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UNIVERSITY OF ALBERTA

THE POLITICAL RHETORIC OF DESCARTES' *DISCOURSE ON METHOD*

BY

KENT B. COCHRANE

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfuillment of the requirements for the degree of MASTER OF ARTS.

DEPARTMENT OF POLITICAL SCIENCE

Edmonton, Alberta
FALL, 1993

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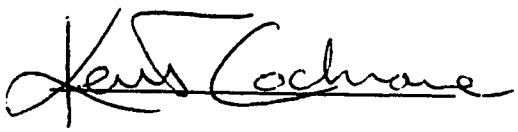

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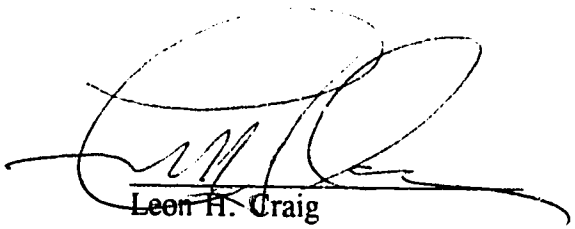

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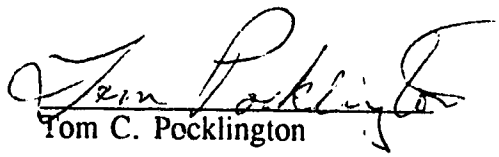

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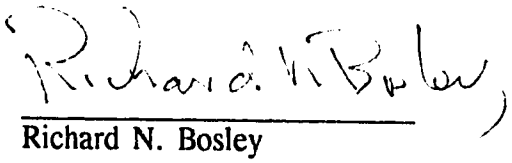

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ABSTRACT

This work is a section-by-section commentary on the *Discourse on Method*. The goal of the commentary is to bring out the political implications of Descartes' arguments for the refashioning of science. Science of the sort desired by Descartes - modern science, that is - is an inherently collective, political project. Among other things, Descartes seems to wish science or philosophy to have a more secure place in society. Particular attention is paid in the commentary to the rhetoric of Descartes' writing. Descartes implies that the rules of his method are to be applied reflexively to the reading of the book. In particular, he would seem to wish the careful reader to doubt the truth of some of the things that are written in the book. Furthermore, the structure of the book is such that the goal of Descartes' project, the refashioning of science in order to make men "the masters and possessors of nature", is only made explicit near the end of the book. The earlier parts of the book must be read with that goal in mind. The last chapter of the thesis examines certain similarities and differences between the *Discourse* and Plato's *Apology of Socrates*, with a view both toward further explication of the political aspects of modern science, and toward elucidation of the reason behind the autobiographical form of the *Discourse*. The general similarity between the two texts suggests that Descartes wishes his *Discourse* to be understood as an "apology" for philosophy.

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INTRODUCTION

René Descartes' *Discourse on Method* was published anonymously in 1637, together with three scientific essays, the *Dioptrics*, *Meteors*, and *Geometry*. The *Discourse* serves as a preface to these essays, but it also has a much more ambitious purpose, for it in effect proposes a new relationship between philosophy and politics. This aspect of Descartes' work has been much less commented upon by scholars than has what he says about scientific method or about the supposed metaphysical foundations of modern science. This neglect is to a certain extent understandable, as Descartes' more famous *Meditations on First Philosophy* focuses its attention entirely on metaphysics, to the virtual exclusion of politics. Furthermore, the *Discourse* itself does not appear to say very much about politics. The words "politics" and "political" never occur in it, and although it does speak of laws, states and constitutions, it seems to do so only in passing, or by way of illustration. However, even though little is explicitly said about politics, there are sweeping political implications to much of what Descartes writes in the *Discourse*.

The full title of the work is "Discourse on the method of conducting one's reason well and seeking truth in the sciences; Plus the Dioptrics, Meteors, and Geometry, which are examples (*essais*) of this method."[1] In Part Six of the *Discourse* Descartes outlines just what it is that men must do in order to "seek truth in the sciences" and to advance their collective knowledge of nature. The task will require vast financial resources, the hierarchical organization of many, many men, and continuity of work over many generations. Science of the type envisioned by Descartes would thus seem necessarily to be a political project, and the argument in its favour necessarily a work of political philosophy.

One might say that Descartes gives, in the account of himself that he presents in the *Discourse*, a political defence of philosophy, just as Socrates gives a political

defence of philosophy in Plato's *Apology*. But whereas Socrates tries to show that the philosopher is useful to the city because he exhorts his fellow citizens to virtue, Descartes argues that the real utility of philosophy lies in the inventions it will provide, which will ease the labour and maintain the good health of all men. The reason philosophers should be supported at public expense, according to this new apology, is not that they care for men's souls, but that they care for men's bodily well-being.[2] Descartes even goes so far as to suggest that, because of the very great dependence of the mind on the disposition of the body, medicine may be able to make men wiser. Although Descartes might claim that he thus indirectly cares for men's souls, he also explicitly questions the effectiveness of the sort of exhortations to virtue that Socrates occupied himself with.

In order to bring about the benefits that he promises, Descartes proposes refashioning the way in which scientific inquiry is conducted. This would seem to entail the refashioning of society. At the very least, certain types of political regime will be more conducive to science than others. Philosophers will not necessarily be rulers of the society that Descartes seems to envision, but they will be of the greatest importance to it. It also seems very likely that the tremendous benefits to mankind that will result from the new, publicly supported science will have the consequence of securing the place of philosophy much more effectively than did Socrates' martyrdom. It would seem reasonable to expect that there will be no more trials of men like Socrates or Galileo once the new science has established itself, and once men have seem just how much in their interest it is to support it. Descartes' proposal thus has the advantage of appealing both to ordinary men and to philosophers. Given that one can expect most men to be much more receptive to the promise of being benefited than to the prospect of being stung by some human gadfly for failing to be virtuous, the new defence of philosophy has a far greater chance of being permanently successful than did the old one.

Modern science has indeed been wildly successful, in just the ways Descartes says that it will be, so that what was only a promise when the *Discourse* was published is now irrefutable fact for all to see. We now live in a society devoted wholeheartedly to all manner of scientific inquiry and invention. Yet in spite of all the ease, comfort, health, wealth, and sensual delight that science has provided, it does not seem to have made men happier or more satisfied, though Descartes, at least, never actually promised that it would. We might also reflect on the fact that our time would be regarded as an age of wonders by men of any earlier time, and yet surprisingly few people exhibit much curiosity about those wonders. These observations alone should interest us in what Descartes does in fact envision for the science that he proposes.

This commentary will endeavour to elucidate what Descartes would seem to understand the political implications of modern science to be. Special attention will be paid to what he implies about its ethical and religious aspects. Scholars sometimes take at face value Descartes' professions of religious conformity, and his claims to write in defence of revealed truth.[3] A close reading makes it very difficult to accept this. On the one hand, there *is* an orthodox side to Descartes' philosophy: he claims to prove the existence of God and the immortality of an independent soul. On the other hand, Descartes' project of scientific inquiry would seem to have sweeping religious and ethical consequences. The radical scepticism necessary for science, which is now taught in our schools as a matter of course, can hardly avoid undermining religious belief. Furthermore, when one thinks carefully about what Descartes says explicitly in conjunction with what he tacitly suggests, one discovers that the *Discourse* conveys an altogether blasphemous teaching. Descartes not only hints that he wishes to propose himself as God's replacement, but also shows how men could have invented God in the first place. And just as he suggests that man has made God in his own image, Descartes also hints at his own desire to remake man in his own image: Descartes the philosopher

would refashion society in such a way that all men would become knowers of a sort, or at least the assistants and servants of knowers, insofar as they are able.

Part of the reason for the neglect by scholars of the political aspects of the *Discourse* may be the very structure of the book. The goal or intention of Descartes' way of doing science is only made explicit in Part Six, in the course of Descartes' dialogue with himself over whether or not he should publish the treatise on physics whose contents he summarizes in Part Five. Descartes argues, as we have already mentioned, that scientific inventions will provide man with a life of ease and good health. He states that his aim is to replace the "speculative philosophy taught in the schools" with a practical one, a philosophy productive of useful knowledge which will make men the "masters and possessors of nature". It is this "mastery of nature", accomplished by means of mathematical physics, which will provide men with useful inventions. Discussions of Descartes' philosophy, in particular of his metaphysics, do not often take into account that the "mastery of nature" is Descartes' stated goal, and that the other parts of his philosophy all presumably contribute to this end.[4]

The structure of the book is thus such that a full understanding of what Descartes says in the earlier parts presupposes that one has already read the book in its entirety at least once. Descartes himself hints in the first paragraph of Part One of the *Discourse* that he has a very definite goal in mind throughout. He writes that those who follow the straight path in life, even if but slowly, will advance farther than those who run and stray from the path. Etienne Gilson notes that this statement is very reminiscent of a phrase at the beginning of Seneca's *De Vita Beata*. That work opens as follows:

> So far from it being easy to attain the happy life, the more eagerly a man strives to reach it, the farther he recedes from it if he has made a mistake in the road; for when it leads in the opposite direction, his very speed will increase the distance that separates him.

Interestingly enough, the next sentence of Seneca's essay reads as follows:

> First, therefore, we must seek what it is that we are aiming at; then we must look about for the road by which we can reach it most quickly, and on the journey itself, if only we are on the right path, we shall discover how much of the distance we overcome each day, and how much nearer we are to the goal toward which we are urged by a natural desire.[5]

We shall similarly endeavour in this commentary to keep in mind throughout "what it is that Descartes is aiming at", in order to see more clearly the "road" by which he reaches that goal. To repeat, the fact that Descartes wishes to institute a science capable of "mastering nature" puts other aspects of the book in a rather different light than that in which they are typically viewed.

One further point may be raised here in connection with what Descartes states in Part Six as his aim. Descartes is famous for apparently subjecting all opinions to radical doubt, for sweeping away everything of which he is not absolutely certain. The *Discourse* is presented as the exemplification of this "method". And yet, although all opinions seem to be subjected to this radical doubt in the *Discourse*, in actual fact Descartes nowhere explicitly doubts the goodness of the goal of his project, the mastery of nature. He speaks from the beginning of the book of his desire for things "useful for life"; by the end of the book, it seems that what he means by utility is technical power. Descartes never expresses any doubt that philosophy must be useful in this way. Put another way, the pursuit of knowledge for its own sake, philosophy as traditionally understood, seems to be implicitly and silently rejected from the beginning of the book. This suggests something about the way the *Discourse* must be read, and we will begin with this topic in the next chapter.

HOW TO READ THE DISCOURSE

The *Discourse on Method* is a carefully crafted book. Moreover, it is a masterpiece of ironic writing.[6] A clear account of this irony, and of why Descartes might write in such a way, is essential to a complete understanding of the book. While the irony in the *Discourse* becomes more apparent upon close and repeated reading, Descartes has also scattered a few hints here and there that the book may contain more than immediately meets the eye. In the middle of discussing why he conforms to political and religious authority, he notes that "in the corruption of our morals there are few people who want to say all that they believe" (pt. 3, par.2), a remark that applies equally well to himself. He speaks elsewhere of the special care given to writings that will be seen by many people (pt. 6, par. 4). At the beginning of Part Five, he states that he will not reveal the principles of his physics, but will only outline them in a general way, "in order to leave it to the most wise to judge if it would be useful for the public to be informed of them more particularly." This suggests that some will be able to understand the full nature of his physics from the little he gives of it.

Let us leave, however, the contemplation of physics to the "most wise", for there are also some obvious hints about interpretation pertinent to the rest of us. The *Discourse* has the form of an autobiography: it supposedly relates the tale of Descartes' life, or at least that of his intellectual development.[7] Near the beginning of the book he expresses the hope that everyone will be grateful for the frankness of his writing.[8] In the same place he likens the account of his life to three things: a picture, a history, and a fable. Descartes discusses each of these three things elsewhere in the book, and in seemingly different contexts. These remarks nonetheless apply reflexively to the *Discourse* itself, and thus bear on how it is meant to be interpreted. As such, they deserve

to be examined in some detail, particularly in light of Descartes' claim to openly reveal all of his thoughts.

Regarding "Picture"

> I would be very glad to show in this discourse what the paths are that I have followed, and to represent my life as in a picture, so that each can judge it, and so that, learning from the common rumours ("*du bruit commun*") the opinions that will be had of it, this will be a new means of instructing myself that I will add to those I am accustomed to employing. (par. 4)

This metaphor is rather strange, given that pictures are static images, presenting one moment frozen in time, whereas the story related in the *Discourse* moves in time. Admittedly, a painter might be able in some sense to capture the "essence" of an individual's life by judiciously choosing the moment or action most representative of that life. It would seem more plausible, however, to liken the book specifically to a portrait, rather than to the painting of an action. We should note that portraits often contain an element of falsification, at least in the sense of beautification. It may even be that some abstraction, some elimination of non-essential elements and refining of essential ones, is necessary in order to provide a glimpse into the soul of the individual portrayed. On the other hand, some would hold that the best portraits are completely faithful representations of their subjects, warts and all. Descartes does not state here whether or not his "self-portrait" is entirely accurate or truthful. We might also consider that a picture is a two-dimensional representation of a three-dimensional object, which the viewer must in some sense reconstitute in his imagination.

Painters make pictures by the clever manipulation of colour and form. As Descartes emphasizes elsewhere, the senses can deceive, and particularly the sense of sight (pt. 4, par. 1, 8). By way of example, he mentions a rather extreme case of this: everything appears yellow to those with jaundice. This may suggest that there are some

who will be unable to see the picture of Descartes' life in the colours in which he painted it, or in which he intended it to be seen.

Descartes speaks more fully of painting in Part Five, in the course of describing the treatise on physics that he wrote and never published. He notes there that

> painters, unable equally to represent in a flat picture all the diverse faces of a solid body, choose one of the principal ones, which they put alone towards the day, and, shading the others, only make them appear as one can see them in looking at [the principal one]. (par. 2)

He adds that he employed this same technique in his book on physics, allegedly for reasons of space: since he could not speak about every topic in physics, he chose to discuss all things insofar as they relate to light. These remarks occur, however, immediately after his reference to certain "considerations" that have kept him from publishing this treatise, considerations which turn out in Part Six to mean the trial of Galileo. Descartes further declares that rather than describe the physical laws of this world, he will speak of what would happen were God to create and set in motion another world, "in order to shade a little all these things, and to be able to speak more freely what I judged of them".[9] It would seem that it was fear of censorship, then, that led Descartes to "paint" a two-dimensional portrait, seen from a single perspective, of the principles of his physics, rather than to expound them fully and completely.

To relate this to the characterization of Descartes' life as a picture, it seems that he portrays only certain parts or aspects of it, leaving the rest in "shadows". Perhaps this means that one must examine carefully those shadows in order to understand fully the life. Paintings can, after all, conceal just as much as they reveal. The painting image thus subtly suggests that Descartes is not as open or forthright in the *Discourse* as he would have his more naive readers believe. Still, paintings are usually intended to be exhibited, and Descartes certainly wishes his life to be seen.

As for what Descartes hopes to learn from the opinions others will have of this account of his life - what he will overhear viewers of his painting say about it - he

declares in Part Six that he has rarely received any objections to his work that he had not already foreseen, and that he has almost never met a critic of his views who was not either less rigorous or less fair than himself (par. 5). So, either Descartes is publishing the *Discourse* on the very remote chance of its encountering that rare critic from whom he might possibly learn something, or he is being ironic in what he says of his intentions here at the beginning of the book.

Regarding "History and Fable"

> Thus my plan is not to teach here the method that must (should, "*doit*") be followed in order to conduct one's reason well, but only to show in what way I have tried to conduct mine.... But, only proposing this writing as a history, or, if you prefer, as a fable, in which, among some examples that one can imitate, one will perhaps find several others that one will be right not to follow, I hope that it will be useful to some, without being harmful to anyone, and that everyone will be grateful to me for my frankness. (par. 5)

One of the principal topics of the *Discourse*, according to its title, is a method for conducting one's reason well, yet Descartes here at the beginning of the book disclaims any ambition to teach a general or universal method. Instead, he likens the book to a history and a fable. Histories are usually thought of as true, and fables as false, though sometimes plausible.[10] Descartes does not seem concerned to distinguish clearly the two types of story, at least not here. However, in his subsequent account of the sciences that he was taught at school, Descartes writes that "the gracefulness of fables awakens the mind, [and] the memorable actions of histories uplift it, and, when read with discretion, they aid in forming one's judgment" (par. 7). Descartes does not elaborate on what he means by reading "with discretion": perhaps the careful consideration of the truth or falsehood of everything one reads, together with reflection on one's own experience. In any event, this does suggest that the careful, thoughtful, reflective reading of the *Discourse* as a whole, and not merely the memorization and

mechanical application of certain rules of a method, will assist one in learning how to conduct one's reason well.

Descartes goes on to set limits to the usefulness of fables and histories, declaring that upon completion of his studies he decided he had given enough time to "ancient books, both to their histories and to their fables" (par. 8). Those who are too curious about past centuries, he tells us, remain ignorant of their own. This is related to what one might call Descartes' political critique of travel: it is good to know something of the ways ("*moeurs*") of other peoples, in order to judge one's own more soundly, but when one spends too much time in travelling one becomes a stranger in one's own country. A little later, however, Descartes relates that he left school in order to study in the "book of the world", and that he spent the rest of his youth in travel (pt. 1, par. 14-15). He also says that he spent a further nine years travelling after his day in the stove-heated room (pt. 3, par. 6). It seems that Descartes believes that there is a argument to be made for the political wisdom of not allowing the citizens of a country to travel too much: their patriotism may wane as a result of too much time spent abroad. But in his own case, Descartes reveals that he himself is *not* overly attached to his own country; or rather that he is far more attached to his curiosity about the world.

The premise of studying old books is that they teach permanently true things about human life. It may be that, for himself, Descartes is actually as open to the study of "ancient books" as he is to travel, and that his critique of them is similarly political, rather than philosophical. On the other hand, his charge against old books is more serious than the mere worry that those who study them will become lost in contemplation and oblivious of their own surroundings:

> Moreover, fables make one imagine many events to be possible which are not; and even the most faithful histories, if they neither change nor augment the value of things, in order to render them more worthy of being read, at the least almost always omit some of the basest and least illustrious circumstances: from which it follows that the rest does not appear as it is, and those who rule their morals ("*moeurs*") by the examples that they pull from them are subject to falling into

> the extravagances of the Paladins of our romances, and to conceiving plans which are beyond their forces. (par. 8)

Is Descartes' life as he relates it a "faithful" history, more or less true, so far as it goes, but perhaps misleading due to certain omissions?[11] Or is the entire account an inspiring but imaginary fable? In either case, the effect of Descartes' remarks is the same. Both fables and histories show things other than they are, and both can lead men to overestimate their abilities and to attempt things which are not possible. This suggests that Descartes' "quest" to conduct his reason well is beyond the capabilities of many.

Indeed, Descartes says as much in Part Two, in his discussion of different sorts of readers. His remark of Part One (par. 5) about the examples in histories and fables that one should not follow is repeated there, thirteen paragraphs later:

> The single resolution to rid oneself of all the opinions one has hitherto received in one's belief's is not an example that everyone should follow. (pt. 2, par. 3)

Superficially, at least, it would seem that what Descartes wishes to dissuade some, if not most of his readers from is his project of radically doubting the truth of everything. But one is left wondering as to the actual effect of Descartes' warning on his various readers.

It is interesting that Descartes warns here against taking one's morals from what one reads in fables or histories. He himself outlines in Part Three of the *Discourse* a "provisional morality" that he apparently lives by. Given the characterization of the book as a fable or history, this suggests that living by Descartes' own personal morality, in particular, may be "beyond the force" of many people.

At the very least, the remarks on fables and histories ought to be taken as a warning by those scholars who mine the *Discourse* for details about Descartes' biography. Although most of the events related in it agree very generally with those of Descartes' life so far as this is revealed in his correspondence and elsewhere, not all of them do, and there is no external corroboration for some of the details.[12]

Regarding Descartes' Literary "Method"

The preceding considerations indicate that there may be more to the *Discourse* than would be apparent on a first reading - indeed, perhaps much more. The very first sentence of the "Introduction", however, contains a more explicit, concrete hint on how the book must be read. Descartes begins by stating that if the book seems too long to be read at one sitting, one might divide it into six parts. Apart from the fact that the book can by no stretch of the imagination be characterized as long, this recommendation is reminiscent of the second rule of Descartes method (divide difficulties into as many parts as possible), and suggests that this method of thinking about the world is to be applied reflexively to the *Discourse* itself.

This would seem to be particularly true of the first rule of the method: only accept as true what is evidently so, and what is so clear and distinct as to be beyond doubt. Indeed, Descartes' entire way of philosophizing, as he presents it, might seem to be to doubt the truth of everything at least once. However, not everything in the book is in fact explicitly subjected by Descartes to this radical doubt. As we shall see, the first sentence of Part One of the *Discourse* is a good example of a statement whose veracity the reader must decide for himself. Furthermore, Descartes himself sometimes says that something is true or certain or evident, whereas at other times he withholds this confirmation.[13] This discrimination on Descartes' part invites the reader to examine for himself what Descartes has said. Curiously enough, these expressions are often used by Descartes of things which do not seem to have been derived from the application of his method to mathematical or metaphysical problems (the way that Descartes explicitly exemplifies the method in the book), but rather from the careful observation of human affairs or reflection on his own experience. For example, he calls it a "very certain truth" that when we are not able to discern the truest opinions, we should follow

the most probable in our everyday conduct (pt. 3, par. 3). In another place, he says that it is "certain" that if we consider all the goods outside us as equally beyond our power, we will have no regrets at not possessing them (pt. 3, par. 4).

We may also make mention here of Descartes' use of the expression "without doubt". This expression occurs six times in the *Discourse*, and in each case it has two meanings: the normal one of "doubtlessly, very likely, almost certainly", and the ironic one of "without radical Cartesian doubt". [14] For example, Descartes tells us in Part Six that "one without doubt looks more closely at what one believes must be seen by many, than at what one only does for oneself" (par. 4). This would seem to be true of most people, who "almost certainly" do pay more attention to things they do that they know others will look at. In the case of Descartes himself, his method requires him to doubt everything in which he can imagine any uncertainty at all. As a result, he must examine *just* as closely, using his method of "doubt", what he does or what he writes only for himself, as what he writes for others. Another example is the statement in Part Six that good health is "without doubt" the principle good in life (par. 2). Is this true "with doubt", that is, if one employs Descartes' method of radically doubting everything? Sure enough, in the third maxim of the morality in Part Three Descartes implies that good health is not the principle good in life, at least not for the philosopher (pt. 3, par. 4). The expression "without doubt" is thus another signal that Descartes wishes the careful reader to apply the method to what is said in the *Discourse* itself.

Along with the first rule of the method, the third rule (examine all questions in the proper order) would also seem to be of some importance in the interpretation of the book. For example, the maxims of the provisional morality of Part Three are not presented in the order in which Descartes must have arrived at them. The order in which Descartes outlines the topics of his physics in Part Five is also very significant, since it comes from the first chapter of Genesis. Furthermore, there is also the question of the

order of importance of each of the parts or subjects of the entire *Discourse*. Part Five does not follow from Part Four in quite the way that Descartes would have one believe, and, as noted, the "mastery of nature" has a certain priority to everything else in the work, even though it is only discussed at the end.

