sensible. We can see easily how our natural hands are before all artificial things. Despite the true distinction between the natural and the artificial taught by Aristotle in the second book of *Natural Hearing (Physics)*, all artificial things presuppose our natural hands and are acquired through them. We can see the same in the common distinction between the natural and the customary. The customs and fashions by which men live are acquired by imitation which is natural to man who is by nature the most imitative of animals, as Aristotle points out in the book *About the Poetic Art* (the *Poetics).* We speak, for example, a particular language in our country, not by nature, but by custom. But common customs arise by imitation and man is by nature the most imitative of the animals. Children imitate the language spoken by their parents and others around them. Here, again we acquire what is not natural, but by custom, through our natural tendency to imitate. The fashionable arises in the same way, from man being by nature the most imitative of animals. Thus, although the artificial as artificial is not natural, it presupposes our natural hands. And although the customary as such is not natural, it presupposes our natural inclination to imitate.

The two solutions of Thomas, as we have called them, are not unconnected. The nature of our reason and the nature of our will are both a natural result of the nature of our soul.

Two Connected Distinctions

Once the distinctions between nature and reason, and between nature and will, are correctly understood, the way is open to seeing two other connected distinctions. These are the distinction between reason *as reason* and reason *as a nature,* and the proportional distinction between will *as will* and will *as a nature.*

Thomas gives two ways of understanding the distinction between reason as reason and reason as a nature:

> The distinction by reason *as reason,* and reason *as a nature* can be understood in two ways.

> In one way thus that reason as it is something of the nature of a reasonable creature, is called reason *as a nature*, insofar as founded in the essence of the soul and gives to the body its natural existence. But it is called reason *as reason* by that which is proper to reason insofar as it is reason. And this is its act because powers are defined through their acts.
>
> In another way the foresaid distinction can be understood, as when we say that reason *as a nature* should be understood according as reason is compared to those things which it naturally knows or desires; and reason *as reason* according as by some bringing together it is ordered to knowing or desiring something in that it is characteristic of reason to bring together. [33]

It is the second way, of course, that we are interested in here. In the second way here, Thomas seems to touch upon both the distinction of reason as reason and reason as nature, and the distinction of will as will and the will as a nature. For the will is sometimes said to be in reason ; that is, in the rational part of the soul.

Thomas also explains that this second distinction is not one of two abilities or powers of the soul, but of two ways of considering the same ability or power :

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[33] *Q.D. de Ver.*, q. 26, a. 9, first obj., ad 7: "Distinctio illa qua distinguitur ratio *ut ratio*, et ratio *ut natura*, dupliciter potest intelligi. Uno modo ita quod ratio *ut natura* dicatur ratio secundum quod est naturae creaturae rationalis, prout scilicet fundata in essentia animae dat esse naturale corpori: ratio vero *ut ratio* dicatur secundum id quod est proprium rationis in quantum est ratio; et hoc est actus eius, quia potentiae definiuntur per actus... Alio modo potest intelligi praedicta distinctio, ut dicamus rationem *ut naturam* intelligi secundum quod ratio comparatur ad ea quae naturaliter cognoscit vel appetit; rationem vero *ut rationem*, secundum quod per quamdam collationem ordinatur ad aliquid cognoscendum vel appetendum, eo quod rationis est proprium conferre."

> Reason *as reason* does not name some power distinct from reason *as a nature*, but it names a particular way of considering this power. [34]

The same, of course, can be said of the will *as will* and the will *as a nature*. These do not name two powers of the soul, but two ways of considering the same power.

Reason as a nature is reason insofar as it naturally knows and assents to some things while reason as reason is reason insofar as it must think out, or reason out, what it knows by some discourse. Likewise, the will as a nature is the will insofar as it wills by a natural necessity the end, but the will as will is the will insofar as it is free to choose among other things.

The distinction between reason as reason and reason as a nature and Shakespeare's *Exhortation to Use Reason*

In his *Exhortation to Use Reason*, Shakespeare has defined reason as *the ability for large discourse, looking before and after*. We have defended elsewhere this definition as the first definition of reason, both in that it is by what is most known to us about reason and that it is a beginning of the whole use of reason.

But now in the light of the above distinction, it can be seen that Shakespeare has defined reason as reason. For *discourse* is coming to know something unknown through things already known and this is clearly an act of reason as reason. If reason as reason is more known to us than reason as a nature (as we have hinted at before and will see more fully later), we can see more perfectly that Shakespeare has indeed given us the first definition of reason; that is, the definition by what is most known to us about reason.

If one were to define reason *as a nature* first, one would run the risk of confusing reason with the understanding of an angel

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[34] *Q.D. de Ver.*, q. 26, a. 9, sec. obj., ad 4: "Ratio *ut ratio* non nominat aliquam potentiam distinctam a ratione *ut natura* est, sed nominat quemdam modum considerandi ipsam potentiam."

or God. For they understand without discourse. And one can reason more from the existence of reasoned out understanding in a creature to the existence of some natural understanding in that creature than the reverse. For if we understood nothing before reasoning, we would have nothing to reason from. Hence, something must be naturally understood before we begin to reason. But if one can understand without discourse, it does not follow that one must understand also as a result of some discourse. For God and the angels, without discourse, understand much more than we do.

Someone might say that a definition of reason should include both reason as reason and reason as a nature. Perhaps, though, we should not demand of a *first* definition of reason that it give us a complete knowledge of reason. It is enough if it brings out what is most known to us about what reason is and if it is a beginning for the further use of reason, both in knowing itself better and in knowing other things. Further, it could be reasoned that even our natural understanding is not without some kind of discourse in that it depends upon some experience, as Aristotle notes at the end of the *Posterior Analytics.*

Shakespeare also gives us the elements of the first definition of man as an animal with reason for he tells us that man without reason would be *no more* than a beast. Man is not just an animal as the beast, but an animal with reason. But when man is defined as a reasonable or rational animal, the difference in the definition is taken from reason as it signifies discursive knowledge:

> *Rationale* est differentia animalis, secundum quod ratio, a qua sumitur, significat cognitionem discursivam, qualis est in hominibus non autem in Angelis nec in Deo.[35]

But the *Exhortation* is also urging us to use reason and it is reason as reason that we especially need to be urged to use since nature ensures that we will have the perfection of reason as a nature.

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[35]*Q.D. de Pot.*, q. 9, a. 2, ad 10.

Thus, the *Exhortation* defines reason as reason, and uses reason as reason to distinguish man from the beast, and urges us to use reason as reason.

Perhaps, the will should first be defined *as will*. If one defined the will first in a way proportional to Shakespeare's way of defining reason, it would be defined more as the ability to choose than as the ability to desire existence, life and happiness.

Should the first definition of will be a definition of will as will? Do we first see the difference between the will and sense desire by the will's being an ability to choose rather than the will being the ability to desire happiness. People at first have a hard time distinguishing happiness from pleasure. And notice Thomas' use of the word *dilectio* to name the love of the will in the *Summa Theologiae*.[36]

The distinction between reason as reason and reason as a nature and the second road in our knowledge and logic and logistic.

Logic (the art of defining and reasoning) and logistic (in its Greek sense, the art of counting and calculating) are both named from reason for they direct reason. But after the distinction, we can see that they direct reason as reason, not reason as a nature. Defining, reasoning and calculating are discourses of reason in which it comes to know something unknown through things already known. And discourse is an act of reason as reason.

When we distinguish the private roads and ways of going forward in reasoned out knowledge from the common road and way of going forward in reasoned out knowledge, the distinction is based on the diverse matters of the forms of reasoned out knowledge and their common use of reason. We use reason in each reasoned out knowledge, but in a different matter. Thus there is something common to all reasoned out knowledge which

[36]*Summa Theol.*, IaIIae, q. 26, a. 3, c.: "Addit enim *dilectio* supra amorem, electionem praecedentem, ut ipsum nomen sonat. Unde dilectio non est in concupiscibili, sed in voluntate tantum, et est in sola rationali natura."

is the use of reason. Each is a work of reason. And this is why there is a common road and a common way of going forward in reasoned out knowledge. But since the matter of each reasoned out knowledge is different, there is also a private road for each. Now, although this helps us to distinguish the road studied in logic from those studied at the beginning of each reasoned out knowledge by the basis for these roads, it runs the risk of confusing the road studied in logic with the first road in our knowledge. The first road in our knowledge is the natural road from the senses into reason. It is based on the nature of man as an animal with reason and on the nature of his senses and the nature of his reason. If the second road in our knowledge (the common road of reasoned out knowledge), which is studied in logic, is also based on reason, it might be confused with the natural road which is also in part based on reason. But the second road is based on reason as reason while it is reason as a nature which is a part of the natural road.

This is why Albert the Great can rightly say that logic is named from *reason* as it is defined by Isaac as a discursive power.[37]

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[37] Albert the Great, *Commentaria in Libris Elenchorum Sophisticorum Aristotelis*, Doyon edition from Vives, Tractatus I, Caput I, p. 1a: "In hoc *Elenchorum Sophisticorum* libro, de syllogismo litigatorio agendum est ad completionem logicae scientiae, secundum quod logica dicitur a λόγος quod est ratio, et non a λόγος quod est *sermo*. Dicit enim Isaac, quod ratio est virtus collativa faciens coire causam in causatum, secundum quod causa sumitur in communi pro causa consequentiae et non pro causa consequentis, sicut causa est quae causat decursum syllogisticum per dici de omni et dici de nullo: sic enim logica est de ratione argumentativa. Sed quia omnis argumentatio ad syllogismum reducitur, erit logica hoc modo dicta de syllogismo, cujus quidem principia remota (quae sunt praedicata et subjecta) in libris de *Universalibus* et *Praedicamentis* et *Sex Principiis* jam determinata sunt ex antecedentibus et diffinitionibus eorum secundum potestatem ipsorum, et per consequentia sint determinata in libro *Divisionum*. Principia vero propinqua syllogismi et ingredientia substantiam ipsius, in libro *Peri Hermeneias* jam determinata sunt."

The definition of reason as reason is a beginning for understanding the second road in our knowledge. This is the road from reasonable guesses to reasoned out knowledge. And since logic is about the second road, it is also a beginning for understanding logic (as is especially clear in Plato's and Albert's division of logic).

We say that logic directs reason, but it is more precise to say that logic directs reason as reason when its end is knowledge.

Reasoned out knowledge is the perfection of reason as reason. Reasoned out knowledge is considered in logic because it is an effect of definition and demonstration which are studied in logic. We can also consider reasoned out knowledge in the light of the definition of reason as reason. Shakespeare has given in his *Exhortation* the best definition of reason as reason. It is the *ability for large discourse, looking before and after.* Since reasoned out knowledge is the perfection of this ability, the last part of the definition is most relevant for understanding reasoned out knowledge. Since before and after define order, reasoned out knowledge must be understood by order. The connection of reasoned out knowledge with order is twofold for it is an ordered knowledge of order. In his proemium to the *Nicomachean Ethics*, Thomas Aquinas emphasizes that reasoned out knowledge is about some order. He then distinguishes these orders in comparison to reason and consequently the main forms of reasoned out knowledge by the order which they consider.[38] But in his proemium to Aristotle's book *About the Universe* (the *De Caelo et Mundo)*, he considers that there is also always an order in reasoned out knowledge before he considers in particular the

[38]*Expositio in Decem Libros Ethicorum Aristotelis Ad Nicomachum*, I, Lect. I, #1-2: "Sicut dicit Philosophus in principio *Metaphysicae*, sapientis est ordinare. Cuius ratio est, quia sapientia est potissima perfectio rationis, cuius proprium est cognoscere ordinem... Ordo autem quadrupliciter comparatur ad rationem... Et quia consideratio rationis per habitum perficitur, secundum hos diversos ordines, quos proprie ratio considerat, sunt diversae scientiae."

order in the reasoned out knowledge of natural things.[39] In approaching any reasoned out knowledge, we need to know both the order it considers and the order in which it is considered, the order it is about and the order that is in it.

As logic directs reason as reason, so does ethics direct the will as will (more remotely, of course, than foresight)? As logic directs what is in need of direction, so would not ethics and foresight direct what is in need of direction in the acts of the will? This would be our choices and choice is an act of will as will. Thomas clarifies this in the reply to an objection :

> The act of the will is not able to be bad, because the power itself of the will is good nor *is a good tree able to produce bad fruits*, as is said in *Matth.* VII, v. 18. Therefore, sin does not consist chiefly in the act of the will.[40]

> The will by its nature is good, whence its natural act is always good. And I call the natural act of the will, insofar as man wills naturally happiness, existence, life and beatitude. If however we speak of moral good, thus the will considered by itself is neither good nor bad, but has itself in potency to good or bad.[41]

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[39] *In Libros Aristotelis De Caelo et Mundo Expositio*, Proemium, #1-2: "Philosophus ostendit in scientiis esse processum ordinatum... Et hoc est rationabile: nam processus scientiarum est opus rationis, cuius proprium est ordinare; unde in omni opere rationis ordo aliquid invenitur, secundum quem proceditur ab uno in aliud. Et hoc patet, tam in ratione practica, cuius consideratio est circa ea quae nos facimus, quam in ratione speculativa, cuius consideratio est circa ea quae sunt aliunde facta. Invenitur autem processus de priori ad posterius in consideratione practicae rationis secundum quadruplicem ordinem... Similiter etiam invenitur quadruplex ordo in consideratione rationis speculativae."

[40] *Q.D. de Malo*, q. 2, a. 3, obj. 2: "Actus voluntatis non potest esse mala, quia ipsa potentia voluntatis bona est, nec *potest arbor bona fructus malos facere*, ut dicitur *Matth.* VII, v. 18. Ergo peccatum non consistit principaliter in actu voluntatis."

[41] *Ibid.*, ad 2: "Voluntas secundum suam naturam est bona, unde et actus eius naturalis semper est bonus ; et dico actum naturalem voluntatis, prout homo vult felicitatem naturaliter, esse, vivere, et beatitudinem. Si autem

The distinction between reason as reason and reason as a nature and the order in the consideration and determination of reason in the study of the soul

When Aristotle first enumerates the genera of powers of the soul in the second book *About the Soul*, he calls reason the διανοητικόν power.[42] The word διανοητικόν clearly refers to reason as reason as can be seen from its use in the beginning of the *Posterior Analytics* for the knowledge which comes from pre-existent knowledge.[43] The etymology of the word also points to reason as reason.

And when Aristotle first distinguishes reason from the imagination, he does so by an act of reason as reason.[44] I am free to *imagine* something good or bad, such as having won the sweepstakes or having a terrorist outside the room with a gun. But I cannot *think* I have won, or that there is a terrorist, without having some reason to think so.

When Aristotle distinguishes the will or higher desire from the sense desiring powers, he does so by the will being deliberative desire, in the third book *About the Soul*:

> The sensible image, as has been said, is also found in the other animals, but the deliberative image in those having reason. For

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loquamur de bono morali, sic voluntas secundum se considerata nec est bona nec mala, sed se habet in potentia ad bonum vel malum."

[42]*De Anima*, II, 3, 414a31-32: "Δυνάμεις δ' εἴπομεν θρεπτικόν, αἰσθητικόν, ὀρεκτικόν, κινητικὸν κατὰ τόπον, διανοητικόν."

[43]*Posterior Analytics*, I, 1, 71a1-2: "Πᾶσα διδασκαλία καὶ πᾶσα μάθησις διανοητικὴ ἐκ προϋπαρχούσης γίνεται γνώσεως."

[44]Thomas Aquinas, *In III De Anima*, Lect. IV, Marietti ed., #633: "Probat quod non sit idem opinio et phantasia, duabus rationibus; quarum prima talis est. Passio phantasiae est in nobis cum volumus, quia in potestate nostra est formare aliquid, quasi apparens ante oculos nostros, ut montes aureos, vel quicquid volumus, sicut patet de illis qui recordantur, et formant sibi idola eorum quae sibi videntur ad votum. Sed opinari non est in potestate nostra; quia necesse est, quod opinans habeat rationem, per quam opinetur, vel verum vel falsum; ergo opinio non est idem quod phantasia."

whether one does this or that is already a work of reason. And it is necessary to measure by something one. For one seeks the better. Thus it is able to make something one from many images. And this is the cause of not seeming to have opinion, because it does not have the image from a syllogism. (But the reasonable does.) Whence it does not have deliberative desire. This overcomes sometimes and moves that, and sometimes the other, it, as sphere moves sphere so desire moves desire, whenever lack of self-control comes about. But by nature the higher desire is always chief and moves [the lower].[45]

Thomas' commentary on this passage is as follows:

He says therefore first that the sensible image, as is clear from what has been said, is also in the other animals. But that which is by deliberation is only in those having reason because to consider whether this or that should be done is to deliberate, which is a work of reason. And in such a consideration it is necessary to take one rule, or end, or something of this sort, by which is measured what more should be done. For it is clear that man 'imitates', that is, desires, that which is more in goodness, and that which is better. The better however we always judge by some measure. And therefore to take some measure in deliberating which more should be done. And this is the middle from which practical reason syllogizes what should be chosen. Whence it is clear that deliberating reason is able to make something one from many images, that is from three of which one is chosen before another and the third is as a measure which chooses before.

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[45]*De Anima,* 434a5-15: "Ἡ μὲν οὖν αἰσθητικὴ φαντασία, ὥσπερ εἴρηται, καὶ ἐν τοῖς ἄλλοις ζώοις ὑπάρχει, ἡ δὲ βουλευτικὴ ἐν τοῖς λογιστικοῖς (πότερον γὰρ πράξει τόδε ἢ τόδε, λογισμοῦ ἤδη ἐστὶν ἔργον· καὶ ἀνάγκη ἑνὶ μετρεῖν· τὸ μεῖζον γὰρ διώκει· ὥστε δύναται ἓν ἐκ πλειόνων φαντασμάτων ποιεῖν). Καὶ αἴτιον τοῦτο τοῦ δόξαν μὴ δοκεῖν ἔχειν, ὅτι τὴν ἐκ συλλογισμοῦ οὐκ ἔχει [αὕτη δὲ ἐκείνην]. Διὸ τὸ βουλευτικὸν οὐκ ἔχει ἡ ὄρεξις· νικᾷ δ᾽ ἐνίοτε καὶ κινεῖ ὁτὲ μὲν αὕτη ἐκείνην, ὁτε δ᾽ ἐκείνη ταύτην, ὥσπερ σφαῖρα <σφαῖραν>, ἡ ὄρεξις τὴν ὄρεξιν, ὅταν ἀκρασία γένηται· φύσει δὲ ἀεὶ ἡ ἄνω ἀρχικωτέρα καὶ κινεῖ."

