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Descartes

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Contents

1. Introduction: Descartes and the Labyrinth of the World	3
2. Doubt	15
3. The Telescope and the Defectiveness of Vision	25
4. The Search for Simples	40
5. The Reappearance of Doubt and the Turn to the Self	58
6. The Turn to the Self Reconsidered	73
7. The Existence of God	88
8. Questions and Objections	102
9. Truth and Error	114
10. The Ontological Argument	128
11. The Existence of Material Things	141
12. The Foundations of Science	154
13. Conclusion: Problems of Infinity	167

1. Introduction: Descartes and the Labyrinth of the World

1

Few philosophers are initially as accessible and in the end as elusive as Descartes (1596-1650). It is not difficult to understand why Descartes is so often used to introduce students to philosophy. With his methodological doubt Descartes makes an effort to take nothing for granted. This includes especially the achievements of his predecessors; their thought is bracketed; the reader is asked to participate in an effort to philosophize *de novo*. In *The Search For Truth* (1630-31, published 1701), an unfinished dialogue, Descartes puts it as follows:

A good man is not required to have read every book or diligently mastered everything taught in the Schools. It would, indeed, be a kind of defect in his education if he had spent too much time on book-learning. Having many other things to do in the course of his life, he must judiciously measure out his time to reserve the better part of it for performing good actions — the actions which his own reason would have to teach him if he learned everything from it alone. (C II, 495 [HR I, 305; AT X, 495]))¹

We are reminded of Kantian autonomy: we ought to be autonomous actors, acting in accord with our reason. Unfortunately most of the time our reason is not really our own. Heidegger might have said, first of all our understanding is inauthentic. This is how Descartes puts it:

But he came into this world in ignorance, and since the knowledge which he had as a child was based only on the weak foundations of the senses and the authority of his teachers, it was virtually inevitable that his imagination should be filled with innumerable false thoughts before reason could guide his conduct. (C II, 495 [HR I, 305; AT X 496])

Descartes promises to remedy that situation.

¹ C refers to *The Philosophical Writings of Descartes*, 2vols., trans. John Cottingham, Robert Stoothoff, Dugald Murdoch (Cambridge: Cambridge University Press, 1985); HR to René Descartes, *The Philosophical Works*, trans. Elizabeth Haldane and G. R. T. Ross (New York: Dover, 1955), 2vols.; AT to *Oeuvres de Descartes*, ed. Ch. Adam and P. Tannery (revised ed, Paris: Vrin/C.N.R.S., 1964-76).

I shall bring to light the true riches of our souls, opening up to each of us the means whereby we can find within ourselves, without any help from anyone else, all the knowledge we may need for the conduct of life and the means of using it in order to acquire all the most abstruse items of knowledge that human reason is capable of possessing.

To open these means the Eudoxus of the dialogue, who here speaks for Descartes, engages Polyander, the unprejudiced, untutored everyman, and proposes that we should reject all knowledge we have previously acquired.

I would compare it to a badly constructed house, whose foundations are not firm. I know no better way to repair it than to knock it all down, and build a new one in its place. (C II, 497 [HR I, 313; AT X 509])

Descartes repeatedly likens himself to an architect who proposes to raise the edifice of knowledge on firm foundations, a metaphor that figures importantly not only in his philosophy and invites further reflection. To raze the old shaky edifice to the ground is the function of Descartes' methodological doubt.

As we shall see, and as commentators have shown, this attempt to philosophize *de novo* fails. Descartes' arguments are more dependent on the tradition than his principle of doubt would allow them to be. Yet even when we keep in mind the many ways in which Descartes follows his predecessors, his work does represent a new beginning, which has helped shape the way we understand our place in the world. Just this poses a difficulty not altogether unlike the one to which Descartes points in the beginning of his dialogue. We find ourselves so caught up in ways of speaking and thinking, which rest on Cartesian foundations, that it is difficult to fully appreciate the striking novelty of what he has to say. Not only the course of modern philosophy was set by his conception of proper philosophical method; our science and technology, even our common sense, with its faith in reason and reason's power to manipulate reality, owe much to Descartes, despite all that has been found wanting in his philosophy. Consider the following passages from the *Discourse on the Method* (1637):

I have never made much of the products my own mind; and so long as only fruits I gathered from the method I use were my own satisfaction regarding certain difficulties in the speculative sciences, or else my attempts to govern my own conduct by the principles I learned from it, I

did not think I was obliged to write anything about it. ... But as soon as I had acquired some general notions in physics and had noticed, as I began to test them in various particular problems, where they could lead and how much they differ from the principles used up to now, I believed that I could not keep them secret without gravely sinning against the law which obliges us to do all in our power to secure the general welfare of mankind. For they opened my eyes to the possibility of gaining knowledge which would be very useful in life, and of discovering a practical philosophy which might replace the speculative philosophy taught in the schools. Through this philosophy we could know the power and action of fire, water, air, the stars, the heavens, and all other bodies in our environment, as distinctly as we know the various crafts of our artisans; we can in the same way employ them in all those uses to which they are adapted, and we could use this knowledge — as the artisans use theirs — for all the purposes for which it is appropriate — and thus make ourselves, as it were, the lords and masters of nature. (C I, 142-143 [HR I, 119; AT VI 61-62])

Descartes appeals here to the duty we human being have to further the well-being of others as much as lies within our power. This, he suggests, made it impossible for him not to publish his philosophy, which will render us humans the lords and masters of nature. Knowledge, so Descartes seems to hint here, will undo the results of the fall. Particularly important to him, as we shall see, is the commitment to medicine, understood by Descartes as a branch of physics.

But is nature such that we can understand and through our understanding to master and possess it? A positive answer to that question would seem to be a presupposition of our modern a sense of reality. Consider this statement made by Hegel, two centuries after Descartes, in his *Heidelberger Antritttsrede*:

Man, since he is spirit, may and should consider himself worthy even of the highest; he cannot think the greatness and power of his spirit great enough; and with this faith nothing will be so stubborn and hard as not to open itself to him. The essence of the universe, hidden and closed at first, has no power that could offer resistance to the courage of knowledge; it

must open itself to him and lay its riches and depths before his eyes and open them to his enjoyment.²

Given such confidence it is not surprising that Hegel thought it was with Descartes that “the education, the thinking of our age, begins.” “Here we can say, we are at home, and like the sailor, after long journeying about the raging sea, call ‘land.’”³

Today we are no longer quite so confident. It has become fashionable to attack Descartes. Nietzsche, Heidegger, and Wittgenstein have given characteristic expression to such ant-Cartesian tendencies. In some philosophical circle to call someone a Cartesian is to insult him or her. And this is not a mere fashion. It has its foundation in what has become of philosophy, and more importantly of our world. Behind it lies an uneasiness concerning our own place. As more begin to suspect that the road on which we have been travelling may be a dead-end street, attempts are made to retrace already taken steps. A search for some possible missed turn and for those who led and perhaps misled us begins. Among these Descartes deserves a special place. The attempt to understand the foundations and shape of our modern world leads to the more manageable task of understanding its Cartesian presuppositions.

2

To what extent do we today still share Descartes’ confidence in the ability of reason to understand and manipulate reality? Think of science and technology and of the ways in which they have shaped our common sense. Do we seriously doubt that our scientists have a solid understanding of reality when we board an airplane or turn on our computer? And yet while, following Descartes, this faith in the power of reason still tends to be taken pretty much for granted, Descartes himself was unwilling to do so. For him it was the result of reflections that had their origin in a doubt that puts even the reality of the world into question. To understand Descartes’ reflections we have to understand the background and point of the doubt against which they take place.

Descartes understood himself as a new Theseus. His method is presented as the Ariadne’s thread that will show mankind the way out of the labyrinth of the world, in

² Georg Wilhelm Friedrich Hegel, *Vorlesungen über die Aesthetik*, in *Jubiläumsausgabe*, ed. Hermann Glockner (Stuttgart: Frommann, 1937), *Vorlesungen über die Geschichte der Philosophie, Jubiläumsausgabe*, vol. 17, p. 22.

which they have been wandering. Consider *Rule V* (ca. 1628), which instructs us to ‘reduce complicated and obscure propositions step by step to simpler ones, and then starting with the intuition of the simplest ones of all, try to ascend through the same steps to a knowledge of all the rest.’ (C I, 20 [HR I, 14; AT X, 379])

This one Rule covers the most essential points in the whole of human endeavor. Anyone who sets out in quest of knowledge must follow this Rule as closely as he would the thread of Theseus if he were to enter the labyrinth. (C I, 20 [HR I, 14; AT X, 380])

The metaphor of the labyrinth provides a key to the Mannerist understanding of reality that Descartes would have us leave behind. We meet thus with the same idea in Francis Bacon’s *Novum Organum* (1620):

And an astonishing thing is to one who rightly considers the matter, that no mortal should have seriously applied himself to the opening and laying out of the road for the human understanding direct from the sense, but that all has been left either to the mist of tradition, or the whirl and eddy of argument, or the fluctuations and mazes of chance and of ill-digested experience....

Let men therefore cease to wonder that the course of science is not yet wholly run, seeing that they have gone altogether astray, either leaving and abandoning experience entirely, or losing their way in it and wandering round and round as in a labyrinth; whereas a method rightly ordered leads by an unbroken route through the woods of experience to the open ground of axioms.⁴

But is Descartes the modern Theseus, who has shown us the way out of the labyrinth of uncertainty? This is essentially how Hegel saw him, but recent criticisms of Descartes may suggest rather that he should be likened rather to Icarus, who tried to escape from Crete on Daedalus’ waxen wings. That criticism was indeed made in

³ Ibid., vol. 19, p. 328.

⁴ Francis Bacon, *Novum organum*, LXXXII, trans. J. Spedding in Francis Bacon of Verulam, *The Works of Francis Bacon*, eds. J. Spedding, R. Ellis, D. Heath (Boston: Brown and Taggard, 1860-1864), vol. I. Cf. Martin Heidegger’s revision of Bacon’s use of the figure of the forest clearing. In this connection the five sentences that introduce his *Holzwege*, *Gesamtausgabe*, vol. 5 (Frankfurt: Klostermann, 1977) are of special interest.

Descartes' own day by the Jesuit Father Pierre Bourdin, author of the *Seventh Set of Objections* (1641).

Other systems which aim to derive certain results from certain starting points lay down clear, evident and innate principles. ... But your method is quite different, since it attempts to get something, not from something, but from nothing. It chops, cuts off, renounces and forswears all former beliefs without exception; it requires the will to be turned in completely the opposite direction, and to avoid the impression that it has no wings to rise aloft, it puts on artificial wings of wax and adopts new principles which are the complete opposite of those formerly held. Thus it divests itself of all old preconceived opinions prejudices only in order to put on new ones; it lays aside what is certain in order to take up what is doubtful; it equips itself with wings, but they are made of wax; it soars aloft only to fall; and finally, it struggles to derive something from nothing, only to end up producing nothing at all. (Objections VII, Reply I, C II, 359 [HR II, 318; AT VII, 527-528])

Father Bourdin, too, likens proper method to Ariadne's thread, but Descartes is said to have perverted the metaphor:

Other systems have formal logic, syllogisms and reliable patterns of argument, which they use like Ariadne's thread to guide them out of the labyrinth; with these instruments they can safely and easily unravel the most complicated problems. But your new method denigrates the traditional forms of argument, and instead grows pale at a new terror — the imaginary fear of the demon it has conjured up. It fears it may be dreaming; it has doubts about whether it is mad. (Objections VII, Reply I, C II, 359 [HR II, 318; AT VII, 528])

Bourdin goes on to liken Descartes to Odysseus.

The method goes astray by failing to reach its goal, for it does not attain any certainty. Indeed it cannot do so since it has itself blocked off all the roads to the truth. You yourself have seen and experienced this during the long odyssey when you wandered around and exhausted both yourself and

me, your companion. (Objections VII, Reply I, C II, 359 [HR II, 319; AT VII, 529])

Both Icarus and Odysseus are figures marked by pride, by their unwillingness to accept the place and limits assigned to man by nature or by God. Is Descartes then Theseus? Or Icarus? Or perhaps Daedalus? I shall return to this question at the end of the course.

3

Let me continue with the metaphor of the labyrinth. It is one with which, as I suggested, Descartes' readers were quite familiar. We encounter it again and again in the art and literature of Mannerism and Baroque. Let me give you here just one example:

In 1631 the seventeenth century the Czech pedagogue and reformer Jan Amos Comenius published his once enormously popular *Labyrinth of the World and Paradise of the Heart*, a kind of *Pilgrim's Progress*.⁵ Torn between curiosity and conventional knowledge, Comenius's pilgrim gains wisdom only by leaving the labyrinth of the world behind and turning within, where he discovers God, a narrative that recalls Augustine's *Confessions*, in which curiosity similarly gives way to a saving inward turn. Before that inward turn Comenius' pilgrim sees the world through a pair of distorting spectacles. Their glass is the glass of illusion, their rims are the rims of custom⁶ — in *The Search For Truth* Descartes had similarly spoken of "the weak foundations of the senses and the authority of his teachers." These glasses let Comenius' pilgrim experience the world as a labyrinth. Eventually he discovers that what these glasses reveal are but shadows, that the truth will ever escape us mortals. So he throws away these "glasses of Falsehood," but only to "behold awful darkness and gloom, of which the mind of man can find neither the end nor the ground."⁷

Similarly Descartes, having freed himself from the distortions of the senses and common opinion by means of his method of doubt, finds himself as if he had all fallen into deep water: "It feels as if I had fallen unexpectedly into a deep whirlpool which tumbles me around so that I can neither stand on the bottom nor swim up to the top." (*Meditation* II, C II, 16 [HR I, 149; AT VII, 23-24]) Comenius' pilgrim, too, enters "the innermost"

⁵ John Amos Komensky (Comenius), *The Labyrinth of the World and the Paradise of the Heart*, ed. and trans. Count Lützow (New York: Dutton, 1901)

⁶ *Ibid.*, p.67.

of his heart only to discover there, too, only darkness. But into this dark enters the light of God: the pilgrim is given a new pair of spectacles, its rims now the Word of God, their glass the Holy Ghost.⁸ Descartes tells a similar story.