Finally, the application of the fourth rule of the method (make enumerations so complete as to omit nothing) can also be of considerable assistance. Practically everything that Descartes says in the *Discourse* is repeated differently or qualified elsewhere in the book, so that lists of key words and concepts can help to make clear how seemingly contradictory statements can be reconciled.

One question remains: why would Descartes, who professes frankness, write in an ironic fashion, and also characterize his life as the painting of a fabulous history? There are several suggestions in the *Discourse*. As mentioned already, there is the allusion to the trial of Galileo: the book may contain matters which if written of more openly would expose Descartes to the possibility of persecution. Furthermore, in the place where he introduces the three metaphors of picture, fable and history, Descartes also expresses the hope that his writing "will be useful to some without being harmful to anyone" (pt. 1, par. 5). Scientific inquiry into all things cannot help but be extended to ethical and religious matters, with consequences that are all too clearly seen today. Descartes is certainly aware of this danger, for he warns in one place of the ethical consequences of the belief that there is no substantial difference between the souls of men and those of animals, and that consequently there is no divine reward for virtue or punishment for vice. Descartes' proofs of the existence of God and of the immortality of the human soul relate to both of these reasons. On the one hand, these proofs allow Descartes to elaborate his mechanistic conceptions of physics on a foundation which is acceptable to religious authorities. On the other hand, the proofs may help some men

to avoid falling into complete nihilism, by keeping them from believing that there is no divinely ordained purpose to human life. Descartes does make some attempt in the book to dissuade from employing his method of radical doubt those who are not capable of supporting its consequences. Still, the welfare of weaker men's souls cannot be Descartes' primary concern, for if it were he would never have published a book which might lead men into the danger of nihilism.

Descartes has another reason, however, for not fully revealing his thoughts and his discoveries, and for writing of them in the way that he does. This reason may well be the most important of the three, and it has to do with those who might actually be capable of a plan similar to the one he has outlined.

> What remains for me to discover is in itself more difficult and more hidden than what I have been able to find hitherto, and they would have much less pleasure in learning it from me than from themselves. Moreover, the habit that they will acquire ... will serve them more than all my instructions could. As, for myself, I am persuaded that, if one had taught me, from my youth, all the truths for which I have since looked for demonstrations, and had I never had any trouble in learning them, I would perhaps never have found any others, and at the least I would never have acquired the habit and facility ... of always finding new ones... (pt. 6, par. 6)

Earlier in the same paragraph Descartes similarly notes that "one cannot conceive a thing as well, and make it one's own, when one learns it from another, as when one discovers (*invente*) it oneself" (p. 69, ll. 21-24). It would certainly seem, then, that Descartes wishes to nurture and encourage potential philosophers. One might call this the philosophic intention of subtle writing, as opposed to the political considerations behind the other two reasons. Descartes writes in the way that he does in order to encourage a specific kind of reader, one who will be drawn in by the challenge of figuring out for himself all of the puzzles that Descartes only hints at. We might also note here that Descartes' *Geometry*, the third of the three essays published together with the *Discourse on Method*, concludes the entire volume with the following statement:

> I hope that our descendants will be grateful to me, not only for the things which I have explained; but also for those which I have voluntarily omitted, in order

to leave them the pleasure of discovering them ("*de les inventer*").[15]

COMMENTARY ON PART ONE

On the Question of the Equality of Mind of All Men

Part One opens with a profession of the intellectual equality of all men:

> Good sense is the best distributed thing in the world, for each thinks himself so well provided with it that even those who are the most difficult to please in all other things are not accustomed to desire any more of it than they have.

Lest this strike the reader in the only way that it possibly can, namely as ironic, Descartes immediately interprets this statement to mean that the power of reason is naturally equal in all men, and adds that the differences of opinion found among men come from the fact that they conduct their thoughts differently, along different lines. He adds that it is not enough to have a good mind, but that the principle thing is to use it well. It is not entirely clear what Descartes means here by a *good* mind, if the power of reason is naturally equal in all men. This is followed by the remark that "the greatest souls are capable of the greatest vices as well as of the greatest virtues."[16] Whatever it is that constitutes a great soul, it must be something more than an equal share of good sense.

Descartes declares in the next paragraph that he has never presumed that his mind was more perfect in any way than those of others, but rather that, in fact, he has often wished to have greater mental capacities than he does. He also alleges that others indeed have these capacities. This qualifies the statement in the opening sentence that all men are satisfied with their minds. Descartes, for one, is not satisfied, and thus from the very beginning of the *Discourse* distinguishes himself from other men.

There are numerous indications in the *Discourse* that Descartes does not actually believe in the equality of reason of all men. To begin with, he says that it is not "probable" that all men are wrong in this, yet notes a few pages later that he "took almost for false everything that was merely probable" (par. 12). He also notes that men

are very prone to be mistaken in things that touch them deeply (par. 4), which the question of their intelligence surely does. He adds in Part Two that the majority opinion "is not a proof worth anything for truths a bit difficult to discover" (par. 4). Furthermore, and here we may apply the first rule of his method, he nowhere says that the equality of sense is certain or true or beyond doubt.

Descartes speaks throughout the *Discourse* of good minds, very good minds, excellent minds, the best minds, the most excellent minds; of weak minds and very mediocre minds; of the ignorant, the stupid, the dull-witted; of the most sensible and the insensible. He also speaks of the strongest reason; of understanding reason, of using reason, of using all one's reason, of being unreasonable; of judging as well as one is able; of those less capable of attaining the truth. It is very difficult to reconcile all of these remarks with the notion that all men have equal powers of reason. Furthermore, this notion is directly contradicted by Descartes in Part Five. In speaking of the fact that animals have no faculty of reason, he notes that "one notices inequality among animals of the same species, just as among men" (par. 11).

The first sentence would seem to refer, therefore, to the intellectual pride or vanity of men, rather than to their equality. Men are not actually equal in their powers of mind, but the vast majority would never admit to being less intelligent than anyone else. As an empirical observation, this is difficult to argue with. Hobbes, who is in full agreement with Descartes on this point, justifies his own assertion of the mental equality of men with similar irony:

> That which may perhaps make such equality incredible, is but a vain conceipt of ones owne wisdome, which almost all men think they have in a greater degree, than the Vulgar: that is, than all men but themselves, and a few others, whom by Fame, or for concurring with themselves, they approve.... But this proveth rather that men are in that point equal, than unequall. For there is not ordinarily a greater signe of the equal distribution of any thing, than that every man is contented with his share.[17]

Almost all men are susceptible to this unshakeable belief in their own wisdom, but in Descartes' view this would seem to be particularly true of the learned, of those men we might call intellectuals. He will shortly declare that the philosophy of his time "gives the means to speak with probability about all things, and to make oneself admired by the less learned" (par. 7). As mentioned, Descartes himself holds the merely probable to be almost false (par. 12). He also speaks of the "art of Lully", logic, which allows one "to speak, without judgment, about those [things] of which one is ignorant" (pt. 2, par. 6). Descartes notes later that his physics will hold no interest even for "the best minds", if they wish only to be able to "speak about all things and acquire the reputation for being learned" (pt.6, par. 6, p. 71).Such men, he continues there, will do so more easily by c[illegible]ting themselves with "probability" than by undergoing the pain of searching for the truth. Descartes also speaks of scholastic philosophers, who are more interested in winning disputes, and in making "probability" seem "worth" something, than in examining rational arguments (pt. 6, par. 5). Descartes has in mind, it would seem, a class of men who do recognize that there is such a thing as genuine wisdom, but who are ultimately motivated more by love of the honour that comes from being held to be wise and to be clever in argument than by disinterested love of the truth. Among other things, Descartes distinguishes himself from such men by his attitude toward the merely "probable".[18]

In declaring his dissatisfaction with his own intellectual abilities, and his desire to have greater ones, Descartes mentions three qualities of the mind:

> I have often wished to have as prompt thought, or as clear and distinct an imagination, or as full and responsive ("*présente*") a memory as several others.[19]

He adds that he knows of no other qualities than these that serve in the perfection of the mind.[20] We may wonder if this is so. Descartes tells us, a few pages later, of his tremendous curiosity about books and learning during his school years (par. 6). He also mentions the "extreme desire" he has always had to "learn to distinguish the true from

the false" (par. 14). He speaks in Part Six of those who will take part in the scientific project out "out of curiosity or desire to learn" (par. 7).[21] Curiosity, the desire to learn, may be a fourth quality of the mind, or perhaps a passion which accounts for the differences found among men in the strength of the other three qualities. In any event, it is true that curiosity about the world differs enormously among different men.

In light of all this, one suspects that Descartes intends for there to be an ironic truth in the opening remark of Part One. One may well regard good sense as the best distributed thing in the world, inasmuch as true philosophers, men like Descartes who are animated by a genuine love of the truth, have the biggest share of it.[22]

Descartes adds here that he "wants to believe" that reason is whole in all men. He declares that he is following the common opinion of philosophers in this, although in fact the view that men are equal, intellectually or otherwise, is hardly a notion traditionally held by philosophers. It is also noteworthy that Descartes declares here that reason is the only thing that makes us men and distinguishes us from beasts, for it is not immediately clear that this view can be reconciled with the Biblical view that man was created in God's image. Unless, that is, we are to understand God's essential characteristic as reason.[23]

We can also notice here that Descartes begins the third paragraph with the words "But I will not be afraid to say that I think that I have been very fortunate..." Although in a sense this phrase flows from his profession of modesty about his intellectual powers, it also suggests the possibility that he *was* hesitant to say something in the first two paragraphs.

Finally, lest there be any doubt at all about Descartes' real view on the question of the equality of mind of all men, in Part Two of the *Discourse* he discusses two sorts of mind which are manifestly *not* suited to use his method. Were all men really equal in their powers of mind, his method of "conducting one's reason well" would

presumably be applicable to everyone. Descartes' discussion of these two kinds of mind will be examined more fully in the course of the commentary on Part Two.

Descartes' Critique of the Sciences

Descartes notes in the "Introduction" that Part One contains "diverse considerations touching the sciences." By the end of this part, these considerations will amount to the rejection of all traditional learning with the exception of mathematics. Descartes states that he had "an extreme desire to learn" all the subjects he studied at school, because he was "persuaded that by their means one could acquire a clear and certain (*assurée*) knowledge of everything that is useful for life" (par. 6). He adds, however, that he was disappointed in this hope, and came to realize during his studies that no such knowledge as yet existed in the world. Note that *the* standard for the rejection of the existing sciences is usefulness or utility. Descartes only reveals fully what he means by utility in Part Six: what is "useful for life" is a science with the technical power to improve the conditions in which men live.[24] It is also noteworthy that Descartes mentions his desire for knowledge of what is useful immediately after expressing the hope that his own book will be useful to some and harmful to no one. This would seem to imply that his book contains the very knowledge that he sought as a youth.

Descartes lists by name eleven subjects studied in the schools (along with inexact references to "ancient books" and "other sciences"): languages, fables, histories, eloquence, poetry, mathematics, morals[25], theology, philosophy, law, medicine. Descartes first gives the reasons for which he esteemed all of these "exercises". Mathematics, the central of the studies named, is admired for two reasons: its subtleties satisfy the curious, and they facilitate the arts and diminish labour. Notice that Descartes establishes a connection between the improvement of the arts and the reduction of men's

labour, and he relates this connection to mathematics from the beginning of the *Discourse*.

In the next six paragraphs, Descartes expresses his dissatisfaction with all of these studies, and explains why he left school "as soon as age permitted". He begins by rejecting all "ancient books" for the reason, as mentioned above, that too much curiosity about past ages leaves one ignorant of what is occurring in one's own time. This statement is consistent with his later rejection, in Part Six, of theoretical knowledge in favour of practical knowledge. Descartes admits here, however, that it is good to have some acquaintance with the thoughts of others, in order to "judge our own more soundly".

We have already noted what is said about fables and histories. As for languages, Descartes first says that they are instrumentally useful in the reading of old books, and then declares that he has already learned enough languages for his own purposes. The *Discourse* as a whole, however, would seem to be a complete rejection of the ancient languages of learning in favour of modern French. In justifying his decision to publish the work in French, Descartes declares, at the end of the book, that he has done so because he hopes "that those who use only their natural reason in all its purity will judge better of my opinions than those who believe only in ancient books" (pt. 6, par. 11).[26] Although this remark is part of Descartes' rhetorical attack on the dogmatism of scholastic philosophy, there is a political point to be made as well. The new science will be conducted in the language of all men, because it will be open to the participation of all men in some way or another.

Eloquence and poetry are called "gifts of the mind", rather than "fruits of study" (par. 9). Since their appearance thus relies on chance, Descartes would seem to reject them in favour of other things entirely within his power.[27]

The writings on morals of the "ancient pagans" Descartes compares to palaces built on sand and mud. They contain useful exhortations to virtue (par. 7), and they "lift the virtues very high" and "make them appear estimable above all things which are in the world" (par. 10). But they "do not teach enough how to know" the virtues, and, according to Descartes, what they call a virtue is actually often an extreme of vice. Descartes names four of these vices, though he does not name the corresponding virtues for which they are mistaken.[28] It is very curious that Descartes speaks here of *useful* exhortations to virtue, just after declaring that the subjects he studied at school did not contain the "useful knowledge" that he was looking for. It would seem that Descartes believes that "writings on morals" have nothing that is genuinely "useful for life", or else that he wishes to reject whatever usefulness they do have in favour of a different kind of utility.

Theology, according to Descartes, teaches one how to get to heaven, which he declares that he desires as much as the next man.[29] But since the path is as open to the most ignorant as to the most learned, and since the revealed truths are "above our intelligence", he will not dare to subject them to the "weakness of his reasonings". This is again very curious, given that later in the *Discourse*, after Descartes has strengthened his reason by the addition of the method, he will indeed dare to subject not only God to his reasonings, but also certain of the revealed truths, though without drawing attention to the fact.[30] It is in the course of this reasoning about God in Part Four that Descartes declares that "we should never allow ourselves to be persuaded except by the evidence of our reason" (par. 8). In the rivalry between reason and revelation it is not difficult to ascertain which side Descartes is on, notwithstanding his affirmation of faith in the first maxim of his provisional morality.

As for philosophy, Descartes finds it full of disputes and doubt, despite its having been "cultivated" for hundreds of years (par. 12). Even his original praise of philosophy

as a study is also a critique: philosophy gives one the "means to speak with probability about all things, and to make oneself admired by the less learned" (par. 7). Philosophy appeals to and encourages the vanity of some men, but does very little else. Once again, we may remember that Descartes himself treats as virtually false all that is merely probable.

The "other sciences", which Descartes does not specify, are rejected by him because they are based on philosophy (par. 13). If we compare what he says here with his original list of studies, it would seem he has in mind law and medicine. The first mention of God, in a book whose introduction announces it will prove God's existence, occurs here: Descartes thanks God that he was not forced, in order to earn a living, to become a lawyer or a doctor.

Finally, he names and rejects three further subjects: alchemy, astrology and magic. He appears to have been interested enough to examine them, but was then repelled by their empty content. One wonders what the "promises" are that he mentions and which once attracted him, and which presumably still would were there anything to them. Perhaps he means the transmutation of metals, the knowledge of the motions of the heavens and the effect of those motions on men, the ability to manipulate things to make them conform to one's wishes. Descartes' articulation in Part Six of his what he envisions for science will sound something like this, with the difference that it will be solidly based in experience, rather than in fantasy.[31]

Mathematics stands out in Part One as the one study not rejected as dangerous or misleading or empty. Rather, Descartes leaves open the possibility of doing something far greater with it at a later date. He notes that he took pleasure in mathematics "above all", because of the certitude and the evidence of its reasonings.

> But I had not yet noticed its true use, and thinking that it served only the mechanical arts, I was astonished that, its foundations being so firm and solid, no one had built anything higher on them.

This is explicitly contrasted with the writings on morals, whose foundations are in sand and mud. There is thus a curious dichotomy between mathematics and ethics, the one low and solid, the other lofty and ready to collapse. Descartes almost sounds as if he wishes to replace ethics with mathematics. This project does have a precedent:

> Therefore whosoever heareth these sayings of mine, and doeth them, I will liken him unto a wise man, which built his house upon a rock:
> And the rain descended, and the floods came, and the winds blew, and beat upon that house; and it fell not: for it was founded upon a rock.
> And every one that heareth these sayings of mine, and doeth them not, shall be likened unto a foolish man, which built his house upon the sand:
> And the rain descended, and the floods came, and the winds blew, and beat upon that house; and it fell: and great was the fall of it.
> And it came to pass, when Jesus had ended these sayings, the people were astonished at his doctrine:
> For he taught them as one having authority, and not as the scribes. (Matthew 7:24-9)

In summary, Descartes rejects, apart from mathematics, the entire body of learning as it exists in his time, and with which he had become acquainted "at one of the most celebrated schools in Europe" (par. 6). That learning is presented as irrelevant, factious, lacking practical applications, and leading to intellectual pretension and vanity. This is seen in caricature in the three "evil doctrines", but is just as true of the others.

COMMENTARY ON PART TWO

Descartes tells us that he spent several years studying in the book of the world, and then decided one day to study in himself and to choose the paths he should follow in life. He writes that he was in Germany at the time, where he had been called by the occasion of the wars.[32] He does not say in what way he had been called, whether he went to fight or merely to observe, and if to fight, for which side. This appears to be a reference to the Thirty Years' War, which was taking place in Germany over the 17-year period between the meditation narrated in Parts Two and Three and the publication of the *Discourse*. Descartes seems to be indifferent as to what the "wars" are about. On the other hand, he does seem very concerned to draw attention to the fact that he is in the midst of great political events at this moment, participating in some way in a war and witnessing the coronation of an emperor. He does not state how these things relate to the subject matter of Parts Two and Three. At the very least they should alert us that Descartes' reading in the book of the world is very political in nature.

Descartes says that he found himself alone this day in a *poêle*, a stove-heated room. He adds that fortunately (*par bonheur*) he was not troubled by any worries (*soins*) or passions.[33]

One of the first thoughts that he "dared to consider" was that "there is often not as much perfection in works composed of several parts, and made by the hand of various masters, as in those on which only one has worked."[34] He discusses seven examples of works exhibiting perfection or imperfection: buildings, cities, constitutions, the true religion, Sparta, the sciences of books, men. Each of these examples is discussed from the point of view of its being the work of one or of many masters. The examples seem to exhibit perfection in different ways, although Descartes does not specify in every case what the perfection of the work consists of. However, we should

note here that Descartes' procedure in the *Discourse* is to sweep away all previous opinions and replace them with chains of truths that follow deductively from one another, and that consequently have a complete inner coherence. It may be, therefore, that for Descartes the perfection of anything lies in the consistency and coherence that result when that thing is the unified product of one competent mind or maker. It is interesting that Descartes does not call any of what he says here true or clear or evident, with one exception that will be noted. Descartes' examples are very political in nature; this appears to be completely superfluous to the stated subject of this part of the *Discourse*, scientific method.

In the case of buildings, the perfection of those made by a single architect lies in their beauty and utility. In the case of cities, however, Descartes speaks only of their utility. He states that cities built up over long periods of time are usually poorly "laid out" ("*compassées*", i.e. measured by a compass) compared to those traced in a plain by an engineer at his fancy. This city planner sounds suspiciously like a geometer, but in any event, Descartes notes that the appearance of a city is usually the result of fortune rather than of the "will of several men using their reason." Although the actual cities one sees are imperfect, the perfection of a city would come from its construction by one master, and would consist in the regularity and useful design of its parts. For Descartes, "perfect utility" apparently takes precedence over perfection of beauty.

The discussion of buildings and cities leads naturally into a consideration of peoples and constitutions. Descartes contrasts the gradual civilization of a people of half-savage origin with the case of a people given its constitution from the beginning by a prudent legislator. There is an obvious parallel between the crooked and uneven nature of buildings and streets constructed by fortune, as it were, and that of laws enacted haphazardly in response to the appearance of crimes and quarrels. The perfection of a people seems to consist for Descartes in how civilized (*policés*) it is.

Descartes next considers two particular constitutions ordained by a single legislator. The first, and the central of the seven things discussed here, is the "true religion".

> It is quite certain that the state of the true religion, of which God alone made the ordinances, must (ought to, "*doit*") be incomparably better ruled than all the others.

This is a remarkable statement, and is the only thing that Descartes calls "certain" in this section. It might seem rather curious that Descartes speaks of the perfection of the ordinances of the true religion in the very paragraph in which he alludes to the religious conflict known as the Thirty Years' War.[35] However, this would seem to be his point: the religions that are actually practiced are not perfect.

It is also interesting that Descartes does not specify which religion is the true one, and that he does not hint at what the perfection of the true religion might be.[36] In Part Four he will outline a conception of God that will indeed have the "perfection" of being the product of one single "master". One wonders if Descartes considers the Biblical God to be the product of many makers.

He next turns from divine ordinances to human ones, and gives Sparta as his example. It flourished because its laws were "invented" by one alone, and all tended to the same end. Descartes does not name Lycurgus, the Spartan legislator, and also does not specify what the goal of the Spartan constitution was, namely, *war*.[37] That is, the entire polity was ordered so as to produce the best warriors possible, and it may well be in this that Sparta's perfection consists for Descartes.[38] On the other hand, as mentioned above, Descartes may have in mind the coherence and consistency that resulted from the clear and singular purpose that Lycurgus gave Sparta. In any event, Christianity's poor orders would seem to have resulted in a sort of civil war, whereas Sparta was constituted so as to be able to enjoy civil peace and win foreign wars. Descartes adds that Sparta's greatness did not come from the goodness of each of its

particular laws, "many of which were very strange, and even contrary to good morals."[39] He does not specify what actually does constitute the greatness of a city.[40]

He next compares the "sciences of books", composed of the opinions of many people and having no demonstrations, to "the simple reasonings that a man of good sense can naturally make touching things that present themselves." The specific perfection of sciences would seem to be their truth. Of course, Descartes' own book, the *Discourse on Method*, is indeed the product of one mind and is clearly meant to exemplify "reasonings of good sense."

Descartes concludes his examples of works exhibiting perfection by considering men. He notes that as children we are all governed both by our appetites and our preceptors, and that these often oppose each other. Our judgments would be better formed, he declares, were we to have the full use of our reason from the moment of birth and were we to be led by nothing but it. These remarks seem to follow from the earlier ones, but on closer consideration they exhibit some curious incongruities. Descartes had been speaking about the *makers* of various works, whereas here he speaks of what *governs* man. Who is man's maker? Should we consider man to be the product of one maker or of many? In one sense, all men are the product of two makers, a mother and a father. Is man's lack of unity the result of having multiple makers? Is there some way that this might be rectified by a single maker? We may also consider how this relates to the Biblical account. If God created man in His own image, and man's reason is as imperfect and as disharmonious with his desires as Descartes implies, then it would seem that God has produced an imperfect work.[41] Descartes notes that often neither our appetites nor our preceptors give us the best counsel. One wonders if he does not have in mind some reform which would bring our appetites and preceptors into harmony with one another.

But how might that be accomplished? If our appetites and our preceptors are at war, it will have to be our preceptors who make concessions toward peace. There is a suggestion in Part Six that this is Descartes' view as well. He counsels scientists to attract assistants by appealing to men's hope of gain, which he calls a "very effective means" (par. 7). It would seem from this that Descartes would like to employ our appetites toward a good end, or rather, to employ all our appetites, both our base desire for money and our noble desire for knowledge, toward the same end.[42] Sparta's ordering of everything toward one end, which Descartes praises, was also "against good morals".