> And this is the cause wherefore animals do not have opinion although they have image; because they are not able to use syllogism by which one is chosen before another. But the deliberation of reason has that, namely opinion, otherwise it would not make something one from many images. And hence it is that lower desire, which follows image, does not have deliberation, but without deliberation it is moved to desiring or being angry, because it follows a sensible image.
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> Then... he shows in what way the deliberation of reason is overcome by lower desire. And he says that lower desire, which is without deliberation, overcomes deliberation, and removes man from that which he deliberated. Sometimes reversely desire moves desire, namely the higher desire, which is of reason deliberating, the one which is from sensible image; just as in the heavenly bodies, the higher sphere moves the lower which happens when someone is continent. For it belongs to the continent to overcome the passions by the deliberation of reason.
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> And this is the natural order that the higher desire should move the lower because also in the heavenly bodies naturally the higher sphere is more the chief one and moves the lower... And likewise, the lower desire, although it retains something of its own motion, is moved nevertheless in natural order by the motion of the higher desire and by the motion of reason deliberating. If however the reverse happens, that the higher desire is moved over by the lower, this is outside the natural order.[46]

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[46]Thomas Aquinas, *In III De Anima*, Lect. XVI, #840-844: "Dicit ergo primo, quod phantasia sensibilis, ut ex dictis patet, est etiam in aliis animalibus; sed illa, quae est per deliberationem, est tantum in rationalibus; quia considerare utrum hoc sit agendum, aut hoc quod est deliberare, opus est rationis. Et in tali consideratione necesse est accipere aliquam unam regulam, vel finem, vel aliquid huiusmodi, ad quod mensuretur quid sit magis agendum. Manifestum est enim quod homo, 'imitatur', idest desiderat, id quod est magis in bonitate, et id quod est melius: melius autem semper diiudicamus aliqua mensura: et ideo oportet accipere aliquam mensuram in deliberando quid magis sit agendum. Et hoc est medium ex quo ratio practica syllogizat quid sit eligendum. Unde manifestum est quod ratio deliberans potest ex pluribus phantasmatibus unum facere,

What is clear from this text is that Aristotle is distinguishing will from sense desire by the will having deliberative desire. But this desire is choice. Hence, the will is first known as will, as the ability to choose, rather than as a nature in willing something by natural or inborn necessity.

When Thomas Aquinas distinguishes the will from sense desire in the *De Veritate* apart from their distinction based on the distinction of reason and sense,[47] he does so in this way:

> It should be said that the will is another power from sense desire. In evidence of this, it should be known that just as sense desire is distinguished from natural desire because of a more

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scilicet ex tribus, quorum unum praeeligitur alteri, et tertium est quasi mensura, quae praeelegit. Et haec est causa, quare animalia non habent opinionem, licet habeant phantasiam ; quia non possunt uti syllogismo, per quam unum praeeligant alteri. Sed deliberatio rationis habet illam, scilicet opinionem, alias non faceret ex pluribus phantasmatibus unum. Et inde est, quod appetitus inferior, qui sequitur phantasiam, non habet deliberationem, sed absque deliberatione movetur ad concupiscendum vel irascendum, quia scilicet sequitur phantasiam sensibilem. Deinde... ostendit quomodo deliberatio rationis vincatur ab appetitu inferiori ; et dicit quod appetitus inferior, qui est sine deliberatione, vincit deliberationem, et removet hominem ab eo quod deliberavit. Aliquando e converso appetitus movet appetitum, scilicet superior, qui est rationis deliberantis, eum qui est phantasiae sensibilis, sicut in corporibus caelestibus, sphaera superior movet inferiorem ; quod accidit cum aliquis continens fuerit. Continentis enim est, per deliberationem rationis vincere passiones. Et iste est naturalis ordo, ut superior appetitus moveat inferiorem; quia etiam in corporibus caelestibus naturaliter sphaera superior principalior est et movet inferiorem... Et similiter appetitus inferior, etsi aliquid de motu proprio retineat, movetur tamen naturali ordine, motu appetitus superioris, et motu rationis deliberantis. Si autem e converso accidit, quod appetitus superior transmoveatur ab inferiori, hoc est praeter ordinem naturalem."

[47] *Q.D. de Ver.*, q. 22, a. 4, ad 1: "Voluntas ab appetitu sensibili non distinguitur directe per hoc quod est sequi apprehensionem hanc vel illam ; sed ex hoc quod est determinare sibi inclinationem, vel habere inclinationem determinatam ab alio: quae duo exigunt potentiam non unius modi. Sed talis diversitas requirit diversitatem apprehensionum... Unde quasi ex consequenti accipitur distinctio appetitivarum virium penes distinctionem apprehensivarum, et non principaliter."

perfect way of desiring, so reasonable desire [is distinguished] from sense desire.

For the closer some nature is to God, the more express is found the likeness of the divine dignity in it. It pertains however to the divine dignity that he moves and inclines and directs all things, while he himself is not moved or inclined or directed by anyone else. Whence to the extent some nature is closer to God, to that extent it is less inclined by another and more apt to incline itself.

The non-sensing nature, therefore, which by reason of its materiality is most remote from God, is inclined to some end, but there is not in it something inclining, but only a beginning of the inclination...

The sensing nature, however, as closer to God, has in itself something inclining, namely the desirable grasped. But nevertheless the inclination itself is not in the power of the animal itself which is inclined, but it is determined for it from elsewhere. For an animal is not able not to desire the pleasant when it is seen because those animals do not have dominion over their inclination. Whence they do not act, but more are acted upon, according to Damascene. And this is because the desiring power has a bodily organ and therefore is close to the dispositions of matter and bodily things, so that it is more moved than a mover.

But the reasonable nature, which is closest to God, does not only have an inclination to something as have non-living things, nor only something moving this inclination as determined for them from elsewhere, as the sensing nature. But beyond this, it has the inclination itself in its power so that it is not necessary for it to be inclined to the desirable apprehended, but it is able to be inclined or not be inclined. And thus its inclination is not determined for it by another, but by itself.

And this belongs to it insofar as it does not use a bodily organ. And thus receding from the nature of the movable, it approaches to the nature of the mover and agent.

However that something determine for itself its inclination to an end cannot happen unless it knows the end and the relation of the

> end to those things which are for the end which belongs only to reason.
>
> And therefore such desire, not determined from something else by necessity, follows the grasping of reason. Hence the reasonable desire, which is called a will, is another power from sense desire.[48]

When Thomas distinguishes will from sense desire here, he is distinguishing the will as will from sense desire. The will as a

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[48] *Ibid.*, q. 22, a. 4, c.: "Dicendum, quod voluntas est alia potentia ab appetitu sensitivo. Ad cuius evidentiam sciendum est, quod sicut appetitus sensitivus distinguitur ab appetitu naturali propter perfectiorem modum appetendi; ita appetitus rationalis ab appetitu sensitivo. Quanto enim aliqua natura est Deo propinquior, tanto expressior in ea divinae dignitatis similitudo invenitur. Hoc autem ad divinam dignitatem pertinet ut omnia moveat et inclinet et dirigat, ipse a nullo alio motus vel inclinatus vel directus. Unde, quanto aliqua natura est Deo vicinior, tanto minus ab alio inclinatur et magis nata est seipsam inclinare. Natura igitur insensibilis, quae ratione suae materialitatis est maxime a Deo remota, inclinatur quidem in aliquem finem, non tamen est in ea aliquid inclinans, sed solummodo inclinationis principium... Natura autem sensitiva ut Deo propinquior, in seipsa habet aliquid inclinans, scilicet appetibile apprehensum; sed tamen inclinatio ipsa non est in potestate ipsius animalis quod inclinatur, sed est ei aliunde determinata. Animal enim ad aspectum delectabilis non potest non concupiscere illud; quia illa animalia non habent dominium suae inclinationis; unde non agunt, sed magis aguntur, secundum Damascenum; et hoc ideo quia vis appetitiva habet organum corporale et ideo vicinatur dispositionibus materiae et rerum corporalium, ut moveatur magis quam moveat. Sed natura rationalis, quae est Deo vicinissima, non solum habet inclinationem in aliquid sicut habent inanimata, nec solum movens hanc inclinationem quasi aliunde eis determinatam, sicut natura sensibilis; sed ultra hoc habet in potestate ipsam inclinationem, ut non sit ei necessarium inclinari ad appetibile apprehensum, sed possit inclinari vel non inclinari. Et sic ipsa inclinatio non determinatur ei ab alio, sed a seipsa. Et hoc quidem competit ei in quantum non utitur organo corporali: et sic recedens a natura mobilis, accedit ad naturam moventis et agentis. Quod autem aliquid determinet sibi inclinationem in finem, non potest contingere nisi cognoscat finem, et habitudinem finis in ea quae sunt ad finem: quod est tantum rationis. Et ideo talis appetitus non determinatus ex aliquo alio de necessitate, sequitur apprehensionem rationis; unde appetitus rationalis, qui voluntas dicitur, est alia potentia ab appetitu sensibili."

nature, for example, does not determine its own inclination to happiness rather than to misery, but it wills happiness rather than misery by a natural necessity. Thus even in this very subtle distinction of will from sense desire it is the *will as will* which is distinguished from sense desire.

The distinction between reason as reason and reason as a nature and the distinction and order of the virtues of reason

In the sixth book of the *Nicomachean Ethics,* Aristotle considers five virtues of reason, five virtues which are in reason (rather than in the will or emotions, as are the moral virtues which he had considered before). The distinction between reason as reason and reason as a nature helps us to understand the division of virtues given there and the order in which they are considered.

Aristotle first considers the three virtues which are from beginnings (ἐπιστήμη, reasoned out understanding or reasoned out knowledge ; τέχνη, *art* or right reason about making; and φρόνησις, *foresight*, or right reason about doing) and then the two virtues which are about beginnings (νοῦς or natural understanding; and σοφία or wisdom).[49]

In the light of the distinction between reason as reason and reason as a nature, it can be seen that Aristotle first considers the virtues which are a perfection of reason as reason, the three virtues which are from beginnings (ἐπιστήμη, τέχνη, and φρόνησις) and then the virtue which is a perfection of reason as a nature (νοῦς). Last, he considers wisdom or σοφία which is both a perfection of ἐπιστήμη and of νοῦς.

One reason Thomas gives why Aristotle considers the moral virtues before the virtues of reason in the *Nicomachean Ethics* is

[49]Thomas Aquinas, *In VI Nic. Eth.*, Lect. III, Marietti ed., #1144: "Primo determinat de virtutibus intellectualibus perficientibus intellectum circa ea quae sunt ex principiis. Secundo determinat de habitibus intellectualibus perficientibus intellectum circa prima principia."

that they are more known to us.[50] And one would expect him to follow this order also in his consideration of the virtues of reason. Since reason as reason is more known to us than reason as a nature, the virtues of reason as reason are more known to us than the virtue of reason as a nature. Wisdom is considered last since both ἐπιστήμη and νοῦς must be understood before wisdom can be understood since it is in a way both.[51]

If we consider the order of νοῦς or natural understanding and ἐπιστήμη or reasoned out understanding, it is clear that νοῦς is before ἐπιστήμη in the first, second and fourth senses of *before*. Νοῦς is before ἐπιστήμη in time and generation. Likewise, νοῦς is before ἐπιστήμη in being for it can be without ἐπιστήμη, but not vice-versa. Moreover, νοῦς is better than ἐπιστήμη which depends upon it.[52] But in the third sense of *before*, which is in the discourse of reason, we seem to understand reasoned out understanding before natural understanding.[53]

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[50]*In II Nic. Eth.*, Lect. I, Marietti ed., #245: "In prima determinat de virtutibus moralibus. In secunda de intellectualibus in sexto libro... Et ratio ordinis est, quia virtutes morales sunt magis notae, et per eas disponimur ad intellectuales."

[51]*Nicomachean Ethics*, VI, 1141a16-20: "Δῆλον ὅτι ἀκριβεστάτη ἂν τῶν ἐπιστημῶν εἴη ἡ σοφία. Δεῖ ἄρα τὸν σοφὸν μὴ μόνον τὰ ἐκ τῶν ἀρχῶν εἰδέναι, ἀλλὰ καὶ περὶ τὰς ἀρχὰς ἀληθεύειν. Ὥστ᾽ εἴη ἂν ἡ σοφία νοῦς καὶ ἐπιστήμη, ὥσπερ κεφαλὴν ἔχουσα ἐπιστήμη τῶν τιμιωτάτων."

[52]Thomas Aquinas, *Summa Theologiae*, IaIIae, q. 57, a. 2, ad 2: "Unde, si quis recte consideret, istae tres virtutes non ex aequo distinguuntur ab invicem, sed ordine quodam; sicut accidit in totis potentialibus, quorum una pars est perfectior altera, sicut anima rationalis est perfectior quam sensibilis, et sensibilis quam vegetabilis. Hoc enim modo, scientia dependet ab intellectu sicut a principaliori. Et utrumque dependet a sapientia sicut a principalissimo, quae sub se continet et intellectum et scientiam, ut de conclusionibus scientiarum diiudicans, et de principiis earundem."

[53]Νοῦς and ἐπιστήμη are before σοφία in time, and in being and in the order in which reason discusses them, but σοφία is better than them and a cause of their greatest perfection.

This order in the discourse of reason can be seen a little in the following way. We understand statement before premiss and conclusion. And we understand that the same statement can be both a premiss and a conclusion (but not to the same) before we ask whether every premiss is a conclusion. And when we understand why there must be premisses that are not conclusions but rather statements known through themselves (in the sense of not known through other statements), we have arrived at the object of νοῦς. Hence, we know what νοῦς is after we know what ἐπιστήμη is.

When Aristotle gives the natural order of different kinds of knowing in the *Proemium* to Wisdom at the beginning of the *Meta Ta Phusika,*[54] he begins with sensing which gives rise to memory. And from many memories of the same, we gather one experience. And then from experience, we separate out the universal which is the beginning of art or science. He does not bring out νοῦς or natural understanding and its place in the genesis of our knowledge, but goes immediately from experience to τέχνη or art and ἐπιστήμη or reasoned out understanding.

And in the *Posterior Analytics,* Aristotle begins, as we have seen, with teaching and learning from something known already, as he begins his consideration of demonstration and reasoned out knowledge. And it is only at the end of Book Two[55] that Aristotle considers how νοῦς or natural understanding arises in us from experience.

Just as reason as reason is more known to us than reason as a nature, so likewise, the virtues of reason as reason are more known to us than the virtue of reason as a nature and the virtue that perfects both. Both of these can be seen somewhat by themselves, but the harmony of the two orders is a further sign of the truth of both orders. For with the truth, all things harmonize.

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[54]*Metaph.*, I, 1, 980a27-981b13.

[55]*Posterior Analytics*, II, 19.

The Distinction between Nature and Reason or Will

The distinction between reason as reason and reason as a nature, not only illuminates the division of the virtues of reason and the order in which they are considered in the sixth book of the *Nicomachean Ethics,* but it also casts some light on which of the five are genera and which are not. It is necessary to consider that the first three species are also genera, but the last two are lowest species. There are many species or forms of reasoned out knowledge such as geometry, arithmetic (in the Greek sense), natural philosophy and logic. Likewise, there are many species of art such as the art of the carpenter and the art of the metal-worker. Likewise, there are many species of foresight or prudence : the foresight of the individual man, the foresight of the father, the foresight of the general, and the foresight of the king. But the virtue of reason as a nature is only one. There is only one νοῦς or natural understanding. It is a lowest species; that is, a species that is not a genus. (Likewise, there is only one wisdom in the full sense for many reasons.) If one understands the distinction between reason as reason and reason as a nature, it is not altogether surprising that the former should have many virtues and the latter only one.

Does the distinction of will as will and will as a particular nature also contribute to an understanding of the virtues in the will? If choice is in the definition of moral virtue, does this mean that there are virtues only in the will as will (in the natural order)? If so, why is there a virtue of reason as a nature and no virtue of the will as a nature? Thomas explains why the reason and the sense desiring powers are more in need of a habit than is the will:

> There are two reasons some power needs a habit.
>
> First because the operation which is to be brought forth by the power exceeds the strength of the power although it does not exceed the strength of the whole of human nature. In another way because it exceeds the strength of the whole nature.
>
> And in this second way all the powers of the soul by which meritorious acts are brought forth, whether they are affective or understanding, need habits; because they are not capable of such

acts unless the habits of grace are added on to them.

But the understanding needs a habit in the first way in that it is not able to understand something unless it become like it through an understandable form. Whence it is necessary that understandable forms be added on to it by which the understanding goes into act. But some ordering of forms makes a habit.

And for the same reason, the lower desiring powers, namely the irascible and the concupiscible, need habits. Whence they are perfected by the moral virtues. That the acts of them be moderated does not exceed human nature, but it exceeds the strength of the foresaid powers. Whence it is necessary that something of a superior power be pressed upon them and this stamp of reason upon the lower powers perfects formally the moral virtues.

But the higher affective power does not need in this way some habit because it naturally tends towards the good connatural to it as towards its proper object. Whence in order for it to will the good, there is only required that the good be shown to it by the knowing power. And therefore the philosophers did not place in the will any habit, either natural or acquired.

But for directing us in things to be done, they placed foresight in reason, and moderation and courage and other moral virtues in the irascible and the concupiscible powers. But the habit of charity is placed by theologians in the will for the sake of meritorious acts.[56]

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[56]*Q.D. de Ver.*, q. 24, a. 4, ad 9: "Duplici ratione aliqua potentia habitu indiget. Primo quidem, quia operatio quae est per potentiam educenda, excedit vim potentiae, quamvis non excedat vim totius naturae humanae. Alio modo quia totius naturae vim excedit. Et hoc secundo modo habitibus indigent omnes animae potentiae, quibus actus meritorii eliciuntur, sive sint affectivae, sive intellectivae; quia in huiusmodi actus non possunt nisi habitus gratiae superaddantur. Primo autem modo indiget habitu intellectus ; eo quod intelligere aliquid non potest nisi assimiletur ei per speciem intelligibilem. Unde oportet species intelligibiles superaddi, quibus in actum exeat intellectus: specierum autem aliqualis ordinatio habitum efficit. Et eadem ratione appetitivae inferiores, scilicet irascibilis et concupiscibilis, habitibus indigent, unde perficiuntur virtutibus moralibus. Quod enim

The Distinction between Nature and Reason or Will

One might get the impression from the above text that Thomas does not see any need for a habit or virtue in the will in the natural order. But in the following text, Thomas explains why the will does not need a habit for the good proportioned to it, but does need a habit where the good of another is concerned:

> It should be said that, by the habit of a virtue, the power which is its subject acquires completion with respect to its act. Whence a habit of virtue is not necessary for that to which some power extends from the definition of its power. Virtue, however, orders powers to the good; for this is what makes the haver good and renders its work good.
>
> But the will, however, has from the very definition of its power what virtue does for other powers; for its object is the good. Whence to tend towards the good is to the will as tending towards the pleasant is to the concupiscible power, and as to be ordered to sound is to the sense of hearing. Whence the will does not need some habit of virtue inclining it to the good which is proportioned to it because it tends toward this by the very definition of the power. But to the good which transcends the proportion of the power, it needs a habit of virtue.
>
> Since the desire of each one tends towards the good of the one desiring, in two ways some good is able to exceed the proportion of the will. In one way, by reason of the species; in another way, by reason of the individual.

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actus eorum moderati sint, non excedit naturam humanam, sed excedit vim dictarum potentiarum. Unde oportet quod id quod est superioris potentiae, scilicet rationis, eis imprimatur; et ipsa sigillatio rationis inferioribus viribus formaliter perficit virtutes morales. Affectiva autem superior non indiget hoc modo aliquo habitu, quia naturaliter tendit in bonum sibi connaturale sicut in proprium obiectum. Unde ad hoc quod velit bonum, non requiritur nisi quod ostendatur sibi per vim cognitivam. Et ideo philosophi in voluntate non posuerunt aliquem habitum nec naturalem nec acquisitum. Sed ad dirigendum in operativis posuerunt prudentiam in ratione, et temperantiam et fortitudinem et alias virtutes morales in irascibili et concupiscibili. Sed secundum theologos in voluntate ponitur habitus caritatis propter actus meritorios."