Distorting spectacles let Comenius' pilgrim experience the world as a labyrinth. This conjunction of an optical conceit with that of the labyrinth is quite characteristic of Mannerism and Baroque: Balthasar Gracián (1601-1658) thus speaks of a mirror that unmasks what we call reality as a labyrinth of chimeras,⁹ while Francis Bacon likens the human understanding to a "false mirror, which, receiving rays irregularly, distorts and discolours the natures of things by mingling its own nature with it."¹⁰ The sciences, instead of seeking the path that leads us through the woods of experience to the clearing of axioms, are said to have lost their way, "either leaving and abandoning experience entirely, or losing their way in it and wandering round and round as in a labyrinth."⁷ But if common at the time, the conjunction of labyrinth and optical conceit is nevertheless puzzling: is not the labyrinth a region of darkness? Here the lack of light contributes to man's loss of way. Optical devices on the other hand presuppose light. The association of the two conceits communicates distrust of all attempts to improve our sight with artifice, a suspicion that such devices, think of the then recently invented telescope and microscope — may only serve to pervert the eye, transforming light into dark.⁸

We encounter the metaphor of the labyrinth again in *El Criticon* by the Spaniard Baltasar Gracian (1651, 1653 and 1657). Here, too, it is a metaphor for the confusing world in which fallen humanity finds itself. The image of Babel is related. Relying on our own resources, we human beings are said to be unable to find the right way. The Ariadne's thread that allows us to escape from the labyrinth of the world must be given to us by God.

What is the significance of the metaphor? Where does it have its home? The most famous labyrinth is that of Crete, of which Plutarch tells us in the life of Theseus.

⁷ Ibid., p. 275.

⁸ Ibid., p. 299.

⁹ See René Hocke, *Die Welt als Labyrinth. Manier und Magie in der europäischen Kunst* (Hamburg: Rowohlt, 1957), p. 103. Also Gerhart Schröder, *Baltasar Gracián's "Criticon"* (Munich: Fink, 1966).

¹⁰ Francis Bacon, *Novum organum*, XLI, trans. J. Spedding in Francis Bacon of Verulam, *The Works of Francis Bacon*, eds. J. Spedding, R. Ellis, D. Heath (Boston: Brown and Taggard, 1860-1864), vol. I.

(Herodotus tells of an earlier Egyptian labyrinth in which the kings of Egypt and the sacred crocodiles were said to have been buried.¹¹) The Cretan labyrinth was said to be the work of Daedalus, built to house the Minotaur. Who was Daedalus? Supposedly a gifted Athenian artist-inventor who murdered his gifted nephew Perdix, whom he was supposed to tutor, out of jealousy and who therefore had to leave Athens, his home, to become a rootless wanderer, a kind of Cain figure. In *Genesis* Cain is said to have built the first city, a kind of Ersatz for the paradise lost as a result of the fall. Daedalus built the labyrinth to house the minotaur, the offspring of the Cretan queen Pasiphae and a bull. Their unnatural union is said to have been made possible by the creation of an artificial cow, it too constructed by the ingenious Daedalus. The labyrinth thus owes its origin to a falling out of the natural order, a fall made possible by human artifice. The labyrinthine world is thus the world in which fallen humanity, that is humanity that has lost its proper place in the natural order, finds itself.

Just a small aside: in the story of Daedalus' creation of his artificial cow the themes of artifice and eroticism mingle. Going beyond the natural, desire resorts to artifice. Daedalus is thus not only associated with the labyrinth, but also with both Ariadne, whose task was to watch over the labyrinth, and Aphrodite. He is thus said to have been the inventor of a dance that imitated the windings of the labyrinth and was associated with both Ariadne and Aphrodite. According to Virgil the point of the dance was to lead human beings astray and away from the regular.¹² One is reminded of the masked balls of the period, in which once again artifice and eroticism mingle, which would seem to have been another characteristic expression of Mannerism and Baroque. In this connection the popularity of the Ariadne theme in Baroque opera deserves mention.

4

Let me conclude by returning to the question I raised earlier: Is Descartes Theseus or is he Icarus? Or is he perhaps Daedalus? Theseus is able to leave the labyrinth because he is given the thread that allows him to escape by Ariadne. The escape from the labyrinth here presupposes a gift. The cases of Icarus and Daedalus are

¹¹ Herodotus, *The Persian Wars*, 2.148-49

¹² Virgil, *Aeneid* V, 588 ff.

different. Their escape from Crete is effected by artifice, by human ingenuity that would magically "alter the laws of nature." It is thus not at all surprising that in his *Rules* Descartes should liken himself to Theseus. Descartes here is attempting to legitimate his theory by showing that it is not the product of a false pride. Similarly, in the famous dream in which the young Descartes tells how he first came to arrive at his method, he insists that he received it as a gift. A gift from whom? Who is Descartes' Ariadne? We know from an entry in the *Olympica* that on February 23, 1620 Descartes vowed in thanksgiving to make a pilgrimage to the Virgin of Loreto.¹³ We have good reason to believe that he fulfilled that vow. What speaks out of this vow is once more uneasiness about the legitimacy of theory and the new science that it was to found. The dream, as Descartes tells it, helped to assure him that the method was not a delusion born of human pride, perhaps sent by the devil, but of divine origin, that he is not Icarus, nor Daedalus, the demonic artificer, but Theseus. At issue is whether the new science Descartes promises his readers gives human beings what is rightfully theirs or whether they are usurping the place of God, trading reality for simulacra. At issue is the legitimacy or illegitimacy of theory, which means also the legitimacy or illegitimacy of modernity, an issue to which the startling discoveries made at the time — just think of Galileo and his telescope—had given a special urgency.

John Donne's (1572-1631) *Anatomy of the World* (1611) deserves being quoted in this connection:

She, she is dead; she's dead: when thou knowest this,
Thou knowest how poor a trifling thing man is,
And learn'st thus much by our anatomy,
The heart being perish'd, no part can be free,
And that except thou feed (not banquet) on
The supernatural food, religion,
Thy better growth grows withered, and scant;
Be more than man, or thou'rt less than an ant.
Then, as mankind, so is the world's whole frame
Quite out of joint, almost created lame,
For, before God had made up all the rest,
Corruption ent'red, and deprav'd the best;
It seiz'd the angels, and then first of all
The world did in her cradle take a fall,
And turn'd her brains, and took a general maim,

¹³ C I, 5; AT X, 218. See Jacques Maritain, *The Dream of Descartes together with some other essays*, trans. Mabelle L. Andison (New York: Philosophical Library, 1944), p. 15.

Wronging each joint of th'universal frame.
 The noblest part, man, felt it first; and then
 Both beasts and plants, curs'd in the curse of man.
 So did the world from the first hour decay,
 That evening was beginning of the day,
 And now the springs and summers which we see,
 Like sons of women after fifty be.
 And new philosophy calls all in doubt,
 The element of fire is quite put out,
 The sun is lost, and th'earth, and no man's wit
 Can well direct him where to look for it.
 And freely men confess that this world's spent,
 When in the planets and the firmament
 They seek so many new; they see that this
 Is crumbled out again to his atomies.
 'Tis all in pieces, all coherence gone,
 All just supply, and all relation;
 Prince, subject, father, son, are things forgot,
 For every man alone thinks he hath got
 To be a phoenix, and that then can be
 None of that kind, of which he is, but he.

I asked: Should we liken Descartes to Theseus, to Icarus, or perhaps to Daedalus? Bourdin obviously sees him in the image of Icarus and this is essentially the position of such modern Thomists as Etienne Gilson and Jacques Maritain. Both accuse Descartes of angelism, of the prideful attempt to out human beings in the place that properly belongs to the angels.¹⁴ As we shall see, the charge has much in common with the kind of criticism much later raised by Nietzsche, Heidegger, or Wittgenstein.

To begin to answer the question: is Descartes Theseus, Icarus, or Daedalus? let us consider briefly the few seemingly simple steps that, Descartes promises us, will lead us out of the labyrinth:

1. In order to gain an indubitable, unshakeable foundation Descartes begins by trying to doubt all that he had up to then taken for granted.
2. He establishes that foundation by reflecting on the *cogito*: I cannot doubt that I, a thinking thing, exist.
3. This leads to the discovery of a criterion of what is necessary if I am to truly know something: I must have a clear and distinct representation of it.

¹⁴Cf. Karsten Harries, "Descartes, Perspective, and the Angelic Eye," *Yale French Studies*, 49, 1973, pp. 28-42.

4. But doubts return: how do I know whether what presents itself to me clearly and distinctly is really true? Have I not been deceived in the past and may I not be deceived again? How can I make sure that clear and distinct ideas will not also prove deceptive? That they allow me to get hold of reality?

5. The proof of the existence of God is designed to defeat such doubts and thus to secure the trust put in clarity and distinctness.

But all five steps invite question. Consider the first: Descartes introduces his doubt as a methodological device, guarding against error. Too often we accept what is questionable and are content with appearances, hypotheses and conjectures. Not that we can dispense with this altogether: we simply don't have time to examine and weigh carefully all that we see and hear. So we rely on what one says. But when a philosopher builds on hearsay and conjecture his thought will lack a foundation. To secure a foundation for philosophy, and beyond that for all scientific knowledge, Descartes demands that we take as false all that is not so patently true that it will resist all our attempts to doubt it. But can we really make sense of that demand? It is with this question that I would like to begin next time.

2. Doubt

1

I concluded our first session by outlining five steps that are to lead us out of the labyrinth. These steps seem easy enough. Yet the more we think about them, the more obscure their meaning becomes. Consider the very first step.

(1) In order to gain an indubitable, unshakeable foundation, Descartes begins by trying to doubt all that he had up to then taken for granted.

But does this really make sense? What are we really doubting when we doubt as Descartes would have us doubt?

Descartes introduces his doubt as methodological device guarding against error. In a nutshell, the theme of doubt, which dominates the First Meditation, makes its appearance already in the *Rules*. Consider *Rule II*:

All knowledge (*scientia*) is certain and evident cognition. Someone who has doubts on many things is no wiser than one who has never given them a thought. (C I, 11 [HR I, 3; AT X, 362])

And a few lines further down:

So in accordance with this Rule, we reject all such merely probable cognition and resolve to believe only what is perfectly known and incapable of being doubted. (C I, 11 [HR I, 3; AT X, 362])

Descartes draws a sharp distinction between certain and merely probable knowledge. The latter does not really deserve to be called knowledge at all. Whatever is truly known is incapable of being doubted. The attempt to doubt is thus the touchstone of our ability to seize the truth. We meet here with a certain subjectification of truth. Descartes thus asks us to dispense with hypotheses and conjectures. He knows of course that for practical purposes we cannot dispense with these altogether. Consider Principle III:

This doubt should not meanwhile be applied to ordinary life.

This doubt, while it continues, should be kept in check and employed solely in connection with the contemplation of the truth. As far as ordinary life is concerned, the chance for action would frequently pass us by if we waited until we could free ourselves from our doubts, and so we are often compelled to accept what is merely probable. From time to time

we may even have to make a choice between two alternatives, even though it is not apparent that one of the two is more probable than the other. (C I, 193 [HR I, 219-220; AT VIIIA, 5])

Consider also *Meditation I*:

In the meantime, I know that no danger or error will result from my plan, and that I cannot possibly go too far in my distrustful attitude. This is because the task now in hand does not involve action, but merely the acquisition of knowledge. (C II, 15 [HR I, 148; AT VII, 22])

The sphere of the practical is here bracketed. But if there is to be genuine science we have to see which of our opinions can resist the acid of doubt. That will lead us to a firm foundation on which we can raise the edifice of science. Belief will be transformed into knowledge, where knowledge is secured belief.

2

Most of what has come to be established and accepted as true seemed to Descartes to fail that test. Consider the beginning of *Meditation I*:

Some years ago I was struck by the large number of falsehoods that I had accepted as true in my childhood, and by the highly doubtful nature of the whole edifice that I had subsequently based on them. I realized that it was necessary, once in the course of my life, to demolish everything completely and start again right from the foundations, if I wanted to establish anything at all in the sciences that was stable and likely to last. (C II, 12 [HR I, 144; AT VII, 17])

Science as it had existed until then is considered an unsound edifice built on insufficiently secured foundations.