Let us examine Descartes' other uses in the *Discourse* of the word "precept". In his denial near the beginning of Part One that he wishes to teach a method that everyone can use, Descartes says that "those who meddle with giving precepts must regard themselves as more competent than those to whom they give them" (par. 5). Notice, however, that he does not, strictly speaking, deny the possibility that he intends to give precepts to other men. He later tells us that he left the "subjection" of his own preceptors as soon as he could, in order instead to seek knowledge in himself and in the great book of the world (pt. 1, par. 14). In other words, his own liberation from his preceptors was accomplished for the sake of his desire for knowledge. In introducing his method, he writes that he has replaced the great number of precepts of logic with four rules (pt. 2, par. 6). In another place, he refers to his method itself as "a few precepts" (pt. 2, par. 12). Drawing all this together, one suspects that Descartes indeed means to be a new preceptor, one who will do his best to repair the condition that man has been placed in, whether by God or by the blind forces of a godless universe.[43]

Descartes begins the second paragraph of Part Two by noting that although it is true that one never sees entire cities torn down and rebuilt in order to make the streets more beautiful, one does see individual buildings rebuilt.

> At the example of which, I persuaded myself that it really does not appear that one individual would have the plan of reforming a state by changing everything from the foundations up, and by overturning it in order to set it up again.[44]

It is this reflection that apparently leads Descartes to decide to reform his own thoughts instead.

The fact that one does not see men tear down cities in order to make them more beautiful does not exclude the possibility that men might tear down at least parts of cities in order to make them more useful. In particular, men might do so in order to make them more useful for war, by erecting fortifications. We may recall at this point that this entire meditation occurs while Descartes is in the midst of a war. We are also told that private individuals often rebuild their dwellings out of necessity, when the foundations are not very firm. Descartes states that he is "persuaded" by this "example" that no individual would attempt the reform of an entire state, although only a few pages earlier he had declared that his travels had taught him "to believe nothing very firmly of what I had been persuaded of only by example and custom" (pt. 1, par. 15).[45] He is also "persuaded" that no one would plan to reform all of the sciences, or the order in which they are taught in the schools; yet he himself in Parts Five and Six elaborates just such a reformation of the sciences and just such a plan for their teaching, having comprehensively criticized the existing sciences in Part One.

The project of reforming his own thoughts seemed incomparably easier than that of reforming

> the smallest things which touch the public. These great bodies are too difficult to lift again, once knocked down, or even to hold up, once shaken, and their falls can only be very violent.[46]

Descartes adds that, in any event, usage tends to soften the imperfections of states over time, and even to avoid or correct many of them, and that these imperfections are almost always more tolerable than their change would be. He would appear here to be prudently counselling against the immoderation of revolution.

He next compares the imperfections of states to great roads (*grands chemins*) in the mountains: these roads become even and convenient with time and use, and it is much better to travel by them than to attempt to climb up and over the very peaks. We might note that this is true only if one wants to travel comfortably and expeditiously; it ignores the possibility that one may wish actually to climb the mountains, for the sheer challenge of it and for the honour of reaching the top.[47] The image of the path (*chemin*) is used throughout the book as a metaphor for the right way of reasoning. Descartes says at the beginning of Part One that he wishes to show the paths he has taken. Although he apparently does not want others to imitate his act of *finding* a path, he does want at least some others to follow on the path he has laid down, and in doing so to make it "smooth and convenient".[48]

We may stop at this point and consider the point of all this material that Descartes has included here leading up to the exposition of his method. He emphasizes that he was at war at this moment. His examples of works exhibiting perfection are all highly political in nature. He speaks of political revolutions. As we mentioned, all this appears to be utterly gratuitous to the question of a proper scientific method. Why then does Descartes raise any of this? In particular, why does Descartes speak of Sparta, out of all the possible regimes he might have chosen to illustrate his argument?

Let us consider again briefly the goal of Descartes' project, as he elaborates it in Part Six. Descartes would like to see scientific inquiry carried out on a vast scale. This would involve the organization of great numbers of men, some of them motivated by interest in science but many only by the prospect of monetary gain, under the direction of those who do understand what the project is all about. The financial cost of all the necessary research and experiments would be enormous.

There are sweeping political implications to this, for it would certainly seem that this project would be better accomplished under a certain type of political regime. A regime which allows its citizens a considerable amount of personal liberty would likely provide a better climate for inquiry and for free discussion among scientists. An egalitarian society, ar at least one with no artificial barriers to education or to advancement, might be more productive of good scientists. The cost of the project would be abetted by the wealth generated by in a regime which favours trade and commerce. As we shall see, Descartes seems to hint at the end of Part Three at the sort of regime that he would favour. We may also again note that Descartes argues in Part Six that the benefit of such science lies in the discovery of inventions that will reduce labour and improve medicine. This might suggest that there are limits to the areas that will be fruitful for scientific inquiry, but in fact it seems more likely that such a project, once underway, would of its own accord extend itself to all possible fields of inquiry.

With this in mind, it is more than a little curious that Descartes at this point denies that he has any desire to affect any political reforms (par. 3). In fact, he states that he can in no way approve of those who would attempt reforms of states even though called neither by birth nor fortune to the governing of public affairs. Notice that he says nothing of those called by *ability* to public affairs.

> And if I thought that there were the least thing in this writing by which one might suspect me of this folly, I would be very sorry to allow it to be published. My plan has never extended further than the attempt to reform my own thoughts, and to build on a foundation which was entirely my own.

His wording is very interesting here. He says that if his writing contained anything by which one might *suspect* him of the intention of wishing to effect some reform, he would be very sorry to permit its publication. This leaves open the possibility that were he able to sufficiently conceal his intentions, he might wish to publish after all. One

wonders why he feels the need to issue this denial, for the mere fact of his mentioning this makes one suspicious about his real intentions.

Similarly, why does he even raise the issue of political revolution? Revolution is a problem typical of political change. Might Descartes be suggesting that his project, the reorganization of science, would of its own accord bring about the reordering of society? That is, if men were convinced of the benefits that science can provide them, the support that they would give science might of itself lead to certain political changes. In other words, science has the potential to accomplish a non-violent political revolution. On the other hand, Descartes might be suggesting that this political revolution would indeed be violent (hence perhaps the references to war), but would be a revolution worth fighting for.

In any event, Descartes declares that he is only presenting his work as a model, and that he does not advise anyone to try to imitate it, because of its arduous nature:[49]

> The single resolution to detach oneself from all the opinions one has received up to that time in one's beliefs ("*en sa créance*") is not an example that everyone ought to follow.

In other words, not everyone is suited by nature to be a philosopher - a very old view. Descartes adds that the world consists almost entirely of two sorts of people, and that for these kinds of people - the vast majority of mankind - his type of plan is not at all suitable. The one sort are those who believe themselves more capable than they really are, who cannot keep from making precipitous judgments, and who cannot conduct their thoughts in an orderly fashion.[50] If such people ever did follow his way, he declares, and doubt all the things they had once accepted, they would remain lost all of their lives. Part of the reason for Descartes' ironic style of writing, as we have noted, is the wish to prevent this from happening, insofar as possible. Still, it would seem that the people

most in need of such dissuasion are also those who are least likely to accept it, for the very reason mentioned here.

The other sort of men - a better sort, one wishes to add -are those who do not suffer from such severe intellectual vanity, and who have enough reason and modesty to realize that there *are* others by whom they can be instructed. Descartes says that this second class should content themselves with following the opinions of those others. From everything that he says in the *Discourse*, one gets the clear impression that he thinks that the former are by far the largest class of mankind, and that these latter, more modest are in the minority. Descartes' classification implicitly allows for still another, albeit even smaller, class of men, those who *are* able to follow him on the way he has taken. And there are also those very few like Descartes himself, the pathfinder-founder. This makes a total of four classes in all, a hierarchical order with the "Cartesian philosopher" all alone at the very top.[51]

The existence of these four natural intellectual classes would seem to have implications for a well-ordered regime. Bearing in mind what Descartes suggests in Part Six, one might even say that he wishes to be the Lycurgus of a new scientific polis, with an elite "auxiliary" class ruling a larger class of free followers and a still larger class of "helot" workers. In any event, the "auxiliary" class, those capable of understanding and following Descartes, would seem to be essential for the success of Descartes' "project". It would also seem to be them for whom he is primarily writing.

Descartes ironically distinguishes himself from the lower two classes in the very next paragraph. In a display of humility that is rather difficult to believe, he declares that he would have been among the more modest and reasonable class had he had only one master, or had he never seen the differences which have existed among the most learned. Quoting, but not naming, Cicero (perhaps in order to give the impression that this was the conclusion that he himself drew from his studies), Descartes says that one

cannot imagine anything so strange or so little believable that it has not been said by one of the philosophers.[52] He adds that during his travels he learned to what extent men are ruled by custom and example, noting that the same man with the same mind becomes almost completely different, depending on whether he is brought up among the French or the Germans, or among the Chinese or the cannibals. The power of custom and example is shown by the fashions of clothing, where "the same thing which pleased us ten years ago, and which will perhaps please us again before another ten years have passed, now seems to us extravagant and ridiculous."[53]

Descartes concludes that there is no one else whose opinions he should follow, and that he must lead himself if he wishes to escape the darkness of opinion in which almost all men dwell.

> But, like a man who walks alone and in the shadows, I resolved to go so slowly, and to use so much circumspection in all things that, if I only advanced a very little, I would keep myself, at least, from falling. (par. 5)[54]

This resolution to guide himself leads directly to the elaboration of the method. Descartes says that he had studied three "arts or sciences" which seemed to be able to contribute to his plan of "searching for the true method of arriving at the knowledge of all things of which my mind would be capable." These three were logic (from philosophy), and geometrical analysis and algebra (from mathematics). All three, as Descartes presents them, had both good and bad points, and this led him to desire a method that retained the good aspects while being free from the defects. He decided to have only a few rules, in order to be better able to observe all of them strictly. His method, supposedly the principal topic of the *Discourse on Method*, is as follows:

> (1) Only accept as true what one knows to be evidently so. That is, avoid precipitous judgment and prejudice, and only include in one's judgments what presents itself to the mind so clearly and so distinctly that one has no occasion to put it in doubt.[55]
>
> (2) Divide each difficulty into as many parts as possible and as is necessary in order to be solved.

> (3) Conduct one's thoughts in order, beginning with those objects that are simplest and easiest to know, and ascending by degrees to the most composite. Suppose an order among those things which do not naturally follow one another.
>
> (4) Everywhere make enumerations so complete and reviews so general as to be assured of having omitted nothing.

The first thing that strikes the reader about the method is its tremendous brevity. Given the title of the work, and everything Descartes has claimed leading up to its presentation, one is apt to wonder, when finally confronted with "the method" itself, what all the commotion is about.[56] Descartes speaks here as if this is all there is to the method, although in the "Introduction" he says that Part Two presents the *principal* rules of his method.

In the last three paragraphs of Part Two Descartes explains and elaborates somewhat how he employs his method. He claims that it resulted in the union of geometrical analysis and algebra contained in his *Geometry*. One of the more curious things he says, in describing how this came about, is that the long chains of deductions found in geometry led him to *imagine* that all things of which men can have knowledge are related to each other in the same way, and that there is thus nothing that cannot eventually be discovered. His method, of course, says nothing whatsoever about imagination, even rational imagination, despite the fact that imagination is one of the three qualities that are said, at the very beginning of the *Discourse*, to assist in the perfection of the mind. Descartes also says here that, in his desire to discover a general science of proportions in which all aspects of mathematics participate, he decided that he ought to suppose (i.e. imagine) these proportions as relations between lines, since that was the simplest and most distinct thing he could represent to his imagination and to his senses.[57] One wonders, however, if Descartes' assertion that all areas of human knowledge are linked together in chains of deductions and demonstrations does not limit true knowledge to mathematics or to what can be conceived mathematically.

This elaboration of the method at the end of Part Two is indeed entirely mathematical in its subject matter. Descartes no longer speaks of logic (the branch of philosophy), leaving one to wonder if he found anything worthwhile in it after all. Instead, the method is applied to the amalgamation of the two mathematical sciences, geometrical analysis and algebra, and *voilà*!

> I dare say that ... [this] gave me such facility for disentangling all the questions to which these two sciences tended, that in two or three months that I employed in examining them ... I not only succeeded in several [questions] that I had earlier judged very difficult, but it also seemed to me, towards the end, that I could determine, even in those of which I was ignorant, by what means, and to what point, it was possible to resolve them.... For, after all, the method which teaches [one] to follow the true order and to enumerate exactly the circumstances of what one is looking for, contains all that gives certitude to the rules of arithmetic. (par. 12)

Let us consider what Descartes has said up to this point about mathematical reasoning. As we saw, mathematics is the only branch of learning not rejected in Part One, because of the solidity of its "foundations". Descartes states that mathematics accustoms the mind to feed on truths (pt. 1, par. 7; pt. 2, par. 11). Geometers use long chains of simple steps in order to attain the most difficult demonstrations, and this leads Descartes to suppose that all human knowledge is of a similar sort. He declares that nothing is so distant or so hidden that it cannot be attained by such reasoning, and also that of all those who have hitherto searched for truth in the sciences, only mathematicians have been able to find demonstrations. Descartes defines demonstrations as certain and evident reasons (pt. 2, par. 11). He declares that there is only one truth for each thing, and that whoever finds that truth knows as much about it as one can know. A child who makes one addition in accordance with the rules of arithmetic that he has learned, therefore, "can be assured of having found, touching the sum he has examined, everything the human mind can find." Finally, everything that gives certainty to the rules of arithmetic is said to be contained in the method (pt. 2, par. 12).

Descartes observes that each truth he found in the two sciences that he examined was a rule that he later used to discover other truths (par. 12). This is an important addition to the method, and points the way from Part Two to Part Five, from the elaboration of a (mathematical) method to its application in physics. As well, at the end of Part Three Descartes will state that after he left the stove-heated room, he set aside time in which to practise using the method on mathematical problems. He also tells us there that he used it in other areas, which he was able to make similar to mathematics by detaching from them all non-mathematical principles (pt. 3, par. 6).[58] Again, it may be that the method involves the mathematization of all areas of knowledge. Descartes presents this as the wish to extend the method to as great a number of domains as possible, with the hope that it will give as much success in them as it has in mathematics.

COMMENTARY ON PART THREE

Provisional Morality

Part Two of the *Discourse* purports to explain the manner in which Descartes has chosen to philosophize, and presumably in some sense it does. Part Three deals with the more overtly political aspects of philosophy, and in particular with the question of how one must live and present oneself to the world in order to be able to philosophize.

Descartes returns to the architectural metaphor at the beginning of this part. While architecture has been metaphorically applied to politics since antiquity, Descartes' explicit application here is intellectual. Having already begun his announced project of laying new foundations for his thoughts, he now declares that he requires a temporary shelter in which to live while he completes the task of constructing a whole new edifice on these foundations.

> ... it is not enough, before beginning to rebuild the lodging where one stays, to knock it down, and to make provision of materials and architects, or to make an effort oneself at architecture, and beyond that to have carefully traced the plan; one must also provide oneself with another, where one can be comfortably lodged during the time that one works there; thus, so that I would not stay irresolute in my actions, while my reason obliged me to be so in my judgments, and so that I would not leave off living the most happily that I could, I formed for myself a provisional morality ("*une morale par provision*"), which only consisted of three or four maxims, which I very much wish to share with you.

Commentators on Descartes do not always notice that the morality presented in this part is characterized as "provisional".[59] Its provisionality is found on the one hand in the fact that it enables Descartes to continue living without indecision while he employs his reason at examining everything. But in accordance with his method (which is to be applied to everything except the matters of faith, supposedly) it is also necessary at some point to examine radically the maxims themselves which compose it, and perhaps to modify certain aspects of them. We presumably cannot anticipate what might eventually replace this morality, since that remains to be discovered.[60] However, what

Descartes says elsewhere in the *Discourse* does put parts of it in a somewhat different light. Insofar as the morality shows the way a philosopher must *always* live in order to be able to philosophize, it is not provisional but permanently true.[61] As such, it may be the result of a radical examination already completed. As with the method, Descartes states in the "Introduction" that this part contains "*some* of the [rules]" of his morality, and then speaks here as if he is revealing all of it. Unlike the method, the morality is explained in some detail.[62]

(1) The first maxim is to obey the laws of his country, "firmly holding on to (*retenant constamment*) the religion in which God gave me the grace to be instructed" (par. 2). He repeats at the end of the presentation of his morality that the truths of the faith, "which have always been the first in my beliefs", will remain unexamined (par. 6). In the absence of any further justification for their exemption, this declaration of patriotism and piety would certainly seem to be a violation of his resolution to examine rationally *all* the opinions he holds, and to begin by subjecting them to radical doubt. One again suspects him of irony, and the remainder of the paragraph more than bears out this suspicion.

Descartes declares that henceforth he will count his own opinions for nothing, as he wishes to examine all of them, and adds that in other matters than the ones mentioned he will follow the most moderate opinions of the most sensible men. It is worth noting that Descartes does not specifically name either his country or his religion. Even if we assume he is speaking of Catholic France, by the end of this part of the *Discourse* he will have decided to take up residence in Protestant Holland. It would seem that his patriotism and piety are not quite what he would have a careless reader believe. He almost goes as far as to suggest that he would live one way among the French and another among the Persians or Chinese, among whom are found, he says,

people just as sensible as among the French. Descartes had earlier mentioned the Chinese together with the cannibals (pt. 2, par. 4); the Persians take the place here of the cannibals. Does this imply that Descartes would follow so far the opinions of the most sensible of those around him as to live like a cannibal, should he find himself in their midst? Or rather, does he mean to indicate that philosophy is possible among the Persians, but not among cannibals? In any event, as the paragraph continues it begins to read like a complete repudiation of its first sentence. Descartes will obey the laws and follow the religion of whatever country he finds himself in, but only publicly, and only in order not to attract attention to himself.

There is a certain difficulty involved in this blending in with other people:

> It seemed to me that the most useful thing was to rule myself according to those with whom I would have to live: and that, in order to know what their opinions really were, I had to pay attention to (be wary of, "*prendre garde*") what they did ("*pratiquaient*") rather than to what they said.

There is a difference between what men say about how they behave, and how they actually do behave.[63] Descartes explains his reason for going directly to "the effectual truth of things" (to use Machiavelli's phrase):

> Not only because in the corruption of our morals (manners, "*moeurs*") there are few people who want to say all they believe, but also because many do not know it themselves; for the action of thought by which one believes a thing being different from that by which one knows that one believes, the one often occurs without the other.

Which is to say, again, that most men are not philosophers, and are not very likely to examine their opinions or actions particularly closely, nor reason their way to a coherent, consistent conclusion. It is interesting here that Descartes speaks of the corruption of morals in a paragraph which begins with his reaffirmation of faith in the religion of his country.

Descartes also includes in the first rule of his morality a discussion of what moderate opinions consist of, and why they are preferable. They are to be preferred, he says, because they are the most suitable for action, and are "probably" the best, since

excesses are usually bad. Let us not forget Descartes' own attitude toward the probable, however (pt. 1, par. 12). In any event, he states here that if the best course of action is an extreme, then the moderate or middle way will deviate less from it than would the other extreme. He adds that he particularly considered to be excesses "all promises by which one takes away (entrenches, *retranche*) something of one's freedom." By implication, then, the goal of total freedom is Descartes' standard whereby he judges "moderation". This radical freedom is not for everyone, however, for laws are necessary to force "weak minds" to keep to the vows and contracts they make.[64] As for himself, he says that he would have committed a great fault against good sense had he forced himself to take something for good which later ceased to be so, or which he later learned was not so. The last sentence of the paragraph thus amounts to a further qualification, if not a repudiation, of the affirmation of patriotism and piety found in the first sentence.

(2) The second maxim of Descartes' provisional morality is to be as firm and as resolute as possible in his actions, and to follow firmly even the most doubtful opinions, once he has decided on them. Since life very often allows no delay in determining what course of action to take, he says, one should follow the most probable opinion, when one is unable to discern the truest. He calls this a very certain truth, and adds that even when one is unable to decide which opinion is more probable, one should still decide on one particular course, and follow it as if it were true and certain, "because the reason which makes us determine so is itself such."[65] In other words, even though probability has been excluded from the realm of science, it cannot be removed from the world of practical affairs; but, at the same time, one cannot act with sufficient resolve if the opinions guiding one's actions are regarded as only probably right.[66]

Descartes concludes by declaring that this way of acting has freed him of the "repentance and remorse" that "agitate the consciences of weak and vacillating minds," minds which decide something to be good and later judge it bad. We should include here, it would seem, men who act according to their desires and passions, and then suffer later from the thought that they have sinned. Again, this is consistent with Descartes' desire to base his own morality firmly in the "effectual truth of things". If Christian morality and one's desires pull one in opposite directions, one way of resolving this conflict is to modify Christian morality.

(3) The third maxim is a short discussion of the role that fortune plays in human life. One may overcome its influence by conquering oneself and by changing one's desires, Descartes tells us, rather than by trying to change the world to fit one's desires. Only our thoughts are fully in our power, and we must regard everything which is exterior to us, and which we cannot attain, as impossible. This "philosophic" or "stoic" detachment from life is sufficient, Descartes says, to keep him from desiring anything that he could not acquire, and to make him contented.

> But I admit that it requires long exercise and often repeated meditation, in order to regard all things from this bias.

One is reminded here of the moral writings of the ancient pagans, who said beautiful things about the virtues and made them seem esteemed above all else, yet did not teach sufficiently how to acquire those virtues. Descartes similarly tells very little about how to acquire this habit, other than that it is very difficult and takes time. But perhaps that is the point of his critique of the classical virtues: they are too hard for *most* men, so let us replace them by something more easily attainable (which must necessarily be lower).

In any event, Descartes calls this point of view the "secret" of the philosophers, who were able, in spite of their pains and poverty, "to contest their gods in their

felicity."[67] The philosophers "occupied themselves ceaselessly with considering the limits prescribed to them by nature", and thus were so able to control their own thoughts and desires that they were right "to think themselves richer, more powerful, freer and happier" than any others, who are never able to attain all they desire. Descartes seems to be in agreement with the "philosophers" on how one should live one's life. We might note that the conception of freedom outlined here is very different from that characteristic of our day. The freedom of the "philosophers" is the freedom of self-rule. It contrasts with what we might term base freedom, "the absence of externall Impediments" (as Hobbes puts it), the freedom to do as one pleases, the freedom to have increased access to prosperity and pleasure.

There are several observations to be made on what Descartes says here. We see how the morality is "provisional" in another way than the one Descartes explicitly mentions at the beginning of this part. Part Six, as we have stressed, outlines a scientific project aimed at making mankind the masters and possessors of nature. Once the project is under way and the technological power of man has begun to increase, nature will no longer prescribe the same limits as those discerned by the Stoic philosophers. Descartes illustrates the benefits of this way of looking at the world:

> [M]aking a virtue of necessity, as we say, we will no more desire to be healthy, when sick, or to be free, when in prison, than we desire now to have a body of a material as little corruptible as diamond, or wings to fly like birds.

Later, however, Descartes declares that health is the first good in life, and that the principal benefit of science will be the tremendous improvement it will bring to the medical art.[68] The advancement of medicine will change the limits of what it is reasonable to desire. At the same time, Descartes would also seem to be expressing here a permanent difference between the way of the philosopher, who is unconcerned by sickness, and that of most other men, to whom good health truly is the first good (at least when they are ill).