> By reason of the species, as the will is elevated to some good which exceeds the limits of the human good. And I call *human* that which man is able to do by the powers of his nature. But above the human good is the divine good to which charity elevates the will of man and likewise hope.
>
> By reason of the individual, in this way that someone seeks what is the good of another, although the will is not carried beyond the limits of the human good. And thus justice, and all virtues tending towards another, as liberality and others of this sort, perfect the will. For justice is the good of another, as the Philosopher says in the fifth book of the *Nicomachean Ethics.*
>
> Thus there are two virtues in the will as a subject ; namely, charity and justice.[57]

[57] *Q.D. de Virtutibus in Communi*, a. 5, c.: "Dicendum, quod per habitum virtutis potentia quae ei subicitur, respectu sui actus complementum acquirit. Unde ad id ad quod potentia aliqua se extendit ex ipsa ratione potentiae, non est necessarius habitus virtutis. Virtus autem ordinat potentias ad bonum; ipsa enim est quae bonum facit habentem, et opus eius bonum reddit. Voluntas autem hoc quod virtus facit circa alia potentias habet ex ipsa ratione sua potentiae: nam eius obiectum est bonum. Unde tendere in bonum hoc modo se habet ad voluntatem sicut tendere in delectabile ad concupiscibilem, et sicut ordinari ad sonum se habet ad auditum. Unde voluntas non indiget aliquo habitu virtutis inclinante ipsam ad bonum quod est sibi proportionatum, quia in hoc ex ipsa ratione potentiae tendit ; sed ad bonum quod transcendit proportionem potentiae, indiget habitu virtutis. Cum autem uniuscuisque appetitus tendat in proprium bonum appetentis; dupliciter aliquod bonum potest excedere voluntatis proportionem. Uno modo ratione speciei ; alio modo ratione individui. Ratione quidem speciei, ut voluntas elevetur ad aliquod bonum quod excedit limites humani boni: et dico *humanum* id quod ex viribus naturae homo potest. Sed supra humanum bonum est bonum divinum, in quod voluntatem hominis caritas elevat, et similiter spes. Ratione autem individui, hoc modo quod aliquis quaerat id quod est alterius bonum, licet voluntas extra limites boni humani non feratur; et sic voluntatem perficit iustitia, et omnes virtutes in aliud tendentes, ut liberalitas et alia huiusmodi Nam iustitia est alterius bonum, ut Philosophus dicit in *V Ethic.* Sic ergo duae virtutes sunt in voluntate sicut in subiecto scilicet caritas et iustitia."

The last statement requires us to understand justice to include those virtues like liberality which have the mode of justice and are towards another.

But what about those virtues which have the mode of temperance, such as *studiositas* and humility? Are not these virtues in the will? And is not wonder natural and also the desire for excellence? Is Thomas only explaining the virtues in the *Nicomachean Ethics*? Someone could say that humility does in some way regard another. For by humility we place ourselves under God and others insofar as they are godlike. And *studiositas* requires us to moderate our desire to know other things insofar as they are necessary or useful for knowing God. If we pursue knowledge of things which are not necessary to know in order to know God, to the neglect of those things which must be known before God can be known, our desire to know is disordered and unmeasured. Or if we pursue those things which are useless or less useful for knowing God before those which are more useful for knowing God, our desire to know is disordered and unmeasured, unless we are forced to such knowledge by necessity, as Albert says.

The virtues of the will which have been touched upon above (such as justice, liberality, humility and *studiositas*, leaving aside charity for the consideration of the theologian) are all virtues of the will as will. For they rectify our choices. But there is no virtue (in the natural order) of the will as will for the reason given above by Thomas. Thomas also explains why there is a habit perfecting reason in regard to what it naturally knows, but there is no such habit perfecting the will in regard to what it naturally wills:

> Knowledge comes to be by some species (or form). Nor is the power of the understanding enough by itself for knowing unless it takes a species (or form) from sensibles. And therefore it is necessary that there be a particular habit (which in some way takes its beginning from the senses, as is said at the end of the *Posterior Analytics)* also in those things which we naturally know.
>
> But the will does not need some species (or form) for willing.

> Whence it is not similar.[58]

This difference is connected to the good being in things while truth is primarily in the mind.

Use of the Distinctions in Theology

When speaking of the divine will in theology, the distinction between the will as a nature whereby it wills something by natural necessity and the will as free to choose is important in considering the way in which the Holy Spirit proceeds and creatures proceed according to the divine will. For the Holy Spirit proceeds according to the divine will considered as a nature, but creatures proceed from the divine will as will, or insofar as it is free to choose:

> The will also, insofar as it is a particular nature, naturally wills something ; just as the will of man naturally tends toward beatitude.
>
> And likewise, God naturally wills and loves himself. But about things other than himself, the will of God has itself toward both [opposites] in some way, as has been said.
>
> The Holy Spirit, however, proceeds as Love, insofar as God loves himself. Whence he naturally proceeds, although he proceeds by way of the will.[59]

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[58] *Ibid.*, a. 5, ad 3: "Cognitio fit per aliquam speciem; nec ad cognoscendum potentia intellectus sufficit per seipsam, nisi species a sensibilibus accipiat. Et ideo oportet in his etiam quae naturaliter cognoscimus, esse quemdam habitum, qui etiam quodammodo principium a sensibus sumit, ut dicitur in fine *Poster*. Sed voluntas ad volendum non indiget aliqua specie; unde non est simile."

[59] *Summa Theologiae*, Ia, q. 41, a. 2, ad 3: "Etiam voluntas, inquantum est natura quaedam, aliquid naturaliter vult; sicut voluntas hominis naturaliter tendit ad beatitudinem. Et similiter Deus naturaliter vult et amat seipsum. Sed circa alia a se, voluntas Dei se habet ad utrumque quodammodo, ut dictum est. Spiritus autem Sanctus procedit ut Amor, inquantum Deus amat seipsum. Unde naturaliter procedit, quamvis per modum voluntatis procedat."

The Distinction between Nature and Reason or Will

Although God necessarily understands things other than himself and does *not* necessarily will other things, nevertheless one can speak of God's knowledge of himself as natural while other things he knows (without discourse) by knowing himself:

> There also comes to be in understandable concepts a leading back to first things which are naturally understood.
>
> God, however, naturally understands himself. And in this way, the conception of the divine Word is natural.[60]

It can be seen from the above how a small in size distinction in wisdom can cast a light upon many things in other forms of knowledge.

[60]*Ibid.*, ad 4: "Etiam in conceptionibus intellectualibus fit reductio ad prima, quae naturaliter intelliguntur. Deus autem naturaliter intelligit seipsum. Et secundum hoc, conceptio Verbi divini est naturalis."

’Εξήγησις

O WONDER !
O BRAVE OLD UNIVERSE
THAT HAS SUCH PEOPLE IN IT !

M.A. Corey's : *God and the New Cosmology* [1]

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ONE OF THE MOST IMPORTANT discoveries in physics in the 20th century is that of the existence of certain invariable properties of the universe and of the elements composing it which render the approximative size and structure of all its constituent parts almost inevitable. That means that the size of the stars, as well as that of animals, humans included, are what they are given the very nature of the universe and of the laws that it actually has. These necessary consequences of the universe are the manifestation of a specific set of the apparently possible states of equilibrium between the forces of attraction and of repulsion. The values of these forces which control nature are determined by a set of pure numbers, called the constants of nature (e.g., the proportion of the mass of the proton to that of the electron, or the relationship between the values of the four forces of nature).[2]

Now these discoveries suggested that the structure of the universe and human life may be more intimately connected than the prevalent scientific view allowed for, if it allowed for any connection at all. It became clear, for instance, that the immense size of the universe is not without significance for life, rather, the universe could hardly be any smaller if life were to arise in it

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[1]Lanham, MD : Rowman & Littlefield, 1993.

[2]Cf. John D. Barrow and Frank J. Tipler, *The Anthropic Cosmological Principle* (Oxford : Oxford Univ. Press, 1986), p. 5. Hereafter cited as *B & T*.

at all. This, and other similar facts, made scientists reconsider whether human beings are not after all more than mere specks that had arisen by chance in the universe.

The “Anthropic Principle” is the name given to recent attempts to give some account of the universe's being fine-tuned in a manner that is requisite for the appearance of life, and in particular of intelligent life. The following variant of the AP provides some idea of the sort of claims being made : There is an intelligence behind the universe which guided it in its formation in such a way that it progressively complexified and thanks to this process finally produced life, and then humans, i.e., intelligent beings which are capable of understanding the universe. There are, however, numerous other formulations of the AP which address different, though loosely related, issues.

Since Barrow and Tipler's momentous work *The Anthropic Cosmological Principle* was published in 1986, numerous articles and books have appeared on the subject. Some have simply sought to bring new scientific evidence in support of the AP, others to criticize it and/or reinterpret it (or rather them). M.A. Corey's book *God and the New Cosmology* is to be praised for being comprehensive, comprised as it is of a clear and fairly up-to-date (1993) popular explanation of the physics used to support the AP, summaries of some of the more recent interpretations, and Corey's own interpretation. Corey's reasoning, however, is uneven. When he presents a good argument it appears as if he was “compelled by the truth”, for he typically continues with statements which show that he fails to appreciate the argument's force. For this reason, while I intend to comment on Corey's book in some detail, I will concentrate on those arguments of his which are widespread in anthropic literature or which contain a large grain of truth.[3] I also intend to make some

[3]I will skip most of those of Corey's discussions in which AP evidence or reasoning is not found, such as his treatment of the problem of evil, and his refutations of Hume's arguments against the argument from design.

general observations about the kind of reasoning typically found in writings on the AP, and also about typical omissions of note.

The first problem with discussions of the AP is that almost everyone tends to start from the formulations presented by Barrow and Tipler, none of which finally make much sense. To begin with, most of them are not principles, but are rather conclusions or in some cases simply unsupported assertions, or they border on being so. Moreover, the various formulations Barrow and Tipler present us with are fraught with ambiguity.[4] Many authors fail to clarify the question or questions the AP is supposed to provide an answer to, which explains in part why "many commentators on the AP have intuitively felt that it contains a deep element of truth about our overall position in the cosmos, but most have been at a loss to describe what this truth might actually be." (5)

Authors who are careful to distinguish different versions of the AP as handed down by Barrow and Tipler, do so only to discover that most of them are either fairly patently false or tautological. As a result their efforts bring forth relatively little of positive value, and at the same time often distract them from evaluating the anthropic evidence for themselves.[5] We too are compelled to examine the views of our predecessors, but will try to avoid confining ourselves to examining deficient formulations of the AP.

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[4]We intend to examine all the 'classic' formulations (WAP, SAP, PAP, FAP, and MWI).

[5]An example of AP evidence : Corey, p. 62 : "A certain number of protons and electrons were able to survive the primordial annihilation between matter and antimatter at the Big Bang. Amazingly, the number of protons and electrons that were left unscathed were equivalent to within 1 part in 10 to the 37th. As Ross has pointed out, had this primordial balance between protons and electrons that were unscathed been any different, the electomagnetic force would have so completely dominated the gravitational force that stars, galaxies, and people could never have evolved."

C. 1 Introduction

In the introduction Corey runs through the different formulations of the AP, the first being the Weak Anthropic Principle (WAP) :

> The observed values of all physical and cosmological quantities are not equally probable but they take on values restricted by the requirement that there exist sites where carbon-based life can evolve and the requirement that the Universe be old enough for it to have already done so. (*B & T*, 1)

Corey correctly notes that the WAP "does not seek to explain why or how the universe actually came to be structured in this life-supporting manner ; it simply notes that … given our current existence it could not have been otherwise." (2) The existence of life is a fact, and any scientific explanation given must be consistent with this fact.

Next he considers the Strong Anthropic Principle (SAP) :

> The Universe must have those properties which allow life to develop within it at some state in its history. (*B & T*, 1, 2)

Corey quotes with approval John Casti's position that "the gap separating the SAP from the traditional Design Argument … is no more than a 'hairsbreadth, omitting only an explicit invocation of a Designer.' " (3) To see the difference between the SAP and the design argument, and whether there is a relation between them, one must first clarify what one understands by this ambiguous AP.

The SAP can be taken to amount to the WAP, i.e., "Life does in fact exist ; therefore the universe 'must' possess the properties that are capable of giving rise to it." (4)

Corey says that it can also be taken to mean : "There is only one logically possible universe ; therefore, since life is known to exist the universe must be biocentric in nature." Corey comments that "if the SAP is to be valid (i.e., if the universe is to be such that it had to have brought about life at some point in its history), a factor must be found that would have made the existence of the universe a necessary truth from the very beginning."

This remark misses the mark, however, because it is one thing to say that the existence of the universe is necessary, and another to say that if the universe exists it must necessarily be a certain way because that is the only way a universe can exist. This version of the SAP would seem to respond to the question : {1} Is a biocentric universe the only possible universe ?

Another interpretation Corey gives to the SAP is {2} "The universe must be such as to admit life at some point in its history because of the action of a necessary being or principle that rendered this outcome inevitable." (4) This interpretation assumes the existence of a necessary being, maintaining that it constituted the universe in such a way that the appearance of life was inevitable. Now this position is not 'a hairsbreadth' from the design argument, meaning that with the addition of a premise the SAP would constitute an argument from design, but rather it assumes what the argument from design purports to prove, i.e., the existence of an intelligence behind the universe.

There are at least three other alternative interpretations of the SAP which Corey does enumerate here. One could understand the SAP to be intended as a response to the questions :

- {3} Did life (or intelligent life) have to arise in the universe as a necessary consequence of the universe's composition, or was its emergence purely fortuitous ?

- {4} Is the production of intelligent life the goal to which the universe is ordered ?[6]

- {5} Why is the universe the way it is ? That is, why does it have the age, the size, the composition and the laws that it has ? Can these specific features of the universe be understood teleologically, i.e., are they the way they are for the sake of producing (intelligent) life ?

(Questions four and five are closely related ; four asks about the universe taken as a whole, while five asks about specific

[6]One could also ask : Did the constitution of the universe have to have as its goal the production of life (or of intelligent life) ?

attributes of the universe. Also, if question five is answered in the affirmative, this version of the AP can then be used as a principle of discovery.)

It is not uncommon in AP literature to find statements about final causality confused with statements about efficient causality. This is understandable, since there is an ambiguity as to whether a statement such as "the universe is so old and big because that is how long it takes to produce a planet hospitable to life," is intended to convey that the universe has the age and size it has for the sake of life, or that the planet earth exists in a universe of this age and size because the efficient causality necessary to produce it requires that much time and results in that size of universe. Moreover, there seems to be a close connection between these two kinds of statements.[7] The blood circulates because the heart pumps it, and the heart pumps for the sake of circulating the blood.[8] Actually the example just given of the universe's size is a poorly chosen example, since the size appears to be a by-product of processes which are necessary for the production of life, rather than something which of itself is needed for life. A better example would be : the relative masses of the proton and electron are what make the formation of molecules possible, and thus also living things possible.

None of the five above interpretations of the SAP amount to an answer to the question of whether there is a designer behind the universe. The SAP then is most often not a proof for the existence of God, but is rather an assertion concerning the inevitability of the appearance of (intelligent) life. The endeavor of AP thinkers is to show that the processes involved in the development of the universe have as their ultimate end the production of life, or of intelligent life or observers. What, if anything, is

[7]In light of this it is not surprising that some authors slip from a factual interpretation of the SAP to a teleological interpretation of the SAP.

[8]Aquinas often says that what things undergo in the normal course of nature is what they are meant to undergo ; cf. *In Aristotelis Librum de Anima* (Marietti), II, lect. 7, #322 and *Summa Contra Gentiles*, III, 112.

behind these processes is quite another question, and one that is not always raised. Indeed some authors correctly see some versions of the SAP as consistent with a denial of God as a being separate from the universe—God comes to be at the end of the universe's process of development. It is one thing to argue *from* design in the universe to the existence of a designer, and another to argue that the universe has been designed for a specific purpose (that of producing intelligent life).[9]

Corey's goal is to establish that the universe is designed for the sake of producing intelligent life, and from there to argue that it must have had a designer.[10] If the scientific 'facts' which started all the discussion about APs show that the universe is designed to produce intelligent life, then some AP reasoning is a hairbreadth from the argument from design, since one need but add the premise, "what manifests design[11] must have an intelligent designer". Corey, however, ultimately does not succeed in interrelating the AP with his new design argument, as we will see.

C. 2 A Brief History of Teleological Thought

Corey (p. 11) notes the connection between design arguments and the position that nature acts for an end, though he does not state the argument as clearly as he might. This argument, simply put, is that natural things act for an end ; they are

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[9]It is worthwhile here to recall the distinction between an end which is already there and to which things tend, and an end which is brought about by the very processes in question.

[10]Corey intends to "develop a new form of the Design Argument, which will be based upon the most recent scientific evidence to date surrounding the ACP." (p. 8)

[11] 'Design' is defined here not as "what is the product of a designer" (otherwise the argument from design would assume what it is trying to prove), but in some other way, e.g., "as the order of a multiplicity of parts for the sake of an end."

not intelligent, therefore they must be ordered to their end by some intelligent cause.

A question Corey does not raise is whether all natural things must be known to act for an end, or does it suffice that some be known to act for an end in order for the design argument to conclude ? Is it sufficient to consider the hand alone in order to draw the conclusion that there must be a divine designer responsible for it, as Galen reasoned?[12] Or must one first establish that all natural things act for some end, or that most of them do so ? Further, must the ends pursued be known to one, or is it sufficient to show that specific kinds of natural things must have an end even if this end is not explicitly known ?[13] Corey adopts the approach of establishing that many things in the universe are ultimately ordered to some one end that is known : he maintains that a hitherto unimagined number of physical parts and properties of the universe are ultimately ordered to intelligent life, and he uses this as the basis for concluding to an intelligence responsible for this order.

One might also ask whether it makes any difference to the cogency of the design argument whether one looks to things in the universe that are substances and parts of substances, as opposed to those that are accidents. Does one do better to look to the fact that eagles have talons so that they can capture their prey, or to the fact that the relative mass of proton to photon has a specific numerical value ? Or is it indifferent which one looks to ?[14] Or need one look to both ?

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[12]Cf. Corey, 14.

[13]Aristotle appears to be doing this in the *Physics*, II, 9. Cf. also Aquinas, *Contra Gent.*, III, c. 3.

[14] Cf. Aquinas, I *Scriptum super Sententiarum*, dist. 3, q. 2, c : "Vestiges [of God] are found in the creature, according as complete being (esse perfectum) follows from God. Whence simply speaking a vestige is found only in those things which are perfect in themselves ; and individuals in the genus of substance are the only things of this sort. Accidents, however, do not have being except depending upon substance ; whence accordingly in accidents there is no vestige, except according to their order to substance ;

The sort of design argument that is perhaps the most frequently proposed is based on the observed finality of the parts and life processes of animals.[15] Scientific and non-scientific observation leads to the recognition that animals have the parts that they have for the sake of doing what they have to do to survive and reproduce in their particular environment ; and they have no or very few unnecessary parts. The eye is perhaps the part whose design strikes us most of all, giving pause even to Darwin.

Another perhaps equally popular design argument is based on the fact that the world appears to be constituted as it is for the benefit of human beings. This design in the world is reasoned to be the work of a benevolent and intelligent being.[16] Corey's version of this reasoning starts from the observations that the fundamental constants in the universe are mutually adjusted for the sake of producing and sustaining intelligent life, to conclude that there must be an intelligence responsible for this adjustment.[17]

One naturally wonders what sort of design argument is the most compelling.[18] Corey offers no help here, for he never sys-

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so that accidents are the modes, forms, and orders of substance, more than themselves having species, mode, and order… Nevertheless, since some being is added to the substance itself according to any and every accident, there will be a vestige to consider in some manner according to this being."

[15]E.g. Plato in the *Protagoras* (320e-321b) speaks about the constitution of animals. Finality is also present in plants, but to a lesser degree and less manifestly so than in animals.

[16]As is documented in *B and T*, this is a fairly common belief among non-scientific peoples (92-102).