I already quoted the passage from *The Search After Truth* (C II, 497 [HR I, 313; AT X 509]) where Descartes likens himself to an experienced architect. He also likens himself there to a doctor who will cure us from the disease of skepticism. Polyander opens the dialogue with the complaint that his parents, instead of allowing him to immerse himself in the Greek and Latin authors, sent him to the court and to camps. We should remember that Descartes from 1618 to 1622 served as a soldier in different armies, apparently not overly concerned whether he was serving the Protestant or the

Catholic side. He does not seem to have considered these years a waste of his time. But before Eudoxus can speak for Descartes, Epistemon, who here represents the learned skeptic, replies:

The best thing I can tell you on this topic is that the desire for knowledge, which is common at all men, is an illness which cannot be cured, for curiosity grows with learning. But because the defects in the soul trouble a person only in so far as he becomes aware of them, you have an advantage over us in that, unlike us, you do not notice all the many things which you lack. (C II, 402 [HR I, 307; AT X, 499-500])

The desire for knowledge is here called an illness. Augustine had called curiosity a sin. And Eudoxus, speaking for Descartes, admits that, while insatiable curiosity is indeed a sin, there is a healthy curiosity that can be satisfied:

Is it possible, Epistemon, that you, with all your learning, are persuaded that nature can contain a malady so universal without also providing a remedy for it? For my part, just as I think that each land has enough fruits and rivers to satisfy the hunger and thirst of all its inhabitants, so too I think that enough truth can be known in each subject to satisfy amply the curiosity of orderly souls. The body of a person suffering from dropsy is no further removed from its proper condition than the mind of someone who is perpetually tormented by an insatiable curiosity. (C II, 402 [HR I, 307-308; AT X, 500])

This raises the question: just how are we to distinguish a healthy from a diseased curiosity. Note a certain renunciation in Eudoxus' words. Eudoxus insists that we not try to know what we cannot know. He will exhibit the limits of what we can know. Here Descartes appears as a precursor of Kant: he is exhibiting the limits of human knowledge. But within these limits the human being is king. This, as we shall see, is already one of the central points of the *Rules*.

3

But how do we doubt? What are the conditions of doubting? Essential to doubt is the contrast between the way things may perhaps be and the way we take them to be. If there is no way of moving from the latter to the former there can be no doubt.

What then is it that Descartes is doubting? Let us follow the course of the *Meditation I*. In the course of it the theme of doubt is escalated. We begin with quite traditional examples. (C II, 11-13 [HR I, 145; AT VII, 18]) That the senses sometimes deceive us had been noted already by Plato's Socrates:

And now tell me, I conjure you, had not imitation been shown by us to be concerned with what is thrice removed from the truth?

Certainly.

And what is the faculty in man to which imitation is addressed?

What do you mean?

I will explain: The body which is large when seen near, appears small when seen at a distance?

True.

And the same object appears straight when looked at out of the water, and crooked when in the water; and the concave becomes convex, owing to the illusions about colors to which the sight is liable. Thus every sort of confusion is revealed within us; and this is the weakness of the human mind on which the art of conjuring and of deceiving by light and shadow and other ingenious devices imposes, having an effect on us, like magic.

True.

And the arts of measuring and numbering and weighing come to the rescue of the human understanding — there is the beauty of them — and the apparent greater or less, or more or heavier, no longer have mastery over us, but give way before calculation and measure and weight?¹⁵

But can I doubt that that I am sitting here, have hands, that I am a man, etc. To doubt such things would be madness.

But doubt gets raised to a higher level by means of an appeal to dreaming. Do we have a clear criterion for distinguishing waking from dreaming? A first formulation of Cartesian doubt then is: life is a dream, a thought familiar from Baroque literature (Calderon, Shakespeare, Bidermann). But what sense can we make of this? What does it

mean to say: life is a dream? Perhaps, that the world is no more than our idea. But when stretched to this point the idea of doubt threatens to become meaningless. To explain this doubt Descartes still has to appeal to our ordinary understanding of what it means to doubt. But this appeal conceals a shift that has taken place. We may be able to doubt whether the world really is as it presents itself to us, but what sense does it make to doubt the “reality” of the world? What does “reality” mean here? Suppose the world turned out to be unreal! What difference would it make to us? How could we even know? If Descartes’ doubt is to make any sense at all, it must be possible to point to the difference between a real and an unreal world. That there is such a difference is taken for granted by Descartes, but what is the difference? The appeal to dreaming does not help here, for part of the meaning of dreaming is the contrast between dreaming and waking. When all life is called a dream, the word loses its meaning, unless we can give content to the idea of another life.

Are there criteria that can be used to distinguish a world that is only a dream from one that really exists? O. K. Bouwsma argued forcefully that this is not the case and as a result found Descartes’ doubt meaningless. Imagine, he suggests, Descartes’ demon, having deceived man and then, to really taste his triumph, trying to deceive man that he has indeed been deceived. How would he go about it? It is difficult to think of an answer.

Doubt is escalated to a higher level by a first attempt to find an escape from doubt. Let us assume that our representations are like pictures to which nothing corresponds, representations that do not represent. But there are elements, Descartes suggests, elements that are real and true, out of which these pictures must have been composed:

By similar reasoning, although these general kinds of things — eyes, a head, hands, and so on, could be imaginary, it must at least be admitted that certain other even simpler and more universal things are real. They are as it were the real colours from which we form all these images of things, whether true or false, that occur in our thought. (C II, 12-13 [HR I, 146; AT VII, 20])

¹⁵ Plato, *Republic*, X, 602 c-d, trans. Benjamin Jowett.

We should note the analogy drawn here between these simple things of which our mental pictures are formed and the colors of which pictures are composed. Colors are relative to our senses. Should we then say something analogous about our simple things. But what is Descartes thinking of?

A list of such things follows:

This class appears to include corporeal nature in general, and its extension; the shape of extended things; the quantity, or size and number of these things; the place in which they may exist, the time through which they may endure, and so on. (C II, 14 [HR I, 146; AT VII, 20])

Kant's pure forms of intuition, come to mind and the way they provide mathematics with a foundation. I want to underscore the importance of simplicity: if I have an intuition of simples, then as Descartes had argued in the *Rules* — and we shall return to that argument — such intuition cannot give a partial insight, for simples have no parts. They are either grasped or we fail to grasp them. They cannot be grasped inadequately. In the turn to simples the young Descartes had sought the exit from the labyrinth of perspective.

In the *First Meditation*, too, the certainty with which we know this class of things is contrasted with the hypothetical character of our knowledge of nature:

So a reasonable conclusion from this might be that physics, astronomy, medicine, and all other disciplines which depend on the study of composite things, are doubtful; while arithmetic, geometry and other subjects of this kind, which deal only with the simplest and most general things, regardless of whether they really exist in nature or not, contain something certain and indubitable. For whether I am awake or asleep, two and three added together are five, and a square has no more than four sides. It seems impossible that such transparent truths should incur any suspicion of being false. (C II, 14 [HR I, 147; AT VII, 20])

But such knowledge, too, is declared to be dubitable by Descartes, and in this connection he appeals to God:

And yet firmly rooted in my mind is the long-standing opinion that there is an omnipotent God who made me the kind of creature that I am. How do I know that he has not brought it about that there is no earth, no sky, no extended thing, no shape, no size, no place, while at the same time

ensuring that all these things appear to me to exist just as they do now. (C II, 14 [HR I, 147; AT VII, 21]))

Descartes can assume that his doubt makes sense because he takes for granted the contrast between God's divine vision and the more limited vision of man. To know truly is to know as God does. Cartesian doubt is thus born of the thought that we human knowers might be fundamentally out of tune with God. Being as we understand it might be relative to the human subject. *Esse* would exhaust itself in *percipi*, where perception should be understood not as sensation but as intellection. Transcendence would be lost. Descartes could admit the definition *esse est percipi*, if the perceiver is taken to be not the finite human subject, but God, where the God Descartes has in mind is the God of the nominalists, of William of Ockham, e.g. a God whose unfathomable will is the foundation of all reality and all truth.

Cartesian doubt presupposes a particular conception of truth. Truth is not relative to a particular observer or even to the human observer raised into a transcendental subject, an ideal observer no longer limited by perspectival distortions. For Descartes all knowledge has its measure in God. If applied to God, the definition *esse est percipi* can be accepted. But how can we human knowers assure that we are in tune with reality? The optimism of which I spoke in the beginning betrays the confidence that we can, relying on the correct method, attune ourselves to what God has created.

Descartes' doubt is born of the way human beings and their point of view are measured by God and His "point of view." Human knowledge represents reality.

4

Let me restate the foundations of Descartes' doubt. Presupposed is a particular theory of knowledge. What Descartes takes for granted is that thought represents reality, rather as a picture does. Following medieval tradition he distinguishes *realitas objectiva* from *realitas formalis*. Although that distinction becomes important only in the *Third Meditation* I would like to touch on it here. The representation (*idea*) intends another reality that it claims to represent (*realitas formalis*). Claiming to represent the idea has a meaning, i.e. is *realitas objectiva*.

Descartes thus has a picture theory of thinking. To discover whether a picture is successful or not we must in some sense compare it with what it pictures. But how do

we ever get outside the circle of pictures? If the picture theory of thinking is ever to be made sense of, there must be a way in which reality is given apart from pictures. Unless we can clarify the nature of this awareness, the meaning of the distinction between formal and objective reality remains obscure. It is thus hardly possible to appeal to that distinction to make sense of Cartesian doubt. The distinction turns out to be just as questionable as what it seeks to explain. Descartes is not too much help here. He remains caught up in an inherited framework that he accepts and does not challenge. If we reject it, the first step of the *Meditations* and with it the argument that follows it, threaten to become meaningless.

In what does this representational theory of knowledge have its origin? Reflection reveals the mediating role of thought, where the analogy of understanding to seeing is significant. What is presents itself to me as shaped by my point of view and language. What is it in itself? Is it perhaps only for me? As long as we find ourselves actively engaged in the world the reality of what surrounds us is not really an issue. Reality reveals itself to us in our activities. A hammer or a knife are thus first of all not at all objects of detached knowledge, but things to be used. Similarly I encounter the reality of another person not in detached contemplation, but by living with them, caring for them. It is however possible to bracket such engagement and to divorce knowledge from action. Some such bracketing is implicit in all reflection. To reflect is to step back from the things that normally concern us. Consider Descartes sitting by his fire in the winter of 1619/20, questioning its reality, while others are fighting the Thirty Years war in which Descartes was indeed a participant. Or the beginning of the *Meditations* — by then he had retired to Holland:

So today, I have expressly rid my mind of all worries and arranged for myself a clear stretch of free time. I am here quite alone, and at last I will devote myself sincerely and without reservation to the general demolition of my opinions. (C II, 11 [HR I, 144; AT VII, 17-18])

Descartes' enterprise, and perhaps the enterprise of philosophy, has its origin in a reflective disengagement, a bracketing of the everyday world. This lets the philosopher take a more detached view of things. Reflection carried to extremes transforms us into mere spectators, even of our own life, which becomes somewhat like a part we play in a drama of unknown significance. The self no longer inhabits the world, but floats above it.

The first sentence of the *Cogitationes privatae*, written in 1619, when Descartes was in Holland, he was then 23, is revealing in this connection:

Actors, taught not to let any embarrassment show on their faces, put on a mask. I will do the same. So far, I have been a spectator in this theatre which is the world, but I am now about to mount the stage, and I come forward masked. (C I, 2 (AT X, 213)) \

The public world is experienced as alienating. We already encountered the metaphor of the theater for the world, closely linked to that of the labyrinth.

With his insistence on doubt Descartes puts the spectator at the very center of the philosophical enterprise. Along with this goes an interpretation of being as a first of all for a dispassionate observer, for a subject, i.e. as objective being. The “for” emphasizes the distance between subject and object; it also suggests the priority of the subject over the world understood as the totality of objects. The subject has fallen out of this world. The human being denies himself as part of a larger order that transcends him. He is no longer assigned a vocation by the place he occupies in the world. Indeed it is no longer possible to speak of such a place! As subject, as the being for whom the world is, the human being becomes the foundation of the world and loses his place in it.

Descartes recognizes that his methodological doubt threatens to lead to a loss of reality, but the meaning of that loss is unclear, and must remain unclear as long as the meaning of “reality” is taken for granted. What is the meaning of “reality”? I want to offer as a first tentative suggestion that in this context, to say that something is real, is not so much to say that something is the case, but rather that it has a claim on us. The real has weight. It is a burden on human freedom. It limits it. Just this lets it matter. Consider the heaviness of the body after a strenuous climb! Or hunger! Or the whine of a siren! Or glaring sunlight! — Or the truth of $2+3=5$.

Only what transcends us can limit our freedom and weigh on us. To say that reality claims us is to say that reality is essentially transcendence entering our consciousness. If this is accepted, it is easy to see why reflection should disengage us from the world and transform the things that concerned us into objects. Immanence devours transcendence. As the transcendence of the subject is established, the transcendence of the world is obscured. At the very center of the *Meditations* lies the dreadful suspicion that the world revealed in reflection asks nothing of us humans and

offers us nothing by which to orient ourselves. At stake in the *Meditations*, although not explicitly acknowledged, is the meaning of human existence, which is threatened by the philosopher's willingness to doubt in order to find a firmer foundation than that furnished by everyday experience. Should this enterprise then be likened to the raising of the Tower of Babel?

As I argued before, to liken life to a dream is to presuppose a mode of awareness with which the reduced experience can be compared. Pre-reflective experience offers itself as such a mode of awareness. Only because Descartes is not totally reflective, but reflection operates against the background of a pre-reflective appreciation of the world, is he able to recognize the loss of reality threatened by reflection. But this does not lead him to return to the pre-reflective stance. Instead it leads to an attempt to correct this deficiency by reasserting transcendence as a realm of real objects, i.e. formal reality, to which our ideas must correspond if they are to be true. If the world of ideas is transcended by the subject, the subject in turn is transcended by the real world. In this way an attempt is made to give back to the world the weight which it lost in the course of the reduction to objectivity. The distinction between objective and formal reality, and more generally that between appearance and thing in itself, appears thus as a metamorphosis of the distinction between a disengaged, reflective and an engaged pre-reflective awareness. This metamorphosis is demanded by Descartes's methodological doubt and his commitment to the pursuit of truth.