We might also notice Descartes' statement that he does not desire a body made of incorruptible material. Other than taking the Stoic view to an almost ridiculous extreme, this example may also refer to Paul's teaching about the resurrection of the dead in First Corinthians.[69] It may be that Descartes the philosopher does not think it possible that "the dead shall be raised incorruptible", and one wonders how serious his statement in Part One is about theology teaching how to get to heaven.

Finally, Descartes also says here that if we master the "secret" of viewing the world in this way, and consider everything outside ourselves as equally far from our power, "we will have no more regrets at lacking those [things] which seem due to our birth, than we will have at not possessing" the far-off, fabulous kingdoms of China or Mexico. Mexico has now taken the place of Persia as the pair of China.[70] These examples are also rather curious. Persia was, after all, conquered and "possessed" in antiquity because of the desires of one man, Alexander the Great, and the Aztec kingdom of Mexico was similarly conquered some hundred years before the publication of this book, by a small group of adventurers led by another remarkable individual, Cortes. It would seem that certain rare and gifted individuals are indeed able to desire the acquisition and possession of things that are fantastic to the rest of us.

(4) The fourth and final maxim of the provisional morality is presented as a review of all the possible occupations or ways of life that Descartes might choose. In one sense, it is fitting that this maxim comes last, since it thereby corresponds with the fourth rule of the method (make reviews and enumerations everywhere). On the other hand, the decision that Descartes takes here must actually be prior to the other three maxims of the morality.[71] Those maxims would have to be rather different were Descartes now to decide to become a priest, or one of the king's musketeers. What he does choose, however, is to continue living the life he has lived up to this point, "employing

all my life in cultivating my reason and in advancing, as far as I could, in the knowledge of truth, following the method I had prescribed for myself." The other three maxims are simply the means by which he may live so as to be able to philosophize with a minimum of interference. As he puts it, they "were only founded on the plan I had of continuing to instruct myself." What decides the entire question for him, as he tells us, is the extreme contentment he has felt since beginning to use the method. Philosophy has its own rewards, it would seem, and for Descartes they are the sweetest and most innocent possible in this life. He even presents this as an act of truest piety: God has given reason to each of us, and we must honour His gift by using it as best we can.

Descartes concludes his discussion of the fourth maxim by returning to the subject of curbing one's desires. He says that he would not have been able to do so had he not followed a path by which he could acquire all the knowledge of which he was capable, and thereby acquire all the true goods which would ever be in his power. He does not state what those true goods are. He adds that if one judges well what is good, and pursues it, one will be able "to acquire all the virtues, and all the other goods, together, that one can acquire."

There is an emphasis here on acquisition and on goods. Given Descartes' judgment on the weakness and narrowly selfish nature of most men's reason, it is open to question whether or not they will be able to discern what the "true goods" are. On the other hand, the increase of mankind's knowledge will bring about an increase in the power to acquire what most people regard as goods. Far from limiting desires, then, Descartes actually seems to suggest an infinite expansion of desire. Furthermore, the gist of the critique in Part One of the classical virtues was their unattainability. Despite what Descartes says here, "acquisition" would seem to relate wholly to worldly goods, and not to virtues, with those goods being whatever each person's intellect represents to his will as good.[72] This is supported by the fact that the only other occurrence of the

word "acquisition" in the *Discourse* is explicitly connected with riches: as men become more wealthy, the acquisition of more and more wealth becomes progressively easier and easier for them (p. 67, ll. 2-3).[73]

Building Materials

Descartes returns to the building metaphor one last time. In speaking of the success he had in employing his method, he declares that in this he did not imitate the Sceptics, who doubt merely for the sake of doubting.

> For, on the contrary, my whole plan tended only to assure me, and to reject moving earth and sand, in order to find rock or clay.... And just as in knocking down an old lodging, one ordinarily retains the wreckage, to use in building a new one, in this way, in destroying those of my opinions that I judged badly founded, I made various observations and acquired many experiences, which have since served me in establishing more certain ones. (par. 6)

Given the apparently mathematical nature of Descartes' method, the first sentence quoted above is reminiscent of the characterizations of mathematics and morals of Part One: mathematics has such solid and firm foundations, with so little built on them, while writings on morals are like wonderful palaces constructed on sand and mud (pt. 1, par. 10). Again, will mathematics somehow replace ethics, whatever that might mean? Or, more plausibly, will mathematical method provide a new, rock-solid basis for ethics?[74]

As for the reuse of parts of old, torn-down buildings, we may recall here that Descartes also spoke earlier, in the discussion of buildings and cities at the beginning of Part Two, of structures repaired by architects "making use of old walls that had been built for other ends" (par. 1). One wonders if Descartes himself intends to make use of any old materials in laying the political foundations of modern science. He as much as admits that he uses the language of scholastic philosophy for his own purposes.[75] As we shall see in the examination of Parts Four and Six, Descartes also seems to employ, again for his own purposes, several doctrines that he has, as it were, salvaged from the

wreckage of the old religion: Christian charity, the existence of God, the existence of an independent soul.

Furthermore, here in Part Three there is a certain correspondence between the four maxims of the morality and the four cardinal virtues of "the ancient pagans." The first maxim is an aspect of justice: law-abidingness and piety. The second, the resolution to be firm in action once that action has been decided upon, is a form of courage. The third maxim, insofar as it relates to the control of one's desires, is the essential aspect of moderation, while the fourth, the choice of the philosophic way of life, relates to wisdom.[76]

"Holland"

Descartes tells us that at the conclusion of his time in the stove-heated room he spent another nine years travelling and observing men, all the while practising his method.[77] During this time the rumour ("*bruit*") began that he had been successful in establishing new and certain foundations in philosophy. Not wishing to fail to be worthy of this reputation that he had somehow acquired, he says that he decided actually to try his hand at just such a project.

> This desire made me resolve to distance myself from all places where I could have any acquaintances ("*connaissances*"), and to withdraw (retire, "*me retirer*") here, to a country where the long duration of the war has established such orders, that the armies maintained there ("*qu'on y entretient*") seem to serve only to ensure that everyone enjoys the fruits of peace with that much more security, and where amidst the crowd of a great and very active people, more worried ("*soigneux*") about its own affairs than curious about those of others, I was able, without lacking any of the commodities which are in the most frequented cities, to live as solitary and withdrawn [a life] as in the remotest deserts. (par. 7)

Descartes presumably followed here the fourth rules of both his method and morality, and made an exhaustive list of all possible places of residence before carefully making his choice.[78] This thumbnail sketch of the unnamed country which he does choose (and

which we shall call "Holland" for ease of reference) would seem to be of considerable importance for understanding Descartes' view of the political side of modern science.[79]

Descartes had spoken of war at the beginning of Part Two and he does so again here at the end of Part Three. His meditation in the stove-heated room is thus in a sense surrounded by war.[80] He had also discussed earlier the perfection of the constitution of Sparta, and he now settles in a regime with an essential similarity. The single and overriding end of the Spartan constitution was war. Although "Holland" does not seem to be completely and solely devoted to war, it has been made orderly by the long experience of war, and it does maintain armies. In Sparta's case this was the deliberate intention of its lawgiver; in the case of "Holland" it would seem to have been more the result of fortune, of long years of hard experience. Further on, Descartes will compare philosophy itself to the fighting of battles: the results he has obtained in science are so many battles in which luck was on his side (pt. 6, par. 4, p. 67).[81] It may even be that Descartes considers science to be a war against nature, perhaps even a common war of all men against nature. Regardless of whether or not that is the case, it is beyond doubt that modern science has a very prominent military application, and that that science is now absolutely indispensable to any state with an interest in war. It is not implausible that Descartes believes that the financial support necessary for science is more likely to come from such a state.

We should therefore note the reason for his move to "Holland": the desire to establish secure foundations in science. He chooses a regime which will allow him to carry out his scientific activity unimpeded, a country where no one will take any notice of what he is doing. He will carry out his scientific inquiry there while other men are busy enjoying the "fruits of peace".[82] This is the essential difference between Sparta and "Holland": the "Dutch" are primarily concerned with their own, presumably commercial

affairs. Sparta's small size meant that everyone could see to it that everyone else upheld its laws. The Spartans had no interest in commerce, and it is difficult to imagine them not paying attention to a foreigner in their midst. It is perhaps significant that Descartes does not actually name this country that he chooses to live in. The greatness of Sparta was particular, the result of the combination of the orders of its lawgiver and a fortuitous moment in time. A regime where "Cartesian" science might flourish, on the other hand, would not make the same demands of its citizens as Sparta's did, and thus might in principle be actualizable in many different places.

Earlier in the *Discourse* Descartes makes two observations on laws, both of which are very relevant to the sort of regime where science will be conducted. The first is that a state is better off with few laws than with many, for the reason that it is possible to strictly observe a few laws, whereas a multitude of laws often gives an excuse for vice (pt. 2, par. 6). One wonders if it really is the number of laws that leads to vice, or if it is not rather the other way around: vice results in an increase of laws, in an effort to block off the paths along which it can exercise itself.[23] In any event, the important thing here is that Descartes favours having few laws, and, as a result, considerable personal liberty. The second remark that he makes about laws is that he approves of those that bind men to vows and contracts that they have made, in order "to remedy the inconstancy of weak minds." Such laws are necessary for the "security of commerce" (pt. 3, par. 2). Descartes does not explicitly associate these remarks on laws with "Holland", but he may believe that a regime which incorporated these features would facilitate the conduct of science.

COMMENTARY ON PART FOUR

Part Four presents the first published version of what is by far the most famous part of Cartesian philosophy: even those with not the slightest interest in such matters know that they think, therefore they are. This section supposedly presents the results of Descartes' apparent radical doubt of everything: his proof of his own existence (the argument known by scholars as the "cogito"), his proofs of the existence and perfection of God, and of the existence and immortality of the soul, and all of this in the space of ten short pages. The *Meditations on First Philosophy* (1641) are a much expanded version of these arguments, and Descartes also published another account in the first book of his *Principles of Philosophy* (1644).

Descartes begins this reflection on the consequences of radical doubt with an expression of doubt: he wonders whether or not he should pass on his thoughts to the reader, fearing that they will not be to everyone's taste. There are hints from the very beginning that this part contains more than might appear at first. Descartes notes that he himself found these "meditations ... so out of the ordinary".[84] Given the apparent conventionality and orthodoxy of his "conclusions", this professed anxiety is curious. He also says these are the *first* meditations he made after retiring to the "desert" of civil life. He repeats this at the beginning of Part Five, noting there that Part Four contains the *first* of the truths from which he has deduced a chain of others. Later, however, he declares that "I acknowledge myself extremely subject to error, and I almost never trust the first thoughts that come to me" (pt. 6, par. 5). Given the double emphasis on the "firstness" of Descartes' metaphysical meditations, this reads almost like an invitation to hunt out any errors he may have made in them.

Indeed, on turning to the meditations themselves, one gets the impression that Descartes has gone Cicero's philosophers one better. By pretending he has no body

Descartes proves that he himself exists, and on that basis proves that God exists. It will be helpful to recall here the reason behind the resolution of Descartes' youth to study in the great book of the world:

> For it seemed to me that I could meet much more truth in the reasonings that each one makes touching affairs that are important to him, and the event of which must punish him soon after, if he has judged badly, than in those that a man of letters makes in his study ("*cabinet*"), touching speculations which produce no effect, and which are of no other consequence to him, unless perhaps that he will derive more vanity from them the farther they are from common sense, because he will have to employ that much more mind ("*esprit*") and artifice in attempting to make them probable. (pt. 1, par. 14)

Suffice it to note, this would seem to apply equally well to the reasonings Descartes himself makes in this part of the *Discourse*. The very least that one can say about Descartes' proof of his own existence is that the question it touches is hardly a burning one for the vast majority of men. All men surely wonder, at some point in their lives, whether or not God exists, and some may even wrestle with this question all their lives, though they are probably fewer in number today than in other ages. One rather suspects, however, that very few have ever pulled out their hair over the question of whether or not they exist.

There is an enormous secondary literature on these aspects of Cartesian philosophy. I intend in this chapter merely to indicate some aspects of Part Four of the *Discourse* which are perhaps less commented upon. This discussion must necessarily remain prefatory to an examination of the more detailed consideration of these questions in the *Meditations*.

Descartes had said in the first maxim of his morality that he would hold on to the truths of faith in which he had been raised. Now, however, he says that he must examine *all* his opinions, and reject as false anything in which he can imagine the slightest doubt. Because the senses sometimes deceive, Descartes imagines that they always do so, and that nothing is as it seems. Because some men make mistakes in even the simplest mathematical reasonings, Descartes imagines that he himself has always

done so. And because men can have the very same thoughts both dreaming and awake, Descartes imagines that everything that has ever entered his mind is as illusory as his dreams. In sum, all the sense impressions he has ever received are nothing but illusions. This extreme scepticism leads him directly to a truth so firm that no sceptic can shake it: in order to think that everything is false, Descartes must still be thinking, and must therefore exist.

Let us examine this more closely. It is true that the senses deceive, and Descartes later gives some examples that relate to the sense of sight.[85] On the other hand, one of the essays published with the *Discourse*, the *Dioptrics*, includes a rational account of how and why the sense of sight deceives. It is possible, therefore, to overcome this difficulty.[86] The next step in Descartes' argument, however, stretches the imagination to its limits. It is true, again, that the simplest geometrical demonstrations are beyond the capacities of some men, but for most men these simple demonstrations provide a certainty that is absolute. Once someone has seen that the three angles of a triangle equal two right angles, it is impossible to imagine otherwise, and indeed, it would be absurd to do so. Elsewhere in the *Discourse*, Descartes treats mathematical demonstrations as *the* model, not to say the only kind, of certain reasonings, and he will do so again later in this part of the book. In particular, we may recall here that he states that children doing arithmetic can *know* as well as anyone that their sums are correct (pt. 2, par. 12).

Descartes also imagines that everything he has ever sensed is just as false as everything he has ever dreamed.[87] At the end of this meditation, however, he will declare that a geometrical demonstration is just as true when reached in one's sleep as in one's waking thoughts.[88] This sets limits to the "falseness" of dreams, and again suggests that geometrical or mathematical truths exist in a realm beyond doubt.

What Descartes does next with the firm and unshakeable truth he has found is truly stunning. He states that he can imagine that he has no body, that there is no world, that he is not in any place, but that he cannot imagine that he does not exist. The reason he cannot imagine this is presumably because it would be absurd.[89] He says that this is very evident and very certain, and declares that this proof of his existence shows that he is "a substance of which the entire nature or essence is only to think", and that he does not require any material substance or place in order to exist. The only proof that would seem to be offered here of this mind-boggling proposition is that it is possible to imagine things to be so. "Let there be utter and complete separation of mind and body," and there was.

> So that this I ("*ce moi*"), that is, the soul by which I am what I am ("*je suis ce que je suis*") is entirely distinct from the body, and is even easier to know than it, and even if [the body] were not, [the soul] would not cease to be all that [the soul] is.

The reason for the permanence of the soul relative to the body would also appear to be simply that one can imagine that body does not exist. On this same basis, the authority of the imagination, one might just as easily assert that centaurs and unicorns really do exist.

Starting from the proof of his own existence, Descartes next proceeds, as announced in the "Introduction", to prove the existence of God (par. 4). It is clear, he says, that it is a greater perfection to know than to doubt. Descartes himself doubts - the proof of his existence is based on that doubt - and so he knows that he himself is not perfect. He states that he wishes to search for the source from which he learned to think of something more perfect than himself. He declares a few lines later that it is manifestly impossible that the idea of a being more perfect than himself comes from nothing, because something cannot come from nothing.[90] Therefore this idea must be placed in him by a nature truly more perfect than he. He declares that this nature contains within itself all the perfections of which he, Descartes, can have any idea. He

names this nature God. The argument has thus progressed from the comparative mode ("more perfect") to the superlative ("most perfect"). One may well wonder what Descartes' justification for this is.[91]

Descartes also does not state exactly how he moves from the idea of the greater perfection of knowing to the idea of a more perfect being, unless perhaps it is that *the* characteristic of a truly perfect being is knowledge, in which case the truly perfect being would be distinguished by the very thing that every philosopher desires to have. It seems that Descartes would have us believe that because there is the possibility of knowledge, there must be a knower of all possible knowledge.

Descartes next says that because there are certain perfections which he does not possess, he knows that he is not the only being in existence.[92] He speaks here of perfections, in the plural, although up to this point the only specific thing that he has mentioned is the greater perfection of knowing than doubting. Descartes states that the less perfect must necessarily "depend" on the more perfect. Since the less perfect exists, the more perfect must also exist. Other than admitting that he is here using Scholastic terminology "freely", Descartes does not explain this notion further. He adds that if he were alone and independent of everything else (that is, if the more perfect did not exist), he would be able to give himself all that he knows he lacks. He would thus be infinite, eternal, unchanging, all-knowing, and all-powerful, and thus have all of the perfections that he has discerned in God. We may stop for a moment and reflect that a distinguishing characteristic of a philosopher is that he is aware of his own ignorance in certain areas, and desires to have knowledge in them. To that extent, we might say that a philosopher does indeed derive from himself the "little he has of participation in the divine being". Descartes' ostensibly hypothetical, independent "imperfect being" sounds more like an actual flesh and blood philosopher than anything else. Furthermore, as for the statement that were he alone and independent he would be able to give himself all

perfections, Descartes does present himself in the *Discourse* as completely self-made, completely alone and independent. He rejects all opinions he might have received from others, and reconstructs his thoughts on a foundation which is completely his own (pt. 2, par. 3). In this history of his life Descartes nowhere mentions his parents.

Descartes explains as follows why the five qualities mentioned above are perfections, and how he has discerned them in God. In order to know the nature of God, he has only to consider all of the things of which he has any idea, and to decide whether or not it would be a perfection to have them. He is assured that no imperfections are in God.

> For I saw that doubt, inconstancy, sadness and similar things could not be in him, seeing that I would have been glad ("*bien aise*") myself to be exempt from them.

Descartes' proof of the perfections of God reduces finally to this: God has all the perfections that René Descartes has conceived of in his imagination, and these perfections must be in God, because René Descartes would like to possess them. The measure of all things is how Descartes himself thinks and feels.[93] He seems to express here not only the philosopher's desire to be all-knowing, but also his own desire to be God. This is further suggested by his definition of the "I" (or, as it has come to be known, the self or ego) as "the soul by which I am what I am", which is suspiciously reminiscent of the name of God in Exodus (3:14).

We may stop and consider here to what extent Descartes' metaphysical speculations agree with Christian theology. Much of what he says is unobjectionable: God exists and is perfect, man is composed of body and immortal soul. On the other hand, Descartes' remark that doubt, inconstancy and sadness could not be in God does not seem to be consistent with some of the things related in the Gospels about Jesus. Jesus wept over Lazarus and over Jerusalem, was sorrowful in the Garden of Gethsemane, had moments of doubt in the Garden and on the cross.[94] There are occasions in the

Old Testament when God is said to change His mind.[95] Furthermore, Descartes says that God is simple, not composite, consisting only of intelligent rather than corporeal nature. God is also said to be unchanging. This would seem to present certain difficulties for the doctrine of the Trinity, to say nothing of the incarnation of God in man as Jesus Christ.[96] Descartes declares later that it is certain that the idea of God has never been in the senses. Jesus was seen and heard by many men, some of whom were convinced thereby that He was the Son of God. Again, it is not entirely clear that it is possible to reconcile this with the statement that God is neither sensible nor intelligible. Finally, Descartes' proof of the existence of God is based on the "manifest impossibility" of creation from nothing. Did an omnipotent God perhaps not create the world out of nothing, as was the orthodox Catholic view?

Descartes does not, however, explicitly state that God consists only of intelligent and not of corporeal nature, although that is the most obvious interpretation of his words.

> But since I already recognized in myself very clearly that intelligent nature is distinct from corporeal, considering that all composition is witness of dependence and that dependence is manifestly a defect, I judged from there that it could not be a perfection in God to be composed of these two natures, and that, consequently, he was not.

This passage is very curious. In Descartes' consideration of his own case, his supposed proof of the independence of body and soul, of intelligent and corporeal nature, was rather only a proof that he is able to *imagine* them to be distinct. He declared there that if he had no body, his soul would still exist and be of the same nature that it is, and that therefore, he was a being whose sole essence was to think. He now states without qualification that he is a *composite* being. He also states that composition implies dependence, although he never explains why this is so, nor states whether both body and soul depend on their union, or whether body depends on soul, or soul depends on body. We might expect the first to be the case, although it seems from Part Five that it is

actually the last that is true.[97] Descartes also says that his nature is defective because it is composite, yet we must presume this defective nature to have been the creation of an omnipotent God, one that is capable of perfect creation. Finally, Descartes' wording here leaves open the possibility that God's single nature is not intelligent at all, but is strictly corporeal, like the Roman goddesses Diana and Minerva, whose only existence outside the imagination is in statues made of stone (cf. pt. 2, par. 6).

Descartes next declares that he wishes to search for other truths, although what he discovers turns out to be another proof of God's existence (par. 5). He begins by considering "the object of geometers", which he defines as a continuous body or space indefinitely extended in length, breadth, and height or depth, divisible into various parts, which can have various figures and sizes, and can be moved or transposed in all ways.[98] The simplest geometrical demonstrations are certain, he tells us, because they are conceived evidently, that is, clearly and distinctly. He declares that the demonstrations themselves contain nothing that assures one of the existence of the object they consider. He explains this statement as follows: if one supposes a triangle, then its three angles must necessarily be equal to two right angles, or if one supposes a sphere, then its parts must necessarily all be equidistant from its center. However, neither the idea of a triangle nor that of a sphere assures one that any triangle or sphere actually exists. The idea of a perfect being, on the other hand, contains within it the existence of that being. Descartes does not say so, but this is presumably because a perfect being will be still more perfect if it actually exists. He concludes that it is at least as certain that God, who is this perfect being, is or exists, as any demonstration in geometry could be.

This proof is just as curious as the others, and leads one to reflect on what one might term the mode of being of geometrical truths. In what way do geometrical objects and demonstrations exist? Descartes begins by considering the general "object of geometers". He does not bring the existence of this general object into doubt, but only

that of two particular geometrical shapes. We may also notice that the two "demonstrations" considered here are not of the same sort. The equality of three angles of a triangle and two right angles is a somewhat advanced geometrical proof.[99] It is not at all immediately apparent to someone not versed in geometry, but once one has seen that it is true it is simply impossible to believe or imagine otherwise, as was said above. In the other case, however, what Descartes gives is the very definition or conception of a sphere.[100] To which example is the existence of God comparable? Does God's existence follow, with the force of a geometrical demonstration, from what Descartes has said? Or does God exist only "by definition", or as a human conception?

I would suggest that in Part Four Descartes does not present a proof of the existence and perfection of God at all, but rather shows how it is possible, starting from one's own very human nature, to imagine the existence of a supreme and perfect being. He considers the rational faculties of man, abstracts them from other elements, purifies them, imagines them at their highest or most powerful level. Descartes hints at this elsewhere, when he speaks of pulling a Diana or a Minerva from a block of marble after the design has been sketched on it (pt. 2, par. 6). In the same way, here in Part Four he himself traces the design of a perfect God. In Part Two, he argues that works produced by one master have greater perfection than have those composed of parts and on which many have worked. Here he writes of a perfect God who is not composite. God is perfect, it would seem, because he is made by one master, Descartes.[101]

In this sense, Part Four might be thought of as a discourse on the imagination. The proof of Descartes' own existence rejects the evidence of the senses, and also the evidence of the imagination, since the imagination relies on the senses. (He calls imagination "a way of thinking particular to material things" [par. 6].) Yet the entire argument, as we have seen, relies completely on the rational imagination. Descartes conceals this somewhat by using the words "pretend" ("*feindre*") and "suppose" in the

first two paragraphs, rather than only "imagine".[102] Descartes' last proof of God's existence brings God into the realm of geometrical ideas. We might note in this regard the ability of the imagination to conceive of perfect geometrical forms, such as perfectly round circles, even if one has only actually *seen* imperfect circles.