[17]Cf. Corey, 45 : "The apparent significance of life's existence, along with the fact that this asymmetry had to exist before we and other life forms could possibly exist, seems to lead us to the conclusion that there might be a causal connection between this asymmetry [of matter and anti-matter] and the existence of life. From here, of course, it is but a small step to the traditional Argument from Design, which states that God created the primordial universe in such a way as to ensure the eventual appearance of life."

[18]In the 'fifth way' Aquinas argues from the activities of beings lacking knowledge, but he does not specify which beings doing what. Cf. *Summa*

tematically examines the sorts of evidence which may arguably found a design argument, nor does he even carefully examine the views of numerous predecessors.[19] Thus, when he does eventually address the question of what evidence provides a more solid basis for an argument by design, his investigation is inadequate. What little he does say is that :

> Although accessibility to modern scientific thought is important in any attempt to fully appreciate the Argument from Design, it is by no means necessary. One need not understand how the Krebs Cycle works in order to appreciate the reality of design in the universe, or how this design naturally speaks of a Designer. Paley, for instance, had no idea about the many stupendous scientific discoveries that have been made in the last century, yet he was still able to make use of what he did know to argue persuasively for the Teleological Argument. What is required isn't so much a certain quantity of information per se, but rather a certain quality of information, i.e., one needs to be able to look at the existing scientific evidence with a certain state of mind. No one was more aware of this than Paley, who wrote that if all he had access to was the eye, it would have been more than sufficient to convince him of the validity of the Design Argument. (263)

So he ultimately holds that the argument from the parts of animals is a sufficient argument. What he does not point out is that the anthropic design argument is a weaker argument than this sort of argument from several points of view. For one, it is

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Theologiae, Ia, q. 2, a.3 : "For we see that some things which lack knowledge, namely, natural bodies, act for an end ; which appears from this that they always or frequently act in the same manner, so that what is best ensues ; whence it is manifest that it is is not by chance, but from intention that they arrive at their end. Those things which do not have knowledge, do not tend to an end unless directed by someone knowing and intelligent."

[19]Cf. *B and T*, 57 : "[Boyle] attempted to classify the various ends one could discern in Nature into four categories… Each category provoked Design Arguments but they differed in character and force according to the quality of the evidence available." Paley too considers more than one sort of design argument.

more evident that the eye is designed for seeing than that the universe is designed for the sake of the production and maintenance of intelligent life. It is usually easier to discern the purpose to which parts of a whole are ordered, than to apprehend the purpose of some whole with respect to its parts, or of one thing in respect to another distinct from it. The oyster secretes the material of pearl in order to isolate an irritant from itself, and not so that the Queen might have a necklace. Black flies live off mammals' blood, but the mammals' blood is more obviously for the sake of the mammals themselves (especially seeing as black flies are the lower life form).

This is not to deny that there is some manifest order of one being to another in the universe. The food chain, at least in general, is an instance of this : sun, soil, and rain are for the sake of plant life. Plants are for the sake of nourishing animals. And plants and animals are for the sake of nourishing, clothing, etc. humans.[20] However, usually the order of an organic part to its whole is clearer. Usually, but not always : In some cases the order of one being to another being is more manifest. For example, grass is plainly for the sake of the herbivores who eat it, but what all the parts of the heart are for is not so obvious. (At least it seems common sense to say grass is there for the cows, but maybe this is the main bone of contention as far as anthropic arguments go.) Still in general we are more inclined to accept certain things in the universe as being there for no particular reason than we are to accept certain parts of animals as being there for no purpose. Stars and lightening do not appear to be for the sake of anything, but we keep trying to find some purpose in tonsils.[21] However, ignorance about the ends of particular inani-

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[20]Admittedly some people deny this. We do not intend to defend the point here.

[21]Supporting the notion that we tend to look for and recognize finality more readily in parts relative to a whole than in one being relative to another are Paley remarks : "My opinion of astronomy has always been that it is not the best medium through which to prove the agency of an intelligent Creator ; but that, this being proved, it shows, beyond all other sciences,

mate things does not abolish the knowledge we have about the general order in nature present in the basic food chain.

The food chain aside, the ordering of one being to the good of another is generally less obvious than the ordering of an organic part to its whole, and this is especially the case when the being is an accident. It is plain enough that plant life depends on things in the heavens and on the earth : rain, sunshine, soil. But that the existence of water and sunlight require a precise correlation of the fundamental constants of nature is less obvious. And consequently that the precise correlation of the fundamental constants is for the sake of the existence of water and sunlight is less obvious.

In spite of the fact that the need for the accordance of the fundamental constants is relatively obscure, it was recognized by some earlier thinkers, although they had no clear idea of what really needed to be co-adjusted, and with what precision it needed to be co-adjusted. This is not surprising, since we recognize design most clearly when it is of the sort we find in our own artifacts : That is, we recognize something to be designed when it has a multiplicity of parts which are arranged in some specific way among other possible arrangements, such that the whole performs some useful function. Moreover, it is plain to us that design involves not just an arrangement of pieces, but also a determination of some of their accidents. For example, contriving conditions suitable for growing hot-house plants involves regulating moisture, and this requires not only determinate parts, but parts of a certain size. Size is an essential part of the design, if a less obvious one than the parts themselves.

Aquinas (following St. John Damascene) recognized that if a balance was not maintained between contrary agents in nature, one of them, such as fire, might do serious damage to the re-

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the magnificence of his operations…, but it is not so well adapted as some other subjects are to the purpose of argument. We are destitute of the means of examining the constitution of the heavenly bodies. The very simplicity of their appearance is against them." (*op. cit.*, 287)

mainder of the world.[22] Anthropic thinkers nowadays are making the same sort of statement when they speak of things such as a specific excess of matter over anti-matter being necessary so that the two did not annihilate one another leaving no universe at all. They have a clearer idea of what the contrary agents are which need to be balanced, and with what mathematical precision they need to be balanced than Aquinas did,[23] while sharing in common the same basic notions that the non-living things constituting the universe are in need of mutual adjustment if one is to have a cosmos, and that they are so adjusted for the sake of that cosmos (although not all AP proponents agree with the latter). Compared to a simplistic view of things in terms of four elements or in terms of randomly colliding mass points, there is striking beauty in the new vision which takes in account the complexity of matter and the intricate interconnections between the non-living and living realms.

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[22]Cf. Aquinas, *Q.D. de Veritate*, q. 5, a. 2 : "For the material and agent causes, insofar as they are such, are causes of the being of an effect ; they do not suffice however to cause goodness in the effect, according as it be suitable both in itself, so that it be able to perdure, and in regard to other things, so that it might help them. In other words, it is of the very notion of heat, insofar as what is from it, that it disunites (or destroys - "dissolvere") things ; disunification, however, is not suitable and good except according to some determinate limit and measure ; whence if we did not posit some other cause besides heat and other such agents in nature, we would not be able to assign the cause why things become suitably and well." Cf. also *Contra Gent.*, I, 13. The same basic notion seems to be expressed much earlier by Aristotle (*Metaphysics* 984b12).

[23]Aquinas also speaks in a general way of the importance of quantity in *Contra Gent.*, III, 97 : "It is manifest from what has been said that since diverse accidents, actions, passions, and dispositions are distributed to created things through divine providence, that this distribution does not happen without reason. Thus it is that Sacred Scripture attributes the production and government of things to divine wisdom and providence… : 'You have distributed all things in mensure, number, and weight' ; so that by 'measure' we are meant to understand quantity, or mode, or the grade of perfection of any particular thing."

This vision may be beautiful, but is it defensible ? It comes under question on at least four points : Some would claim that the values of the various constants are fully accounted for by necessity, whereas others would claim that one cannot discount them being the product of chance (e.g., those who espouse the Many World Interpretation). The certitude of the scientific evidence upon which this view of things is based is also subject to question. And finally, the typical objection that random variation and natural selection explains the fit of the organism to the environment to the exclusion of an explanation in terms of final causality, seems to also be an objection against the fitness of the environment as being for the sake of something, since if the organisms' parts are not for the sake of utilizing the environment, how could the environment be for the sake of the organisms utilizing it? Let us see to what extent and in what way Corey handles these objections.

The argument from design based on the order of the different things in the universe for intelligent life is susceptible to the objection that it is not clear that the parts of the universe are co-adjusted for the production of life, rather than simply having to be that way.[24] A person starting out with 20-20 vision can become near-sighted, due to changes in the muscles controlling the shape of the eye ; and thus we recognize that eyes can be more or less well adjusted. However, in the case of the universe, it is not clear that the parameters are adjusted for the sake of something, rather than simply being necessarily interconnected, as getting very fat necessary causes one to get shorter, but is not for the sake of that. Corey notes cooperation between the fundamental forces, but does not consider whether this cooperation is due to independent adjustments aiming at a goal or is due to natural necessity :

[24]The objection that the observed order comes about simply due to necessity and not due to design is more naturally raised against the AP design argument than against the parts of animals design argument.

> Perhaps the most remarkable thing about these fundamental physical forces is that they do not work in isolation from one another. To the contrary, there is a deep level of cooperation in nature between the different physical forces, such that, in the absence of this cooperation, our present world could not exist. For instance, if the gravitational constant were only a wee bit stronger in relation to the strong nuclear force, the universe would have been a great deal smaller and faster than it presently is, with the result that stars like our own Sun would have been much smaller would have lasted only around a year. On the other hand, if gravity were any weaker in relation to the strong force, then the various galaxies and solar systems in the cosmos never would have formed in the first place. (67)

Corey does not consider the possibility that it is no more possible for the gravitational constant to be stronger in relation to the strong nuclear force, than it is to have a mosquito the size of an elephant. Given the present state of scientific knowledge it is yet unknown whether the relations which obtain amongst all the various constants is necessary, or whether it is the result of independent adjustments which could have been other and which could have resulted in a universe that was uninhabitable rather than habitable. However, mathematical unification of certain of the constants has been achieved, a noteworthy case being that of three of the four forces in nature, and in cases where such unification has not been arrived at, some order nevertheless has been detected, e.g., the elementary particles fall into distinctive categories. These things lead us to suspect that the relations amongst all the constants will turn out to be necessary. In any case, even if the universe has to be the way it is, this does not preclude its being designed in order to sustain life : the lack of an alternative does not mean that a given feature was not desired for an end. E.g., that a fishing pole be lightweight when there is no other material available for it than bamboo does not mean that lightness is not also desired in a rod, as well as flexibility. It is true, however, that when characteristics necessarily accompany each other rather than being independently adjustable, we are not immediately compelled to conclude that they are together in the

thing for the sake of something, for this may well not be the case.[25]

Some authors are of the persuasion that not only is there a necessary interconnection between the constants of nature, but further that the only possible universe is one with those constants.[26] Corey is inclined to support the more modest claim that only one *life-bearing* universe is possible :

> [Some claim that] a change in one of the constants would not spell disaster for biological evolution, since the other constants could presumably compensate for this alteration with changes of their own… "Life could presumably have developed in almost any kind of universe." [Whereas] Martin Rees [maintains] : "If we modify the value of one of the fundamental constants, something

[25]Cf. *Q.D. de Potentia*, q. 2, a. 3, ad 5 : "For those things to which nature can extend according to its proper essential principles do not need to be determined by another, but only those things to which proper principles do not suffice. Whence the Philosophers were not led to posit the work of nature to be a work of intelligence from the operations which belong to the hot and the cold in virtue of themselves ; because those positing natural things to happen from the necessity of the matter were reducing all works of nature also into these [causes]. They were led, however, from those operations for which the power of hot and cold and things of this sort cannot suffice ; as from the members in the animal body being ordered in such a way that the nature [of the animal] was preserved." — An example of the sort of natural phenomenon which seems to be of the sort that does not lead one to conclude with certitude that nature is the product of intelligence is the case of water. "Water is the only known substance whose solid phase (ice) is less dense than its liquid phase." (Corey, 106) Due to natural necessity, then, water freezing in lakes float to the top of the unfrozen water, something which proves beneficial to living things, for if the ice sank, they would die. However, it is not clear that the water adopts this peculiar less dense phase for the sake of living things, and we are not compelled to posit that it has been designed to act in this way by an intelligent maker ; natural necessity seems to provide an adequate account of why water acts as it does. On the other hand, where there is final causality there is also material necessity ; thus sometimes necessity alone may prove to be only part of the account.

[26]E.g., Errol E. Harris (*Cosmos and Anthropos*).

> invariably goes wrong, leading to a universe that is inhospitable to life as we know it. When we adjust a second constant in an attempt to fix the problem(s), the result, generally, is to create three new problems for every one that we 'solve'. (70)

Corey's response amounts to an appeal to ignorance.[27] Our knowledge concerning the fundamental laws of the universe is not so sure or complete that we can either affirm or deny with certitude whether life could have developed in some other universe with matter and forces like those found in ours. Moreover, we are bound by the natural limitations of our experience. We cannot, for example, imagine a universe with four or more dimensions, although we might represent such mathematically. Thus, we have no direct evidence to go by, only extrapolations, and the experience of science has been that extrapolations are risky things (the inapplicability of Newtonian physics at the speeds approaching the speed of light being a classic illustration of this). Moreover, it may be the case that such extrapolations are meaningless ; e.g., perhaps it is impossible for bodies to be anything other than three dimensional. It is important to note here that in the event that it was known for sure that living things could have developed in some other universe (granted this could not be just any universe, e.g., in one made up only of one element), this fact would not change anything as to whether or not this universe was contrived to produce them, any more than the fact that a watch can tell time running on a battery renders a spring mechanism watch any less designed for this purpose.

Corey does see that necessity is not necessarily opposed to purpose,[28] and thus even if a life-bearing universe was the only

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[27]By the same token, to maintain that there was another such universe because there is no evidence sufficient to exclude this possibility is also an appeal to ignorance, as Corey point outs (197).

[28]Corey fails to examine the notion of material necessity very closely, and this causes him to overlook interesting questions, such as : Do all of the stars exist for the sake of life on earth, or are some simply by-products of the formation of the universe according to the laws needed to produce the earth ?

possible one, this does not necessarily exclude its having been constituted for the sake of life :

> God may not have had any choice at all in its actual structural details, since all of the physical parameters we have discussed in this book apparently need to occupy their present values if life is to be able to exist on this planet. While God may have had the original choice of whether or not to create a world for humans, it appears fairly certain that, having made the initial decision to create humanity, the remaining creative details were themselves fixed by the necessary nature of the Human Definition. (198)

Nonetheless when something is so because of material necessity it is harder for us to see without a doubt that is also for an end, when such is the case.

Another objection against the AP design argument is that given the sort of evidence upon which it is based, it seems that it can never be more than probable. Resolving this matter would require two sorts of considerations, both of considerable difficulty, which I intend to sketch no more than briefly here. First, a general consideration of the certitude of scientific knowledge is needed. One must recognize that scientific knowledge englobes knowledge of somewhat different sorts, i.e., knowledge of facts, of laws, and of hypotheses and theories. So one must first establish what kind of certitude is attached to each sort of scientific knowledge.

Secondly, if one is to see what the various pieces of anthropic evidence are worth one must go on to properly classify the anthropic evidence into these different categories. Too often those arguing in an anthropic fashion do not even recognize that they are basing themselves on evidence that is of widely different certitude. This is plainly a serious mistake because an interpretation of evidence can never be more certain than the evidence itself. If one fails to ascertain the certitude of one's evidence, one cannot know the certitude of one's conclusion.

Without undertaking a thorough investigation of the two above-named matters, it is appropriate to point out here that to

the extent that hypothetical reasoning is involved in these sorts of knowledge, they do not admit of being known with absolute certitude, due to the nature of that logical form. It is for this reason that rival theories sometimes equally well explain the known facts, and sometimes new facts are discovered which overturn or at least call for modification of a well-established theory. Thus anthropic evidence such as Guth's inflationary hypothesis[29] is a lot less certain than other factual evidence, such as that the tides result from the gravitational pull of the moon on the earth's seas. Even among facts, some are less certain than others due to dependence on theory ; e.g., that the production of stars capable of allowing for the evolution of life is not extremely rare is due to the precise value of the gravitational constant is much less certain than the fact that water serves as an excellent coolant, due to its high specific heat. The thorough investigation of the certitude of anthropic evidence which is called for requires not only criteria by which one can evaluate different sorts of evidence as to their certitude, but also a good deal of familiarity with physics in order to recognize what sort of evidence one is dealing with in particular instances.[30]

At best then a probable argument could be made on the basis of some anthropic evidence (other anthropic evidence being too questionable), and the quantity of the evidence would increase the argument's probability, as Corey notes (263). Such an argument is less certain than design arguments based on the

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[29]To explain the overall homogeneity of the universe, Alan Guth has suggested that a period of extremely rapid inflation immediately following the Big Bang smoothed out the overall distribution of matter and energy (cf. Corey, 84). Cf. Corey, 86 : "This period of cosmic inflation *(assuming it occurred at all)* … had to have occured in the very precise fashion that it did in order for the universe to have been capable of supporting biological life." (emphasis mine)

[30]An especially troublesome particular difficulty which affects the certitude of AP evidence is our incertitude as to what factors had to obtain at the universe's beginning (or at least relative beginning, if the universe oscillates) in order for the universe to be hospitable to life : We are not even sure if the same laws were operative then as now.

more readily and directly observable food chain (which too is anthropic evidence) and also than those based on knowledge of the parts of animals.[31]

Corey maintains that design arguments from physics add strength to those based on ecology :

> Had the evolution of life in the universe been dependent on local, recent factors only, such as the particular arrangement of atoms on a planet, we might have been able to argue more persuasively for a possible random origin of life. However, now that we know that the biocentric nature of the cosmos dates back to the very origins of the universe itself, and extends to each and every one of the foundational parameters that comprise physical reality, it is hard to see how it could have been produced by anything but intelligent design. (59)

Corey's basic argument is that although someone might accept that life originated by chance on earth, yet when one sees that the universe from its very origin had to be organized in a very specific way for there to be planets like the earth, it is harder to ascribe the appearance of life to mere luck. He is right that there is something suspicious in that not only are organisms tailored to their environment (otherwise they would not survive), but the environment is tailored-made for living things, rather than just having some aspects making it minimally suited for life. The universe is more like a luxury condo than a cave. Of course one could respond that it appears this way because life adapted itself to what was there, random variations allowing it to

[31]Evidence of finality is more manifest in the parts of animals, than in the relations of the fundamental constants. While it is fascinating that for a bird to survive not only does it have to have a beak that allows it to catch food in its environment, but further that its very existence depended upon the initial conditions at the beginning of the universe being precisely balanced, there is this difference, however, that the former is obvious whereas the latter is based on theories. It seems that AP evidence compared to that of the part of animals is less suited to convince us that design is present in the universe than it is to show us the extent of the design therein.

explore all extant niches. Corey would reply that the conditions which allow for the very origin and diversification of life require prior conditions which appear to have to be adjusted within a very small margin. It's not just that life is a hot-house plant, and a cave or desert won't do for it to develop. It's that it takes so many factors to come together for that hot-house to be equipped as it is, so that life could get a foothold. Again, some will insist that these factors are coordinated as they are merely due to necessity, whereas others will claim this world or universe is one lucky deal out of countless deals.

While on the one hand, AP evidence does seem to buttress the food chain-type design argument (light, water, soil exist for the sake of plants, and so forth), on the other, it seems that the AP design argument is especially vulnerable to attack since it must not only answer the objections that are raised against itself, but also those raised against the parts-of-animals design argument. For if the parts of organisms could be shown not to be ordered for the sake of making use of the environment, then the specific way the environment is constitued could not be for their sakes. If plants do not have chlorophyll for the sake of photosynthesis, then light cannot exist for the sake of plants (and for a similar reason one would infer that grass is not for the sake of cows). Many would hold that living things simply made use of what is available in an opportunistic way ; what is available was not made such for their sake. E.g., rather than light being in the world in order that some organisms might have sight, eyes just happened to develop in certain organisms enabling them to take advantage of light. Corey does in fact address the claim that the parts of organisms are due to blind forces alone. I will not examine his arguments regarding this matter, partly due to constraints of space, and partly because similar discussions are found in numerous works treating organic evolution. Rather than examining whether the fitness of organisms, dependent as it is on their parts, calls for a designer (natural selection notwithstanding), we will instead evaluate the arguments for design taken from the side of the fitness of the environment for organisms.