5

To sum up: objective reality, as used by Descartes, presupposes a reference to formal reality. Objective reality is reality that claims to represent. But what gives rise to this claim? Descartes fails to clarify this. The distinction is taken from the tradition and taken for granted. It has been argued here that this taking for granted implies a failure to carry through the reduction of experience demanded by his method. Had he done so, and only a philosopher capable of forgetting himself as a human being is capable of this, he would not have recognized the incurred loss as a loss and the attempt to remedy it by reestablishing transcendent reality would have been pointless. Once the reduction has been completed, it can no longer be recognized as a reduction.

3. The Telescope and the Defectiveness of Vision

1

I would like to begin today by returning to the metaphor of the labyrinth. In our first class I pointed to Jan Amos Comenius' *Labyrinth of the World and Paradise of the Heart*. In this book Comenius lets his pilgrim see the world through a pair of distorting spectacles: their glass the glass of illusion, their rims the rims of custom.¹⁶ Distorting spectacles let Comenius' pilgrim experience the world as a labyrinth.

Unlike the related metaphor of the mirror, which had been associated with illusion ever since Plato, the metaphor of spectacles belongs to the modern era. The possibility of using lenses to improve human vision was discovered only in the thirteenth century. But what is significant in this context is that, unlike the mirror, which reflects more or less adequately what can already be seen, spectacles attempt to improve on what nature has given us, extending the range of the visible. Human ingenuity attempts to correct what nature has left deficient.

There is pride in such an attempt: if God had wanted us to see better, would he not have given us better eyesight? And this pride is compounded by the invention of the telescope in the late sixteenth or the first years of the seventeenth century,¹⁷ which not only makes the distant appear near, the small large — qualities that are among those Comenius attributes to his spectacles — but also, as Galileo demonstrated, enabled human beings to see what no one yet had seen. Or should these new sights, these new stars and "planets," be resisted as products of a false magic? Was the telescope perhaps a gift of the devil, as a legend telling of its discovery hinted? If God created the human eye defective, is it so clear that human artifice can or should even attempt to remedy such defectiveness? It is hardly surprising that the telescope was considered both, an

¹⁶ John Amos Komensky (Comenius), *The Labyrinth of the World and the Paradise of the Heart*, ed. and trans. Count Lützow (New York: Dutton, 1901), p. 67.

¹⁷ See Albert van Helden, *The Invention of the Telescope*, *Transactions of the American Philosophical Society*, vol. 67, part 4, 1977, pp. 5- 67 for an excellent discussion. Van Helden concludes that the telescope was discovered first in the Netherlands, not long before September 1608. See also Edward Rosen, *The Naming of the Telescope* (New York: Henry Schumann, 1947).

instrument of progress and an instrument of illusion.¹⁸ The former is exemplified by Joseph Glanvill, who, following Bacon and Descartes, saw the inventions of spectacles and telescope as part of a legitimate effort to recover what mankind lost with Adam's fall.

Adam needed no Spectacles. The acuteness of his natural Opticks (if conjecture may have credit) shew'd much of the Coelestial magnificence and bravery without a Galilaeo's tube: And 'tis most probable that his naked eyes could reach near as much of the upper world, as we with all the advantages of art. It may be 'twas as absurd even in the judgment of his senses, that the Sun and Stars should be so very much less than this Globe, as the contrary seems in ours; and 'tis not unlikely that he held as clear a perception of the earth's motion, as we think we have of its quiescence.¹⁹

Artifice is to gain us back that clarity of vision Adam lost, indeed even improve on it. Technology will help us undo the results of the fall. We find similar sentiments already with Bacon and Descartes.

But is this very project not born of a sinful refusal to acknowledge the limits that God has set fallen humanity? And is such an attempt not likely to lead to error rather than truth? Our historical place may make it difficult for us to understand those critics of Galileo who refused to look through his telescope, such as Galileo's friend, the Aristotelian Cesare Cremonini, who thought that it would only confuse him,²⁰ or Giulio Libri, the leading philosopher at Pisa.²¹ But were they really so unreasonable? Galileo appealed to the authority of the eye, aided by an instrument. But just the authority of the eye philosophy had questioned from the very beginning — recall Plato's critique in Book X of the *Republic*—and optical instruments had long been associated with illusion and magic. Should such questionable evidence weigh more than logical argumentation and established science?

¹⁸ See Hans Blumenberg, *Die Genesis der kopernikanischen Welt* (Frankfurt: Suhrkamp 1975), pp. 762 - 782.

¹⁹ Joseph Glanvill, *The Vanity of Dogmatizing*, reproduced from the edition of 1661 (New York: Columbia University Press, 1931), p. 5.

²⁰ See Heinrich C. Kuhn, *Venetischer Aristotelismus im Ende der aristotelischen Welt. Aspekte der Welt und des Denkens des Cesare Cremonini (1550-1631)* (Frankfurt am Main: Peter Lang, 1996).

²¹ *Discoveries and Opinions of Galileo*, trans. and intro. Stillman Drake (Garden City: Doubleday, 1957), p. 73.

Galileo's reply to such critics betrays his confidence in the eye and in his telescope. He thus scolds those who "showing a greater fondness for their own opinions than for the truth ... sought to deny and disprove the new things, which, if they had cared to look for themselves, their own sense would have demonstrated."²² But must such confidence not contend with that critique of the eye we meet with already in Plato?

Distortion, as we have seen, is inseparable from the fact that we experience the world from a place within the world and thus perspectively. Whatever we see appears to us as it does because we happen to be where we are and because our eyes happen to work as they do. Our human perspective is constitutive of what we see. This raises the question: do we not, when we uncritically accept the authority of the eye, submit to appearance? Is the brown of the table something that belongs to the table or is it something that we contribute? In the *Third Meditation* Descartes thus remarks of things such as "light and colours, sounds, smells, tastes, heat, and cold and the other tactile qualities," that "I think of these only in a very confused and obscure way, to the extent that I do not even know if they are true or false, that is, whether the ideas I have of them are ideas of real things or of non-things (C II, 11 [HR I, 164; AT VII, 43]) To the extent that we base our knowledge on the senses we would seem to remain imprisoned in a labyrinth of appearances. The natural light of the sun, let alone the artificial light of a candle, cannot dispel the darkness of this labyrinth. To find one's way in it requires a different kind of illumination. Only the spiritual light within can show us the way out of the labyrinth.

Similar considerations had already led Plato to condemn mimetic art as an imitation of mere appearance, thrice removed from reality. To the extent that the artist accepts the rule of perspective he must surrender all claims to serve the truth. His art can be no more than "a kind of play or sport." In his ability to create a second world the artist may seem like a godlike magician. Yet the power of his magic depends very much on the infirmity of our senses. And what of the telescope? Should the sights that it presents to us be taken for reality? Can it in any way helps us to find our way out of the labyrinth of deceptive appearance? To find that way, we must free ourselves from the rule of perspective and from the limits imposed by the senses. To show us this way is the point

²² *Discoveries and Opinions of Galileo*, p. 175. Note, however, that in Galileo we also meet with a Platonic distrust of the eyes.

of Descartes' method. One fruit of this method is thus an account of how telescopes worked, presented in Discourse Nine of his *Optics*. Galileo did not offer his critics a developed theory of how his telescope worked. Such a theory had to wait for Kepler, whom Descartes called his "first master in optics" (AT II, 86) and whom he may have met in Linz.

2

Descartes knew about the proximity of his science to the art of Daedalus, who was credited with the creation of automata. This at least is suggested by the fact that among the minor works Descartes wrote before leaving France for Holland, Baillet, the seventeenth century biographer of Descartes, mentions a page bearing the title *Thaumantis regia*.²³ The title also appears in the inventory of Descartes' manuscripts made in Stockholm just after his death in 1650.²⁴ Nothing, of what cannot have been more than a brief sketch, has survived. But the title gives us an idea of what Descartes must have had in mind: *thaumantis* suggests the art of conjuring. A letter dating from September 1629 allows us to be more specific. In it Descartes speaks of a branch of mathematics that he calls "the science of miracles." By means of that science, Descartes writes, one can cause the same illusions to be seen, which, it is said, the magicians made appear with the aid of demons.²⁵ Descartes here places himself in the tradition of the artificial magic of Agrippa, Porta, and Campanella. At the same time he distances himself from that tradition by claiming that science will be able to achieve what the magicians were supposed to have accomplished. And while he admits that to the best of his knowledge this science is not yet being practiced, he does name a craftsman, an optician named Ferrier, who is said to be the only one he knows capable of it.²⁶ At least part of what Descartes was aiming at with his *Thaumantis regia* would thus appear to have been an applied optics.

²³ J. Sirven, *Les années d'apprentissage de Descartes (1596-1628)*, diss. Paris (Albi, 1928), p. 324.

²⁴ AT X, 7.

²⁵ Letter to *** of September 1629?, AT I, 21. Sirven, p. 336.

²⁶ Cf. Descartes' letter to Ferrier of June 18, 1629, AT I, 13-16.

The title brings to mind Jean-François Nicéron's *La perspective curieuse*, which appeared in 1636. The subtitle of Nicéron's book describes this curious perspective once again as a kind of magic capable of producing the most beautiful effects of which the art and industry of man are capable. Here, too, magic has been replaced by science. And while Descartes never met Nicéron, the two were nonetheless very much aware of each other's work. Thus Nicéron sent Descartes his *Perspective* and Descartes reciprocated by sending Nicéron his *Principles*.²⁷ Both were close to Mersenne, whom Descartes had known ever since his student days at La Flèche, where, as we learn from the *Discourse*, he had "gone through all the books that fell into my hands concerning the subjects that are considered abstruse and unusual (*les plus curieuses et les plus rares*).” (C I, 113 [HR I, 83; AT VI, 5]). Mersenne (1588 – 1648) shared this interest in and suspicion of these "curious" sciences. Seeking to serve both his Church and the emerging science, he was indeed at the very center of efforts to discredit Renaissance magic, with its basis in the Hermetic tradition.²⁸ Mersenne later was to give Nicéron's *Perspective* its theological approbation and to supervise the posthumous and greatly expanded Latin edition of the work, the *Thaumaturgus opticus* (1646). But it was in Descartes that Mersenne was to find his most thoughtful ally.

As we know from his early writings and letters, from the very beginning Descartes had an interest, not only in optics, perspective, and painting, but in using his knowledge of them to duplicate some of the effects said to have been created by the thaumaturgic magicians. Thus in the *Cogitationes privatae* Descartes suggests that one could use mirrors to let tongues and chariots of fire appear. (C I, 3 [AT X, 215-216]). Like such Renaissance magicians as Agrippa, Porta, Kircher, and Dee, Descartes appears here as someone who is interested in creating, as Plato would say, imitations of appearance, in optical tricks that would surprise and delight those unable to see through them. No doubt these also included anamorphoses.

There is something magical about anamorphoses that reveal an at first unsuspected deeper meaning in seemingly superficial appearance. But what Descartes

²⁷ See Jurgis Baltrusaitis, *Anamorphoses; ou magie artificielle des effets merveilleux* (Paris: Perrin, 1969), pp. 61-62.

²⁸ For a discussion of Mersenne's critique of the Hermetic tradition, see Frances A. Yates, *Giordano Bruno and the Hermetic Tradition* (Chicago and London: The University of Chicago Press, 1979), pp. 432 - 447.

must have found more significant is that such effects rest on a precise science. Magic has been replaced with optics; the demons that were supposed to have aided the magicians have been replaced with mathematical calculation. As already in Alberti's perspectival art, the imagination of the artist has been subordinated to science, which not only teaches us how to produce such marvelous images, but at the same time lets us see through this magic and delivers us from illusion. The science of anamorphosis helps us seize the Ariadne's thread that guides us through the labyrinth of the visible.

Analogous considerations help to dispel doubts concerning the reliability of the telescope. To decide to what extent the evidence it presents is reliable, one has to understand the workings of the human eye and of such instruments. Descartes' *Optics* is thus related to the projected *Thaumantis regia*. Descartes knows that the evidence given to our senses is necessarily distorted. He also knows that such distortion is not arbitrary, but follows laws that can be understood. Such understanding helps us to correct the natural defects of the eye. In the *Optics* Descartes invokes the analogy of vision with painting. In what sense can a painting be said to resemble the represented object? Certainly there can be no identity: "there would be no distinction between the object and its image." To understand the perfection of a painting one has to understand its form of representation and thus the manner in which it differs from what it represents:

You can see this in the case of engravings: consisting of a little ink placed here and there on a piece of paper, they represent to us forests, towns, people, and even battles and storms; and although they make us think of countless different qualities in these objects, it is only in respect of shape that there is any real resemblance. And even this resemblance is very imperfect, since engravings represent to us bodies of varying relief and depth on a surface that is entirely flat. Moreover, in accordance with the rules of perspective they often represent circles by ovals better than by other circles, squares by rhombuses better than by other squares, and similarly for other shapes. (C I, 165 [AT VI, 113])

A representation may be more successful precisely because it departs from reality. It is in just this way, Descartes suggests, that we should think of images in the brain. Crucial here is the insistence that image and imaged must be different. To understand human vision we must understand its mode of representation, the mechanism of vision.