In any event, in the last two paragraphs of this part Descartes apparently resolves or answers the doubts he expressed at its beginning about the existence of the material world, and thus enables his metaphysical truths to become the foundations of his physics. We can be certain of the existence of the material world and of the truth of our waking thoughts, he tells us, because of the existence of God, who is entirely truthful and who has put those clear and distinct ideas in our thoughts. That is, clear and distinct ideas are true because God exists, is perfect, and because everything we have comes from him.[103]

However, Descartes was only able to prove the existence of God by appealing to a clear and distinct idea; that is, he uses clear and distinct ideas in order to prove that clear and distinct ideas are true. This is the so-called "Cartesian circle", a metaphysical puzzle that has given rise to its own large secondary literature. Descartes elsewhere points out, in his discussion of the relation of causes and effects to certainty in physics, that his reasoning there is not circular although it might seem that way at first (pt. 6, par. 10). He does not point out the circular character of his argument here, and we must wonder why not.

One way of resolving this might be the following. Descartes has not proved the existence of God at all. Rather, clear and distinct ideas belong firmly in the realm of mathematics, and they derive their certainty from the fact that one cannot possibly conceive them to be otherwise than they are, by any metaphysical stretch of the imagination. The only "real" metaphysical objects or ideas are mathematical in

character. Descartes' God exists only in the imagination. Geometry and mathematics, therefore, not metaphysics, are the real foundation in certainty of Descartes' physics.

What is the point of Part Four of the *Discourse*, in light of Descartes' stated goal of the mastery and manipulation of nature? On the one hand, there is something strangely appropriate for the entire project in the conception of man as thinking entity, entirely divorced from the material world, and yet imposing his will on it. On the other hand, Descartes indicates in Parts Five and Six that the key to the understanding and manipulation of nature is mathematical physics. Descartes' conception of two utterly distinct worlds - that of matter, of bodies in motion, and that of thought - has the benefit of removing all non-mathematizable qualities from matter and depositing them in the realm of thought.[104] As well, Descartes' hint that he wishes to be God is perfectly consistent with the suggestion in Part Six that his science of mastering nature will put man into a new Eden.

There is another important reason for Descartes' insistence on the separation of body and soul, and on the existence of God, and this only becomes clear at the end of Part Five.

> [T]he subject of the soul ... is among the most important; for, after the error of those who deny God, which I think I have sufficiently refuted above, there is nothing that sooner distances weak minds from the straight path of virtue, than to imagine that the soul of beasts is of the same nature as ours, and that, consequently, we have nothing to fear, nor to hope for, after this life, no more than have flies and ants... (pt. 5, par. 12)

It is noteworthy that Descartes does not express this concern in Part Four, but only after he has completed the outline of the new principles of his physics. It would seem that Descartes has recognized the nihilistic potential present in modern physics, with its mechanistic, materialistic conceptions and its elimination of the notion of final cause. He has retained the notions of God and of the immortality of the human soul from the old religion, in order to reuse them in building the foundations of the new science.[105] Still,

Descartes cannot be principally motivated by concern over the ultimate effect of the truths of physics on "weak minds", for if he were he would not likely have proposed a science that had such potential consequences.

COMMENTARY ON PART FIVE

This part presents the outline of Descartes' physics, and here, in sharp contrast to Part Four, Descartes does not exhibit any doubt whatsoever about the existence of the material world or about the extent to which the senses deceive. In fact, he says here that, with the exception of God and the soul, there is nothing clearer or more intelligible than matter (par. 2).

Descartes began Part Four by wondering if he should disclose the fruits of his meditations to the reader, given that their allegedly unusual character might not be to everyone's liking. He now begins Part Five by stating that the publication of his physics would embroil him in controversy with the learned ("*les doctes*"). He also refers to another treatise he has written, which certain "considerations" keep him from publishing. He would appear to be more sure of the unacceptable nature of his physics to certain authorities than he was of that of his metaphysics. Or, perhaps, he is less willing to expose his physics to possible censure than his metaphysics.[106] In any event, what he gives here is a very general summary of the contents of his treatise, in order "to allow the most wise to judge whether it would be useful for the public to be informed of the particulars."

Descartes speaks here as if his metaphysical truths form the basis for his physical account of the world, and as if all the laws of nature can be deduced from them. Since he does not elaborate on this further, the reader can only take his word that this is so. He states that "in considering the chain of these laws, it seems that I have discovered several truths more useful and more important than *all* that I had learned previously, or even hoped to learn." This statement is simply breath-taking, given that he reminds us in this same paragraph that he has just "demonstrated" in Part Four the existence of an omniscient and perfect God and the soul's independence and immortality. Again, it

seems that he himself believes his physics to be much more important than his metaphysics, possibly because he believes only the former to be valid.[107]

Following the "Introduction", one might divide this part into three sections, each consisting of four paragraphs. The first contains the outline of Descartes' physics, the second a mechanistic account of the working of the human heart and the circulation of the blood, and the third a discussion of the difference between men and animals.

The "Introduction" draws attention to the "order of the questions in physics." That order, upon examination, is curiously similar to that of the order of creation in the first chapter of Genesis.[108] Descartes' unpublished treatise, as he describes it, explains the following topics: light; the sun and stars; the heavens; the planets, comets, and the earth; terrestrial bodies; man. All are described insofar as they relate to light. This account differs from Genesis in three ways: (1) the sun and stars, which Descartes calls the sources of almost all light, are described before the heavens, which transmit light; this reverses the order of the second and fourth days of creation; (2) the moon is not included as a source of light, as it is in Genesis; (3) Descartes makes no mention of any living thing, either plant or animal, other than man, who is included as the spectator of the other things.[109] The Biblical account culminates in the creation on the sixth day of man, who is made in the image of God and to whom dominion over the earth is given. Descartes' account also concludes with man, but only with man as a spectator. An examination of the properties of light necessarily requires some account of how these properties are perceived by man. However, insofar as this is an outline of the order of creation, Descartes' man is not the end or culmination, but rather merely an observer of it all. It is possible that Descartes is suggesting here that the account at the beginning of Genesis is somehow a "natural" way for man to perceive the order of things.

Just as Genesis contains two accounts of creation, Descartes now gives a second description of the world, but this second account bears very little relation to the Biblical

one. Descartes declares, not surprisingly, that in order to be able to talk more freely, he will only speak hypothetically about what would happen in a new world, if God were to create in imaginary space enough matter to make it up, and to set this matter in motion. We may notice that Descartes does not speak of "another world" but rather of a "new world". The imaginary spaces in which it exists may well be found in Descartes' mind, but this new world may also be thought of as a transformation of the Biblical account.

He begins with matter, in "a chaos as confused as the poets can pretend (*feindre*)."[110] He next describes the laws of nature, which he tells us would be the same in any world since they are based in the *perfections* of God. He no longer says, as he did in the first paragraph, that these laws were established in nature by God. He goes on to explain how matter, in observance of the laws of nature, must necessarily arrange itself to form heavens, earth, planets, comets, sun and fixed stars. This retains the order of the second, third, and fourth days of creation, though again omits plant life. Descartes next describes the origin, transmission, and reflection of light; the substance, position, movements and other qualities of the heavens and celestial bodies; the earth, the ebb and flow of the tides caused by the moon; the coursing of air and water from east to west; the natural formation of the physical features of land and sea, the natural growth of plants, and the natural generation of all bodies that are called mixed or composite. Although Descartes does not say so, these bodies must include man, who is "composed" of body and soul. He also describes fire, noting that there is nothing else in the world, other than the stars, that produces light.[111] The description of the various properties of fire leads into the description of animals and man (par. 4). Descartes considers man by imagining a body which is entirely similar to a man's, both externally and internally, but which lacks a rational soul. This body is animated by heat, which Descartes calls a fire without light. It would seem, then, that the soul is not responsible

for giving life, or at least all the motions of life, to man. In keeping with this, Descartes repeats here that the soul's "nature is only to think".

Perhaps the only thing that this account has preserved from the second chapter of Genesis is its emphasis on matter. In Genesis both man and the animals are formed by God from the dust of the ground. In Descartes' account, although all things are composed of the same original matter, animate life appears to arise of necessity, without the active intervention of God. Although Descartes' discussion is very sketchy, it is certainly compatible with an evolutionary account of nature. He begins with unformed matter mechanically obeying the laws of nature, and ends with the appearance of man. Not surprisingly, he denies at this point (par. 3) that he thinks the world was actually created in the manner which he has just proposed. Rather, he says, it is more "probable" that God made it from the beginning such as it was supposed to be. In other words, the world came into being all at once, rather than gradually by the operation of the laws of nature. We should once again bear in mind here how Descartes regards the merely "probable". As well, what he says next as much as contradicts his affirmation of belief in the Biblical account. It is certain, he notes, that the action by which God now conserves the world is exactly the same as that by which He created it.[112] Thus, even if God had done nothing in the beginning but create a chaos and establish the laws of nature, all things which are purely material would still have become exactly as we see them now. Furthermore, Descartes concludes, the nature of material things is much easier to conceive when one sees them coming into being ("*lorsqu'on les voit naître*") in this way than when one only considers them already made. Descartes' outline of physics, then, may or may not be the way the world actually came into being, but it does allow one to have a better understanding of material natures.[113] And God is utterly superfluous to this account of physics: it really makes no difference whatsoever whether or not God actually created the world.

Descartes notes that the heart is the source of the life-producing heat in animals, and this remark introduces the long description of the anatomy of the human heart and the circulation of the blood. This section incidentally contains one of the funniest sentences of the book:

> And so that one might have less difficulty in understanding what I shall say about it, I would like those not versed in anatomy to take the trouble, before reading this, to have dissected in front of them the heart of some large animal with lungs, as it will be similar enough on the whole to that of a man.

One can only wonder if any reader of the *Discourse* has ever actually had this done. In any case, Descartes' account of the heart tends to assimilate man's body to that of other animals. This leads naturally into the last four paragraphs of Part Five, where Descartes discusses the differences between men and animals. This discussion includes certain remarks on speech (par. 10 and 11), and deserves some consideration here.

Descartes begins his account by stating that if a very cleverly devised machine had the form of an animal "without reason", there would be no way to distinguish that machine from a real animal (short of dissection, presumably). On the other hand, if this machine were to have the form of a human, there would be two "very certain" means by which to know that it was not a real man. The first is that a machine would never be able to use words or other signs as men do in declaring their thoughts. A machine might be able to produce words in response to specific stimuli, but it could never arrange its words in different ways, and thereby respond to the sense of everything said in its presence, as even the most dull-witted ("*hébétés*") men can do. The second means of telling them apart would be that even though a machine might do many tasks better than a man, it would inevitably fail in other tasks, and thus reveal that it acted without "knowledge", and only according to the "disposition" of its parts.

Descartes declares that by these two means of (hypothetically) distinguishing men from machines one can also know the true difference between men and animals. He had

noted at the very beginning of the book that reason or sense alone distinguishes men from animals (pt. 1, par. 2). The discussion that follows is an account of how this is so.

> For it is a very remarkable thing, that there are no men so dull-witted (*"hébétés"*) and so stupid, without even excepting fools (*"les insensés"*), that they are not able to arrange various words together, and compose them into a discourse by which they make their thoughts understood; and on the contrary, there is no other animal, however perfect and fortunately born (*"heureusement né"*) it may be, that can do the same. (par. 11)

Certain birds are able to imitate the sounds of human speech, Descartes adds, but they give no evidence that they understand the sense of what they "say". Humans who are born without the faculties of speech and hearing, on the other hand, commonly invent signs by which they are able to communicate their thoughts to those with "the leisure to learn their language." This shows that animals have no reason at all: "for one sees that very little [reason] is required in order to be able to speak." Descartes notes that if animals were rational, a monkey or a parrot that was the most perfect of its species would be the equal of one of the most stupid of children, or at least of one with a troubled brain. Descartes admits that "natural movements [that] give evidence of the passions" can be imitated by both animals and machines, but declares that one should not confuse these movements with words. He adds that we should not think, as did some of the ancients, that animals speak their own language, which only other animals understand. If this were so, animals would be able to make themselves understood by us in some other way. Finally, he notes that although animals show much inventiveness in some of their actions, they show none at all in others. Descartes concludes that all this reveals that animals have no mind at all. Rather, animals act as they do simply because it is their nature to do so, just as a clock makes the movements that it does simply because of the disposition of its parts.[114]

To repeat then, humans are distinguished from animals (and from machines) by the possession of language on the one hand, and by the very wide range of human actions and capabilities on the other. In both cases, the principal evidence of human

uniqueness and superiority would seem to be human ability to deal with completely new situations. The point of this whole discussion, therefore, would seem to be to indicate that mechanical explanations, while appropriate to physics, are insufficient for a comprehensive and coherent account of language. Unlike the noises of animals or the sounds of Descartes' hypothetical speaking-machine, human language is not limited to specific responses to specific external stimuli, or to the "mechanical" expression of specific internal passions.

Beyond this, however, Descartes' account of speech is very cursory, and even somewhat puzzling. He states that very little reason is required in order to be able to speak, and that even fools can put together words into "discourse". One rather doubts that Descartes considers the jabbering of fools to be the same thing as his own "discourses" with others (cf. p. 30, l. 22), not to mention the fact that the very title of this book is *Discourse on Method*. Similarly, and contrary to what Descartes explicitly says, it is simply not true that the most dull-witted of men can answer to the sense of *all* that is spoken in their presence.

In the course of this discussion of the differences between men and animals, Descartes makes several statements which throw into question the radical dualism of body and soul posited in Part Four. Descartes had first made mention of the brain in the section on the heart. It was also in the course of elucidating the physical connection between the heart and the brain that he declared that the "rules of mechanics [are] the same as those of nature." He now says that dreams, sleep and wakefulness are caused by (presumably material) changes in the brain; that external objects "imprint ideas" through the medium of the senses; and that other ideas are sent by hunger, thirst and the "other internal passions". These ideas are said to be received in the "common sense", conserved by the memory, and changed and reformed into new ideas by the imagination

("*fantaisie*"). Furthermore, in speaking of the "rational soul" in the last paragraph, Descartes states that

> it is not sufficient for it to be lodged in the human body, like a pilot in his ship, unless perhaps to move its members, but it needs to be more closely ("*étroitement*") joined and united with it [the body] to have, as well, feelings and appetites similar to ours, and thus to compose a true man.

We may also note here what Descartes says on this subject in Part Six:

> the mind depends so greatly on the temperament and on the disposition of the organs of the body that, if it is possible to find some means to make men in general wiser and more competent than they have been until now, I believe that it is in medicine that one should look for it. (par. 2)

Cartesian dualism of body and soul passed into philosophy textbooks long ago. However, I would suggest that the real dualism in Descartes is not that of the mere independence of body and soul. Human thought and language cannot possibly be accounted for in mechanistic terms, as matter in motion. Furthermore, there would seem to be no way to understand the mind-body connection, no way to understand the two-way communication between consciousness and matter-in-motion. As a result, parallel complementary accounts, metaphysics for thought and physics for matter, are necessary in order to fully explain the world as we actually experience it.

One might also understand Cartesian dualism in another sense, as two distinct ways of viewing the world, that characteristic of modern physics, and the more traditional "metaphysical" way. The ideas of God and the soul are necessary in order to give meaning to the life of man, yet coexist very tenuously with the materialistic, mechanistic, deterministic truths of physics. Metaphysics conceives body and soul as distinct, with the former naturally subordinate to the latter. Physics conceives the soul as dependent on the body, if not simply epiphenomenal. Descartes' presentation of both alternatives is reminiscent, in a sense, of the resolution of the first maxim of his morality to follow the middle course between two extremes. Let us emphasize again,

however, that it is physics, not metaphysics, that is essential to the project of benefiting mankind that Descartes outlines in Part Six.

Descartes does seem to want the reader to reflect on "dualism". The *Discourse* is full of pairs of things: one might say it is pervaded by twoness.[115] Mathematics and ethics are contrasted in Part One. Utility and beauty are contrasted at the beginning of Part Two. Parts Two and Three together present Descartes' method and his provisional morality, a variation on the mathematics-ethics duality of Part One. Descartes contrasts birth and fortune in one place, and nature and fortune in another.[116] Man is said to be torn between his appetites and his preceptors. The entire book might even be characterized as an examination of the conflict between politics and philosophy.

COMMENTARY ON PART SIX

According to the "Introduction", Part Six is a discussion both of what is required in order to advance in the study of nature, and of why Descartes decided to write this book. The two topics are presented together by Descartes, but we will examine them somewhat separately.

The Organization of Science

As we have mentioned numerous times, the goal of Descartes' entire project is only made explicit here in Part Six. Speculative or theoretical philosophy will be replaced by practical philosophy. The purpose of this is to make man the master and possessor of nature (par. 2). Descartes' argument for this is one that can appeal to all men. The infinity of inventions that science will provide will allow men "to enjoy the fruits of the earth without pain." Even more importantly, these inventions will enable men to enjoy permanent good health. The medicine that Descartes envisions will free men from an infinity of diseases, and perhaps even from the weakness of old age.

Descartes appeals both to men's fear of death and to their desire for ease and comfort. He speaks here of an "infinity" of inventions, suggesting that the "mastery of nature" will be an inherently open-ended project. It is equally curious, however, that he also speaks of an "infinity" of diseases.[117] Does this imply that even as men conquer and eliminate various diseases, they will discover (or cause) new ones? Descartes adds that he believes that if there is any way to make men wiser and more competent ("*habiles*") than they have been, it will be found in the new medicine. This is a very strange notion, although one sees clearly in our own time why Descartes would employ it as an argument in favour of science. All men would endorse the advantages of having a healthy mind in a healthy body. One gets the strong impression, moreover, that many

today completely agree with Descartes that the key to a healthy mind is to be found in physical fitness, or proper diet, or breathing exercises, or one of countless other such practices involving the body. Beyond that, it seems that many people would rather take a "brain pill" than go through the strain of truly exercising, and thereby strengthening their minds through study, reading, thinking and dialogue.

Descartes also states that science will enable men to enjoy without pain the fruits of the earth and all the commodities found in it. Modern science promises to do away with the curse of labour, in effect returning man to Eden. Scientific method will allow man once again to taste of the fruit of the tree of knowledge, and this time perhaps even of the tree of life.[118] We have seen that there are some subtle hints in Part Four that Descartes wishes to compare himself to God, and that he aspires to God-like power and knowledge. In Part Five Descartes gives physical laws to a new world. Here we see that he wishes to be more beneficent to man than was God in the original creation.[119]

In any event, Descartes describes almost in passing how this project of mastering nature will have to be organized. It will require tremendous financial resources, principally because of the great cost and infinite number of scientific experiments to be carried out. It will also require the participation of a tremendous number of people, each of whom will contribute according to his own ability and inclination. The project will be organized so that each new participant can begin where the last left off, and thus joining together "the lives and works of many", men will advance much farther together than each one could alone. There will have to be continuous correspondence among those studying nature, in order that each be informed of the results of the experiments of others. These men will require assistants, and in particular artisans. These artisans will render technical assistance to scientists, on the one hand, and will see to the technical application of scientific knowledge, on the other.

Why Write of Scientific Discoveries?

Only a few decades ago the thought that scientific discoveries should be kept hidden would have seemed absurd, if not dangerous, although there would have been recognition of the necessity to keep new military technology secret. Now, by comparison, there is increasing agreement that not all of the developments of modern science have been for the unmitigated benefit of mankind. These unforeseen consequences are not restricted to the deleterious effects that modern industry has had on the natural environment, contrary to what one often hears. To take but two obvious examples: consider the use that is made of the truly wondrous invention of television, and the effect that that use has had on, say, moral education within the family; or consider the political problem generated by the ever-escalating cost of high-technology medical care in a democracy committed to equality of such care.

In any event, Descartes' discussion in Part [illegible] whether or not he should publish has the character of a dialogue or debate with himself. This debate may be divided into four parts: (a) the reasons Descartes has for not publishing the principles of his physics (par. 1); (b) the original reasons for publishing them (par. 2-3); (c) the reasons for publishing them posthumously (par. 4-7); (d) the reasons for publishing only an outline of his plans, together with the three essays (par. 8-12).

(a) Descartes begins with a not-particularly-veiled reference to the trial of Galileo in 1633, and says that until he heard about that event he had fully intended to publish the treatise on physics that he outlines in Part Five. He declares that he does not wish to say that he shares the "opinion in physics" which was censured, but adds that previously he had noted nothing in it prejudicial to either religion or state. Its censure made him fear that his own treatise might, unbeknownst to him, contain something similarly mistaken, and he therefore decided to change his resolution to publish.

This is all in keeping with the first maxim of his morality, namely obedience to the laws of his country and his religion. However, Descartes' profession that he is not necessarily in agreement with Galileo (and thus Copernicus) has long been regarded as ironic, and this is supported by a large body of external evidence.[120] Furthermore, we should keep in mind the possibility that one of the principal (if unacknowledged) intentions of Descartes' project is to create a new relation between philosophy on the one hand, and religion and state on the other. If his new way of conducting science is successful and if it truly does provide the benefits that it promises, it seems likely that the experience of Galileo will never be repeated.

(b) In the second and third paragraphs, Descartes describes the reasons behind his original intention to publish. When he was only employing his method at solving questions in the speculative sciences or at governing his morals, he tells us, he felt he was not obliged to write anything at all. But once he realized the practical implications of the principles he had established in physics, he believed that he could not keep them hidden "without greatly sinning against the law that obliges us to procure, as much as is in us, the general good of all men." It turns out in the next few lines that the general good of men will be best realized by the conquest of nature. To repeat, Descartes declares that this will result in an infinity of inventions, and that these will allow men to enjoy without any pain or trouble the fruits of the earth and all the commodities found in it, and to enjoy permanent good health.

But what is the law Descartes speaks of that obliges one to procure the general good of all men? He gives no explanation or justification of this law here, nor anywhere else in the *Discourse*. He does not say here that this law is true or evident or beyond doubt. Furthermore, Descartes calls it a sin not to obey this law, the only mention of sin in the entire book. The law itself is reminiscent of the Christian doctrine of charity,

or love of one's neighbour.[121] One may well wonder, therefore, if this is not another of the building materials that he has kept from the "wreckage" of the old society, for reuse in his own construction.

We might say that Descartes offers an interpretation of how it is that one is to carry out the command to love one's neighbour as oneself. Paul's letter to the Galatians (6:10), for example, tells us that "As we have therefore opportunity, let us do good unto all men, especially unto them who are of the household of faith." The "general good of all men" that Descartes wishes to procure, on the other hand, has nothing to do with faith, but is rather the good of the body. This begins with health, moves into freedom from toil, and ends with ease and comfort.

In keeping with this, Descartes declares (and repeats in the last paragraph of the *Discourse*) that he wishes to spend the rest of his life in developing the science of medicine. The publication of his treatise would assist in this, he tells us, by joining together the lives and works of many men to make up for the shortness of his own life and the limits of his knowledge (par. 2). Descartes adds that his treatise would describe exactly how this project is to be accomplished, and would show "so clearly the utility that the public can receive" from it that he would thereby "oblige all those who desire in general the good of men" to communicate their results to him and to help him with his work. He defines such men as "all those who are really (*en effet*) virtuous, and not by false pretence, nor merely by reputation (*opinion*)" (par. 3). Note that the "general good of all men" (par. 2) has now become the general desire for the "good of men".