Let us consider how Corey deals with the case of water. One could say that water is just there due to necessity, and just happens to be conducive to life. Corey says that water has various properties which are “nothing short of miraculous”, and without these “anomalous properties of water, life as we know it would be absolutely impossible.” (105) These properties include a boiling point which seems unusually high when one compares it to similar hydride compounds, but for which nonetheless there is a structural explanation. Corey remarks : “Just because we know the molecular explanation for water’s high boiling point doesn’t mean that we know where such an ingenious molecular structure could have originally come from.” He notes other unusual properties of water beneficial to life : It is the only known substance whose solid phase is less dense than its liquid phase. This is fortunate because otherwise our oceans and lakes probably would have frozen over during the winter, and then been unable to thaw during the summer. Water has an unusually high specific heat, which allows it to stabilize the temperature of the global environment. It has an unusually high surface tension, which plays a role in permitting metabolism to be carried on at a sufficient rate. After enumerating a number of other similarly ‘unusual’ and important properties he concludes :

> Given the absolute dependence of life on the water molecule’s many anomalous properties, where did the structure of the water molecule itself ultimately come from ? Science itself is unable to provide an adequate answer to this question. However, since life is absolutely dependent on the many anomalous properties of water…, and since water stands alone in this life-supporting capacity, it seems to follow that the water molecule was probably designed on purpose to be the medium through which life could evolve and sustain itself. (108)

Corey does seem aware that living things do sometimes procure their survival in ways which are opportunistic. For instance, asteroids do not hit planets for the sake of causing an extinction of dinosaurs for the benefit of mammals. Mammals on earth simply took advantage of the situation. We consider them lucky.

On the other hand, when living things of any form appear for the first time, they maintains their lives by taking advantage of what is there. But we don't consider them lucky because there was oxygen or carbon dioxide around so that they can breath. There is a danger of confusing things which were designed for a specific purpose, with things that are there for some other reason, but are used opportunistically to serve some purpose for which they were not at all intended. Caves provide shelter, but that was not the purpose for which they were formed.[32] Was water with its special properties designed that way so that life could arise, or did it just allow life to arise ? Corey argues that if it were just one or two things like water that had to be around for there to be life, we might dismiss their being there as pure coincidence rather than seeing it as ordered to life. But if a large number of things need to be arranged in a specific way in order for life to exist, life being a good, the actual concurrance of these things to this good makes it *highly probable* that these things are ordered to it as to an end. How to distinguish which features of inanimate nature are for the sake of something, and which are simply being used in an opportunistic way, Corey does not tell us. Does light exist in order that plants arise and/or that some sighted life form arise ? Or is it simply impossible for a universe to exist without light being a feature of it ? - in which case the question as to finality becomes very difficult to solve.

At this point I wish to return to a version of the AP which Corey mentions in the very beginning of the book, one which does have a legitimate claim to being called a principle, namely, that which is used as a principle of discovery. I take it up here

[32]Bamboo makes great fishing poles and nice flutes as well, but this is not the purpose for which it grows. That is, it is not the immediate purpose, for I think that one could argue that the world was meant to provide man with the means needed to survive and perfect himself, and this would include not just materials for making clothing and houses, but also for adornments and musical instruments as well.

because certain of the considerations made earlier help to assess what value, if any, such a principle might have.

First, it should be noted that mistaken claims as to the utility of the AP as principle of discovery are not reason to dismiss it as being devoid of utility. I will first examine some of these mistaken applications, and then go on to evaluate what, if any, value this version of the AP has.

Starting from the fact that there is a goodly amount of carbon in the world, anthropic reasoning was supposedly used to use to the discovery of the resonance of C12. But the reasoning used did not seek to answer the *anthropic* question : "What purpose does the amount of carbon in the world serve, given that things in the world contribute to (human) life ?", but rather to answer the question "How can there be a non-negligible amount of carbon in the world ?" Once the resonance of C12 is discovered AP reasoning of a sort can be applied to lead one to understand the resonance of C12 in terms of its serving the purpose of making carbon-based life possible, something which is worth understanding (here seems to lie the true value of the AP as principle of discovery). However, the AP reasoning had nothing as such to do with the discovery of the resonance.[33]

[33]Another example of supposed AP reasoning is found in *Cosmos and Anthropos A Philosophical Interpretation of the Anthropic Cosmological Principle*, Errol E. Harris (Atlantic Highlands, NJ : Humanities International Press, 1991), p. 93 : "The age of the universe in nuclear units is very close to the square root of the number of particles in the [observable] universe… Robert Dicke proposed a novel solution for this cosmological curiosity... employ[ing] anthropic-type thinking… We can't help but observe the present universal age, because it is the only one … that is consistent with our own existence as observers. The present universal age, in turn, determines the number of particles that we can detect in the observable universe, *due to the ongoing expansion of the universe and the subsequent widening of the particle horizon.* Hence, the number of particles in the observable universe is in fact related to the age of the universe, which itself is determined by the necessity that it be consistent with our own existence as observers." (emphasis mine) Since the

The AP appears to be useful in a manner similar to the postulate : "Parts (and processes) in organisms have some purpose". This postulate can lead to discovering what some organic part does (its efficient causality), and the particular good it is ordered to. For example, starting from the observed fact that there are valves in veins, Harvey went on to investigate what purpose they served, on the assumption that they are there for the sake of maintaining the life of the animal. As a result he discovered that valves insure that the blood circulates (i.e., what their efficient causality is), and at the same time what their specific purpose is (they are they for the sake of the circulation of the blood). Anthropic reasoning is sometimes presented as proceeding in the same way. For example, starting from the given that the world is three dimensional, one can go on to investigate why, on the assumption that this is conducive in some way to life (which assumption is the AP as methodological principle). As a result it was discovered that the fidelity of transmission of information depends on three dimensions.[34] Since the fidelity of transmission of information is necessary for life (or at least conducive to it), at the same time the 'that for the sake of which' the universe is three dimensional was discovered.[35]

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underlined would be true regardless of our presence, nothing anthropic is essential to Dicke's investigation.

[34]Cf. *B & T*, p. 268.

[35]Another purported example of the use of the AP as a methodological principle is Paley's investigation of why in the case of gravitation the law which obtains is according to the inverse square : "Whilst the possible laws of variation were infinite, the admissible laws, or the laws compatible with the preservation of the [solar] system, lie within narrow limits. If the attracting force had varied according to any direct law of the distance, let it have been what it would, great destruction and confusion would have take place. The direct simple proportion of the distance would, it is true, have produced an ellipse ; but the perturbing forces would have acted with so much advantage, as to be continually changing the dimensions of the ellipse, in a manner inconsistent with our terrestrial creation." (William Paley, *Natural Theology or, Evidences of the Existence and Attributes of the Deity, Collected from the Appearances of Nature*, Houston : St. Thomas Press, 1972, 297) Paley, working on the

The idea that certain features of nature other than the parts of organisms could have as their specific purpose the appearance and/or continued existence of life forms is not entirely novel. After all earlier thinkers recognized that rain falls not just because it has to due to physical laws but because it is good for plant life. However, it has never been extensively applied until recently. This is explicable by the facts that those who recognized the importance of the final cause in understanding nature lacked detailed knowledge of the motions and constitutions of natural bodies, whereas those who had acquired the latter knowledge were convinced that explanation in terms of final cause had no place in science. A thinker such as Aristotle would not readily have suspected any relation of final causality between three dimensionality and life, or between the relative strength of the forces in nature and life. And this at least in part stems from a relative lack of interest in the quantitative relations which obtain between natural things. Whereas the scientists coming after Newton and Darwin, who were familiar with mathematical laws of nature, virtually all saw explanations in terms of final cause as being irrelevant in science.[36] Also, the specialization that took place in science was such as to discourage investigation of possible links between physical and biological phenomena. Conse-

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supposition that the specific strength of the gravitational force might be beneficial to life, discovered that that the gravitational force be according to inverse square law prevents perturbing forces from readily changing earth's orbit around the sun from an ellipse to a spiral or to parabola. This discovery regarding efficient causality also allows us to see the that for the sake of which the gravitational inverse square law is as it is.

[36]Newton himself gave explanations in terms of the final cause, and the physics which he developed was in one way favorable to the notion of the final cause : The universe was envisaged as a machine, something which manifestly has a purpose (cf. *B & T,* p. 60). On the other hand, Newton's mathematical account of nature, applicable as it is to machines as well as to natural things, abstracts from what is proper to natural things, namely to have an intrinsic principle of motion to a determinate goal. Thus when Darwin came along with his supposed alternative explanation for finality in the natural realm, those habituated to explanation of things in Newtonian terms were disposed to adopt this new vision of nature.

quently the AP would appear to represent a useful advance in methodology[37] if one understands it to mean :

> One is to seek explanations of physical facts and laws in terms of their having as final cause the appearance and maintenance of life.

In effect the principles "nature acts for an end" and "nature does nothing in vain", principles used by Aristotle, Galen, and some other biologists in reference to *organic* parts and processes are now being extended to investigate physical phenomena which in the past few[38] would have attempted to relate to the specific end of the appearance and maintenance of intelligent life. Through the use of such methodology scientists have come to recognize dozens of values of physical parameters as having to be specifically what they are if life is to arise, and further as being specifically what they are in order that life arise (and be sustained). For example :

> 1. The force of gravity (the gravitational coupling constant), determines what kinds of stars can form in the universe. If the gravitational force were slightly stronger, star formation would proceed more efficiently and all stars would be at least 1.4 times more massive than our sun. These large stars alone manufacture elements heavier than iron, and they alone disperse elements heavier than beryllium to the interstellar medium. These elements are essential for the formation of planets as well as of living things in any form. However, these stars burn too rapidly and too unevenly to maintain life-supporting conditions on surrounding planets. Smaller stars such as our sun are necessary for that. On the other hand, if the gravitational force were slightly weaker, all stars would have be 0.8 times less massive than the sun. Though such stars burn long and evenly enough to maintain life-supporting

[37]Assuming that it is true that physical facts have life as their final cause, something we have yet to examine.

[38]A notable exception is Paley.

planets, no heavy elements essential for building such planets or life would exist.[39]

2. The strong nuclear force coupling constant holds together the particles in the nucleus of an atom. If the strong nuclear force were slightly weaker, multi-proton nuclei would not hold together. Hydrogen would be the only element in the universe.

If this force were slightly stronger, not only would hydrogen be rare in the universe, but also the supply of the various life-essential elements heavier than iron (elements resulting from the fission of very heavy elements) would be insufficient. Either way, life would be impossible.

3. The electromagnetic coupling constant binds electrons to protons in atoms. The characteristics of the orbits of electrons about atoms determines to what degree atoms will bond together to form molecules. If the electromagnetic coupling constant were slightly smaller, no electrons would be held in orbits about nuclei. If it were slightly larger, an atom could not 'share' an electron orbit with other atoms. Either way, molecules, and hence life, would be impossible.

4. The ratio of electron to proton mass also determines the characteristics of the orbits of electrons about nuclei. A proton is 1,836 times more massive than an electron. If the electron to proton mass ratio were slightly larger or slightly smaller, again, molecules would not form, and life would be impossible.

5. The expansion rate of the universe determines what kinds of stars, if any, form in the universe. If the rate of expansion were slightly less, the whole universe would have recollapsed before any solar-type stars could have settled into a stable burning phase. If the universe were expanding slightly more rapidly, no galaxies (and hence no stars) would condense from the general expansion. How critical is this expansion rate ? According to Alan Guth, it

[39]The first example is adapted from "Design and the Anthropic Principle" by Hugh Ross (1997, Internet article). The next four examples are direct quotes from Ross.

must be fine-tuned to an accuracy of one part in 10^{55}. Guth, however, suggests that his inflationary model, given certain values for the four fundamental forces of physics, may provide a natural explanation for the critical expansion rate.

While the above explanation of the utility of the AP as principle of discovery has a certain plausibility, on second look perhaps it is not as useful as it sounds. For the difficulty of showing that AP effects in general are not the product of necessity becomes compounded when one tries to determine *in detail* the finality of specific effects. Since necessity plays a major role in non-living nature, (horses can produce offspring with stripes or spots which they lack, but fixed proportions of hydrogen combined with oxygen gives an invariant product), it is hard to distinguish finality from cases of mere necessity. Moreover, since non-living natural things are less complex, it is hard to see that they are for any purpose, since they do not manifestly have one specific purpose.[40] A horse has legs to run with, but water seems to serve many purposes for living things : It provides a habitat for some, is a coolant for others, enters into photosynthesis, etc. Is it meant to serve any or all of these purposes or only some of these purposes ? Things which are not complex certainly can serve a purpose, but the most clear-cut instances of something which is for the sake of something involves a multiplicity of parts which fit together and work together to produce some good outcome. Still, it is not impossible that things like water are meant to serve multiple purposes. Even the building materials which humans make, (in the sense that they make natural material ready to enter immediately into human artifacts), things such as bricks and nails, serve multiple purposes. The human mouth allows for the ingestion of food, and also for the production of vocal sounds.

It is not easy to figure out criteria by which one can distinguish instances of opportunism from instances of finality. Especially since some cases of opportunism do not seem contrary to

[40]Cf. Paley, *op. cit.*, 287, cited in an earlier footnote.

finality ; organisms make use of what they chance upon in the environment, but does that exclude the possibility that some of the things that are chanced upon where meant to be chanced upon ? Life couldn't have gotten out of the seas, if there was no land for a sea creature to get washed up on. And if there were no tides, it would not happen very often that sea organisms ended up on land.

Let us examine some of the examples which were proposed earlier as instances of the utility of the AP as principle of discovery. Is the reason the world is three dimensional really because of the need organisms have for a reliable transmission of information ? Or is it for the sake of something more fundamental, perhaps something even so fundamental as the very existence of bodies being impossible except in three dimensions - in which case the fidelity of transmission of signals turns out to be a unintended but fortunate bonus. Is the fact that water floats when frozen explained by having the promotion of life forms in lakes as its goal, or do some life forms simply take advantage of this fact ? And while it seems safe to say that rainfall and sunlight exist for the sake of plants, what about the very existence of water ? Is the value of the strong nuclear force coupling constant and the ratio of electron to proton so adjusted for the sake of the eventual production of water, so that eventually life could arise ?

It seems to me that the same reasoning that causes one to conclude that water is for the sake of plants, also applies to the features of the universe necessary for the production of water, granted that we may be mistaken as to the specific values we have come up with. Also, if one maintains that there have to be a fixed set of values of the fundamental constants if life is to exist, it seems that one is inconsistent to refuse to take the further step of recognizing the specific values proposed by those engaged in scientific investigation as being for the sake of life, that is, to the extent that scientific findings have a reasonable claim to certitude or probability. If one is going to reject that the ratio of the electron to proton is adjusted for the sake of the production of water because water is simply a necessary result of parameters

which allow for a functional universe, similarly one should reject that water is for the sake of plants, for water is simply a necessary result of the ratio of the electron to proton and certain other parameters of this sort. Note that the claim that the universe has to have fitted values amongs its fundamental parameters if life is to be possible and the claim that it has to have a specific set of values, the ones which scientists have discovered or are on their way to discovering, do not differ as to their defensibility in the face of the objection to their finality which is based on the claim that only one set of values may be possible if the universe is to exist at all.

It remains the case that it is easier to make mistakes about the more specific claims than about more general claims because the more general claims are based on common experience rather than on experimental results and theory.

If used with caution, I am inclined to think that the AP as principle of discovery does lead to an increase in our knowledge, albeit it seems principally in probable knowledge. The problem is that I'm not sure exactly how to avoid mistaking mere opportunism for finality.

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c. 3 Background of the Biocentric and Anthropic Principles

In this chapter Corey mainly tries to defend the notion that the universe started with an explosion, and moreover one which was of "just the right vigor to ensure the development of a life-supporting universe several billion years later." His interest in defending the *big bang* lies in the fact that it is easier to see the need for an Orderer if the universe has a beginning than if the universe is eternal or oscillating :

> One of the most common ways of getting around the Big Bang's implication of a definite universal beginning has been the notion of an oscillating universe, in which the universe is said to oscillate back and forth in successive cycles of expansion and contraction… Indeed, some theoreticians believe that this oscillating universe model is able to account for the many improbable

> physical coincidences that have led to the evolution of life. On this view, if there have indeed been an infinite number of oscillations in the cosmic past, then one of these oscillation could have accidentally produced all those fundamental parameters necessary for the evolution of life, and of course we would then inevitably find ourselves living within one of these lucky oscillations. (36)

Corey gives arguments based on physics against this view, although he admits that previous oscillations cannot be absolutely excluded because of 'Planck's Wall,' which dates back to when the universe was but a mere 10 to the -43 seconds old : "The temperature of the universe beyond this point was so high that the four fundamental forces of physics were all dissolved, presumably in the form of a single all-encompassing force. This in turn made it impossible for any direct information about the birth of the universe to survive intact." (39)

c. 4 Evidence for the Biocentric Principle

Here Corey argues against those who maintain that it was just luck that life evolved :

> The first piece of evidence, then, that can be recruited in support of the Biocentric Principle is the fact that the 'right' kind of matter (i.e., the kind that is capable of evolving into biological life) happened to spontaneously come into existence some 15 thousand million years ago. (43)

He could have made the argument stronger by pointing out that even if one concedes that the universe oscillates, the matter of that universe must still be such as allows for the origin and evolution of life, and this cannot be explained by chance.[41]

In this chapter, as well as in other places, Corey gives a familiar sort of refutation of the contention that life may possibly have originated at random :

[41]Drawing a royal flush is certainly luck, but it is not luck that the deck contains cards that can be drawn in that sequence.

> The rapidity of life's evolution is perhaps the most significant 'coincidence' of them all, and it is very much at odds with the prediction of non-theistic evolutionary theory. For if life evolved just as soon as it possibly could, then chance processes, which inherently take vast amounts of time, could never have produced it. If, on the other hand, the universe was Intelligently Designed, we would naturally expect life to have evolved just as soon as it possibly could have… Since random concatenations of order inherently take vast amounts of time, we cannot fall back on the incoherent 'cosmic accident hypothesis' to explain the origin of life, so we really have little choice but to … look for a better solution. (115)

I have never been confortable with this line of argument. After all, sometimes one wins solitaire the first time around, and other times one can play for days without winning at all. Also, the common comparison of natural occurences to random happenings of the sort which occur with gambling devices is misleading to the extent that it assigns equal probability to the combination of all the various natural elements. The different elements, however, have tendancies to combine with certain other elements, and not to combine with others, and even to repel others. The tendancies already provide a framework which is going to give a direction to the random combinations which can actually be produced. It is like having a deck constructed in such a way that it is impossible to have two queens in the same hand, while whenever one finds an ace, one has more chance of also finding a queen in that hand, than finding any other card.

c. 5 Interpreting the Evidence

In this chapter Corey reiterates his rebuttal of the position that the universe does not need a creator because a quantum vacuum provides an account of the universe's coming from nothing :

> Trying to account for the appearance of the universe as a sudden quantum fluctuation doesn't do away with the need for a Creator at all ; it simply moves the whole problem backwards one

> step to the unknown origin of the quantum field itself. (43)

He further points out that the vacuum of 'empty' space isn't really empty, but rather a dynamic, energy-filled milieu which has a density. But then in his eagerness to leave room for creation *ex nihilo* he contradicts himself : "This vacuum energy density … is extremely intriguing, because it seems to imply that real world objects can arise 'out of nothing'."[42] (123)

He next addresses the position that the phenomenon of self-generated order in the cosmos has eliminated the need for a Grand Designer (cf. 143). After some floundering around he finally argues :

> It is one thing to observe that matter can spontaneously become more and more organized 'all by itself,' and quite another to say that such 'autocatalysis' obviates (removes) any need for God in the physical sciences. After all, the unanswerable question still remains : Where did matter get the curious ability, not only to exist, but also to organize itself into progressively greater degrees of order 'on its own' ? (144)

He accurately adds that "a naturalistic Creator, who delegates as much creative responsibility onto the physical universe as He possibly can, is far more impressive than the parochial conception of a God who has to continually intervene in the world to make things happen." (p. 144) But then on the next page he assumes that the origin of self-replicating beings cannot have come about by natural causes (145, 146).[43]

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[42]Cf. Corey, 173, #3 : "Although it has been claimed that there are events in the quantum world that have no cause, this has yet to be firmly established."