All the qualities which we perceive in the objects of sight can be reduced to six principal ones: light, colour, position, distance, size, and shape. First, regarding light and colour (the only qualities belonging properly to the sense of sight), we must suppose our soul to be of such a nature that what makes it have the sensation of light is the force of the movements taking place in the regions of the brain where the optic nerve-fibres originate, and what makes it have the sensation of colour is the manner of these movements. Likewise, the movements in the nerves leading to the ears make the soul hear sounds; those in the nerves of the tongue make it taste flavours; and, in general, movements of the nerves anywhere in the body make the soul have a tickling sensation if they are moderate, and a pain when they are too violent. But in all this there need be no resemblance between the ideas which the soul conceives and the movements which cause these ideas. (C I, 167 [AT 130-131])

Thus there is no need to assume that the dark or light colored phenomena we see correspond to a world that is itself colored dark or light. Quite the contrary: color would seem to belong with appearance. Does it make sense to say of reality as it is in itself that it is colored? Secondary qualities have to be understood as effects and representations of primary qualities. Optics must be understood as part of mechanics. Once we have understood the mechanics of vision we no longer need fear that the eye will deceive us.

The exit from the theater of appearances Descartes shows us is thus the same exit already marked by Plato: "And the arts of measuring and numbering and weighing come to the rescue of the human understanding — there is the beauty of them — and the apparent greater or less, or more or heavier, no longer have the mastery over us, but give way before calculation and measure and weight."²⁹

3

When Descartes speaks of an artificial magic that is a branch of mathematics and that will enable us to produce the same appearances that magicians were said to have been able to raise with the help of demons, he refers the reader to a by then well established tradition. Essentially the same claim had been made by Agrippa von

Nettesheim in *De occulta philosophia*, a book Descartes must have known. Agrippa, too, insists on the connection between magic and mathematics. Appealing to Plato, he claims that just by means of the mathematical sciences it is possible to create works like those of nature, for instance bodies that will walk or speak and yet lack the power of life. He offers some examples from antiquity: the paradigmatic automata of Daedalus, tripods that moved, golden statues that served food and drink, the flying dove of Archytas, a brazen snake that hissed, artificial birds that could sing. He also tells of a brazen head cast by William of Paris when Saturn was rising that had the power of speech and prophecy. Mechanics and astrology fuse here in characteristic fashion.³⁰ Similar lists were common in the sixteenth and seventeenth centuries. To the marvels of antiquity one could add such contemporary wonders as a fly and an eagle at Nuremberg that could raise themselves into the air or sculptures that could move, sing, or play instruments. Perhaps the most famous examples were found in the garden Salomon de Caus had created for the Elector Palatine at Heidelberg in the early seventeenth century, which was being celebrated as the eighth wonder of the world.³¹ In this field, too, the moderns competed with the ancients. Salomon de Caus was the new Hero of Alexandria.³²

The interest in perspective and optics belongs into this context. Agrippa had included appearances created by geometry and optics, such as illusions created by mirrors, in his list of thaumaturgic works. Similarly Salomon de Caus combined an interest in perspective, more especially in anamorphic composition with his interest in mechanics, pneumatics, and hydraulics. In the same spirit Nicéron claims in his *Perspective curieuse* that the marvels that can be created by the art of perspective should not be esteemed less than such works of artificial magic as the moving sphere of

²⁹ *Republic* X, 602 c-d.

³⁰ Heinrich Cornelius Agrippa von Nettesheim, *Magische Werke* (Stuttgart: Scheible, 1850), vol. II, pp. 10-13. See Sirven, p. 111.

³¹ See Frances Yates, *The Rosicrucian Enlightenment* (London and Boston: Routledge and Kegan Paul, 1975), p. 12: "De Caus had constructed many grottoes in the gardens, containing scenes enlivened with music from mechanical fountains and formed of mythological figures, Parnassus with the Muses, or Midas in a cave. Very striking was a statue of Memnon, a Hercules-Memnon with a club. This statue gave forth sounds when the sun's rays struck it as in the classical story." De Caus published engravings of these works and explained the mechanism that made them possible.

³² See Baltrusaitis, *Anamorphoses*, p. 66.

Posidonius or the flying dove of Archytas. Descartes' *Thaumantis regia* would presumably have included instructions on how to fashion such mechanical marvels.

We know, at any rate, that even as a young man Descartes had a profound interest in automata. In his *Cogitationes privatae* we find suggestions as to how one might construct an automatic tightrope walker or the dove of Archytas. Particularly interesting is the reference to one such automaton in the *Thirteenth Rule*: having admonished the reader not to assume more or less than the data furnish, Descartes gives the following example:

Again, the question may concern the way a certain vessel is constructed, such as the bowl we once saw, which had a column in the centre of it, on top of which was a figure of Tantalus looking as if he was longing to have a drink; water, which was poured into the bowl remained within it, as long as the level was below Tantalus' mouth; but as soon as the water reached the unfortunate man's lips, it all ran out. At first glance it might seem that the artistry here lay entirely in the construction of the figure of Tantalus, when in fact this is merely a coincidental feature and by no means a factor which defines the problem. The whole difficulty is this: how must the bowl be constructed if it lets out all the water as soon as, but not before it reaches a fixed height. (C I, 55 [HR I, 52 - 53; AT X, 435 – 436])

As long as we only look at such a statue, its workings will seem mysterious and magical. But this magic rests on mechanics. As soon as the inner mechanism is understood, wonder gives way to an appreciation of the ingenuity of the engineer.

Automata provided Descartes not only with examples of deceptive appearance, but also pointed the way to the solution of the riddle they posed. And, as Descartes himself points out, they provided him with a model for understanding the human body. The body is like one of these automata; Descartes' God is like the creator of such machines. And just as faced with an automaton the ignorant might be tempted to admire or accuse its creator as a magician, so someone who sees only the appearance of things is likely to think the world a labyrinth and its creator an artist like Daedalus, a demonic artificer who does not permit us to find our way through his labyrinth. The analogy between automata and bodies suggests that such a view is mistaken.

In the *Discourse on the Method* Descartes invokes this analogy to make his physiology seem more plausible, which, he points out,

will not seem at all strange to those who know how many kinds of automaton, or moving machines the skill of man can construct with the use of very few parts, in comparison with the great multitude of bones, muscles, nerves, arteries, veins and all the other parts that are in the body of any animal. For they will regard this body as a machine which, having been made by the hands of God, is incomparably better ordered than any machine that can be devised by man, and contains in itself movements more wonderful than those in any such machine. (C I, 139 [HR I, 115 - 116; AT VI, 56])

The analogy is further developed in the *Treatise on Man* (1629-30, but like *The World* not published as a result of the condemnation of Galileo in 1633), where Descartes supposes that the body is nothing but a statue or machine of earth. Nerves are likened to pipes or tubes, muscles and tendons to engines and other devices to make such statues move, the animal spirits to the water that moves such statues, and so on. Descartes goes on to liken exterior objects that act on the body and thus cause sensations to strangers, who, on entering some artificial grotto, cause the statues there to move without realizing what it is that causes such movement. Again Descartes has a specific example in mind: he speaks of a bathing Diana who, as the visitor approaches, hides among some reeds; as he pushes further to get a better view he is met by Neptune with his trident, while a monster appears from the other side and spits water at him. (C I, 101 [AT 13]) Jurgis Baltrusaitis has shown that Descartes based his description on a grotto designed by Salomon de Caus and illustrated in his *Les raisons des forces mouvantes* (1615).³³ Faced with such creations we first marvel at what seems to defy understanding. Once we have grasped the mechanics involved, wonder gives way to admiration for human ingenuity. Similarly, by teaching us how the human body works, mechanics allays our doubts concerning the deceptiveness of the senses as it lets us admire the greatness of God's creation.

That we escape from the labyrinth of the world as we learn to see the world as a mechanism was a common thought. We find it for example in Comenius. The light of faith lets his pilgrim see the world as

a vast clock-work, fashioned out of diverse visible and invisible materials; and it was wholly glassy, transparent and fragile. It had thousands, nay thousands of thousands, of larger and smaller columns, wheels, hooks, teeth, dents; and all these moved and worked together, some silently, some with much rustling and rattling of diverse fashions. In the middle of all stood the largest, principal, yet invisible wheel; from it the various motions of the others proceeded in some unfathomable manner. For the power of the wheel penetrated through all things, and directed everything.³³

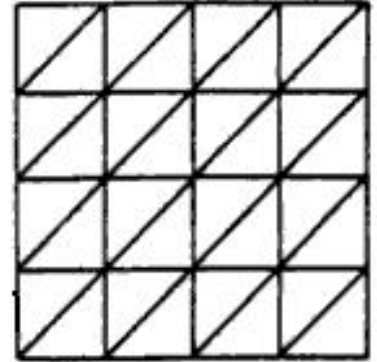
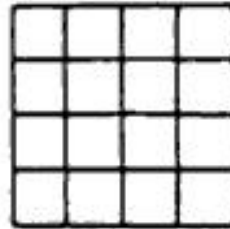
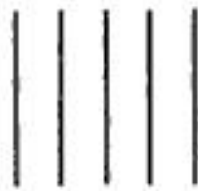
For Comenius, as for Descartes, the path that leads to this vision requires an inward turn. Only within ourselves do we find the light that lets us see reality as it is, undistorted by perspective. The difference, however, is that, according to Comenius, "corrupt nature cannot be mended by Worldly Wisdom."³⁴ Faith alone lets us find the right way in the labyrinth of the world. Descartes, on the other hand, claims that we humans bear within ourselves the seeds of a science that will deliver us from appearance. In the *Rules* Descartes thus makes an attempt to show that we do indeed possess an intuition that is free from the distortions of perspective. Such intuition is tied to an apprehension of simple natures, where mathematics provides the paradigm. By their very essence such simple natures do not permit doubt as to what they are: we either grasp them or fail to grasp them. Their simplicity makes it impossible for them to be other than they present themselves to us as being. Out of such simples we construct models of what we encounter, where the young Descartes does not claim that such models will do full justice to what they represent. But by their mathematical form they will avoid the illusions of perspectival painting. With its geometrical constructions the mathematical imagination mediates between reason and the sensible.³⁵ Thus he asks in *Rule XII*:

So what troublesome consequences could there be, if — while avoiding the useless assumption and pointless invention of some new entity and without denying what others have preferred to think on the subject — we simply make an abstraction, setting aside every feature of colour apart

³³ Comenius, p. 302.

³⁴ Ibid., p. 279.

from its possessing the character of shape, and conceive of the difference between white, blue, and red, etc., as being like the difference between the following figures or similar ones?



The same can be said about everything perceivable by the senses, since it is certain that the infinite multiplicity of figures is sufficient for the expression of all the differences in perceptible things. (C I, 41 [HR I, 37; AT X, 413]

In the *Rules* Descartes does not deny that such abstraction may fail to do justice to reality. "For the young Descartes mathematics is not a metaphysical science of the essence of matter, but nothing more than an art *bene metiendi* and this is the ground for its fertility."³⁶ Consider *Rule XIV*:

In the same way, if the magnet contains some kind of entity the like of which our intellect has never before perceived, it is pointless to hope that we shall ever get to know it simply by reasoning; in order to do that, we should need to be endowed with some new sense, or with a divine mind. But if we perceive very distinctly that combination of familiar entities or natures which produces the same effects which appear in the magnet, then we shall credit ourselves with having achieved whatever it is possible for the human mind to attain in this matter. C I, 57 [HR I, 55; AT X, 439)]³⁷

³⁵ Lüder Gäbe, *Descartes' Selbstkritik. Untersuchungen zur Philosophie des jungen Descartes* (Hamburg: Meiner, 1972), pp. 53, 77-78.

³⁶ Lüder Gäbe, "Einleitung," Descartes, *Meditationes de prima philosophia* (Hamburg: Meiner, 1959), p. xviii.

³⁷ Cf. William Gilbert's *De Magnete* (1600), which incorporated work by the 13th-century scientist Peter of Maricourt.

If there are indeed occult qualities in things, we shall not know them. We can know things only to the extent that we can measure them.

Descartes proceeds to the construction of mechanical models, which, he suggests, let us "understand how all the movements of the other animals can come about, even though we refuse to allow that they have any awareness of things, but merely grant them a purely corporeal imagination. It also enables us to understand how there occur within us all those operations which we perform without any help from reason." (C I, 42 [HR I, 38; AT X, 415]) Nature can be understood by us to the extent, and only to the extent, that it can be represented by mechanical models.³⁸ Such understanding will not only let us grasp the mechanism of nature, but will allow us to repair and correct it.

Confident in the explanatory power of mechanical models the young Descartes rejects not only the occult science of an Agrippa, but also Kepler's appeals to psychological interpretations, which, Kepler thought, were appropriate when causal interpretations proved insufficient and reasons became effective in the world. Neither teleology, nor numerology, nor astrology has a place in Descartes' science of nature.³⁹ As he puts it in *Rule VIII*: "There is, I think, nothing more foolish, than presuming, as many do, to argue about the secrets of nature, the influence of the heavens on these lower regions, the prediction of future events, and so on, without ever inquiring whether human reason is adequate for discovering matters such as these." (C I, 31 [HR I, 26; AT X, 398], Kepler would seem to have been caught up in such futility, when he sought to show how God created the universe. Not that the mathematical physics Descartes envisions in the *Rules* will be able to explain all that we would like to explain, although Descartes is confident that it will explain all that occurs without any aid from reason. This means that human action will exceed the scope of such explanations. But if so, and if nature is understood as the product of divine action, should we not suspect that it, too, will exceed the scope of physical explanations? Here we have a hint why the approach taken in the *Rules* left Descartes dissatisfied and why that work remained incomplete.

Renaissance hermetism is to be banished: "Material phenomena may not be explained by means of spiritual concepts."⁴⁰ The sharp distinction drawn later between

³⁸ See Lüder Gäbe, *Descartes' Selbstkritik*, p. 90.

³⁹ See Lüder Gäbe, *Descartes' Selbstkritik*, p. 90.