(c) In the fourth paragraph, Descartes decides on a compromise between his obligation to publish and his fear that his ideas will not be welcomed by political and religious authorities. He will continue to write of his discoveries and his principles, but will not allow anything to be published until after his death. He gives two reasons for

this: on the one hand, he will still be able "to profit the public"; on the other hand, this will give him the opportunity to examine his own ideas more closely, which one is more apt to do if one believes that one's work will be looked at by others. Among other things, this will give Descartes further opportunity to assure himself that his ideas are not mistaken. He will not publish during his own lifetime, however, so that neither the opposition and controversy to which his writings might be subject, nor the reputation they might acquire for him, will cause him to lose any time from his real work, his project of self-instruction.

This latter reason for not publishing, the fear that acquiring a reputation might prove a distraction, is most intriguing, given that the majority of academics today would hardly seem to share this anxiety. But Descartes does have a point: reputations give others a claim on the time of those who enjoy them.

Descartes offers the following justification for delaying the benefits that he is apparently able to bring mankind:

> For, although it is true that each man is obliged to procure, as much as is in him, the good of others, and that to be useful to no one is actually ("*propre-ment*") to be worthless, still it is also true that our cares ("*soins*") should extend farther than the present, and that it is good to omit things that would perhaps bring some profit to those living, when it is one's plan to do other [things] which would bring more [profit] to our descendants. (par. 4, p. 66)

Descartes now replaces the obligation of procuring the good of "all men" by that of procuring the good of "others". He also now says that it is "true" that there is such an obligation, although he no longer calls it a law nor makes any mention of sinning. He does not specify whom the publication of his physics would profit, nor how it would do so, and it is not entirely clear what he means by this. The statement that he will omit things would seem to violate the fourth rule of his method (make reviews so as to omit nothing), but again may simply illustrate the difference between science and politics: in the practice of science one cannot omit anything relevant to the discovery of the truth,

whereas in politics it is sometimes in the common good that certain things not be spoken of.

In the remainder of the fourth and in the fifth paragraph, Descartes returns to the question of the opposition his publishing would call forth. He says that this opposition might be useful in two ways: (i) he would learn of his mistakes; (ii) others would learn what he knows, and would be able to employ his knowledge in order to advance their own, and would then in turn inform him of their inventions. However, he immediately disavows the hope that anyone will furnish him with any objections from which he might learn anything. This is rather curious, given that the book virtually begins and ends with a call for such objections.[122] However, as is now well appreciated, such communication of results is an essential element of modern science.

As for what he might be able to learn from others should they make use of his physics, Descartes concludes that it would not be very much after all, since he has not yet taken his physics far enough for it to be ready to be applied. This leads him into a consideration of scholastic philosophy. The gist of Descartes' critique is that the scholastics, with their dogmatic reverence of Aristotle, actually discourage their adherents from thinking about any questions not treated in Aristotle.

> Their manner of philosophizing is very convenient for those who have only mediocre minds; for the obscurity of the distinctions and of the principles which they use is the reason that they can speak of all things as boldly as if they knew them, and support all that they say about them against the most subtle and most capable, without there being a means of convincing them. (par. 6, pp. 70-1)

Descartes, of course, wants to do away with this sort of philosophy, and replace it with clear, precise distinctions and principles that are all evidently true and capable of empirical test. On the other hand, the illusion of profundity provided by vague, confusing and even unintelligible terms does seem to be a perennial danger in philosophy (outside the natural sciences at least), once one moves beyond the "language of the market place".

The passage continues as follows:

> In which they seem to me like a blind man who, in order to fight without disadvantage against one who sees, would have made him come into the bottom of a very dark ("*obscure*") cave; and I can say that these [men] have an interest in my abstaining from publishing the principles of the philosophy that I use: I would do almost the same, in publishing them, as if I were to open some windows, and make some light of day enter ("*faisais entrer du jour*") into this cave where they have descended to fight. (par. 6, p. 71)

This famous image of letting light into the cave is sometimes taken as the very essence of the Enlightenment. If one could change the environment in which men are raised, free them from the shackles of prejudice and opinion, and allow them to live as much as possible by the light of their own natural reason, one could bring a far more just society into being. There is indeed a powerful element of justice present in this desire to educate all men and to eliminate the barriers caused by artificial inequalities. Those of us engaged in intellectual pursuits, in particular, should be especially grateful for the efforts of the men who brought about the Enlightenment, given that in earlier ages many of us would have lived out our lives in ignorance and toil.

I will offer only the following observations on the relation of this image to the cave described by Socrates in Plato's *Republic*.[123] Descartes does not propose here to take men out of the cave, and up into the light. That would presumably be impossible, and also dangerous, for Socrates says that the men in the cave would kill any would-be liberators if they could. Instead, Descartes intends to do the next best thing, and let some light down into the cave. Socrates' cave is already artificially lit by fire; the light that Descartes will let in is not artificial, but is indeed daylight, the light of the true sun. Descartes proposes to let it enter regardless of whether or not the inhabitants of the cave wish it. He makes no mention of freeing any of the prisoners from their chains, nor of controlling those men who are able to wander freely and to carry the artifacts which project the shadows on the wall in front of the prisoners. Finally, as is sometimes observed, this shining of light into the cave may well make it much more difficult for

men in the future to recognize the cave for what it is, and thus to desire to escape from it.

Finally, Descartes speaks in the seventh paragraph of all the experiments that will be required by his project. He finds those already accomplished by others to be of little use, and states that the best means of carrying out the necessary experiments would be for others to provide him with sufficient financial resources to do them himself. He does not think it particularly likely, however, that the public will take such interest in him. In conclusion, all these considerations together led him to believe that there was no compelling reason for him to publish his treatise on physics during his own lifetime.

(d) There are two further reasons, however, which made him finally decide to publish the present work along with the three essays, as an account of his actions and his plans. (i) Those who knew of his earlier intention to publish might imagine that his reasons for not doing so were more to his discredit ("*plus à mon désavantage*") than they actually are. He adds that although he does not love glory excessively, or even hates it because it is contrary to the repose which he seeks, he has never tried to hide his actions. Since he has thus not been able to prevent himself from acquiring a reputation of some sort, he has decided to do what he can to keep from acquiring a bad reputation. (ii) He does not wish those who will come after him to reproach him one day for having been able to leave them more than he did, but not actually having done so. He fears that this will happen unless he makes it very clear how others will be able to contribute to his plans. As a result, he will publish something after all and elicit responses and objections, in order to be able to explain himself better and to correct his faults.

It is curious that the two reasons which finally persuade Descartes to publish while alive both relate to his reputation.[124] The first makes him wish to have a good reputation while living, since he cannot avoid having a reputation. This is reminiscent of his original decision to apply himself to metaphysics: he had somehow acquired the reputation for having succeeded in metaphysics where others had failed, and he wished to live up to that reputation.[125] The second reason here deals with his posthumous reputation.

The book ends with Descartes' declaration that he will spend the rest of his life studying the application of his knowledge of nature to the practice of medicine. He knows that this will not give him any great status in the world, but he has no desire to have any.

> I will always hold myself more obliged to those by whose favour I will enjoy my leisure without hindrance, than to those who would offer me the most honourable positions on the earth.

The work which opens with a commentary on the intellectual vanity of mankind closes with a depreciation of honour, by a man who on his own account would seem to deserve more honour than anyone else in the world.

THE APOLOGY OF DESCARTES

The debate on publishing contained in Part Six implies that Descartes wrote the entire book in its present form only after he became convinced that the principles of his physics could indeed provide men with the technical power to conquer nature. One must assume, therefore, that despite his reluctance to discuss these principles in detail, one of Descartes' foremost intentions is to argue in favour of this conquest of nature, and in favour of the advancement of learning required for the project of conquering nature to be successful. One must also assume that the structure of the book and the order of its parts are conducive to this intention. We have tried to show in the course of the commentary how each of the parts of Descartes' argument contributes to this goal of refashioning science.

However, the overall literary form of the *Discourse on Method* is very curious. For some reason, Descartes presents as mere "autobiography" his thoughts on how and why science should be conducted. Descartes tells us that he was a lover of poetry in his youth, and the book is certainly very charming. Indeed, this would seem to be an important reason why it is still widely read today, while the three essays that were published with it are not read at all. One suspects, however, that Descartes has another motive for writing the book in this manner than merely the wish to exercise his literary talents.

As we have stated, the *Discourse* is in a sense a political defence of philosophy. By virtue of showing the tremendous benefits that will result to mankind from the active support of science, Descartes hopes to provide security to the men who will carry out that science. Descartes delivers this defence of philosophy in the context of telling the tale of his own intellectual life, complete with reminders that he is *not* at present free to tell all - indeed, that he is not free to reveal fully the principles of a science that

would eventuate in mankind's mastery of nature. Interestingly, the greatest political defence of philosophy in classical antiquity, Plato's *Apology of Socrates*, is also an account of the life of a philosopher. Furthermore, Descartes' radical doubt of all opinions received from others, and his reconstruction of his thoughts on his own foundations, is somewhat reminiscent of the story Socrates in the *Apology* tells of his own discovery of his ignorance of the most important things. This similarity between the two works may be more than coincidental. Several of Descartes' letters suggest that he had read Plato. As well, at some point in his life Descartes apparently wrote a work, now unfortunately lost, entitled *On the God of Socrates*.[126] In any case, a comparison of the *Discourse on Method* and the *Apology of Socrates* reveals some other interesting parallels between the two works.

We will first examine some major differences between the two texts. This should also help to further elucidate some of the political aspects of what Descartes says in the *Discourse*. We will begin with the setting. In the *Apology*, Socrates makes a defence speech to a jury of Athenian citizens. He is charged with corrupting the city's youth and with not believing in the gods of the city but in new ones of his own invention. Descartes, on the other hand, is not charged with any crime, and does not even identify himself in the *Discourse*. His book reads more like a private conversation. There is another important difference between the contexts of the societies in which the two works are presented. Inquiry into the heavens is not only regarded with suspicion by the Athenians, to whom the sun and the moon are gods, but teaching anything contrary to the established view is a crime. As part of his defence, therefore, Socrates claims to be unconcerned with the heavens.[127] The situation is significantly different in Christian Europe of the seventeenth century: the sun and the moon are most definitely not regarded as gods, and hypothetical inquiry into their motions is not itself a punishable act of impiety. So long as all that is aimed at is a mathematically accurate account that

"saves the appearances", empirical astronomy is a highly respected activity. Descartes is thus able to be openly very much concerned with the operation of the heavens. However, his interest is not simply theoretical; he tells us that it is knowledge of the force and action of "fire, water, air, stars, heavens" that will enable men to become the masters of nature.[128] And we must note that the trial of Galileo shows that there are still significant limits on what can be publicly taught as literal truth.

The major difference between the two works would seem to be in what they conclude about the political duty of the philosopher. Both the *Apology* and the *Discourse* present the philosopher as one who benefits and cares for other men, but the benefits provided in each case could not be more different. Socrates benefits the Athenians by exhorting them to virtue. He reproaches them for not living correctly, and tries to make them care for their souls, for justice, for their city, and to be the best they can.[129] He has apparently spent the better part of his life doing just this. Descartes' way of benefiting men, on the other hand, is not by exhorting them to virtue. Rather, as we have repeatedly stressed, he wishes to give them useful inventions which will ease their labour and do away with their illnesses. According to Descartes, the conventionally-honoured virtues are built on "sand and mud" in any event, so the task of exhorting men to the attainment or performance of the virtues would seem to be endless, perhaps even pointless. We may also recall here Descartes' proposal to put men's love of gain to good use.[130] The benefits that men stand to gain from Descartes, then, are those that correspond to their bodily desires, rather than to any higher needs or longings of their souls.

In this regard, we might consider here a certain parallel between the *Discourse* and Plato's *Republic*. The analogy reached in the *Republic* between the soul and the city works to a certain extent because the soul is considered apart from the body. The regime of the best city is one that corresponds to the highest longings of the human

soul, those for justice, for the good, for wisdom. Descartes, in Part Four of the *Discourse*, also abstracts from the body, but even more radically than Socrates does in the soul-regime analogy. In order to understand the soul, Descartes goes so far as to imagine that he has no body at all. On this basis he apparently reaches the metaphysical certainties which are supposedly the foundation of his physics, and which in turn leads him to realize to what extent he might be able to benefit mankind, were society only organized so as to support science. In a strictly limited sense, it *is* possible to imagine rationally that one has no body, and that all the sensory evidence of the world that one has ever received through that body is false. In any practical sense, however, this is simply absurd. Outside of the temporary quietude of some stove-heated room, all men know that they most certainly do have bodies. Indeed, their bodily desires determine to a very large extent how they live. Descartes' result is the opposite of Socrates', it would seem: rather than building a political regime on what is "imagined" of the soul in its perfection, one may reasonably assume that Descartes would base a regime more solidly on what is *known* of the body. Most men desire bodily health and comfort, and the material means by which to achieve that comfort, and that is just what a regime constructed according to Cartesian principles would promise them.

To return to the *Apology*, Socrates presents himself to the jury as a philosopher who is at the same time the best citizen of Athens. He refuses to propose exile as a punishment at his trial. Descartes presents himself, on the other hand, as one who is not particularly attached to his fellow citizens. Descartes voluntarily goes into exile in a foreign country, where he can live anonymously and where he can have minimal contact with other men.[131] Furthermore, Socrates seems to spend most of his time examining and discoursing with other men. He even says that he freely converses with any who wish to do so. Descartes, on the other hand, seems to view such conversation as an utter

waste of his time.[132] He presents his work as the result of solitary meditations. Socrates presents his philosophizing, his examinations of men, as the very exemplification of both public-spiritedness and piety. Descartes does not appear to see himself obliged to his fellow citizens in the same way. Descartes seems to counsel complete obedience to (or at least compliance with) political authority, and withdrawal from political affairs, in order to avoid drawing attention to himself and thereby involving himself in public controversy. One wonders what Descartes would have done had he been faced, as was Socrates, with the trial of the Arginusae generals, or the order to arrest Leon of Salamis. Indeed, Descartes may well be offering a direct criticism of Socrates when he writes that he

> could in no way approve of those meddling ("*brouillones*") and troublesome ("*inquiètes*") humours, who, having been called neither by their birth nor by their fortune to the management of public affairs, never stop making some new reform there in their minds.[133]

We should repeat that this statement is very possibly ironic, and that there are several indications that Descartes himself does indeed wish to effect certain reforms. However, it would seem that the only influence Descartes wishes to have is through his books, and perhaps only posthumously, rather than through direct teaching of the young in the manner of Socrates.[134]

Descartes' *Discourse on Method* is thus something of a repudiation of certain of the public or political aspects of Socratic philosophizing. Socrates' way leads most men to regard him as a nuisance at best, and as a dangerous corruptor at worst, and eventually results in his execution.[135] Descartes has not only the example of Socrates' fate to consider, but also has that of Galileo practically before his eyes. Descartes apparently wishes to act more prudently than Socrates did, and to avoid angering anyone powerful or dangerous by his philosophizing.

Socrates is also famous (or as some might say, notorious) for living his life in poverty, and for contending that all that his way of life requires as a reward for, and

means of, benefiting others is free meals in the *prytaneum*.[136] Descartes himself claims a personal indifference to wealth, but he also clearly indicates that his scientific project will require enormous financial resources.[137] He proposes the public financing of the "infinity of experiments" that his project requires. Socrates' proposal is ironic and unsuccessful, whereas Descartes' is quite serious, and has turned out to be extraordinarily successful.

There is one other major difference between what is said in the *Apology* and in the *Discourse*. Socrates describes to the jury his examinations of those men reputed to be wise. These conversations led him to conclude that while no one knows what is good or noble, he at least knows that he does not know. He states that men's fear of death is a particular instance of their supposing that they know something that they do not; although no one knows whether death is not the greatest of all goods for men, men fear death as though they knew for certain that it is the greatest evil.[138] Socrates' own view would seem to be that the greatest good in this life is to make speeches about virtue every day.[139] This contrasts sharply with Descartes, who says that the first good, and the foundation of all other goods in this life, is good health, and (by implication) long, even super-long life.[140] Descartes certainly does not treat seriously the possibility that *death* might be "the greatest of all goods" for human beings.

Beneath all these apparent differences between the *Discourse* and the *Apology*, however, there are some even more interesting similarities. Although philosophy is not on trial in the *Discourse*, Descartes does ask several times to be judged. He states at the beginning that he has presented his life as in a picture, so that each may judge of it what they think. He wishes to relate his metaphysical meditations so that one can judge if his foundations are firm enough. He expresses the hope that one will judge from the things in his book that he has found some truths in the sciences. At the end, however,

he declares that he only wishes as his judges those who combine good sense with study. Similarly, near the end of the *Apology* Socrates distinguishes as his true judges those who voted to acquit him.[141] We might also note that although Descartes is not charged with the crime of religious innovation, as was Socrates, by the end of the *Discourse* he certainly leaves a careful reader wondering whether he believes in his country's God, as opposed to one of his own invention.

Another interesting parallel between the two texts is that each recounts what in effect launches the public careers of the two philosophers. Socrates tells the story of his companion Chaerephon's visit to the oracle at Delphi, and the pronouncement of the oracle that no one was wiser than Socrates. This is apparently what initiated Socrates' long process of examining all those reputed to be wise. Descartes relates that he only der hand at metaphysics after the reputation somehow passed around that ceeded.

> a good enough heart not to want one to take me for other than I ht that I must try, by all means, to make myself worthy of the en me.[142]

he was puzzled as to how the rumours about him began, just as puzzled as to why Chaerephon would ask the oracle if anyone were wiser than Socrates. In both cases, these are not reputations that could "just happen". The explanation that Descartes himself comes up with for his reputation could come straight from the mouth of Socrates:

> [I]f I contributed something to [the rumour] by my conversations ("*par mes discours*"), it must have been by confessing more ingenuously what I do not know, than those who have studied a little are accustomed to doing.

Indeed, Descartes' examination both of his own opinions and those of others in the "great book of the world" sounds rather similar to Socrates' discovery of his own ignorance. This is most apparent in Descartes' description of his rejection of everything he had studied at school:

> For I found myself embarrassed by so many doubts and errors, that there seemed to have been no other profit in trying to instruct myself than that I had discovered more and more my ignorance.

During his meditation in the stove-heated room, he declares that he was "already beginning to count for nothing my own opinions, since I wished to reexamine all of them." Upon emerging again into the world, armed with his "method" of examining things, he states that "I never met any [proposition] so doubtful that I did not pull from it some fairly certain conclusion, even if only that it contained nothing certain." This again is rather reminiscent of Socrates' realization, upon examining other men, that they did not in fact know what they claimed to know.[143] Descartes also speaks of "the truth, which only uncovers itself little by little in some [matters], and which, when it is question of others, obliges one to confess frankly that one does not know them." Descartes contrasts his own intellectual honesty with the pretension of "the learned", who are only concerned with maintaining the appearance of wisdom.[144] We may also note that just as Socrates' investigation of those reputed to be wise leads him to decide that he is best off to continue living as he has, Descartes makes a similar decision in the fourth maxim of his morality to continue in his chosen occupation, philosophy.[145]

Descartes certainly seems to come to the same conclusion about men from his examination of them as did Socrates. The world is ruled by intellectual vanity. Almost all men think they are much more intelligent than they actually are; many even think they are wise, without truly being so.[146] There is one exception, however, to this unfounded faith that most men have in their own wisdom. Socrates finds that the artisans do indeed have knowledge of many fine things (though again with the consequence that each thinks himself wise in all matters, most of which they know nothing about). Descartes has a similarly high opinion of such technical knowledge, compared with the vacuous claims of "the learned". He declares that he wishes to have the same knowledge of physical processes and bodies that artisans have of their crafts. Furthermore,

artisans are to have an important, though definitely subordinate, place in Descartes' scientific project.[147]

There are also other interesting parallels between the two works. The *Apology* begins with an expression of "Socratic ignorance", and Part Four of the *Discourse* begins with a similar expression of "Cartesian doubt". Both Socrates and Descartes present philosophy as the expression of true piety: Socrates declares that is fulfilling his duty to "the god" by examining other men, while Descartes states that we should not be content with the opinions of others, since God has given the power of reason to each of us.[148] As well, Socrates says that "the god" cannot lie, and Descartes says that God is entirely truthful.[149] Socrates says that he is looking forward to conversing with the dead in Hades, and among those he mentions are Hesiod and Homer. In a sense, however, he has already conversed with them, through the reading of their books. Descartes explicitly calls the reading of good books a conversation with their authors.[150] Socrates calls the court a comedy and a ridiculous drama, while Descartes speaks of being a spectator to all the comedies played out in the world.[151] Socrates says that poets make their works while inspired, and not from wisdom. Descartes similarly calls poetry a gift of the mind ("*esprit*"), and not the fruit of study. Finally, we might also notice that Descartes states that the third maxim of his provisional morality helps to give one the power not to desire to be free if in prison. We may compare this to Socrates' refusal to escape from prison, as dramatized in Plato's dialogue *Crito*.

More important than any of these specific parallels between Socrates and Descartes, however, is the most comprehensive one. Both Socrates and Descartes present philosophy first and foremost as a way of life. In Descartes' case, that presentation seems to be completely extraneous to his arguments for the mastery of nature and the advancement of learning. After all, Euclid did not preface his *Elements*

with an account of *his* life and the order in which he discovered his geometrical proofs. We may notice here, however, that Descartes sometimes speaks in the *Discourse* of the "path" he has followed in his life, and sometimes of the "paths", and also that at times he speaks of his "plan", and other times of his "plans".[151] This would seem to suggest that he has more than one intention in writing the book. We have explored in some detail in this commentary Descartes' "plan" for the refashioning of science, a project in which many of even moderate ability could participate. But we have suggested, in the remarks on Cartesian irony, that Descartes also seems to wish to promote the philosophical life among those precious few who have a nature similar to his own, one naturally suited for the pursuit of wisdom. The principal means that Descartes has of encouraging such men is the subtle way in which the entire book is written. One has to engage in philosophizing, and thereby experience the activity first-hand, in order to understand the book's deeper consistency.

Once noticed, it is hard not to suspect that the parallels between the *Discourse on Method* and the *Apology of Socrates* are intentional, and that Descartes wishes thereby to draw our attention to the fact that his book is to be regarded as a defence of philosophy *per se*. His political argument in favour of a new kind of philosophy, one that will provide men with useful inventions, is intended to secure a place for the pursuit of all kinds of knowledge. For himself, however, he relates that he has chosen the philosophic way of life for the happiness that it gives, the sweetest and most innocent contentment possible in this life.[153] Descartes may even wish to indicate that philosophy in the highest sense, the love and consequent pursuit of wisdom, will not change, even with a great expansion in the number of people engaged in necessarily more specialized scientific research. The *Discourse*, then, is not only an apology for philosophy as "active science", a project in which many can participate and almost everyone benefit in some way or another, but also for the truly philosophic way of life, open only to

those rare few who are ruled by the desire to have a rational account of absolutely everything - an account of *Le Monde* such as Descartes provided for himself, and (posthumously) for all posterity.