[43]Aquinas saw no need for God to specially intervene in order for non-intelligent living things to arise. Cf. *Q.D. de Potentia*, q. 3, a. 11, s.c. and corpus : "It is said in Genesis 1, 20 : 'The waters produced the reptile having a living soul' ; and so it seems that the sensitive souls of reptiles and other animals are from the action of the corporeal elements." "Souls of this sort do not exceed the principles of natural things. And this is manifest from considering the operation of them." — Chapter 5 ends

c. 6 Making Sense of the 'Coincidences'

Corey fails to distinguish between different sorts of coincidences (cf. 157), as do many other AP thinkers. When he speaks about the cooperation of so many seemingly independent constants he is referring to the values expressed by, or calculated according to the fundamental laws of nature (such as the force of gravity, the strong nuclear force) which values are determinate. Yet in other places he speaks about coincidental events which he does not regard to be determined by law, but rather to result by chance :

> Increase in solar luminosity was prevented from boiling away the oceans by development just in time of life forms which among other things increased the amount of oxygen in the atmosphere. (77)

> It is astonishing to realize that all of these causally distinct factors had to have worked together to a very high degree of accuracy [he names 8 of them above, three of which are decrease in the Earth's volcanic activity, gradual increase in Sun's luminosity, mass of the planet] to have allowed for the selective evaporation of methane and ammonia, while simultaneously allowing for the selective retainment of water vapor. Considering the very close proximity between the molecular weights of methane, ammonia, and water vapor, this almost certainly had to have been an Intelligently Contrived event. (78)

He fails then to distinguish between values which, though seemingly independent, are fine-tuned by a designer in order to result in laws which allow for the appearance of life from one time or rare events which do not repeat themselves according to law, but which played a necessary role in the appearance of life as we know it.[44] (There is a similarity between the two in that the laws appear to be the result of a one time event.)

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with a lot of misdirected criticism, as Corey tries to do too much in too few pages.

[44]A good example of this kind of coincidence is what led to the production of the Earth's moon. The Moon is not a normal satellite. It is too big, and

If it could be shown that there was a quasi-necessity in the appearance of life, this would argue more convincingly for a designer than if the appearance of life depended upon an ensemble of chance coincidences. If the universe is structured in such a manner that it has to give life almost necessarily one better sees life as and end aimed at, and the structures/processes in the universe as being means.

On the other hand, a large number of seemingly chance events which just happen to work in favor of life is also evidence of outside intervention. If the birthday child breaks the pinata, wins the raffle, and finds the hidden treasure we suspect that someone has stacked things in his favor. Yet the universe as described in anthropic literature has showered living things with a great deal more luck than this. Corey in some places is sympathetic to a Designer who changes the direction of things (sending an asteroid in the right direction at the right time), and then struggles to avoid the objection that he is positing a God-of-the-gaps.[45] The fact that a chance event be arranged from the outside does not necessarily remove its chance character, for the agents involved may be ignorant of the arrangement. The lady of the house intentionally sends the delivery man to the basement at the same time she sends the maid, and the two meet by chance.

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also planets so near the sun generally do not have satellites, only a huge quantity of dust. It is planets which are far from the sun which generally have moons, since in the case of those which are closer the sun's gravitational force would pick off any moon that formed. Our moon is probably the result of a collision between an asteroid or small planet and the earth (which would explain the surface composition of the earth). Tides depend on the moon, and without tides land animals, which represent many of the higher life forms, would not have arisen.

[45]An example of reasoning which at first sight seems rightly labeled as God-of-the-gaps : “Normal physical processes were probably incapable of producing the observed degree of cosmic isotropy in the early universe… The theistic answer to the horizon problem therefore seems to be by far the better explanation, because it uses a known creative process--the coercive power of an intelligent designer--to produce the original homogenization of the universe.” (132)

However, it is hard to see how non-intelligent beings can be made to coincide by chance, thus bringing about some result neither was tending towards. One can't coax an asteroid to come along at the right time. Corey tries to get around the need to posit outside control of contingent factors so that they happen when they are supposed to and not when they would disrupt things, by claiming that the contingent elements have but small impact on the overall development of the universe, a development he regards as being necessary.[46]

One cannot blame Corey too much for not being able to solve the contingency problem regarding the origin of man which Stephan J. Gould and others raise (cf. 225). Gould points out that the phylum ancestral to man could have been wiped out at random as apparently happened to many phyla towards the beginning of evolutionary history, and further that extinction could have occured at numerous bifurcation points along the evolutionary pathway leading to man. And so humans may very well have never arisen, and thus can hardly be considered a goal of evolution. Corey responds that at all the bifurcation points the right single path was taken each time leading to a significant goal. He attributes this to divine intervention which would either act punctually, or at the very beginning predisposing things to act in a certain intended fashion at all the bifurcation points. Both of these positions would seem to eliminate contingency in the trajectory in human evolution. Corey proposes as a solution that "the evolutionary trajectory intended by God was only necessary in fact (given the preexisting nature of the evolving enti-

[46]Cf. Corey, 200, #12 : "While the evolution of our life-supporting universe may well have contained many small-scale contingencies, the overall thrust does not appear to have been contingent at all. It is hard to see how it ever could have been, given the enormous complexity and stringent requirements for life's evolution." According to one astronomer, large-scale contingent events are still part and parcel of the universe, namely, the danger that life on earth be eradicated by a stray comet or asteroid. Cf. Tom Gehrels, "Collisions with Comets and Asteroids," *Scientific American*, March 1996, 56, 57.

ties), and not logically necessary per se. “On this view, the underlying freedom of the creation is consistently employed to enable the repeated choice of the one evolutionary path that leads to humanity.” (226) He glosses over how a evolutionary trajectory which is necessary in fact can be compatible with its being contingent, i.e., not predetermined to be or not to be. One can’t blame him for trying to avoid the alternative of God playing dice.

Corey easily refutes the Participatory AP (PAP) which states that “since some form of living consciousness seems to be necessary in a quantum sense in order to collapse the cosmic wave function and give the universe a concrete reality … the universe somehow designed itself to support life so it could be ‘observed’ into being.” (167) Corey simply points out : “But if life is necessary to give the universe a concrete existence, how could the universe have ever evolved for at least 10 billion years without so much as the hint of life ?” (168)

C. 7 Alternate Viewpoints

Corey's criticism of the Many Worlds interpretation on the whole is good. MWI maintains that it is not surprising that our universe is hospitable to life, because it is one among an infinite number of worlds. MWI is an attempt to explain the order in our world through chance or through randomness.[47] Corey points

[47]The AP design argument compared to the parts of animals design argument is less open to the objection that randomness provides a satisfactory alternative explanation. For while some authors, such as those of the MWI persuasion, do ascribe the structure of the universe to blind random processes, it is easier to refute their claims, than to refute those who deny design in organisms by appeal to natural selection. Although a certain number subscribe to MWI and other like theories, I think it is more natural to attribute the present state of the universe to necessary laws, than to random factors, the exact opposite of what more naturally occurs in the case of the living realm. For whether there have been previous big bangs we cannot know, whereas the unfolding of the universe as known through the physical sciences bears witness to the lawfulness of the development. Biological variation, on the other hand, is a process which is taking place

out : "[The MWI] fails to consider where the original matter for these worlds came from and how it initially came to possess the miraculous quality of self-organization realized in our world" (174) ; secondly, there is no physical evidence for this theory ; and finally : "It is far too complicated and burdensome an explanation." Multiplying worlds is not going to explain the order in this world. (175, 176) Whether one throws double sixes the first time one rolls or the thirtieth time one rolls, one still has to explain whence the possibility of getting double sixes at all.

I think that the above considerations represent AP reasoning at its strongest. Whether there is one world or many, ultimately that matter has the capacity to organize itself into a universe from which living things could originate and be sustained requires an explanation. One cannot simply say this is due to the necessity of matter, because what is at issue is the very constitution of matter.

As for the Final AP (FAP) which "asserts that some form of intelligent life had to have come into existence, and having done so, will never die out," and further that "intelligent life will become infinitely knowledgeable in the future and will end up molding the universe to its will" (185, 186), Corey's initial reaction is to fit this position in the best he can with his theological views. He does eventually go on to argue that the principle as defended by its chief proponent (Tipler) is farfetched and unsubstantiated by evidence. Corey sees that the embodiment of "human consciousness within such large scale structures as interstellar plasmas and fields, thereby overcoming the extremely limited lifetime of the physical body" is "so fantastic that it borders on the very edge of absolute non-possibility", but seems

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all the time, and one which we can repeatedly observe (we see flukes : cats with each eye of a different color, fused human toes, etc.). Not that there are not also understood to be random factors in the universe's development, e.g., irregularities in the big bang are thought to account for matter clumping into galaxies instead of being evenly distributed. Still, the aspect of lawfulness of the universe's development seems to strike one more.

at a loss to definitively exclude such an explanation of how intelligent life is to continue forever in the universe (due to a failure common among scientists to see the connection between intelligence and immateriality, and the difference between energy and what is immaterial).

c. 8 A Proof for God ?

Most of this chapter is devoted to discussing what constitutes a proof, something which cannot be taken up in a book review. Let me simply note that the author maintains that "it is a well-known fact that there is no such thing as absolute certainly to be had anywhere in the world (apart from the certainty that there can be no certainty !)." (203) "All rational conclusions in life are probabilistic in nature." (205)

As we have seen, Corey's examination of whether science may be able to prove the existence of God is deficient in a couple of ways. He does not come to grips with the fact that AP evidence is of two sorts (chance coincidences and necessary coincidences) which are hard to reconcile. He also fails to point out that the scientific design arguments are inferior in certitude to the philosophical arguments based on directly observable forms of finality in the universe.

c. 9 An Anthropic or Biocentric Universe

Here Corey asks whether the universe was contrived to produce life or, more specifically to produce human life. He starts off badly by claiming that Brandon Carter showed "that it is necessarily the case that the universe cater to the needs of man… because the universe must be consistent with our own existence as observers." (224) To cater to is one thing, to be a consistent with is another : 'To cater to' implies final causality, whereas 'to be consistent with' indicates a condition, something pertaining to efficient causality. If there is mold in my shower, the conditions must be such to allow it to live, but no one is catering to the mold.

Corey's own response to the question, however, is correct, at

least in its general lines. He points out that if something is to be a goal, it has to be a good. He then observes that plants and animals do not seem to have sufficient worth for the universe to have been ordered to them, although he has a hard time in showing why this is so. He says that human worth lies in our being "the most intelligent beings we know of in the entire universe", and that "this one property alone would seem to make us one of the chief creative objects of any transcendent deity…" Yet he is not sure what intelligence and freedom are (as is the case of a significant number of scientists), and consequently does not correctly appreciate the worth of human life.[48]

c. 11 The Case for Natural Theology[49]

Corey opens the chapter with the following claims :

> Just as one can tell a great deal about an automaker by examining the types of cars he has made, one can also tell a great deal about God by examining the types of things He has made. Indeed, there are many learned individuals who go so far as to say that 'science offers a surer path to God than religion'.
>
> To the extent that we believe in the ability of science to teach us about God, we now have at our disposal a virtually unlimited amount of indirect information about the Creator, which we can glean from the pages of our modern scientific textbooks. (259)

There are plainly a number of distinctions which the author is failing to make here. I will limit myself to a point that he omits to consider, namely, whether philosophy provides more knowledge about God's nature than science does. Again, philo-

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[48] Cf. Corey, 239 : "We know that there are other forms of intelligent life on this planet besides human intelligence. Whales and dolphins, for example, are known to be remarkably intelligent by objective human standards. While they may not be able to communicate directly and extensively with humans, this limitation does not at all prevent them from being truly intelligent in their own sphere of influence."

[49] C. 10 "The Prospect of Divine Omnipotence" is mainly a philosophical discussion of the nature of the creator ; mention made of science is incidental for the most part.

sophical design arguments are more certain than AP design arguments since they are not based on theories, but on common experience. Moreover, many things can be known about God's nature which are not known starting from the order of finality in the universe (something which science completes our picture of), but starting from other experience of a common, rather than scientific sort (e.g., from our experience that motion requires a mover).[50]

Another claim Corey makes in this chapter is that the intrinsic power of the Argument from Design must necessarily remain inaccessible to all but a few because mystical insight is needed for understanding its underlying premise (cf. 267, 268). Perhaps what he is trying to say, though he expresses himself badly, is that the underlying premise, which I take to be "nature acts for an end",[51] is not evident to all but only to the wise. The terms of the proposition are not so easily grasped as terms such as 'whole' and 'part', and a number of apparent objections against final causality have to be addressed before one can with conviction attribute such to nature. Of course, some also reject this premise due to intellectual dishonesty : They do not like a conclusion that they see follows from it.

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[50]It is noteworthy that while Thomas Aquinas proves many things about God's nature using as middle term God as known to exist through the five ways, he very rarely relies on the fifth way. One would expect that the articles concerning God's knowledge would refer back to his being the intelligence responsible for design in the universe, but this is not the case. The order of finality in the universe is referred to in a few places, e.g., in the question on the oneness of God, Ia, q. 11, a. 3 : "For all the things which exist are found to be ordered to one another, since certain serve certain others. However, things which are diverse do not come together to form one order unless there are ordered by something one." Cf. also II *Sententiarum*, dist. 1, q. 1, a. 1, c.

[51]Or perhaps the mysterious premise is that order of a multiplicity of parts/things to an end can only result from an intelligent being. (And thus that the observed finality in the living realm cannot be adequately explained by positing that simple forms of order can arise by chance and accumulate through natural selection resulting in complex organs.)

c. 12 Conclusions

Rather than commenting on the views Corey expresses here concerning faith and reason, views which have nothing particularly anthropic about them, I will close by addressing how his scientific design argument relates to the interpretations which he gives of the AP. Corey claims the following to be the primary thesis of his book :

> God deliberately designed the various physical parameters in the universe in such a way as to ensure the evolution of life on this planet. In this context, the WAP simply amounts to a retroactive acknowledgement of the optimal nature of these physical parameters in terms of their overall facilitation of biological processes. As such, the WAP is actually a scientific 'compliment' to the outstanding ingenuity of the Creator Himself, for His perfect choice of those physical parameters that have enabled us and all terrestrial life forms to exist. (102)

Corey does not relate this AP to the argument for design which he based upon scientific evidence of fine-tuning of the initial constants as well as of many other fundamental forces in such a manner as is conducive to life. In his statement above he simply assumes that there is a designer, and he assumes that this designer's purpose in constituting the universe was to produce intelligent life.[52] The sense of Corey's interpretion of the AP is that the acknowledgement that the universe was designed for intelligent life allows one to discover specific instances of such design, which knowledge reveals the design of the whole in greater detail, which in turn reveals more fully the Creator's ingenuity. His version of the WAP then is not the same as his scientific argument from design. As for his version of the SAP - "It is necessarily the case that the universe cater to the needs of man… This is the essence of the AP, and it is significant be-

[52]Also Corey never establishes that this designer has made the *perfect* choice of those physical parameters that have enabled life to appear, although clearly it is an intelligent choice of physical parameters on the assumption that the apparition of life was a goal.

cause it seems to restore to man his former position at the very pinnacle of creation" (224) Other than affirming Brandon Carter's erroneous contention (commented on above), Corey offers no argument for this position.

Not only does his SAP not restore man to the pinnacle of the material universe, being but an unfounded assertion, nor does his AP design argument do so, for in order for this argument to conclude, it must take as known that man is a material being who has intrinsic worth because of his immaterial and intellectual soul.

I think that anthropic evidence (meaning that certain physical parameters are known to be mutually adjusted the way they have to be to allow for intelligent life) leads to the following conclusions or statements :

First it answers the question of whether the universe is made for man. The argument, which follows the same basic lines as other design arguments do, runs thus : A number of physical parameters of the universe are mutually adjusted in such a manner as allows for the appearance and sustenance of intelligent life forms. Such life forms constitute a good. Therefore the physical parameters are adjusted for the sake of intelligent living things.[53] For the conclusion of this argument to be firmly established the objections from chance and from necessity as alternate solutions have to be dealt with. Of these two sorts of objections, the AP design argument seems more put into question by the latter. (Unlike the parts-of-animals design argument where the alternative of chance is more of an issue.)

Second, the conclusion just drawn provides the basis for a design argument, albeit an argument that is weaker than both the parts-of-animals and the food chain design arguments, due to the intervention of theories : where there is co-adjustment of factors for the sake of an end, there must be an intelligent being responsible for it. The physical parameters of the universe are co-

[53]This responds to SAP question {4} above : The universe is designed for this end : production of intelligent life.

adjusted for the sake of intelligent living things. Therefore there must be an intelligent being responsible for the said co-adjustment. (Again, the objection that the observed order among things is simply the product of necessity must be addressed.) Actually it seems that an AP argument which omitted the details as to the balance of the fundamental constants which is required for a universe hospitable to life would be the more cogent argument.[54] There has to be some balance among the fundamental constants - they cannot be just any old way, and this balance has to be accounted for by a designer. The detailed AP argument simply shows with probability to what extent it is the case that the constants cannot have just any values.

Third, given that the universe is reasonably thought to be designed for the end of intelligent life forms, it follows that one should attempt to understand particular physical phenomena in terms of this end. One must use caution in the application of this principle lest one read finality into something which serves a purpose, but was not intended for that purpose. Fourth, discoveries made by the application of this methodological principle increase our knowledge of the extent of design in the universe.[55]

Finally, these new discoveries allow us to understand the extent to which the designer's ingenuity has been deployed in contriving the physical universe.

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[54]I am not sure this is not Aquinas argument from design. (His argument is cited in an earlier footnote.)

[55]This responds to SAP question {5} above : Since it can be established that the universe is designed for the sake of intelligent life forms, one should attempt to understand particular physical phenomena in terms of this end.