⁴⁰ Gäbe, *Descartes' Selbstkritik*, p. 37.

res cogitans and *res extensa* was meant to legitimate this exclusion. The new science was to have room neither for God nor for man.⁴¹

In *The Vanity of Dogmatizing* Joseph Glanvill praises Descartes for having "unriddled" the "dark physiology of nature."⁴² What Glanvill has in mind is not so much Descartes's work on the body; he speaks of shooting stars and meteors, which, once understood, offer no more ground for astrological speculations than a flaming chimney. That progress in astronomy rests on the same principles as progress in physiology is indeed suggested in the *Thirteenth Rule*. After having shown how this rule allows us to look beyond the appearance of the Tantalus sculpture to the mechanism it hides, Descartes suggests that similar considerations will have important consequences for astronomy:

One last example: say the question is, 'What can we assert about the motions of the stars, given all the observational data we have relating to them?' In this case we must not freely assume, as the ancients did, that the earth is motionless and fixed at the centre of the universe, just because from our infancy that is how it appeared to us to be. That assumption should be called into doubt so that we may then consider what in the way of certainty our judgment may attain on this matter. And the same goes for other cases of this sort. (C I, 55 [HR I, 52 - 53; AT X, 436])

By now we are familiar with this invitation to question a point of view that initially suggests itself as the obvious one. Such questioning undermines our confidence in the geocentric worldview by suggesting that it is no more than what Bacon called "an idol of the tribe." Descartes' admonition that we should not gratuitously assume the earth to be at rest follows the reflections of Cusanus, with whose *De Docta Ignorantia* he was familiar.

But if such reflections on the distorting power of perspective reveal the world to be a theater of appearances, they also open the way towards a more adequate understanding. If first of all we see the world from a point of view assigned to us by our body and our senses, it is nevertheless possible for us to escape from these perspectives. Our reason lets us transcend the limitations of the here and now and arrive at a more

⁴¹ See Alexandre Koyré, *Entretiens sur Descartes* (New York: Brentano's, 1944), p. 84.

⁴² Joseph Glanvill, *The Vanity of Dogmatizing*, p. 175.

objective mode of representing the world. As we represent the world we initially perceive as the center of our universe as a collection of objects moving in an endless homogeneous space, the perspective-bound form of representation characteristic of painting is transformed into the trans-perspectival form of representation characteristic of science. The light of reason, the *lumen naturale* Descartes is so fond of invoking, is supposed to let us escape from the labyrinth. Are we not able to attain to an understanding of reality that is objective? Perspective-bound everyday experience gives way to the descriptions of science. The thread of Ariadne turns out to be spun of mathematics.

But is the promised exit from the labyrinth to be trusted? Is such confidence justified? Is the faith of the new science not a naive faith? Let me bracket this question for the time being — we shall have to return to it. To justify that faith is after all a central concern of Descartes' *Meditations*. Clear is that without such faith we cannot understand the confidence with which the founders of the new science sought to unriddle the secrets of nature. Such faith is thus presupposed by the outrage with which Giordano Bruno and Kepler were filled by the Lutheran preacher Osiander's preface to Copernicus' *De Revolutionibus*, which claimed that Copernicus was not trying to provide a true picture of the cosmos, but only a device that would allow us to calculate more easily the observed motions of the sun and the planets. That this was a distortion of Copernicus' intentions any careful reader of the text had to notice.

4. The Search for Simples

1

Let me begin with a few autobiographical remarks Descartes makes in the *Discourse on the Method*. In the beginning of Part II he tells of the dream that put him unto his path. After the coronation of the Emperor Ferdinand II in 1619 Descartes (born 1596) entered the service of the Bavarian duke Maximilian who was preparing for war against the Protestant Bohemians. That winter he spent in a small town not far from the city of Ulm.

I stayed all day shut up alone in a stove-heated room, where I was completely free to converse with myself about my own thoughts (C I, 116 [HR I, 87; AT VI, 11])

The night of November 10 of that year Descartes had three dreams, the third of which he interpreted as a divine admonition to pursue the search after truth.⁴³ Nine years passed without Descartes presenting his views in public:

These nine years passed by, however, without my taking side regarding the questions which are commonly debated among the learned, or beginning to search for the foundations of any philosophy more certain than the commonly accepted one. The example of many fine intellects who had previously had this project, but had not, I thought, met with success, made me imagine the difficulties to be so great that I would not have dared to embark upon it so soon if I had not noticed that some people were spreading the rumour that I had already completed it. (C I, 126 [HR I, 100; AT VI, 30])

We can be more specific, at least if we trust Baillet's account.⁴⁴ In November 1628 one Sieur de Chandoux, versed in medicine and chemistry, held a conference in Paris under the patronage of the Papal Nuncio, before a distinguished audience, including

⁴³ See Jacques Maritain, *The Dream of Descartes together with some other essays*, trans. Mabelle L. Andison (New York: Philosophical Library, 1944)

Mersenne, cardinal Bérulle and other important people. Descartes had also been invited. Chandoux argued against the Scholastic, fundamentally Aristotelian science of his day and for a kind of probable science. Descartes, after saying nothing at first, was finally pressed to speak, and after complimenting Chandoux on his attempt to go beyond Aristotle, insisted on certainty rather than probability. He argued that we should start from nothing that is not so simple and evident as to be indubitable and that every following step be similarly indubitable. Cardinal Bérulle was so impressed that he asked to hear Descartes in private. The cardinal appears to have criticized Descartes for not having made public what he had learned. Descartes would appear to have hoped to meet this challenge by publishing the *Rules*. But that project was to remain unfinished, raising the question why Descartes deemed that first attempt deficient. At any rate, he soon left for Holland to pursue his vocation in place where he could live, “while lacking none of the comforts found in the most populous cities,” “a life as solitary and withdrawn as if I were in the most remote desert.” (C I, 126 [HR I, 100; AT VI, 31])

2

Characteristic of Descartes, as we have already seen, is the tendency to slight or downplay the importance of reading and education. Thus in the *Search after Truth* Eudoxus tells the uneducated Polyander that it will be less difficult to guide him to the truth than the widely read Epistemon, whose wide reading had only turned him into a skeptic. That education tends to turn one into a skeptic is something Descartes had himself experienced. The point is made forcefully in the *Discourse on the Method*:

From my childhood I have been nourished upon letters, and because I was persuaded that by their means one could acquire a clear and certain knowledge of all that is useful in life, I was extremely eager to learn them. But as soon as I had completed the course of

⁴⁴ Cf. Richard Watson, *Cogito, Ergo Sum: The Life of René Descartes* (Jaffrey, New Hampshire: David R. Godine Publisher, 2007), pp. 143-145. Watson does not find Baillet trustworthy.

study at the end of which one is normally admitted to the ranks of the learned, I completely changed my opinion. For I found myself beset by so many doubts and errors that I came to think that I had gained nothing from my attempts to become educated but increasing recognition of my ignorance. And yet I was at one of the most famous Schools in Europe, where I thought there must be learned men if they existed anywhere on earth. There I learned everything all the others were learning; moreover, not content with the subjects they taught us, I had gone through all the books that fell into my hands concerning subjects that are considered most abstruse and unusual (*les plus curieuses et les plus rares*)(. (C I, 112-113 [HR I, 100; AT VI, 4])

The very fact that his education exposed him to so many different points of view robbed Descartes of the security he might have felt, had he been taught by a single master (C I, 118 [HR I, 90; AT VI, 16]). His travels had further taught him that different customs are followed in different countries and how quickly fashions change. If this education led Descartes to doubt, it also had the more positive result of liberating him from prejudice:

It is true that, as long as I merely I considered the customs of other men, I found hardly any reason for confidence, for I observed in them almost as much diversity as I had found previously among the opinions of the philosophers. In fact the greatest benefit I derived from these observations was that they showed me many things which, although seeming very extravagant and ridiculous to us, are nevertheless commonly accepted and approved in other great nations; and so I learned not to believe too firmly anything of which I had been persuaded only by example and custom. (C I, 115 -116 [HR I, 87; AT VI, 10])

Again we have the familiar theme: a broadening of perspectives liberates, even as it threatens to lead us to a labyrinth of perspectives. The Socratic theme of

ignorance leads to the Socratic maxim: see for yourself! Knowledge is gained only by seeing for yourself. As he puts it in *Rule III*: f

And even though we have read all the arguments of Plato and Aristotle, we shall never become philosophers if we are unable to make a sound judgment on matters which come up for discussion; in this case, what we would seem to have learnt would not be science but history. (C I, 14 [HR I, 6; AT X, 367])

Like Eudoxus, Descartes is convinced that the skeptic does not have the last word. There are indeed many things that we shall never know, but that does not mean that the pursuit of truth is vain. But what can we know? What are the limits of human understanding? Descartes here anticipates the Kantian inquiry into the limits of human understanding. Crucial is the turn from the subject matter to the understanding subject. When this turn is taken, it becomes apparent that the different sciences are profoundly linked. In the *Cogitationes privatae* Descartes had written:

The sciences are at present masked, but if the masks were taken off, they would be revealed in all their beauty. If we could see how the sciences are linked together, we would find them no harder to retain in our minds than the series of numbers. (C I, 3 [AT X, 215])

This is the point made in the first rule:

For the sciences as a whole are nothing other than human wisdom, which always remains one and the same, however different the subjects to which it is applied, it being no more altered by them than sunlight is by the variety of the things it shines on. Hence there is no need to impose any restrictions on our mental powers. (C I, 14 [HR I, 1; AT X, 360])

Reason is one. So is the method of proper reasoning. The metaphor of the sun deserves noting: human wisdom is here likened to the sun, which illuminates everything. The shift from divine to human light should be noted. Presupposed is

that understanding is like seeing. And just as to see we need light, so to understand we need an intellectual light.

It must be acknowledged that all the sciences are so closely interconnected that it is much easier to learn them all together than to separate one from the other. (C I, 9 [HR I, 2; AT X, 361])

Here Descartes would seem to want to distance himself from Aristotelians and Thomists.

If, therefore, someone seriously wishes to investigate the truth of things, he ought not to select one science in particular, for they are all interconnected and interdependent. He should rather consider simply how to increase the natural light of his reason, not with a view to solving this or that scholastic problem, but in order that his intellect should show his will what decision it ought to make in each of life's contingencies. He will soon be surprised that he has made far greater progress than those who devote themselves to particular studies, and that he has achieved not only everything that the specialists aim at but also goals far beyond any they can hope to reach. (C I, 9 [HR I, 2; AT X, 361])

What can we know? What are the conditions that allow us to call something knowledge? It is to this question that the *Second Rule* addresses itself. Crucial is the distinction between genuine and merely probable knowledge. I do not really know something as long as I do not take seriously the possibility that it might be different from the way it now appears to me. That was what Descartes criticized in Chandoux's lecture. Knowledge is understood in such a way that it demands an escape from the perspective-bound here and now assigned to me by my body.

These considerations make it obvious why arithmetic and geometry prove to be much more certain than other disciplines: they alone deal with an object so pure and simple that they make no assumptions that experience might render uncertain; they consist

entirely in deducing conclusions by means of rational arguments. (C I, 12 [HR I, 5; AT X, 365])

Even more decisively than later in the *Discourse*, here already Descartes points to mathematics as a model.

Now the conclusion we should draw from these considerations, is not that arithmetic and geometry are the only sciences worth studying, but rather that in seeking the right path of truth we ought to concern ourselves only with objects which admit of as much certainty as the demonstrations of arithmetic and geometry. (C I, 12-13 [HR I, 5; AT X, 366])

As Descartes himself was later forced to recognize, that demands too much. But we should note that Descartes is not interested in mathematics as such. As he puts it:

I would not value these rules so highly, if they were good only for solving those pointless problems with which arithmeticians and geometers are inclined to while away their time. (C I, 17 [HR I, 10; AT X, 373])

His goal is rather a science that will “contain the primary rudiments of human reason and extend to the eliciting to the discovery of truth in any field whatever.” (C I, 17 [HR I, 11; AT 374]) That science is not restricted to some special subject matter.

This made me realize that there must be a general science which explains all the points that can be raised concerning order and measure irrespective of the subject matter, and that science should be named *mathesis universalis*,⁴⁵— a venerable term, with a well established meaning — for it covers everything that entitles the other sciences to be called branches of mathematics. (C I, 19 [HR I, 13; AT X, 378])

Descartes links the certainty of mathematics to its freedom from experience. This raises the question why in the *Meditations*, mathematics, too, comes to be

⁴⁵ Proclus comes to mind.

engulfed by doubt. And must such doubt then not also engulf the thesis on which the argument of the *Rules* is based? We shall have to return to that question.

3

Descartes longs for an Archimedean point, a place that will permit us to grasp reality as it really is, not only its representations, perspectival appearances that present themselves to us because our point of view happens to be what it is.