NOTES

1. All translations from the French are my own. I have employed the edition of Etienne Gilson: *Discours de la méthode: texte et commentaire* (Paris: Vrin, 1925). Most references to the *Discourse* are to part and paragraph number. Where more precision is required, reference is made to page and line number of the original, which is reproduced in Gilson's edition. Most published English translations include this pagination in the margin, and given that almost all pages of the original have 31 lines, it is possible to find thereby the general location of line references. I have endeavoured to make all translations as strictly literal as possible, hopefully within the bounds of intelligibility.

2. This emphasis on health and medicine alone should be enough to interest the reader of today in what Descartes has to say about the nature of modern science. The extent to which medicine has become an indispensable part of the modern world is clearly seen in this country, where some go so far as to call our health care system a "sacred trust", or assert that it is one of the defining elements of "Canadian culture".

3. In this regard, see especially Descartes' Dedicatory Letter to the *Meditations*.

4. Two articles which do stress this element in Descartes' work, and from which I have profited greatly, are: Joseph Cropsey, "On Descartes' *Discourse on Method*", *Interpretation* 1 (1970) 130-43; Richard Kennington, "Rene Descartes", in *History of Political Philosophy*, 2nd. ed., ed. Leo Strauss and Joseph Cropsey (Chicago: University of Chicago Press, 1973), pp. 395-414.

5. Seneca *Moral Essays*, vol. II, trans. John Basore (Cambridge, Mass.: Harvard, 1935). Gilson (p. 85) notes that the phrase employed by Descartes also occurs in Bacon *New Organon* I.61. Descartes comments extensively on *De Vita Beata* in his letters to Princess Elizabeth of August 4 and 18, 1645.

6. This is not universally granted. Indeed, some would even contest how carefully written the book is. Desmond Clarke, for example, views the *Discourse* as an edited assemblage of different writings, composed at various times and for various reasons, and put together only as an introduction for the three scientific essays. See *Descartes Philosophy of Science* (University Park, Penn: Pennsylvania State University Press, 1982), pp. 180-94. Elie Denissoff gives a similar account, and even proposes a new title which in his view better expresses what Descartes' intentions were, or at least ought to have been, in writing the work. See *Descartes, premier théoricien de la physique mathématique* (Louvain: Publications universitaires, 1970), pp.11-37, esp. p. 36.

7. The *Discourse* was published anonymously. This is perfectly in keeping with the desire Descartes expresses in several places not to attract attention to himself and become distracted from his work as a result. For the sake of simplicity, we will refer to the nameless narrator of the *Discourse* as Descartes. The Latin translation of the work, published seven years later in 1644, names Descartes as the author.

8. This is the only occurrence of the word "frankness" ("*franchise*"). The word "frankly" ("*franchement*") occurs twice: p. 71. l. 20; p. 75, l. 31.

9. In Part Six Descartes attacks the scholastic philosophy of his time, likening the effects of its vague terminology and dogmatic approach to that of putting those who seek the truth in a dark cave. Here, however, he as much as admits that he himself has deliberately put certain things in shadows.

10. Cf. Socrates' remark in the *Republic* (377a): "First we tell tales to children... And surely they are, as a whole, false, though there are true things in them too." trans. Allan Bloom (New York: Basic Books, 1968).

11. The reference here to omissions reminds us of the difference between thinking and writing. The fourth rule of Descartes' method is never to omit anything. While this is essential in thought, it is often necessary to omit things in writing, for more than one reason. Descartes' summary description of his physics in Part Five is an illustration of this difference.

12. As well, the reference to "twenty years" at p. 78, l. 28 does not fit with the rest of the chronology related in the *Discourse*.

13. "it is certain": p. 12, l. 16; p. 26, l. 3; p. 36, l. 29; p. 37, l. 13; p. 45, l. 8; p. 71, l. 31.
"it is true": p. 10, l. 12; p. 13, l. 13; p. 62, l. 20; p. 66, ll. 18, 22; p. 72, l. 20.
"it is evident": p. 38, l. 30.
"a very certain truth": p. 25, l. 4.

14. p. 14, l. 16; p. 16, l. 1; p. 62, l. 13; p. 66, l. 2; p. 68, l. 3; p. 71, l. 23.

15. cf. also *Geometry* bk. 1, par. 10: "But I shall not stop here to explain this in more detail, because I should deprive you of the pleasure of learning it for yourself, and of the utility of cultivating your mind by exercising yourself at it, which is, in my opinion, the principal [thing] that one can draw from this science."

16. cf. Plato *Republic* 491e, 495b.

17. Hobbes *Leviathan* ch. 13, par. 2. Gary Herbert notes that the argument for equality of mind is found only in *Leviathan*, and not in the earlier *Elements of Law* or *De Cive*, and suggests that it was added to the argument for equality of body under the influence of Descartes' *Discourse*. See *Thomas Hobbes - The Unity of Scientific and Moral Wisdom* (Vancouver: UBC Press, 1989), p. 137. Herbert's book also includes (pp. 100-12) a detailed comparison of the account of the passions in *Leviathan* and Descartes' *Passions of the Soul*.

18. We can also recall here Socrates' examination of those Athenians thought to be wisest, and his discovery that each deemed himself wisest in the greatest things, even though in Socrates' own view they knew nothing noble or important.

19. cf. pt. 5, par. 9.

20. Descartes says that he has never presumed his mind to be more perfect than that of others, yet adds that he wishes it were improved in just those qualities that serve toward the mind's perfection. That is to say, he wishes that his mind were perfect. In the first maxim of his morality he speaks of perfecting his judgments (pt. 3, par. 2). In Part Four

he discusses a being which is entirely mind and which is perfect in all respects. As we shall see, there is a connection.

21. For other occurrences of the word "curious", see p. 6, ll. 3, 28; p. 31, l. 10.

22. This point is lost in many translations of the *Discourse on Method*. Here are some versions of the first phrase:
(1) "Good sense is of all things in the world the most equally distributed..." trans. Elizabeth Haldane and G.R.T. Ross *The Philosophical Works of Descartes* vol. 1 (Cambridge University Press, 1931).
(2) "Good sense is, of all things among men, the most equally distributed..." trans. John Veitch (New York: Dutton, 1951).
(3) "Good sense is mankind's most equitably divided endowment..." trans. Lawrence Lafleur (Indianapolis: Bobbs-Merrill, 1960).
(4) "Common sense is the most equitably divided thing in the world..." trans. Paul Olscamp (Indianapolis: Bobbs-Merrill, 1965).
(5) "Good sense is the most evenly shared thing in the world..." trans. F.E. Sutcliffe (Penguin, 1968).
(6) "Good sense is the most evenly distributed commodity in the world..." trans. Donald Cress (Indianapolis: Hackett, 1980).

The phrase is rendered correctly as "Good sense is the best distributed thing in the world..." in the following translations:
(7) John Blom, *René Descartes: The Essential Writings* (New York: Harper, 1977).
(8) John Cottingham, Robert Stoothoff, Dugald Murdoch, *The Philosophical Writings of Descartes* vol. 1 (Cambridge University Press, 1985).

Gilson's commentary, the indispensable guide for all translators, draws attention (p. 83) to the Latin translation of the *Discourse*, which renders this phrase as "*Nulla res aequabilius inter homines est distributa quam bona mens...*" Gilson declares that "*aequabilius*", "the most equitably", interprets exactly Descartes' sense. This may well be, if we understand "equitable" as "just", and not as "equal". Still, this is not what Descartes himself wrote, and it is possible that Gilson's remarks here are the source of some of the above renderings.

As with the French translation of the *Meditations*, the status of this Latin translation, produced in 1644 by Etienne de Courcelles, is debated by scholars. Some look to it for additions and corrections to Descartes' original text, others dismiss it as a poor translation. See Gilson, p. xiv; Descartes *Oeuvres*, ed. Charles Adam and Paul Tannery (Paris: Cerf, 1902), vol. 6, pp. vi-vii.

23. Genesis 1: 26-7. The definition of man as the rational animal does belong to the "common opinion of philosophers". See Aristotle *Politics* 1253a. Descartes' emphasis that reason is the *only* thing that differentiates men and beasts would seem to indicate that he wishes this view to be compared to the Biblical one.

24. esp. p. 61, l. 29; p. 62, l. 22; p. 65, l. 19; p. 73, l. 19. The expression "useful for life" ("*utile a la vie*") occurs only at p. 4, l. 24 and p. 61, l. 29. Cognates of "useful" occur 17 times in the *Discourse*: "useful" ("*utile*") (11); "usefully" ("*utilement*") (2); "utility" or "usefulness" ("*utilité*") (4). Perhaps the most notable thing is that none of these words occurs in Part Four. It is Descartes' physics that is useful, not his metaphysics.

25. "*les écrits qui traitent des moeurs*".

26. Consider, however, what Descartes says at the very beginning of the "Preface to the Reader" of the *Meditations*: "I have already touched lightly on the question of God and the human mind in my *Discourse*, ... published in French in 1637, not for the purpose of giving them an exhaustive treatment there, but only, by sampling opinion, to learn from the judgment of readers how these matters should be subsequently treated. For they seemed to me to be so important that I judged that they ought to be dealt with more than once. And the path I follow in order to explicate these questions is so little trodden and so far removed from everyday use that I did not believe it useful to profess at greater length in a work written in French and read indiscriminately by all sorts of people, lest weaker minds be in a position to believe that they too are to set out on this path." trans. Donald Cress, *Discourse on Method and Meditations on First Philosophy* (Indianapolis: Hackett, 1980).

27. Descartes does say, however, that he is in love with poetry. This is the only mention of love in the *Discourse*, a book which abstracts completely from the erotic side of human nature, particularly in Part Four. In telling the story of his life, Descartes makes no mention of his parents. In Part Four he pretends to have no body and thereby discovers the first of his certain truths. The only women mentioned in the work are stone goddesses: Diana and Minerva. Another pagan goddess, Venus, is conspicuous by her absence. The only other hint at this aspect of human life is the reference, buried in the section on the anatomy of the heart, to mothers and unborn children (p. 53, ll. 18-9).

28. Gilson (pp. 130-2) notes that these four examples of vices (insensibility, pride, despair, parricide) allude to Stoic doctrines.

Descartes' remark also would seem to echo Augustine's view that pagan virtues are merely splendid vice. See *City of God* XIX.25. On "pride" cf. V.13-4, 20; on "parricide" cf. V.18.

Although Descartes' critique of classical virtue thus has the appearance of a Christian critique, it has this much in common with Machiavelli's: the virtues are too difficult, men cannot live by them (though it would be a good thing if they could), hence the virtues must be replaced by something more "solid" and reliable. See *Prince* ch. 15.

29. Theology does not, apparently, teach one how to know God, nor does it teach one how to live (except perhaps insofar as that relates to attaining heaven).

30. This is reminiscent of Machiavelli's procedure in *Prince* ch. 6.

31. See esp. pt. 6, par. 2 (p. 62, ll. 1-8). cf. also the reference to the similarity of the forms of copper and gold, and of glass and diamond (pt. 1, par. 4). Descartes notes elsewhere that it is possible to turn ashes into glass, a transformation he calls "as admirable as any other which is made in nature" (pt. 5, par. 2). Will it be possible one day to turn glass into diamond, or copper into gold?

32. cf. Plato *Republic* 537a, d; 466e-467a.

33. He was thus in a condition resembling that of God, who is also not affected by any such imperfections (cf. p. 35, ll. 14-5).

34. This was not, apparently, the very first thought Descartes had there. He announces, at the end of Part One, that he will meditate on what paths he should take in his life. It may well be that the first thing that Descartes considered during his sojourn in the stove-heated room was the last one that he relates, the fourth rule of his provisional morality.

35. See Cropsey, p. 132.

36. Descartes does not mention Christianity by name anywhere in the *Discourse*.

37. There are very few proper names in the book. The only human beings named are Lully and Aristotle.

38. On the goal of the Spartan constitution, see e.g. Aristotle *Politics* 1324b, 1333b-1334a. Consider esp. 1334a: "most cities of this sort preserve themselves when at war, but once having acquired [imperial] rule they come to ruin; they lose their edge, like iron, when they remain at peace." trans. Carnes Lord (Chicago: University of Chicago Press, 1984). cf. also Machiavelli *Prince* ch. 14, par. 3: "Therefore, [the prince] should never lift his thoughts from the exercise of war, and in peace he should exercise it more than in war." trans. Harvey C. Mansfield, Jr. (Chicago: University of Chicago Press, 1985).

39. This might refer to a number of things: the practice of encouraging boys to steal, the exposure of weak infants at birth, the very harsh treatment of the helot slave population (in particular, the institution known as the *crypteia*, which indulged in indiscriminate murder of helots), or various aspects of the rather lax marriage laws. See esp. Plutarch *Lycurgus*, Xenophon *Constitution of the Lacedaemonians*.

40. We might compare Socrates' statement that a city's greatness is found in its unity. See Plato *Republic* 423a-c.

41. Cropsey (p. 133) interprets this to mean that Adam's appetites led him in one direction, while his preceptor, God, led him in another. We might even say that Adam decided to listen to another preceptor who encouraged him to follow his appetites.

42. Descartes names the following desires in the *Discourse*: curiosity or the desire to learn (p. 4, l. 24; p. 10, l. 9; p. 72, l. 28); the desire to be healthy and the desire to be free (p. 26, l. 10); the desire to be worthy of reputation (p. 31, l. 2); the hope of gain (p. 72, l. 25).

There is another way of reconciling one's appetites and one's preceptors, and that is the way of the philosopher: the third rule of Descartes' morality is to conquer and rule one's desires.

43. Descartes also calls Latin the language of his preceptors (pt. 6, par. 11). Rousseau calls Descartes, along with Bacon and Newton, a "preceptor of the human race". *First Discourse*, pt. 2, par. 24.

44. The phrase "it really does not appear" translates "*il n'y aurait véritablement point d'apparence*". See *Dictionnaire de la langue française du seizième siècle*, ed. Edmond Huguet (Paris: Edouard Champion, 1925) vol. 1, p. 247. As Gilson notes (p. 169), the expression "*point d'apparence*" can also mean "it would not be reasonable".

45. cf. also pt. 2, par. 4.

46. Consider Machiavelli *Prince* ch. 6, par. 4: "And it should be considered that nothing is more difficult to handle, more doubtful of success, nor more dangerous to manage, than to put oneself at the head of introducing new orders." This parallel is noted by Kennington (p. 412), who also sees the echo here of Bacon *New Organon* I.129.

47. cf. pt. 6, par. 3, where scholastic philosophers are compared to vines which climb and then fall back from the "tree" of Aristotle's philosophy. As for mountains, consider also *Prince* ded. letter, par. 2; ch. 14, par. 3; also that the philosopher *ascends* out of the cave in the *Republic*.

48. cf. *Prince* ch. 6, par. 1: "For since men almost always walk on paths beaten by others and proceed in their actions by imitation, unable either to stay on the paths of others altogether or to attain the virtue of those whom you imitate, a prudent man should always enter upon the paths beaten by great men, and imitate those who have been most excellent, so that if his own virtue does not reach that far, it is at least in the odor of it."

49. cf. Plato *Republic* 472c-d, 540a, 592b, 617d. In the *Republic*, the pattern of the regime is in some sense the pattern or model for the soul. In Descartes this is manifestly not the case.

50. In other words, they are unable to follow the 1st and 3rd rules of Descartes' method.

51. This classification is reminiscent of Machiavelli's three types of brains. See *Prince* ch. 22, par. 2.

52. Cicero *De Divinatione* II. 58 (119). The immediate context of this remark in Cicero's work is the evident absurdity of the influence of the body on the dreaming soul, and the absurdity of the notion that dreams are signs from the gods. Gilson (p. 178) notes that this quotation is also found in Montaigne *Essays* II.12 "Apologie de Raymond Sebond" (ed. Pierre Michel [Paris: Livre de poche, 1972] t. 2, p. 217). See also Hobbes *Leviathan* ch. 5, par. 7; ch. 46, par. 11. Unlike Montaigne and Descartes, Hobbes identifies Cicero as the source of the remark.

53. It is comforting to know that at least this one aspect of human nature has retained its prescientific charm down to our days.

54. This would seem to be an allusion to the Platonic cave, given the other clear allusion in Part Six. Note also the inversion of page numbers of the locations of the two references: pp. 16-17 and 71. Descartes also refers on both p. 17 and p. 71 to what we might call "false philosophy", which allows men to speak without knowing and to appear to be ignorant of nothing.

Given that the context here (pt. 2, par. 5) is Descartes' decision to guide himself alone on the paths of knowledge, this sentence would also seem to be an echo of Psalm 23. Does method replace the Lord as Descartes' shepherd? Or does Descartes replace the Lord as our shepherd, leading us along the path, not of righteousness, but of modern science?

cf. also Proverbs 4:11-2: "I have taught thee in the way of wisdom: I have led

thee in right paths. When thou goest, thy steps shall not be straitened; and when thou runnest, thou shalt not stumble."

55. cf. pt. 4, par. 3: "I considered in general what is required for a proposition to be true and certain.... I judged that I could take as a general rule that the things that we conceive very clearly and very distinctly are all true; but that there was only some difficulty in remarking well which are those that we conceive distinctly." Also pt. 4, par. 7: "the things that we conceive clearly and distinctly are all true."

56. Consider, e.g. "I have formed a method, by which ... I have the means to augment my knowledge by degrees and elevate it little by little to the highest point which the mediocrity of my mind and the short duration of my life will permit it to attain" (pt. 1, par. 3).

57. cf. also pt. 6, par. 3: Descartes explains there that he observes no effect without first knowing that it can be deduced in many ways. He therefore uses experiments to find the actual way that the effect is produced. This whole process, both the deduction of the various potential causes, and the devising of the experiments, would also seem to rely heavily on the rational imagination.

58. cf. also what Descartes says about the force of mathematical demonstrations (pt. 5, par. 6, p. 50).

59. While the French expression "*par provision*" clearly has the sense of "provisional", it would also seem to pick up the reference to "provision of material and architects" at the beginning of the paragraph. The word does not occur elsewhere in the *Discourse*.

60. In the "prefatory letter" to the French translation of his *Principles of Philosophy*, Descartes very briefly describes his *Discourse on Method*, stating that it contains "an imperfect Morality which one can follow provisionally (*par provision*) while one does not yet know a better one" (par. 9). Consider also the image there of philosophy as a tree (par. 8). One of the branches is morality ("*la morale*"): "the highest and most perfect morality, which, presupposing a complete knowledge of the other sciences, is the last degree of wisdom."

In a sense, however, Part Four does contain a replacement for the "religion in which God gave [Descartes] the grace to be instructed," for it outlines a conception of God that is entirely amenable to mathematical physics and scientific inquiry.

61. This becomes readily apparent if one considers the fate in certain contemporary regimes of those who publicly express heterodox views. On a different level, we might also consider the implications of "political correctness" here at home.

62. There is an interesting commentary on the first three maxims of the morality in Descartes' letter to Princess Elizabeth of August 4, 1645.

63. Descartes seems to agree here with Machiavelli about not losing sight of what is real for what is imagined. cf. *Prince* ch. 15, par. 1: "And many have imagined republics and principalities that have never been seen or known to exist in truth: for it is so far from how one lives to how one should live that he who lets go of what is done for what should be done learns his ruin rather than his preservation. For a man who wants to

make a profession of good in all regards must come to ruin among so many who are not good."

64. Would the vows made by "weak minds" include religious vows?

65. Descartes here uses the French word "*probable*", rather than "*vraisemblable*" [literally "true-seeming"], which is the word translated elsewhere as "probable". "*probable*" also occurs at p. 12, l. 27.

66. Even the most dogmatic moral relativists today are unable to live their lives without making innumerable moral judgments. This second maxim of the morality also relates to Part Four of the *Discourse* itself. Descartes may imagine that the material world is illusory, and that only thought is real, but he must still continue to live in this world. One is reminded of the joke about the distinction between theoretical and practical solipsists.

67. The phrase might also be translated: "argued about felicity with their gods" ("*disputer de la felicité avec leurs Dieux*"). This is the only occurrence in the *Discourse* of "gods" in the plural. "God" in the singular occurs 33 times in the body of the work and once in the "Introduction".

68. Note the inversion of page numbers of the two discussions of health: pp. 26 and 62. cf. n. 54 above and n. 79 below.

It is noteworthy that this discussion of fortune occurs mostly on p. 26, given that 26 is twice 13, the number symbolizing fortune, and is also the number of chapters of Machiavelli's *Prince*, which is *the* work on the overcoming of the influence of fortune in human affairs. The *Discourse on Method* has a total of 78 (i.e. 6 times 13) pages. Part Two has 13 paragraphs. Several words occur 13 times: "method"; "new"; "perfection" (12) and "to perfect" (1); "right/straight" ("*droit*"); "path" ("*chemin*" [11], "*voie*" [1], "*sentier*" [1]); "persuade"; "almost" ("*presque*" [13] and "*quasi*" [13]). Cognates of "imagination" occur 31 times.

Thirteen is particularly associated with God, for some reason. God is first mentioned in par. 13 of Part One. The proof of God's existence comes in the 39th paragraph of the book (which is also the 4th paragraph of Part 4). The name "God" occurs 13 times in Part Four. One might consider in this connection Machiavelli's assimilation of God and Fortune in the *Prince*, ch. 25, par. 1. cf. also Hobbes *Leviathan*, ch. 10, par. 2.

Descartes wrote a commentary on the *Prince* in one of his letters to Princess Elizabeth (Sept. 1646), a commentary which does not explicitly name either the title of the work nor its author. Curiously enough, this letter consists of 13 paragraphs.

The number 23 (and its inversion, 32) also seems to have a certain significance. Descartes stresses that he was 23 years old when he had the meditations of Parts *2* and *3*, and was 32 years old at the time of the meditation of Part Four. The three essays which accompany the *Discourse* are divided into a total of 23 sections. The work contains allusions to Psalm 23 and to Euclid bk. I prop. 32 (the *3* angles of a triangle equal *2* right angles). "I think, therefore I am" occurs on p. 32. The word "knowledge" occurs 23 times.

69. 1 Corinthians 15:42-44, 52-54.

70. cf. par. 2; also pt. 2, par. 4.

71. cf. pt.1, par. 3: "... I think that I was fortunate, to have found myself from my youth on certain paths, which led me to some considerations and some *maxims*, from which I formed a method..." This suggests the priority of the fourth maxim, the choice of the philosophic way of life, even to the method.

This difference between the order of logical priority and the order of literary presentation of the maxims may explain why the morality is said to consist of "three or four maxims." The morality proper has only three maxims, and the fourth is the logically prior decision to live a certain way of life.

72. The word "good" ("*bien*") in this sense otherwise occurs only in Part Six, where good health is said to be the first good and foundation of all other goods. This is consistent with each person choosing and following his own good.

73. The verb "acquire" occurs 17 times: acquiring knowledge or the means to seek knowledge (7); acquiring reputation (4); acquiring goods (3); acquiring one's essence from a perfect being (1).

74. One might say that Hobbes grabs this ball and runs with it. Consider the following passage: "For though in all places of the world, men should lay the foundation of their houses on the sand, it could not thence be inferred, that so it ought to be. The skill of making, and maintaining Common-wealths, consisteth in certain Rules, as doth Arithmetique and Geometry; not (as Tennis-play) on Practise onely: which Rules, neither poor men have the leisure, nor men that have had the leisure, have hitherto had the curiosity, or the method to find out." *Leviathan* ch. 20, par. 19.