Ἔντευξις

DIALECTIQUE ET HYPOCRISIE

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> « La dialectique n'était autre chose que la logique de l'apparence. C'était en effet un art sophistique de donner à son ignorance ou même à ses artifices calculés l'apparence de la vérité. » (Emmanuel Kant, *Critique de la raison pure*)

ELLE DEMEURE TOUJOURS vivante l'impression kantienne, qui voit spontanément dans le dialecticien un vil hypocrite, attentif à sa seule apparence et indifférent à la vérité. Ce blâme, on hésite peu à le reporter sur Aristote, sur sa manière de concevoir les préoccupations des interlocuteurs dans une discussion. Jacques Brunschwig fait ce reproche, en introduisant à sa traduction des *Topiques* :

> Le mot de *dialectique* ... semble avoir connu peu de vicissitudes aussi brutales que celle qu'il a subie en passant des mains d'un maître nommé Platon à celles d'un disciple nommé Aristote... Aristote a mérité d'inspirer la terminologie de tous ceux qui, comme Kant, l'ont employée en un sens à quelque degré péjoratif.[1]

Et de fait, qui ne ressentirait aucune indignation face aux attitudes recommandées dans les *Topiques* ? En toute lucidité, on avouera peut-être, au fond de son cœur, quelque chose de la malice qui en émane ; mais ose-t-on jamais, lors d'une recherche conjointe, épouser ouvertement des intentions aussi malveil-

[1] Aristote, *Topiques*, trad. Brunschwig, Paris : Les Belles Lettres, 1967, ix-x.

lantes ? Aux yeux d'Aristote, « quelle est l'affaire de celui qui demande bien ? — Τί ἐστιν ἔργον τοῦ καλῶς ἀποκρινομένου; »[2] Quelle est l'œuvre propre, la préoccupation la plus prochaine de celui à qui incombe l'initiative de la discussion ? « C'est, soutient-il sans vergogne, de *mener la discussion de manière à faire admettre à son répondeur les plus grandes absurdités*, entre celles que sa position rend nécessaires. »[3] Quel cynisme, n'est-ce pas ? Comment le dialecticien peut-il prétendre porter un intérêt sérieux à la vie de l'intelligence, s'il considère déjà en principe que toute position débouche sur des absurdités ? Quelle collaboration lui demeurera possible avec qui que ce soit, s'il doit regarder avec cette mauvaise volonté toute suggestion de son interlocuteur ? Face à pareil *associé*, dont Aristote fait ainsi un agresseur d'office de toute réponse à un problème, comment conseille-t-il de réagir ? Quelle fonction confie-t-il à son répondeur ? Il lui faudra tout simplement, dit-il, « *faire en sorte que l'absurde ou le paradoxal ait l'air de survenir non par sa faute, mais à cause de la position* »[4]. Cette lâcheté systématique n'a pas non plus grand chose de glorieux, qui se défile ainsi à la première attaque et laisse la position qu'on devait défendre prendre tous les coups. Et cet avoir l'air, ce φαίνεσθαι, ne nous renvoie-t-il pas au troublant passage de la fin des *Réfutations sophistiques*, où Aristote fait proches parents le dialecticien et le sophiste : « À cause de la proximité de la sophistique, déclare-t-il, on doit se trouver d'avance préparé de manière à pouvoir mettre à l'épreuve non seulement de manière dialectique, mais aussi *comme si on savait*. »[5] ?

On échappe difficilement à l'effet déprimant produit par cette défınition des intentions dialectiques et par les règles plus précises qui les concrétisent. Entre autres astuces, le demandeur est pressé de se méfier de son interlocuteur et, derrière un brouillard de conclusions antérieures, de variations sur les termes et de

[2] *Top.*, VIII, 4, 159a17-18.
[3] *Ibid.*, 159a18-20.
[4] *Ibid.*, 159a21-22.
[5] *Réf. soph.*, 34, 183b1-3.

procédés divers, de lui cacher à quelle conclusion au juste il veut en venir[6]. Il pourra compter sur l'équivoque pour paralogiser, quand son répondeur ne prendra pas la précaution d'effectuer les distinctions pertinentes[7]. Il n'aura même pas de gêne à conclure méthodiquement du faux et à user de prémisses fausses : « Il est évident, prétend Aristote, qu'on doive conclure non seulement du vrai, mais aussi du faux, et non pas toujours par du vrai, mais quelquefois aussi par du faux. Souvent, en effet, comme ce qui est posé est vrai, c'est du vrai que, nécessairement, celui qui conduit le dialogue supprime : *on doit alors proposer du faux*. »[8] L'idéal, résume Aristote, serait « qu'une fois le raisonnement entier demandé et la conclusion dite, le répondeur en soit encore à se demander pourquoi on en est là »[9]. De son côté, le répondeur soulèvera le plus d'objections possible à toute proposition pertinente et criera systématiquement à la pétition de principe dès qu'il sentira un peu trop inévitable que la proposition suggérée conduise à la réfutation de sa position[10]. Inversement, si les propositions du demandeur passent à côté du problème, le répondeur les concèdera plus *aimablement*, même paradoxales, dans l'espoir que le demandeur s'enferre dans le verbiage et le simplisme[11].

Comment interpréter ces *fourberies* des *Topiques* sans faire pâlir Machiavel ? Et comment cette hypocrisie méthodique arrive-t-elle à cohabiter avec l'affirmation, constante chez Aristote, de la vérité et de la sincérité comme fin et perfection de l'homme ? Car le Stagirite fait de la vérité, et de la vérité assurée, le critère de valeur de toute pensée[12] : il n'admet pas de science sans vérité ; ni de conclusions scientifiques sans prin-

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6 Voir *Top.*, VIII, 1-3.

7 Voir *ibid.*, I, 18, 108a30.

8 *Ibid.*, VIII, 11, 161a26-29.

9 *Ibid.*, 1, 156a14-15.

10 Voir *ibid.*, 6.

11 Voir *ibid.* et 2, 158a25.

12 « Pour la pensée théorétique…, le bien et le mal, c'est le vrai et le faux. » (*Éth. Nic.*, VI, 2, 1132a27)

cipes vrais, et vrais d'une vérité indéfectible[13]. Dans ses propres mots, « il est correct d'appeler la philosophie science de la vérité »[14]. Jusque dans son intention pratique, insiste Aristote, l'intelligence n'agit que pour se mettre en possession de la vérité. C'est, bien sûr, l'action qu'elle élabore alors ; sa réflexion éthique et poétique n'a pas pour ambition de connaître les causes premières et véritables, elle veut seulement savoir ce qui est requis à la découverte de moyens et d'opérations[15] ; mais elle ne trouve pas son bonheur dans des moyens apparents et faux ; l'intelligence fait sa joie de moyens et d'opérations effıcaces, conformes à ce que la réalité commande, vrais en un mot[16]. Bref, Aristote prône bien haut la vérité comme préoccupation radicale de la raison humaine en toutes ses parties : « C'est assurément la vérité, dit-il, l'affaire des deux parties intellectuelles. »[17]

Alors, comment la *sournoiserie* des *Topiques* se fait-elle place ? Cueillerait-on là le fruit gâté d'un cerveau schizophrène ? Pourtant, le respect de la vérité trouve parfois chez Aristote des accents très touchants. On sait quelle place tient l'amitié dans sa conception de la vie proprement humaine. Il paraît tenté de définir par elle le bonheur, ou sa condition la plus essentielle, tellement personne, c'est sa conviction, ne choisirait de posséder tous les biens pour en jouir sans amis[18]. Aussi hésite-t-il fort, au moment de réprimander publiquement les doctrines soutenues par des amis, vu l'humiliation impliquée pour eux, et se demande-t-il si les bonnes mœurs l'admettent. « Cet examen [de la doctrine

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13 Voir *Sec. Anal.*, I, 6.

14 *Métaphysique*, a, 1, 993b19.

15 « Pour l'intelligence théorétique, la fin, c'et la vérité, mais pour l'intelligence pratique, c'est l'action ; et en effet, même si les gens pratiques regardent comment il en est des choses, ce n'est pas leur cause en elle-même qu'ils considèrent, mais son application éventuelle à telle fin. » (*Ibid.*, 993b20-23)

16 « Pour l'intelligence pratique, le bien, c'est la vérité en accord avec l'appétit droit. » (*Éth. Nic.*, VI, 2, 1139a29-31)

17 *Ibid.*, 1139b12.

18 Voir *ibid.*, IX, 9.

des idées] devient pénible, se plaint-il, du fait que ce sont des amis qui ont introduit les idées. »[19] Mais quelque sacrée que soit l'amitié, et spécialernent celle de Platon, Aristote ne la met pas longtemps en balance avec la fidélité due à la vérité. D'autant plus qu'à son point de vue, un ami n'en est vraiment un qu'en proportion de sa vertu et de sa vérité ; on doit donc éprouver plus d'amitié pour la vérité, qui a quelque chose de divin, que pour un homme. Aristote déclare : « Il vaudra manifestement mieux et même, surtout si on est philosophe, il sera nécessaire, quand le salut de la vérité en dépend, d'aller jusqu'à sacrifıer son propre ami. De fait, comme les deux sont nos amis, c'est un devoir sacré de préférer la vérité. »[20] L'amour de la vérité amènera même chez Aristote l'effet extrême d'une gratitude pour des opinions très erronées, à cause de reflets de vérité qui en miroitent[21]. Aristote, à certains moments, paraît extérioriser la vérité, il en fait comme un agent qui manipule l'intelligence plutôt que la fın de ses opérations. Si tous les anciens, affırme-t-il, même sans raison, posent les contraires comme éléments, c'est « comme s'ils s'en voyaient forcés par la vérité elle-même »[22].

L'accès d'hypocrisie des *Topiques* se réduirait-il à une crise de jeunesse ? Contaminé par l'engouement de son époque pour la logomachie, Aristote aurait connu un moment d'ébriété ? Que faire alors de sa récidive dans la *Rhétorique* ? Et de sa persistance à poser la vérité en première préoccupation du logicien, tout concentré sur les instruments appropriés à l'appréhension juste des essences ? L'intérêt strict de la logique, en effet, c'est de rendre possible et aisée la définition des choses réelles et la démonstration de leurs propriétés[23]. Or la dialectique, aux yeux

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[19] *Ibid.*, I, 4, 1096a12-13.

[20] « Ἀμφοῖν γὰρ ὄντοιν φίλοιν ὅσιον προτιμᾶν τὴν ἀλήθειαν. » (*Ibid.*, 1096a14-17)

[21] Voir *Mét.*, a, 1, 993b11-14.

[22] *Phys.*, I, 5, 188b29-30.

[23] Comme cette dernière démarche ne peut prendre appui que sur des caractères objectifs, vérifiés, Aristote ne retient, comme objet strictement logique, que le discours porteur de vérité ou de fausseté : l'énonciation, en

d'Aristote, a mission de faire pressentir au savant et au philosophe leurs conclusions[24] ; elle leur offre en outre une voie indispensable vers les principes de la science et de la sagesse et la seule arme pour défendre ceux-ci face à leurs détracteurs[25]. De toute évidence, elle ne pourrait rendre ce service, si elle s'incarnait dans des préoccupations privées de tout rapport à la vérité. Aristote voudra même quelque part que la rectitude de l'opinion soit la vérité : « Δόξης δ' ὀρθότης ἀλήθεια. »[26]

De plus, la dialectique dit un rapport à quelqu'un d'autre. « Tout travail de cette nature, insiste Aristote, se fait en face de quelqu'un d'autre. »[27] Or devant l'éthique aristotélicienne, l'homme est radicalement un animal social. L'homme est par nature le compagnon de l'homme : son indétermination naturelle, en regard de la complexité, multiplicité et diversité de son bien achevé, lui fait une nécessité inaliénable de compter sur son congénère pour compléter son être humain, acquis progressivement à travers une infinité d'opérations que l'individu ne peut suffire à poser seul. C'est pour l'homme une nécessité absolue de compter sur la connaissance, l'affection, le corps, la propriété, les opérations d'autrui comme sur les siens propres. Aussi, les développements éthiques aristotéliciens font de la bonne foi et de la sincérité une exigence de la justice, fondement de l'ordre social. Pas de société sans justice, sans que chacun tende à rendre à chacun ce qu'il lui doit. Pas de justice sans bonne foi dans les contrats et engagements. Sans égalité dans les échanges. En toute cohérence, la discussion, échange de services, collabo-

excluant tout discours inapte à exprimer le vrai. « Toute parole n'est pas énonciative, mais seulement celle dans laquelle on dit vrai ou faux ; et cela n'arrive pas en toutes : la prière, par exemple, est bien une parole, mais ni vraie ni fausse. Ainsi donc, écartons les autres, l'examen en appartient à la rhétorique et à la poétique ; c'est la parole énonciative qui appartient à notre considération actuelle. » (*De l'interprétation*, 4, 17a1-7)

[24] Voir *Top.*, I, 2, 101a34-36.

[25] Voir *ibid.*, 101a36-b4.

[26] *Éth. Nic.*, VI, 10, 1142b11.

[27] *Top.*, VIII, 1, a55b10 ; répété en 155b27.

ration en vue de découvrir la vérité, ne peut échapper à cette nécessité ; d'ailleurs, la seule fois que les *Topiques* nomment les interlocuteurs autrement que οἱ λέγοντοι[28] ou οἱ διαλεγόμενοι[29], c'est-à-dire *ceux qui parlent*, ils en font des *associés*, des gens en communion, des κοινωνοί[30]. La chose contraste à l'extrême avec l'habitude des traductions françaises existantes (Tricot et Brunschwig) de parsemer abondamment le texte du mot *adversaires* pour rompre avec l'indétermination grecque du verbe seul ou du pronom personnel ou démonstratif. Comment alors, dans le même traité, Aristote glisse-t-il à recommander la dissimulation, le mensonge, l'hypocrisie, l'usage de lieux sophistiques ? Tout semble forcer la distinction de deux Aristotes, au sein du même traité, et à imaginer, à la base de leur association, une évolution, une double rédaction ou, comme Jean-Marie Le Blond, de la… *souplesse* : « Vouloir sur ce point une solution parfaitement nette, une distinction bien tranchée, nous prévient-il, serait, à dire vrai, méconnaître les caractéristiques de la pensée aristotélicienne, *beaucoup moins raide qu'on ne le suppose généralement*. »[31] Une souplesse, une flexibilité qui habiliterait Aristote à se contredire presque comme chose normale : « Il y aurait un inconvénient sérieux, ajoute Le Blond, à rapprocher trop étroitement théorie et pratique, chez Aristote, et à tenter perpétuellement d'expliquer l'une par l'autre : ce serait en effet préjuger de la cohérence parfaite, poser en principe l'accord de celle-ci avec celle-là. »[32]

Le comble, c'est qu'Aristote fait de la vérité une vertu morale spéciale dans les rapports journaliers, même en toute gratuité, quand aucun profit ou dommage n'en dépend directe-

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[28] Voir *ibid.*, 11, 161a21 ; 12, 162b16s.

[29] Voir *ibid.*, II, 1, 9a10 ; IV, 1, 20b14 ; VI, 4, 42a12 ; VIII, 11, 161a29.

[30] Voir *ibid.*, VIII, 161a37.

[31] Jean-Marie Le Blond, *Logique et méthode chez Aristote : étude sur la recherche des principes dans la physique aristotélicienne*, Paris : Vrin, 1939, 55. Je souligne.

[32] *Ibid.*, 8.

ment, juste pour l'amour de la vérité et la haine de la fausseté[33]. La fine touche de la justice, le vernis de l'homme équitable, c'est cette amitié avec la vérité qui le porte spontanément à se présenter toujours tel qu'il est, tel qu'il pense, avec ses qualités et ses faiblesses, ses certitudes et ses erreurs, sans rien ajouter ni retrancher[34]. Pour Aristote, l'homme vertueux, l'homme fondamentalement humain est un *philalèthe*, un amant de la vérité, si passionné pour elle qu'elle lui semble un bien en elle-même et qu'il ne trouve aucune occasion où il soit sain ou même excusable de s'en écarter. Et cela quand même aucun profıt ou dommage ne s'ensuivrait. Toujours la vérité lui est si chère qu'il ne peut s'en passer, sans jactance ni ironie. Combien plus la laideur du faux, du faux prémédité, lui fera horreur, si le contexte est de quelque importance[35], comme c'est le cas quand il s'agit de la recherche de la vérité spéculative, à quoi la dialectique est censée contribuer.

Devra-t-on alors, comme Paul Moraux[36], concéder à Aristote les *Topiques* comme un *vademecum* du dialecticien de l'époque, un guide de discussion selon une mentalité étrangère à la sienne et peu intégrable au reste de son œuvre ? Brunschwig s'aligne sur cette conception pour dire : « Étroitement solidaires de l'activité qu'ils prétendent promouvoir du rang de pratique aveugle à celui d'art méthodique, les *Topiques*, *vademecum* du parfait dialecticien, risquent de nos jours d'apparaître comme un art de gagner à un jeu auquel personne ne joue plus. »[37] Pour-

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33 « Καθ' αὑτὸ δὲ τὸ μὲν ψεῦδος φαῦλον καὶ ψεκτόν, τὸ δ' ἀληθὲς καλὸν καὶ ἐπαινετόν.. » (*Éth. Nic.*, IV, 13, 1127a28-30)

34 « Καὶ ἐν λόγῳ καὶ ἐν βίῳ ἀληθεύει τῷ τὴν ἕξιν τοιοῦτος εἶναι. Δόξειε δ' ἂν ὁ τοιοῦτος ἐπιεικὴς εἶναι. » (*Ibid.*, 1127b2-3)

35 Voir *ibid.*, 1127b3-6.

36 Voir Paul Moraux, « La Joute dialectique d'après le huitième livre des *Topiques* », dans *Aristotle on Dialectic. The Topics*, Oxford : Clarendon, 1968, 277-311.

37 Brunschwig, ix. Aussi : « L'entretien dialectique, en effet, n'est pas une libre conversation, ni une discussion anarchique. L'échange verbal y est pris dans un réseau de conventions et de règles, qu'il est très éclairant de concevoir sur le modèle des codes institutionnels qui règlementent la

tant, Aristote ne s'est pas contenté de prescrire théoriquement ces comportements *fourbes* ; il les a incarnés dans tous ses traités, fussent les plus scientifiques ou les plus moraux, à l'étonnement de qui voit dans les *Topiques…* une *œuvre disgraciée*[38].

En définitive, comment qualifier le dialecticien que voit Aristote ? Est-ce plus ou moins un sophiste, tendu vers la belle apparence, comme y pointent les passages signalés des *Topiques* ? Est-ce un *philalèthe*, comme le commande la cohérence avec l'ensemble de la philosophie du Stagirite ? Ou faut-il y voir un peu des deux, selon le moment considéré de *l'évolution* du Philosophe, ou au gré des retouches de collaborateurs peu scrupuleux, ou en rapport avec une toquade de tournois dialectiques ? Quant à moi, je veux ici plaider pour la seconde possibilité, généralement écartée d'emblée. L'hypocrisie apparente du dialecticien, à ce qu'il me semble, ne ressort pas tant de la définition aristotélicienne du dialecticien qu'elle ne découle d'une conception sentimentale et romantique de la vie intellectuelle, que les *Topiques* heurtent de front. Pour en juger, regardons la réalité d'une situation de recherche. Car la vérité, c'est la réalité.