In *Rule II*, where the principle of doubt is first announced, Descartes thus asks us to reject all merely probable knowledge. In order to doubt we must be able to conceive of the possibility that something may be different from the way it presents itself to us. Essential to doubt is the contrast between what may be and what appears to us to be. Just because of this the intuition of a simple, as I said last time, permits no doubt. Simples cannot be intuited partially or perspectively. The intuition of simples demands thus a bracketing of sense experience. As he puts it in *Rule XII*:

... it is evident that we are mistaken if we ever judge that we lack complete knowledge of any one of these simple natures. For if we have even the slightest grasp of it in our mind — which we surely must have, on the assumption that we are making a judgment about it — it must follow that we have complete knowledge of it. Otherwise it could not be said to be simple, but a composite made up of that which we perceive in it and that of which we judge we are ignorant. (C I, 45 [HR I, 42; AT X, 420-421])

This table, we said, looks to me as it does, because I happen to be in this particular place. But in thinking the limits imposed by my point of view, I am already beyond these limits: thus I can imagine myself occupying different points of view. Were someone to ask me to draw the table as it would look from a point of view at the center of the ceiling, I could attempt to do so. That this is so, shows that the here and now is not a prison to my imagination and thought. As soon as I recognize a perspective as just a perspective and that there are others, I am already in some

sense beyond all these perspectives. The transcendence of the self over the here and now makes it possible to demand an a-perspectival description of the thing in question. Only such a description would deserve to be called true in the Cartesian sense. True propositions must have a certain form. Truth demands objectivity. We can thus understand why it is precisely the demand for truth that threatens to plunge us into a labyrinth. It will, if there is not a mode of vision to answer to this demand.

It is important to keep in mind that while such reflections on the phenomenon of perspective lead to doubt in that picture of the world presented to us by our senses, they hardly lead to that radical doubt Descartes leaves us with at the end of the *First Meditation*. Just the opposite would seem to be the case. Doubt provides its own cure in that it leads to a more adequate understanding of what is — where one should perhaps question the identification of the more adequate with the more objective, which is being taken for granted here.

4

We can generalize from this example. To the extent that I can think the perspectival nature of my world, and the point of view in question need not be the here and now assigned to me by my body, but could be my history or my language, I am already in some sense beyond it, capable of conceiving other points of view. Consider the following case: someone asks us to think of the Eskimos and their way of life, which forces them to be attentive to aspects of their environment that we would not even notice. We should expect this to be reflected in their language. They are caught in a linguistic framework different from ours — we live in different worlds. But to make sense of this thesis we have to have some understanding of both perspectives. To understand how or even that their world differs from ours, we must possess the resources to do justice to this difference. If the worlds we live in are indeed different, we have to add that these worlds are not prisons, but can be transcended in thought. We share one world after all.

This transcendence of thought makes it possible to oppose to the concrete, embodied I and its vision a pure or transcendental I, whose vision would be objective and trans-perspectival, in this respect like the vision of God. The idea of such an I is implicit in our experience. It can be uncovered and made the measure of what presents itself to us. The move to the pure subject, and the related move to pure objectivity, seems to offer us the Ariadne's thread that allows us to escape the prison of perspective. The ascent to this point of view promises us something like the sought Archimedean point or the thread of Ariadne.

There is, however, this difficulty: to think an a-perspectival vision of reality is not yet to possess it. We must keep in mind that the objective world pictures provided by science are not based on an a-perspectival mode of vision, but are conjectures that, if they are to be more than idle inventions, must retain their foundation in the data provided by the senses and, in spite of the striking successes of our science, is it obvious that the silent and colorless world now revealed to us does greater justice to reality than the richer word of our senses, of which it is a re-description? Given his insistence that we take as false all that is not so patently true as to resist all attempts to doubt it, it would seem that Descartes would have to reject all such conjectural knowledge. If we are to escape from doubt there must be some faculty that lets us grasp what is as it is, free from the limits of perspective. Only in that case can Cartesian doubt be defeated, can there be a science in the Cartesian sense of clear and evident cognition.

Jacques Maritain speaks of Descartes' angelism.

Descartes ... has the pretension in a flight of pure intellect, of rising to the plane of the intellect without passing through the gate of the senses, the way fixed for us by nature.⁴⁶

Koyré similarly argued that Descartes drew his psychology from the angelology of St. Thomas. Gilson supported that suggestion.⁴⁷ There is indeed something angelic about

⁴⁶ Jacques Maritain, *The Dream of Descartes together with some other essays*, trans. Mabelle L. Andison (New York: Philosophical Library, 1944), p. 39. p. 39; cf. pp 28, 44.

⁴⁷ Alexandre Koyré, *Essai sur l'idée de Dieu et les preuves de Son existence chez Descartes* (Paris: Leroux, 1922), p. 93 and Etienne Gilson, *Études sur le rôle de la pensée médiévale dans la formation du système cartésien* (Paris: Vrin. 1930), p. 12.

the point of view claimed by the new science, a point of view that really is no longer such, for it claims to have left behind the perspectival distortions characteristic of points of view.

What place can Descartes give to experience? He certainly recognizes its importance, as *Rule V* shows. Descartes insist on “proper observations.” These provide the necessary point of departure.

The whole method consists entirely in the ordering and arranging of the objects on which we must concentrate our mind’s eye if we are to discover some truth. We shall be following this method exactly if we first reduce complicated and obscure propositions step by step to simpler ones, and then, starting with the intuitions of the simplest ones of all, try to ascend through the same steps to a knowledge of all the rest. (C I, 20 [HR I, 14; AT X, 379])

The tension between Descartes’ rationalism and his empiricism will continue to occupy us. Here only the warning that it would be a mistake to emphasize the former to such an extent that we lose sight of the latter. The emphasis on experience is clear, as one reads the *Rules*. Descartes thus criticizes those who neglect experience and refuse to follow his method:

They frequently examine difficult problems in a very disorderly manner, behaving in my view as if they were trying to get from the bottom to the top of a house at one bound, spurning or failing to notice the stairs designed for that purpose. Astrologers all do likewise; they do not know the nature of the heavens and do not even make any accurate observations of celestial motions, yet they expect to be able to delineate the effects of these motions. So too do most who study mechanics apart from physics and, without any proper plan, construct new instruments for producing motion. This applies also to those philosophers, who take no account of experience (*neglectis experimentis*) and think that truth will spring from their brain like Minerva from the head of Jupiter. (C I, 20 [HR I, 14; AT X, 379])

5

If it is the self-transcendence revealed in reflection that threatens to plunge us into a labyrinth of doubt, it is only by risking that danger, Descartes would insist, that philosophy can be established on a firm foundation. The philosopher must be willing to surrender the ground that has supported him to gain a more certain ground. Cartesian doubt is essentially such a stepping back from our ordinary ways of knowing the world in order to gain a more complete mastery over it. We must have the courage to see for ourselves. By means of his method Descartes hopes to grasp the world and place it at the disposal of man.

What are the conditions for really grasping something? If we are not to lose ourselves in the complex we must discover the simple in the complex, reduce what is heterogeneous to what is homogeneous. This theme is stated in *Rule I*.

To reflect is already to take a first step in this direction. By transforming the word of experience into a collection of objects for a thinking subject, we establish that subject as the common measure of all objects. By stepping back from the world, the world becomes like a picture, available for inspection and analysis. This world-picture can still be no more than a perspectival appearance of some more fundamental reality. We perform a second reduction when we make the pure subject the measure of what really is, when we equate reality with pure objectivity. And even that picture could be too complex for us to understand. The demand for complete mastery leads necessarily to the demand that the world picture be like a mosaic: the world is to be analyzed into simple parts and then to be reconstructed out of these parts without loss. Such reconstruction is the task of science.

In the *Rules* Descartes attempts to establish the conditions that must be met if there is to be “science” (*scientia*) i.e. “certain and evident cognition.” (C I, 10 [HR I, 3; ATX, 362]) He argues that there are no “no paths to certain knowledge of the truth open to men save manifest intuition and necessary deduction.” (C I, 48 [HR I, 45; ATX, 425])

The former is tied to the apprehension of simple natures. By their very essence, we said, such simple natures do not permit any doubt as to what they are. We either grasp or fail to grasp them. We do not grasp the partially, since they have no parts.

The status of these simple natures is left somewhat uncertain. Descartes certainly suggests that they are recognized and not invented. They are more than figments of the mind. They are the building blocks, not only of science, but of reality.

By 'intuition' I do not mean the fluctuating testimony of the senses or the deceptive judgment of the imagination as it botches things together, but the conception of a clear and attentive mind, which is so easy and distinct that there can be no room for doubt about what we are understanding. Alternatively, and this comes to the same thing, 'intuition' is the indubitable conception of a clear (*purae*) and attentive mind which proceeds solely from the light of reason. Because it is simpler than deduction itself, in that it is simpler, it is more certain than deduction, though deduction, as we have noted above, is not something a man can perform wrongly. Thus everyone can mentally intuit that he exists, that he is thinking, that a triangle is bounded by just three lines, and sphere by a single surface, and the like. Perceptions such these are more numerous than many people realize, disdaining as they do to turn their minds to such simple matters. (C I, 14 [HR I, 7; AT X, 368])

Whatever simples there may be, we know that they cannot be sensed, for all objects of sense are given perspectively; they will present themselves differently to different points of view and consequently must have more than one side. But this is incompatible with the demanded simplicity. These simples promise the exit from the labyrinth.

In *Rule XII* Descartes gives us the fullest discussion of these simples. Three assertions are made:

1. The simples are to be considered relative to knowledge:

First, when we consider things in the order that corresponds to our knowledge of them, our view of them must be different from what it would be if we were speaking of them in accordance with how they exist in reality. If, for example, we consider some body which has extension and shape, we shall indeed admit that with respect to the thing itself, it is one single and simple entity. For viewed in that way, it cannot be said to be a composite made up of corporeal nature, extension and shape, since these constituents have never existed in

isolation from each other. Yet with respect to our intellect we call it a composite made up of these three natures, because we understood each of them separately before we were in a position to judge that the three of them are encountered at the same time in one and the same subject. That is why, since we are concerned here with things only in so far as they are perceived by the intellect, we term 'simple' only those things which we know so clearly and distinctly that they cannot be divided by the mind into others which are more distinctly known. Shape, extension, and motion, etc. are of this sort; all the rest we conceive to be in a sense composed out of these. (C I, 44 [HR I, 40-41; AT X, 418])

2. Simples are either purely intellectual, purely material, or they are common to intellect and matter. (C I, 44 [HR I, 40-41; AT X, 419]) Examples of purely intellectual simples are the act of knowing, doubt, ignorance, the action of the will; of purely material simples shape, extension, motion, etc., of simples common to intellect and matter, "existence, unity, duration, and the like." (C I, 44 [HR I, 41; AT X, 419])

3. "Thirdly, these simple natures are all self-evident and never contain any falsity." (C I, 45 [HR I, 42; AT X, 421]) I have already pointed out that these simples cannot be construed as sense data. They depend on an intellectual intuition. That goes even for what Descartes calls material simples, such as extension. Only if there are such simples, Descartes insists, can there be science. If science is to be possible, we must be able to analyze complexes into simples.

The point is a quite traditional one. Cf. Aristotle, *Metaphysics* Theta, Bk. IX, ch. 10:

But with regard to incomposites, what is being or not being, and truth or falsity? A thing of this sort is not composite, so as to 'be' when it is 'compounded', and not to 'be' if it is separated, like "that the wood is white' or 'that the diagonal is incommensurable'; nor will truth and falsity still be present in the same way as in the previous

cases: In fact, as truth is not the same in these cases, so also is being not the same; but (a) truth or falsity is as follows — contact and assertion are truth (assertion not being the same as affirmation), and ignorance is noncontact. For it is not possible to be in error about them.

Let us sum up: truth, as Descartes demands it, can be gained only if ours is an intuition of simples, that is to say, a mode of vision that is not limited by perspective and not burdened by complexity.

6

From our intuition of simples we can go on to a knowledge of more complicated structures. To do so we must rely on what Descartes calls deduction.

There may be some doubt here about our reason for suggesting another mode of knowing in addition to intuition, viz. deduction, by which we mean the inference of something as following necessarily from some other propositions⁴⁸ that are known with certainty. But this distinction had to be made, since very many facts which are not self-evident are known with certainty, provided they are inferred from true and known principles through a continuous and uninterrupted movement of thought in which each individual proposition⁴⁹ is clearly intuited. ... Hence we distinguish mental intuition from certain deduction on the grounds that we are aware of a movement or a sort of sequence in the latter, but not in the former, and also because immediate self-evidence is not required for deduction, as it is for intuition; deduction in a sense gets its certainty from memory. (C I, 15 [HR I, 8; AT X, 369-370])

Truth is not only aperspectival, it transcends time. We measure our claims to knowledge by a time- and place-transcendent knowledge. But thinking takes time. As *Rule VII* puts it:

⁴⁸ “Propositions” seems misleading. “matters” might be better. The Latin has “quod ex quibusdam allis certo cognitis necessario concluditur.”

⁴⁹ Again I question the translation. I prefer HR: “each step in the process.”

In order to make our knowledge complete, every single thing relating to our understanding must be surveyed in a continuous and wholly uninterrupted movement of thought, and be included in a sufficient and well-ordered enumeration. (C I, 25 [HR I, 19; AT X, 387])

The measure of knowledge is furnished by the instantaneous intuition of a simple nature.