Whatever their metaphysical differences may have been, there is considerable agreement on politics between Hobbes and Descartes. It is worth noting that Samuel Sorbiere, an acquaintance of both men, thought that *De Cive* was written by Descartes when he first examined an anonymous copy in 1643. When questioned about this by Sorbiere, Descartes apparently replied that he "would never publish anything on Morals." See Thomas Hobbes *De Cive - Latin Version*, ed. Howard Warrender (Oxford: Clarendon, 1983), pp. 5-7, 300.

Consider also the following statement by Leo Strauss: "...Hobbes' own system of morals corresponds better to Descartes's deepest intention than does the morality of *Les passions de l'âme*. Radical doubt, whose moral correlate is distrust and fear, comes earlier than the self-confidence of the ego grown conscious of its independence and freedom, whose moral correlate is *générosité*. Descartes begins the groundwork of philosophy with distrust of his own prejudices, with distrust above all of the potential *deus deceptor*, just as Hobbes begins interpreting the State and therewith all morality by starting from men's natural distrust. It is, however, not Descartes's morals, but Hobbes's which explains the concrete meaning and the concrete implications of fundamental distrust." *The Political Philosophy of Hobbes*, trans. Elsa Sinclair (Chicago: University of Chicago Press, 1984), pp. 56-7.

We may also note that the Cartesian "ego" is not incompatible with a rights-based political teaching. If our most certain knowledge is of ourselves, we can know our own rights more easily than our duties toward others.

75. pt. 4, par. 4: "I will use, if you please, freely here the words of the School." cf. also pt. 1, par. 2; pt. 4, par. 6.

76. We may note here that it is only in Part Three that Descartes speaks of "moderate opinions" (p. 23, ll. 4, 25). The word "justice" nowhere occurs in the *Discourse*. "Just" (p. 6, l. 15) and "justly" (p. 24, l. 31; p. 31, l. 1; p. 59. l. 6) do occur, but only in the

sense of "exact" and "exactly" (although one might possibly be able to interpret "justly" at p. 24, l. 31 to have also an ironic meaning of "with justice").

77. It is not clear whether the meditations of Parts Two and Three lasted only one day, or took place over the entire winter. cf. p. 10, l. 28; p. 11, ll. 9-10; p. 28, ll. 21-4. Perhaps the best interpretation is that Descartes developed the rules of his method and morality in one day in the stove-heated room, and then spent the rest of the winter applying the method to geometry.

78. Descartes demonstrates in several places in the *Discourse* that he does indeed practise the morality that he preaches. See, e.g. first maxim: pt. 6, par. 1 (begin.); par. 12 (begin.); second maxim: pt. 5, par. 1 (mid.).

79. Note that "Holland" is described on p. 31 and the goal of entire project on p. 62 (two times 31). The two passages are also linked by the parallel references to the enjoyment of the "fruits of peace" (p. 31, l. 7) and the "fruits of the earth" (p. 62, ll. 10-1), and the mention in both places of "commodities" (p. 31, l. 11; p. 62, l. 11), a word which does not occur elsewhere in this sense (cf. p. 65, l. 15).

80. The two parts are linked in several ways. They apparently relate two aspects of a single meditation. There is also a certain similarity of language and of themes at the beginning of Part Two (p. 11) and the end of Part Three (p. 31). The references to war were mentioned in the text. As well, in Part Two Descartes is "called" to the wars; in Part Three he "withdraws" to "Holland". In the stove-heated room he has solitude "by chance" (*par bonheur*); he intentionally goes to "Holland" in order to seek solitude. He is alone in the stove-heated room; he is in a crowded city in "Holland". In Part Two he speaks of "entertaining" his thoughts; in Part Three he speaks of the armies that are "entertained" in order to secure peace. In Part Two he speaks of beautiful and "well-ordered" buildings; in Part Three he speaks of the "orders" established by the war.

81. There is a certain amount of military terminology in the *Discourse*, which I have tried to bring out in the translations.

82. From another point of view, it is rather curious that Descartes looks for solitude in civil society. Not many people go to large cities in order to be alone.

83. cf. p. 12, ll. 11-3.

84. "out of the ordinary" translates "*si peu communes*" (p. 31, l. 16). One might compare this with the first use of the word "*commun*" in the *Discourse*: "I have never presumed that my mind was in anything more perfect than those of ordinary men" ("*plus parfait que ceux du commun*", p. 2, ll. 20-21). The last few words might be better translated as "than those of other men" or "than that of anyone else", but have been rendered as above in order to preserve the parallel with the beginning of Part Four.

85. The sun and the stars are not the size they appear to be; to those with jaundice everything appears yellow (par. 8).

86. See esp. discourses 4, 6, 7 of the *Dioptrics*. cf. also *Discourse* pt. 5, par. 9. This question, to what extent the senses deceive, has a very long history, and its solution was essential to modern science.

87. If we remember how Descartes characterizes the *Discourse* at the beginning of the book, what we have now is a painting of the fabulous history of an imagined dream. It is interesting that the most memorable part of Descartes' "life" is the tale of a mind that doubts everything, and that thus in a sense does away with everything that has previously happened to it.

88. A famous example of just such a "sleeping demonstration" is the discovery of the circular structure of the benzene molecule by Friedrich Kekulé, who, while dozing in front of his fireplace, imagined that he saw a snake in the embers curl around and bite its own tail.

89. Human vanity suggests that men are very certain of their own existence, even to the extent that they are often able, in a manner of speaking, to forget that others exist. One might call this a prephilosophic certainty of one's own existence.

90. Descartes states here that "it is no less a contradiction (*il n'y a pas moins de répugnance*) that the more perfect follows from and depends upon the less perfect, than that from nothing (*de rien*) proceeds something" (par. 4, p. 34). Later he states that "it is evident that it is no less a contradiction (*il n'y a pas moins de répugnance*) that falsehood or imperfection, as such, proceed from God, than that truth or perfection proceed from nothing (*du néant*)" (par. 7, pp. 38-9). It is tempting to translate both phrases by beginning "it is no less repugnant that ..." This would allow one to interpret Descartes' meaning here as "the ugly truth is that man makes his own gods, and that God's perfection exists only in the imagination." However, the earliest date for the French word "*répugnance*" in the sense of "disgust" or "aversion" is given as 1647 by the *Grand Larousse de la langue française* (Paris: Larousse, 1977), vol. 6, p. 5103; and as 1651 by the *Grand Robert de la langue française*, 2nd ed. (Paris: Robert, 1985), vol. 8, p. 290. Interestingly enough, the earliest English usage of "repugnance" in that sense is recorded as 1643 by the *Oxford English Dictionary*, 2nd ed. (Oxford: Clarendon, 1989), vol. 13, p. 675. Given that the *Discourse on Method* was published in 1637, the translation "repugnance" instead of "contradiction" for "*répugnance*" in the phrases quoted above is perhaps a possibility, but no more than that.

91. One may compare here Aquinas' fourth way of proving the existence of God. See *Summa Theologiae* I.1.Q. 2, Art. 3.

92. cf. pt. 2, par. 2: the diversity of political states suffices to assure one that many states must be imperfect. In other words, diversity implies the existence of imperfection, whereas here in Part Four imperfection implies the existence of perfection.

93. We might note here the frequency with which Descartes refers to himself in the *Discourse*. The personal pronouns "I", "me" and "myself" occur 864 times in the French text. The possessive adjective "my" occurs 125 times. The possessive pronoun "mine" occurs 9 times. The only words that occur with a greater frequency are the definite article (1480), and the words "*de*" (1198) and "*que*" (1180). See Pierre-Alain Cahné *Index du Discours de la méthode de René Descartes* (Rome: Edizioni dell'Ateneo, 1977), pp. 32-3, 71, 75. One might describe the work of Descartes as the point where the guiding motto of philosophy changes from "Know thyself" to "Know thy Self".

94. John 11:35; Luke 19:41; Matthew 26:37-39; 27:46. We may compare this with Descartes himself. His method overcomes doubt, and the second maxim of his morality eliminates inconstancy and the need for sadness.

95. e.g. God repents of having created man (Genesis 6:5-7). God repents of His decision to destroy Ninevah (Jonah 3:9-10). See also Exodus 32:14; 1 Samuel 15:35; 2 Samuel 24:15-16; Jeremiah 26:19.

96. In this regard, it is curious that Descartes' two geometrical examples in this chapter have both been used at times as symbols of the Trinity. On the triangle, see George Ferguson *Signs and Symbols in Christian Art* (New York: Oxford University Press, 1959), p. 92; on the sphere, see Christopher Butler *Number Symbolism* (London: Routledge and Kegan Paul, 1970), p. 81.

97. See pt. 5, par. 9, 12. cf. also pt. 6, par. 2, p. 62: "the mind depends so greatly (*si fort*) on the temperament and on the disposition of the organs of the body that, if it is possible to find some means to make men in general (*communément*) wiser and more competent (*habiles*) than they have been until now, I believe that it is in medicine that one should (must, *doit*) look for it." This passage is almost a direct contradiction of the radical separation of body and soul. Furthermore, the doctrine of the immortality of the soul becomes at the very least problematic if the soul is linked this closely to the body.

98. Geometry as such does not deal with motion, but Descartes' geometry will be applicable to his physics. Descartes says in Part Three (par. 6) that he practises his method on problems outside mathematics by conceiving them mathematically. This would seem to be how he does it: by abstracting from them all qualities but the ones mentioned in the text.

99. Euclid bk. 1, prop. 32. Thomas Heath states that this theorem "is Aristotle's favourite illustration when he wishes to refer to some truth generally acknowledged." See *The Thirteen Books of Euclid's Elements*, trans. and commentary Thomas Heath, 2nd ed. (New York: Dover, 1956), vol. 1, p. 320. For examples in Aristotle, see *Posterior Analytics* 71a, 85b, 90a, 91a; *Metaphysics* 1051a.

This is also the example used by Hobbes in his memorable remark on the difference between politics and geometry. *Leviathan* ch. 11, par. 21; also ch. 4, par. 9.

100. Euclid's definition is somewhat different (bk. XI, def. 14). Heath (vol. 3, p. 269) notes that the standard definition is found in Aristotle *On the Heavens* 297a24. See also Plato *Timaeus* 33b.

101. There are only the faintest of hints at this, but it may be that Descartes wishes to suggest that the Biblical God is imperfect because He is composed of parts (the Trinity), and because He is the product of many makers (the various Biblical authors).

102. We can also note the number of times sight occurs in Part Four as a metaphor for understanding. Seven of the thirteen occurrences here of the verb "see" have the sense of "understand". See p. 31, l. 28; p. 32, l. 25; p. 33, ll. 18, 27; p. 35, l. 14; p. 36, ll. 18, 20.

103. In speaking of those prologues of Euripides' tragedies in which a deity guarantees the truth of the plot, Nietzsche states that in a similar way "Descartes could prove the reality of the empirical world only by appealing to the truthfulness of God and his inability to utter falsehood." *The Birth of Tragedy*, sec. 12, trans. Walter Kaufmann (New York: Vintage, 1967), p. 85.

We may note here that Descartes nowhere in the *Discourse* shows or proves that God is "entirely truthful". It may be that truth is a perfection and that God is perfect,

but it does not thereby follow that God must always be entirely truthful in His dealings with imperfect men, only that He must be truthful with Himself.

104. This is only hinted at in the *Discourse*, but is elaborated in the *Meditations*. E.A. Burtt states that in this separation of the qualities of matter into primary (those belonging to the realm of extension) and secondary (those belonging to the realm of thought), "Descartes' real criterion is ... the possibility of mathematical handling." *The Metaphysical Foundations of Modern Physical Science*, rev. ed. (Garden City, N.Y.: Anchor, 1954), p. 117.

105. This is also given a much more prominent place in the *Meditations*, where a similar thought occurs near the very beginning of the "Dedicatory Letter": "And since in this life there are often more rewards for vices than for virtues, few would prefer what is right to what is useful, if they neither feared God nor hoped for an afterlife." trans. Donald Cress (Indianapolis: Hackett, 1980)

106. See Cropsey, p. 138.

107. Descartes' statement here, that he has always remained firm in the resolution he had taken not to suppose any other principle than the one he had used to prove the existence of God, is an instance of the second maxim of his morality. It would seem that even though he does not know if God exists, he will act as if he did know.

108. There is also a faint echo of the six days of creation in the six parts of the *Discourse*. (1) Light was created on the first day, and is mentioned in Part One at p. 10, l. 25. (2) The firmament dividing the waters was created on the second day. The second rule of Part Two is to divide difficulties into parts. (The near homonym "*fermement*" [firmly] occurs at p. 14, l. 1) (3) The earth was created on the third day. Descartes refers to "the moving earth" at p. 29, l. 5. (4) The sun was created on the fourth day, and is mentioned in Part Four at p. 40, l. 1. (5) Birds and water creatures were created on the fifth day. Descartes mentions magpies and parrots at p. 57, ll. 26-7, and alludes to fish at p. 53, ll. 15-7. (6) Man was created and given dominion over the earth on the sixth day of creation. Descartes similarly gives men mastery over nature. The words "man" and "men" occur 8 times in Part Six.

109. The only other occurrence of the word "spectator" refers to Descartes himself, the spectator of all the comedies played out in the world (p. 28, l. 26).

110. The "poets" may refer to Hesiod, and to those like Ovid who follow him. Gilson (p. 383) cites Lucretius *De natura rerum* V.432 ff. Descartes might also have in mind the "earth without form and void" of Genesis 1:2.

111. Descartes for some reason fails to mention lightning, which he does discuss in the Meteors (discourse 7). Genesis also makes no mention of lightning or thunder.

112. Descartes gives this statement an air of authority by calling this the common opinion of theologians. It is also, by the way, that of Hobbes: "Nature (the Art whereby God hath made and governes the World)..." *Leviathan*, Introduction (begin.).

113. Cropsey (p. 141) suggests that the replacement of the Biblical account of the world by the Cartesian one here in Part Five is the only exemplification in the *Discourse* of the use of the method. This would seem to be correct. (1) Descartes begins with what

is clear and distinct, namely matter. (2) There is a division into parts throughout. This extends as far as the dissection of a heart. (3) The entire Part deals with the order of physics, including two different orderings. Descartes in one place (par. 4) supposes an order where there does not seem to be one by nature. (4) There are enumerations throughout.

114. Descartes had earlier compared the mechanism of a clock to that of the human or animal heart (p. 50, ll. 16-8). Now he compares the entire nature of animals to that of a clock.

115. Descartes generally gives examples of things in pairs. A few instances of this will have to suffice here: fables and histories, eloquence and poetry, law and medicine, travel and old books (pt. 1); sand and mud (p. 8, l. 2); Diana and Minerva (p. 17, l. 25); triangle and sphere (pt. 4, par. 5); hay and wine (p. 46, ll. 10-2); magpies and parrots (p. 57, ll. 26-7); flies and ants (p. 59, ll. 26-7); *Dioptrics* and *Meteors* (p. 76, l. 7); French and Latin (p. 77, ll. 25-6). There are also instances of pairs of pairs: copper and glass, gold and diamonds (p. 3, ll. 26-7); French and German, Chinese and cannibals (p. 16, ll. 13-6). There are instances of pairs uniting into a whole: analysis and algebra become Cartesian geometry; lion and goat become a chimera (p. 40, l. 4-6). In this regard, Descartes' juxtaposition of monkey and parrot is very curious (p. 58, l. 12).

116. p. 14, ll. 29-30; p. 27, l. 1.

117. Descartes mentions later the "infinity of experiments" required by his project (p. 75, l. 3). The word "infinity" occurs four times in Part Six, and nowhere else (the other use is at p. 64, l. 18). The adjective "infinite" occurs three times, each time in connection with the perfections of God (p. 35, l. 4; p. 39, l. 5; p. 43, l. 7).

118. This is suggested by the word "fruits", which occurs five times in the *Discourse*. Descartes speaks twice of the fruits he has gathered from his method, and the satisfaction that this has given him (p. 3, l. 12; p. 61, l. 5). He also employs the expression "fruits of study" (p. 7, l. 13). He speaks of the "fruits of peace" enjoyed by the people of "Holland" (p. 31, l. 7), and of the "fruits of the earth" that scientific inventions will allow all men to enjoy (p. 62, l. 10). These last two references, as noted, link the regime of "Holland" to the scientific project.

119. In this connection we might also consider that Descartes declares that God has given a certain *light* to each to discern the true from the false (pt. 3, par. 5), and then later expresses his own desire to shine light into the cave (pt. 6, par. 6). Does Descartes' light replace that of God?

120. Some of this evidence is presented by Alexandre Koyré, who writes: "It is hardly surprising that this attempt, so subtle and at the same time so naive ... to dissociate himself from Copernicus and Galileo did not deceive anyone, except some modern historians. Yet it worked." See "Newton and Descartes", *Newtonian Studies* (Cambridge, Mass.: Harvard University Press, 1965), pp. 81-2.

121. Luke 6:27-36; Matthew 5:38-48; 22:35-40; John 13:34-35; Galatians 6:10; 1 Thessalonians 3:12.

122. pt. 1, par. 4; pt. 6, par. 9. These paragraphs are the fourth from the beginning and the fourth from the end of the book.

123. *Republic* 514a-517a.

124. We may recall what he says in Part One (par. 13): "although I did not profess to despise glory like a cynic, I made little of that which I hoped to be able to acquire under false pretenses."

125. pt. 3, par. 7; cf. also pt. 6, par. 7.

126. According to Descartes' early biographer, Adrien Baillet, Descartes' "treatise", *De Deo Socratis*, "examined what that *familiar spirit* of Socrates might be." See *La vie de Monsieur Des-Cartes* (1691) vol. II, p. 408 (facsimile ed., Geneva: Slatkine, 1970). Whatever this work of Descartes may have contained, its title echoes those of two classical works: Apuleius' *De Deo Socratis* and Plutarch's dialogue *On the Daimon of Socrates*. For some remarks by Descartes on "Socratic ignorance", see *Principles of Philosophy*, prefatory letter, par. 4; also the unpublished and apparently incomplete *Rules for the Direction of the Mind*, rule 12, par. 18; rule 13, par. 4. Of the letters, see in particular the letters to Princess Elizabeth, Oct. or Nov., 1646, and Feb. 22, 1649.

127. *Apology* 18c, 19b-d, 26d-e. This profession would seem to be ironic.

128. *Discourse* p. 62, l. 2. Xenophon also claims that Socrates was completely unconcerned with the heavens, although the Xenophontic Socrates exhibits a curious degree of knowledge about astronomy (*Memorabilia* I.1.11-16; IV.7.3-8). In depreciating knowledge of the heavens, Socrates asks if those who seek such knowledge believe they will be able, as a result, to produce at will winds, waters and seasons (I.1.15). It is interesting that Descartes promises something like such an ability: "knowing the force and the actions of fire, water, air, stars (/planets, *astres*), heavens and of all the other bodies which surround us, as distinctly as we know the various skills of our artisans, *we could employ them* in the same way to all the uses to which they are proper, and thus make ourselves the masters and possessors of nature" (*Discourse* p. 62, ll. 1-8). Notice the ambiguity of the pronoun "them" in the italicized phrase.

129. *Apology* 29d-30b, 36c, 39d.

130. *Discourse* pt. 1, par. 10; pt. 6, par. 7.

131. *Apology* 37c-e; also *Crito* 52b-53a. *Discourse* pt. 3, par. 7.

132. *Apology* 33a-b. *Discourse* pt. 6, par. 7.

133. *Discourse* pt. 2, par. 3 (begin). The last phrase translates "*ne laissent pas d'y faire toujours, en idée, quelque nouvelle réformation.*" Socrates, it should be recalled, tacitly suggested a reform in the conduct of capital trials. *Apology* 37a-b.

134. We might consider here that just as Socrates was naturally appealing to the young (cf. *Apology* 33b-c), so Descartes' radical doubt of all received opinions is something that is more likely to appeal to the young than to the old. Descartes' attacks on the established Scholastic philosophy of his day would also seem to be calculated to appeal more to those who have not yet formed any unbreakable intellectual attachments.

135. For some contemporary evidence of just how much the Athenians must have appreciated their "gadfly", consider the general reaction to Solzhenitsyn's Harvard address of 1978.

136. *Apology* 23b-c, 31b-c, 36d-e, 37c, 38b.

137. On Descartes' own attitude toward wealth cf. *Discourse* p. 9, ll. 2-7 with p. 6, ll. 10-3; see also pt. 6, par. 7 (end), par. 12 (end); on the financial requirements of his project, see pt. 6, par. 3 (p. 65); par. 7 (p. 73).

138. *Apology* 29a-b, also 35a, 37b, 40a-b.

139. *Apology* 38a.

140. It may be, however, that Descartes shares Socrates' view that men regard death as the greatest *evil*, and that that is why Descartes presents the advancement of the medical art and the overcoming of old age as the great promise of his science. We might also compare this with Hobbes: there is no *summum bonum*, but there certainly is a *summum malum*. See *Leviathan* ch. 11, par. 1; ch. 13, par. 9, 14.

We should also remember the third maxim of the provisional morality. It would certainly seem that Descartes does not regard good health as the highest good in his own case (cf. *Discourse* p. 26 and p. 62).

141. *Discourse* pt. 1, par. 4; pt. 4, par. 1 (begin.); pt. 6, par. 4, p. 67; pt. 6, par. 11. *Apology* 40a.

142. *Discourse* pt. 3, par. 7; cf. pt. 6, par. 8. cf. also *Apology* 22e-23a, 34e-35a.

143. This is not to suggest that there may not be some differences between Socrates and Descartes in regard to where they go from this discovery of their own ignorance. We may also note the emphasis in the *Discourse* on solitary meditations, as opposed to the dialogues in which Socrates engages. Still, we should remember that Part Six almost has the form of a dialogue, and also that the very title of the work alludes to speech. As well, it was from his conversations with others that Descartes gained his curious reputation for having succeeded in establishing certainty in philosophy (pt. 3, par. 7).

144. *Discourse* pt. 1, par. 6; pt. 3, par. 2; par. 6, p. 29; pt. 6, par. 6, p. 71.

145. *Apology* 22e. *Discourse* pt. 3, par. 5.

146. cf. *Discourse* pt. 1, par. 9: "And finally, as for the bad doctrines, I thought that I already knew enough what they were worth to be no longer subject to being fooled ... by the artifices or the boasting of any of those who profess to know more than they do."

147. *Apology* 22d. *Discourse* pt. 6, par. 2 (p. 62, ll. 1-5); par. 7; also par. 11.

148. *Apology* e.g. 23c, 28e, 37e. *Discourse* pt. 3, par. 5.

149. *Apology* 21b; cf. also *Republic* 381e-383c. *Discourse* p. 41, l. 11.

150. *Apology* 41a-c. *Discourse* pt. 1, par. 7. cf. also Machiavelli's letter to Francesco Vettori of Dec. 10, 1513.

151. *Apology* 31d, 35d. *Discourse* pt. 3, par. 6, p. 28.

152. See esp. the following occurrences of these words.
"path": p. 28, l. 2; p. 63, l. 2.
"paths": p. 3, l. 5; p. 4, l. 1; p. 10, l. 30.
"plan": p. 4, l. 7; p. 15, l. 4; p. 17, l. 15; p. 27, l. 22; p. 29, l. 4; p. 30, l. 6; p. 62, l. 31; p. 66, l. 17; p. 71, l. 24; p. 75, l. 2.
"plans": p. 67, l. 29; p. 73, l. 30; p. 74, l. 12; p. 75, l. 13.

153. *Discourse* pt. 3, par. 5; also pt. 1, par. 3; pt. 3, par. 4 (p. 25); pt. 6, par. 2 (begin.).

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