Or la réalité, c'est premièrement que, sur un problème soumis à discussion, *nous ne connaissons normalement pas la vérité au départ*. Nous ne disposons pas dès le début, et ne disposerons peut-être jamais, des principes susceptibles de nous mettre en sa possession ferme et tranquille, scientifique. Devant cette pauvreté, comment différencier le comportement de l'hypocrite de celui du tempérament véridique ? Comment se comporte un hypocrite, devant un bien rare et convoité de tous ? Il se vante de le posséder, il parle et se conduit comme s'il en disposait et fait mine de subir le plus injuste outrage si quiconque en doute. Or cela ne décrit-il pas au plus près un comportement intellectuel très

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pratique d'un sport ou d'un jeu, et qui asservissent selon des lignes bien définies le déroulement concret de toute *partie* réelle ou possible. » (*Ibid.*, xxiii)

38 « La méthode dialectique ... joue un rôle plus important dans la pratique aristotélicienne de la recherche scientifique ou philosophique que celui auquel paraissait la destiner son stalut théorique. » (*Ibid.*, xvii)

répandu ? N'entrons-nous pas souvent dans une discussion avec une idée faite d'avance que nous allons mettre toute notre énergie à défendre comme s'il s'agissait de notre peau ? Combien de scientifiques ne passent-ils pas le reste de leur vie, une fois associés à une théorie célèbre, à la défendre envers et contre tous, jusqu'à user de moyens politiques pour éviter que ne sortent au jour les évidences contraires ? Cela vient si spontanément, de s'identifier à ses hypothèses, que l'on fait une question de survie de les sauver et que l'on prend toute objection comme une attaque personnelle. Relève aussi de cette conception naïve et mièvre de la vie intellectuelle le fait de sous-estimer assez la difficulté de la science pour déclarer la dialectique sans objet et réservée aux esprits en manque d'intuition, une fois reconnue simplement la *possibilité* de la science démonstrative[39]. Autrement plus réaliste et véridique est l'attitude du dialecticien formé par Aristote, pour qui il n'est pas question de singer le savant : ce dialecticien admet crûment son ignorance et c'est pour en sortir, si possible, qu'il entre en discussion. Il ne connaît ni l'option vraie dans le problème présenté, ni les principes vrais dont elle pourrait s'ensuivre démonstrativement. Et c'est dans la plus grande franchise qu'il propose, comme critères succédanés, des *endoxes*, des idées familières à tous sinon vérifiées, dont toute la force tient à ce qu'elles incarnent la réaction spontanée de la

[39] Par exemple : « La dialectique ne jouerait donc d'autre rôle que celui d'un adjuvant, pourrait-on dire, pédagogique *à l'usage des esprits insuffisamment intuitifs*. Si l'on admet que, de tous les hommes, le philosophe est celui qui a le plus de part à l'intuition, on admettra aussi qu'il est celui *qui se passe le mieux de la dialectique* ; bien plus, qu'en tant que philosophe, il échappe entièrement aux limitations qui rendraient nécessaire l'usage de la dialectique. » (Pierre Aubenque, *Le Problème de l'être chez Aristote : essai sur la problématique aristotélicienne*, Paris : P.U.F., 1962, 296 ; je souligne) — « Una volta ammessa *la possibilità* di raggiungere, sulle questioni di maggiore importanza un accordo senza discutere, ma *utilizzando soltanto il solitario occhio della mente*, una logica della discussione rischiava di restare priva di qualsiasi ragion d'essere. » (Carlo Augusto Viano, « La Dialettica in Aristotele », dans *Studi sulla dialettica*, Torino : Taylor, 1969, 52 ; je souligne)

raison humaine, en présence des observations disponibles. (Je dis des *endoxes*, car pour ἔνδοξον, je tique sur la traduction consacrée : *probable* ; ce mot ne rend pas la matière dialectique sous le même angle qu'Aristote, qui pense à un constat de fait plutôt qu'à une aptitude. Au lieu des paraphrases suggérées à ce jour en solutions de remplacement — *idée admise*, *opinion courante* —, je préfère « le néologisme *endoxal* », risqué par Brunschwig[40] et « bâti sur le modèle de son antonyme exact, *paradoxal* ». Je dis *endoxe* quand il est besoin de considérer sous sa forme discrète la matière dialectique : l'endoxe répond à l'endoxal, comme le paradoxe au paradoxal.) Privé de prise directe sur les choses réelles, branché simplement sur les conceptions rationnelles les plus répandues, et donc les plus naturelles, sans autre garantie que sa confiance en la santé de la raison humaine faite pour se représenter la réalité, le dialecticien ne prétendra pas, au terme de la discussion, tenir une démonstration ; toujours en suspens, quelle que soit la légitimité de l'opinion qu'a accréditée l'examen, il sera prêt à reprendre la discussion dès qu'on voudra proposer d'autres opinions de départ. Sa seule ambition, c'est, en se faisant une conception motivée, de pressentir la conclusion qui trouvera éventuellement démonstration et de préparer l'intuition de principes de démonstrations à venir.

La réalité, c'est aussi, deuxièmement, que *la solidité se vérifie bien plus efficacement en s'y attaquant de l'extérieur qu'en énumérant ses points de fermeté*. Déjà pour des objets matériels : un instrument, un modèle de voiture prouvent au mieux leur robustesse dans les conditions extérieures les plus susceptibles de les détruire, comme l'imagent avec humour les tests représentés dans la publicité télévisée. Dans le domaine des idées, il est aussi plus facile de réfuter une conception que de la confirmer, car une exception suffit au premier dessein, tandis qu'autrement l'induction entière est requise[41]. De plus, en appelant comme critères l'endoxe et le paradoxe, le dialecticien s'appuie sur des

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[40] Voir Brunschwig, xxxv, note 1.

[41] Voir *Top.*, VII, 5, 154a36-b5 ; *ibid.*, 154a33-36.

principes faillibles et s'engage dans une situation inévitablement conflictuelle : le point de départ endoxal conclura tantôt l'une, tantôt l'autre des contradictoires. En faisant de son dialecticien un attaquant (ἐπιχειρητής) de toute position suggérée, Aristote n'en fait donc pas un vicieux chicanier (ἐριστικός) ; il lui propose tout simplement la voie la plus *franche*, la plus en conformité avec la réalité de cette situation intellectuelle. Car devant le problème rationnel d'un énoncé dont on ne sait si on doit l'affirmer ou le nier, quelle est l'attitude la plus réaliste, la plus connaturelle à l'amant de la vérité ? Elle est très loin de la condescendance. C'est de demander qu'on opte, juste à fin d'examen, pour l'une ou l'autre contradictoire, de préférence l'affirmative[42] ; puis de chercher en tous lieux les endoxes et les attaques les plus dommageables à cette position initiale, susceptibles de conclure le plus fermement l'opposée[43]. Si le dommage infligé à la position paraît très lourd, on pourra appliquer le même traitement à l'autre contradictoire ; mais finalement, on accréditera comme opinion légitime la plus difficile des deux à réfuter et à réduire au paradoxe. Avec quelle mentalité maintenant un interlocuteur intellectuellement honnête répondra-t-il à la demande initiale de prise de position, puis à l'agressivité qu'elle entraîne ? *Avec la mentalité d'un associé, en communiant parfaitement au dessein du demandeur.* Le répondeur aristotélicien, bien que l'inexpérience d'un observateur puisse l'assimiler au sophiste, du fait qu'il prend position ὡς εἰδώς, comme s'il savait[44], admet tout autant que son interlocuteur son ignorance face au problème ; son unique intention, en prenant position, est de suggérer une cible aux attaques du demandeur. Par la suite, on le sentait

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42 « On amène davantage les positions dans l'affirmative que dans la négative. » (*Ibid.*, II, 1, 109a8-9)

43 « Le demandeur conclut toujours l'opposé de la position. » (*Ibid.*, VIII, 5, 159b6)

44 Voir *Réf. soph.*, 34, 183b3. C'est à cause de cette apparence que Socrate préfère demander plutôt que répondre, et non parce qu'il trouve le second rôle mauvais en soi; on le voit bien, dans les dialogues platoniciens, à ce qu'il tient absolument à avoir un répondeur chaque fois qu'il enquête et accepte de jouer le rôle quand personne d'autre ne s'y prête.

dès le début en relisant la description qu'Aristote fait de sa tâche[45], aucun lien sentimental ne l'attache à la position initiale. Au contraire, il s'associe de toutes ses ressources à l'attaque montée contre elle et toutes ses réponses visent à garantir au demandeur que son attaque soit la plus dommageable possible. Comment ? En soulevant, avant d'accorder chaque proposition suggérée, toutes les objections imaginables, bref en s'efforçant de ne rien laisser utiliser par le demandeur qui serait inoffensif pour la position, parce que paradoxal, ou moins endoxal que la position même, ou non pertinent. Voilà le sens de ce précepte de faire en sorte que le paradoxe s'attache à la position non par la faute du répondeur, par sa condescendance en quelque sorte, mais en raison de la faiblesse objectivement inhérente à la position. Aristote en fera souvent la remarque : le rôle du répondeur est d'*assister le demandeur à conclure l'opposé de la position, non de l'empêcher à tout prix d'y parvenir*. Car, dénonce Aristote, « en faisant le difficile », c'est-à dire « quand le répondeur se tient malignement à l'affût de ce qui contrarie le demandeur », « on tourne les discussions en disputes et elles ne sont plus dialectiques »[46].

Car un autre aspect, et capital, de la réalité, c'est, troisièmement, que chacun entre dans la discussion avec une affectivité blessée et des dispositions intellectuelles imparfaitement adéquates, de sorte que cette activité risque beaucoup de se faire plus ou moins contre l'autre — πρὸς ἕτερον[47] — plutôt qu'avec lui. Chacun est exposé, par double ignorance ou par préjugé, par susceptibilité ou par vanité, à s'identifier avec la position initiale, suggérée comme cible, ou avec son opposée, que la discussion cherche à établir, en réfutation. Tant que ne se produit pas ce durcissement, cet oubli du bien de la raison au profit du prestige personnel, tant qu'on communie parfaitement à la réalisation de l'œuvre commune, la distribution des rôles à des personnes dis-

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[45] Voir *supra*, 111.

[46] *Top.*, VIII, 11, 161a22-24.

[47] Voir *ibid.*, 1, 155b27.

tinctes demeure flottante ; chacun tient à la fois son rôle et celui de l'autre. Le répondeur ne se fait pas faute de pointer au demandeur une faiblesse de la position qui prête à attaque, ou une modification à telle proposition qui permettrait de contourner une objection apportée ; et le demandeur est bien aise de signaler au répondeur une objection qui désamorce sa propre proposition, ou une distinction qui lui évite de s'empêtrer dans des homonymies cachées. Mais bien naïf, ou bien hypocrite!, serait-on de s'attendre à ce que la discussion revête longtemps ou le plus souvent cet aspect idyllique. Sur ce plan encore, le dialecticien issu des *Topiques* adopte la seule attitude réaliste. Attentif à la santé de ses propres dispositions comme de celles de son interlocuteur, il se montre toujours prêt, en cas de soupçon, à mettre à l'épreuve les dispositions de son compagnon et à subir de sa part pareille mise à l'épreuve, pour vérifier et remédier.

> Souvent en effet, avertit Aristote, c'est celui à qui on demande qui est cause de ce que le raisonnement ne soit pas bien conduit, par le fait de ne pas concéder ce à partir de quoi il y aurait moyen de bien discuter contre la position. C'est qu'il n'est pas au pouvoir de l'un seulement des interlocuteurs de bien accomplir leur œuvre commune. *Il est donc quelquefois nécessaire d'attaquer l'interlocuteur et non la position.*[48]

Souvent aussi, c'est le demandeur qui compromet le succès de la discussion, en mettant plus qu'une agressivité rationnelle à détruire la position. C'est alors à lui que le répondeur doit s'objecter, plus qu'à ses propositions et argurnents.

> Que fasse un mauvais associé celui qui met obstacle à l'œuvre commune, dit Aristote, il est évident que cela vaut aussi en matière de raisonnement… Et cela ne fait pas de différence que cette obstruction se fasse par la réponse ou par la demande. Qui demande selon un mode chicanier dialogue mal, aussi bien que le répondeur qui n'accorde pas ce qui est endoxal, ni n'accepte quoi que ce soit dont veuille se servir le demandeur.[49]

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[48] *Ibid.*, 11, 161a17-22.

[49] *Ibid.*, 161a37-b5.

Ainsi s'explique l'apparente manie du piège et l'allure sophistique de certaines recommandations ; c'est qu'Aristote admet franchement la pénible réalité : « Contre ceux qui font les difficiles, on n'est sans doute pas capable de faire les raisonnements directement comme on les veut, mais seulement comme ils le laissent possible. »[50] Dès que le demandeur n'est plus sûr des dispositions de son répondeur, par exemple, il sera prudent de sa part de ne pas lui montrer trop clairement et même de lui dissimuler carrément comment et à quelle conclusion au juste conduira la concession ou le refus de telle proposition ; le répondeur tenté de biaiser en retrouvera une sérénité plus grande pour se prononcer comme il le doit sur la valeur endoxale de la proposition demandée. La même prudence évitera de rappeler au répondeur prétentieux les principes communs engagés[51] ou de lui signaler les distinctions utiles ou les objections indispensables ; à travers les inconvénients de ses méprises, il trouvera occasion de se rendre compte combien plus il contribuerait à la discussion en renonçant à ses prétentions. De même, le répondeur qui sent son interlocuteur s'attacher à tout prix à la réfutation fera plus dispendieuse la concession : il en appellera à la pétition de principe dès qu'on touchera la position et laissera le demandeur s'enferrer sur ses propres armes, faute de prémisses pertinentes ; peut-être ainsi se ravisera-t-il et reviendra-t-il à de plus saines intentions. En correspondance, le demandeur ou le répondeur bien disposé ne prendra pas mouche, ainsi piégé, conscient qu'il est que la

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50 *Ibid.*, 161b9-10.

51 C'est là la manière dont « il est loisible, même à celui qui ne sait pas de science la chose, de mettre à l'épreuve celui qui sait*, à condition simplement que ce dernier concède non pas de ces principes qui permettraient de savoir de science, ni des principes propres, mais de toutes ces conséquences telles que, les sachant, rien n'empêche qu'on ne sache pas l'art, mais ne les sachant pas, on l'ignore nécessairement » (*Réf. soph.*, 11, 172a23-27). — *Contrairement à Ross, je préfère suivre les leçons qui omettent ici μή. Parler de « mettre à l'épreuve celui qui ne sait pas », c'est trop clairement commettre une pétition de principe ; car c'est juger, avant même de le mettre à l'épreuve, que celui qui prétend savoir ne sait pas effectivement.

bonne marche de l'investigation nécessite que son interlocuteur soit sûr de ses dispositions. À cette fin, il évitera tout procédé susceptible d'éveiller la méfiance[52] : il ne se contentera pas de bien remplir son rôle, il s'efforcera aussi d'*en avoir toujours l'air*, c'est-à-dire de *manifestement bien le remplir*. C'est le sens de ce φαίνεσθαι et de ce δοκεῖν qui étonnent le lecteur dans certaines recommandations ; avant de signifier péjorativement *la pure apparence sans l'être*, ces verbes signifient plus radicalement *un être si manifeste qu'on ne puisse manquer de l'observer*. Ainsi, le répondeur doit faire en sorte que le paradoxe non seulement ne vienne pas de lui, mais, en plus, n'ait même pas l'air de venir de lui[53]. Mais si, par malheur, l'interlocuteur trouve occasion de s'inquiéter, on lui offrira tout le loisir de se rassurer, en lui faisant voir qu'on prévoit les coups et pièges qu'il juge bon de préparer à cet effet. « En effet, assure Aristote, le répondeur ne donnera pas l'impression (οὐδὲν δόξει) de subir quoi que ce soit par sa faute, si c'est en prévoyant ainsi qu'il pose chaque chose. »[54] Et de toute manière, on restera prêt à réviser ses dispositions le cas échéant.

Il est enfin un autre aspect de la réalité que le dialecticien d'Aristote ne cache pas : c'est, quatrièmement, que *le problème discuté en est rarement un au sens le plus strict*. Car un problème, absolument parlant, c'est un énoncé dont on n'ose d'aucune manière prononcer ni l'affirmative ni la négative[55]. Or dans la plupart des discussions, la demande initiale porte sur un énoncé dont l'une des contradictoires est déjà communément admise à quelque degré. En conséquence, l'un ou l'autre des interlocuteurs, ou même les deux, a déjà adopté dans son cœur l'une des hypothèses et risque fort de mener une investigation plus simulée que réelle. Pourtant, il y a souvent intérêt à remettre en question et à rediscuter une opinion déjà ferme ; mais comment entrer en un tel examen sans piper les dés d'avance ? Là encore,

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[52] Voir, par exemple, *Top.*, VIII, 9, 160b17-22.

[53] Voir, par exemple, *ibid.*, 4, 159a21 (voir *supra*, 1).

[54] *Top.*, VIII, 6, 160a11-12.

[55] « Περὶ οὗ οὐδετέρως δοξάζουσιν. » (*Ibid.*, I, 11, 104b3-4)

les *Topiques* proposent clairement l'issue. Ils admettent d'abord que la position initiale, si le problème n'en est pas purement un, sera déjà ou endoxale ou paradoxale[56]. L'attitude vraie, si sérieusement on juge bon de soumettre à la discussion, sera de traiter cette position sur un pied d'égalité avec sa contradictoire ; donc, face à une position déjà endoxale, on accordera comme élément valable d'attaque tout ce qui sera *moins paradoxal que sa contradictoire*[57] ; et face à une position paradoxale, on n'accordera que les propositions encore plus endoxales que sa contradictoire[58].

Autrement, il vaut mieux renoncer franchement à la discussion, car si on exploite le fait qu'on a déjà son idée faite, on annule tout le bénéfice d'une discussion dont il ne reste qu'un hypocrite faux-semblant. Si l'on juge de fait utile de soumettre à la discussion quelque chose qui appartient déjà de quelque façon à l'opinion générale et a donc de bonnes chances de se trouver vrai, Aristote ne nous laisse pas ignorer la conséquence inévitable : traiter sur ce pied d'égalité la contradictoire endoxale et la paradoxale obligera, au moment d'attaquer la partie éventuellement vraie, à concéder des prémisses fausses dans la même proportion. Car la conclusion de la réfutation sera aussi fausse que la position réfutée sera vraie ; et on ne conclut pas du faux autrement que par du faux. Mais le contexte n'est pas ici celui du malicieux qui s'entête à user de tout stratagème ; Aristote reconnaît simplement la faiblesse congénitale des attaques adressées à une position endoxale ou vraie[59].

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56 « Nécessairement, le répondeur soutient le raisonnement en posant une position qui sera *ou endoxale, ou paradoxale, ou ni l'un ni l'autre*.» (*Ibid.*, VIII, 5, 159a38-39)

57 « Si la position est endoxale absolument, il est évident que la conclusion sera paradoxale absolument. On doit donc poser tout ce qui est endoxal et tout ce qui, non endoxal, est moins paradoxal que la conclusion. » (*Ibid.*, 159b16-19)

58 « Il est manifeste que si ce qui est posé est paradoxal absolument, le répondeur ne doit accorder ni ce qui, absolument, n'est pas endoxal, ni ce qui est endoxal, mais l'est moins que la conclusion. » (*Ibid.*, 159b9-12)

59 Voir *ibid.*, 11, 161a26-29, cité *supra*, 2.

L'aridité des *Topiques* décourage facilement de leur étude attentive et leur lecture superficielle fait forcément d'Aristote le Machiavel de la vie spéculative. Cela me paraît un contresens phénoménal, qui jure avec la préoccupation que montre partout Aristote pour la vérité et la sincérité. En rédigeant cet article, j'ai voulu faire remonter ce qu'il y a de faussement sentimental et romantique à la base de cette interprétation. Lever le nez sur le recours à l'endoxe, en effet, n'est-ce pas exiger de l'interlocuteur qu'il sache dès le départ, qu'il ait dans sa manche quelque principe-atout ? Se scandaliser de l'agressivité dialectique, qui axe l'examen d'une position initiale sur sa réfutation, n'est-ce pas prescrire naïvement la voie peu praticable de la confirmation ? Trouver offensant le piège qui teste ses dispositions dans l'examen, n'est-ce pas hypocritement se placer au-dessus de tout soupçon de comportement intéressé ? Blâmer automatiquement des conclusions fausses et des prémisses faibles, voire paradoxales et fausses, n'est-ce pas refuser l'évidence que les discussions portent souvent sur des questions où une solution est déjà communément admise ? n'est-ce pas promouvoir la situation fausse où on fait semblant d'examiner quelque chose qu'on se refuse de toute façon à mettre en question ?