That thinking takes time presents Descartes with a problem, as is made clear in *Rule XI*:

As we have said, conclusions which embrace more than we can grasp in a single intuition depend for their certainty on memory, and since memory is weak and unstable, it must be refreshed and strengthened through this continuous and repeated movement of thought. Say, for instance, in virtue of several operations, I have discovered the relation between the first and the second magnitude of a series, then the relation between the second and third and the third and fourth, and lastly the fourth and fifth: that does not necessarily enable me to see what is the relation between the first and the fifth, and I cannot deduce it from the relations I already know unless I remember all of them. That is why it is necessary that I run over them again and again in my mind until I can pass from the first to the last so quickly that memory is left with practically no role to play, and I seem to be intuiting the whole thing at once. (C I, 38 [HR I, 34; AT X, 408-409])

How seriously Descartes takes the problem of time is apparent from a statement made much later in his *Replies to Mersenne*:

Thirdly, when I said that we can know nothing for certain until we are aware that God exists, I expressly declared that I was speaking only of knowledge of those conclusions which can be recalled when we are no longer attending to the arguments by means of which we deduced them. (C II, 100 [HR II, 38; ATV II, 140])

The reference is to *Meditation V*, which we shall consider in due time. But here is the relevant passage:

Admittedly my nature is such that as long as I perceive something clearly and distinctly I cannot but believe it to be true. But my nature is also such that I cannot fix my mental vision continually on the same thing, so as to keep perceiving it clearly; and often my memory of a previously

made judgment may come back, when I am no longer attending to the arguments which led me to make it. And so other arguments can now occur to me which might easily undermine my opinion, if I did not possess knowledge of God; and I should thus never have knowledge about anything, but only shifting and changeable opinions. (C II,100 [(HR I, 183-184; AT II, 140)])

Doubt thus appears not simply as the result of a reflection that threatens to transform what presents itself to me into mere appearance, but of a related reflection that calls to our attention the way we are bound to the present. The dream metaphor has indeed always had this temporal dimension. We thus have fairy tales where a whole life passes by as the hero looks into a drop of water or the like. The emphasis on the moment threatens to imprison us in the instant and to render us like infants whose “power of thought is dormant” or like madmen, in whom it is extinguished or disturbed. (C II,160 [(HR II, 103; AT II, 228)]) As he remarks in his *Replies to Arnauld*:

For there is nothing that we can understand to be in the mind, regarded in this way, that is not a thought or dependent on a thought. If it were not a thought or dependent on a thought it would not belong to the mind qua thinking thing; and we cannot have any thought of which we are not aware at the very moment it is in us. In view of this I do not doubt that the mind begins to think as soon as it is infused in the body of an infant, and that it is immediately aware of its thoughts, even though it does not remember this afterwards because the impressions of these thoughts do not remain in the memory. (C II,160 [(HR II, 115; AT II, 246)])

This calls our attention to the crucial role that memory, and that is to say, time, plays in the Cartesian account. The demand for knowledge implies a demand for security from the power of time.

Security demands stability and order. Descartes thus refuses to settle for things as they present themselves in all their fleeting variety. They are to be transformed in such a way that they can be grasped and mastered. Be it with our hands, be it with our minds, we can grasp only what endures. The evanescent eludes us. How can we hold on to time? The Spanish baroque poet Góngora (1561–1627) tells of our futile attempts to build time prisons of glass that would allow us to grasp it and hold it in our hands. The

dread of time is a central Baroque concern. And it is central to Descartes' project. That shows itself in his discussion of deduction.

How is deduction possible? How can we connect simples in a way that preserves the necessity that attaches to the intuition of simples? Crucial is a passage in *Rule XII*:

Fourthly, the conjunction between these simple things is either necessary or contingent. The conjunction is necessary when one of them is somehow implied (albeit confusedly) in the concept of the other so that we cannot conceive either of them distinctly, if we judge them to be separate from each other. It is in this way that shape is conjoined with extension, motion with duration or time, etc., because cannot conceive of a shape which is completely lacking in extension, or a motion completely lacking in duration. Similarly if I say 4 and 3 make 7, the composition is a necessary one, for we do not have a distinct conception of the number 7 unless in a confused sort of way we include 3 and 4 in it. (C I, 45-46 [(HR I, 42-43); AT X, 421])

The simples now seem to have a certain aura that is perceived in a confused way, raising a question concerning their supposed simplicity. That aura points to how what is implicit in the first intuition can be drawn out and developed. Crucial is the distinction between contingent and necessary truths:

If, for example, Socrates says that he doubts everything, it necessarily follows that he understands at least that he is doubting, and hence that he knows that something can be true or false, etc.; for there is a necessary connection between these facts and the nature of doubt. The union between such things, however, is contingent when the relation conjoining them is not an inseparable one. This is the case when we say that a body is animate, a man is dressed etc. (C I, 46 [(HR I, 43); AT X, 421])

It must be possible to have a clear and distinct understanding of the contingent. This is the problem of science. Unfortunately Descartes did not get to the last part of the *Rules*, which would have demonstrated the application of the method to natural science.

7

Let me conclude with a more general point: the *Rules* offers us an example of what can be called a logical atomism. What is the point of such an atomism? The complex, it insists, if it is to be understood, must be reduced to simples. The reduction of what is to be understood to simples is to guarantee transparency. But is such a reduction possible? Is something lost in the course of it? But if so, what?

What is simple, we said, cannot be other than it presents itself: either we get it or we don't. It does not permit any doubt as to this meaning. But here we have to make a distinction between doubt concerning the meaning of something and doubt concerning the truth of something. I can understand something clearly and distinctly and yet ask whether anything real corresponds to it. Consider once more what Descartes has to say about "corporeal nature, extension and shape" in *Rule XII*: relative to our thought they are simples, yet nothing real corresponds to these simples. They are logically, but not ontologically simple. What is the relationship between logic and ontology?

And can I not have a clear and distinct understanding of what a proposition asserts without perceiving its truth? Take the proposition $\pi=3.14$. What it asserts, its meaning seems clear. I do have a clear understanding of " π ", " $=$ ", and " 3.14 ". But my clear and distinct understanding of the meaning of the proposition does not allow me to claim a clear and distinct perception of its truth. Its meaning may indeed be clear and distinct, sufficiently clear to establish its falsity.

One more point: There seems to be one more consideration that helps shape Descartes' thinking. The human spirit is itself a unity. This is suggested already by *Rule I*, where he speaks of the light of the intellect being essentially one. The spirit cannot come to rest with unreduced multiplicity. It always seeks to discover unity in multiplicity — an old Platonic theme. Thus it turns on one extreme to simple natures, on the other to an all encompassing science. This is the goal of Descartes' *mathesis universalis*. In the Cartesian sense there was no system before Descartes. The medieval *summa* cannot be considered a system in that sense.

5. The Reappearance of Doubt and the Turn to the Self

1

As I pointed out last time, Descartes unfortunately did not get to the last part of the *Rules*, which should have given us a clearer idea of what he had in mind for science. But *Rule XII* to some extent makes up for this deficiency. Consider once more his discussion of the nature of the magnet.

Thus, if the question concerns the nature of the magnet,⁵⁰ foreseeing that the topic will prove inaccessible and difficult, he turns his mind away from everything that is evident, and immediately directs it all the most difficult points, in the vague expectation that that by rambling through the barren field of manifold causes, he will hit upon something new. But take someone who thinks that nothing in the magnet can be known which does not consist of certain self-evident simple natures; he is in no doubt about how he should proceed. First he carefully gathers together all the available observations (*experimenta*) concerning the stone in question; then he tries to deduce from this what sort of mixture of simple natures is necessary for producing all the effects which the magnet is found to have. Once he has discovered this mixture, he is in a position to make the bold claim that he has grasped the true nature of the magnet, so far as it is humanly possible to discover it on the basis of given observations. (C I, 49-50 [HR I, 47; AT X, 427])

A model gives us an understanding of the “real nature” of the magnet to the extent that human knowledge is capable of such knowledge. What must be clear and distinct is the model. Its construction out of simple natures is to assure this. But human knowers should not pretend to be able to or try to go beyond the description

⁵⁰ Cf. C I,52 (HR 49; AT IX, 4310; “For example, someone may ask me what conclusions are to be drawn about the nature of the magnet simply from the experiments which Gilbert claims to have performed, be they true or false.” The reference is to William Gilbert, *De Magnete* (1600).

of such structures. The young Descartes thus does not claim that it is possible to gain a final insight into the essence of things. The “true nature of the magnet” is here taken to be relative to what our human faculties allow us to know.

Another example Descartes gives us is that of the refraction of light:

If, say, someone whose studies are confined to mathematics tried to find the line called the ‘anaclastic’ in optics — the line from which parallel rays are so refracted that they intersect in a single point — he will easily see, by following Rules Five and Six, that the determination of this line depends on the ratio of the angles of refraction to the angles of incidence. But he will not be able to find out what this ratio is, since it has to do with physics rather than mathematics. (C I, 28-29 [HR I, 28-29; AT X, 393-394])

As Descartes points out and later exploits in *Discourse Eight* of his *Optics*, this ratio between the angles of incidence and of refraction depends on changes in this relation produced by varying the medium.

He will see that these changes depend on the manner in which a ray passes through the entire transparent body, and that knowledge of the way in which light thus passes through presupposes also a knowledge of the nature of the action of light. Lastly, he will see that to understand the latter process he must know what a natural power in general is — this last being the most absolute term in this whole series. Once he has clearly ascertained this through mental intuition, he will, in accordance with Rule Five, retrace his course through the same steps. If, at the second step, he is unable to discern at once what the nature of light’s action is, in accordance with Rule Seven he will make an enumeration of all the other natural powers, in the hope that a knowledge of some other natural power will help him understand this one, if only by way of analogy — but more of this later. Having done this, he will investigate how the ray passes through the whole of the transparent body. Thus he will follow up the remaining points in

due order, until he arrives at the anaclastic itself. (C I, 29 [HR I, 23; AT X, 394-395])

In the *Rules* Descartes does not provide what is promised by the “but more of this later,” presumably because the work remained incomplete. But the “analogy” reappears in the *Dioptric* where light is compared to mechanical processes. By means of a mechanical model the natural potency of light is to be understood.

2

With this in mind let me return to *Rule XII*. Descartes begins by asserting once again that there are four faculties that alone will be of use in gaining knowledge: understanding, imagination, sense, and memory. Descartes distinguishes a) what presents itself spontaneously, b) how we learn one thing by means of another, c) what truths are deduced from what. He dismisses the first point as taking too much time. What he offers us instead is an account for which he does not claim truth:

Of course you are not obliged to believe that things are as I suggest. But what is to prevent you from following these suppositions if it is obvious that they detract not a jot from the truth of things, but simply make everything much clearer? This is just what you do in geometry when you make certain assumptions about quantity, which in no way weaken the force of the demonstrations, even though in physics you often take a different view of the nature of quantity C I, 40 [HR I, 36; AT X, 412])

Descartes proceeds to present us with a mechanical model of sensation:

Let us then conceive of the matter in the following way. First, in so far as our external senses are all parts of the body, sense-perception, strictly speaking, is merely passive, even though our application of the senses to objects involves action, viz. local motion; sense-perception occurs in the same way in which wax takes on an impression from a seal. It should not be thought that I have a mere

analogy in mind here: We must think of the external shape of the sentient body as being really changed by the object in exactly the same way as the shape of the surface of the wax is altered by the seal. (C I, 40 [HR I, 36; AT X, 412])

Implicit is the primacy of shape:

thus, in the eye, the first opaque membrane receives the shape impressed upon it by multi-coloured light; and in the ears, the nose, and the tongue the first membrane which is impervious to the passage of the object thus take on a new shape from the sound, the smell, and the flavor respectively. (C I, 40 [HR I, 37; AT X, 412])

Descartes insists on the primacy of figure.

This is a most helpful way of conceiving these matters, since nothing is more readily perceivable by the senses than shape, for it can be touched as well as seen. Moreover, the consequences of this supposition are no more false than those of any other. This is demonstrated by the fact that the concept of shape is so simple and common that it is involved in everything perceivable by the senses. Take colour, for example: whatever you may suppose colour to be, you will not deny that it is extended and consequently has shape (C I, 40-41 [HR I, 36; AT X, 413])

As we have seen (C I, 41 [HR I, 37; AT X, 413]), the primacy of figure leads to the proposal that we interpret all sensible things in the medium of figure: "it is certain that the infinite multiplicity of figures is sufficient to express all the differences in perceptible things.

This leads Descartes to introduce the Aristotelian⁵¹ notion of a common sense:

Secondly, when an external sense organ is stimulated by an object, the figure which it receives is conveyed at one and the same moment to another part of the body known as the 'common' sense, without any

⁵¹ Aristotle, *De Anima* III, I, 425a14

entity really passing from one to the other. (C I, 41 [HR I, 37; AT X, 414])

Descartes likens this process to a pen that, when used to write, moves as a whole.

This common sense is said to function

like a seal, fashioning in the phantasy (*phantasia*) or imagination, as if in wax, the same figures or ideas which come, pure and without body from the external senses. The phantasy is a genuine part of the body, and is large enough to allow different parts of it to take in many different figures and generally, to retain them for some time; in which case it is to be identified with what we call 'memory'. (C I, 41-42 [HR I, 38; AT X, 414])

'Memory' is understood here as a purely bodily function. This phantasy is the source of action:

Fourthly, the motor power (i.e. the nerves themselves) has its origin in the brain, where the corporeal imagination is located; and the latter moves the nerves in different ways, just as the 'common sense' is moved by the external senses or the whole pen is moved by its lower end. (C I, 42 [HR I, 38; AT X, 414])

All this also applies to animals. But the power by which we know is said to be radically distinct from the body. That distinction is the foundation of Descartes' philosophy.

Fifthly, and lastly, the power through which we know things in the strict sense is purely spiritual, and is no less distinct from the whole body than blood is distinct from bone, or the hand from the eye. (C I, 42 [HR I, 38; AT X, 415])

This cognitive faculty resembles sometimes the seal, sometime the wax, although Descartes emphasizes that this is a mere analogy, since body and mind are profoundly different:

applying itself along with the imagination to the 'common' sense, it is said to see, touch, etc. ; when addressing itself to the imagination

alone, in so far as the latter is invested with various figures, it is said to remember; when applying itself to the imagination in order to form new figures, it is said to imagine or conceive; and lastly, when it acts on its own, it is said to understand. (C I, 42 [HR I, 39; AT X, 416])

This leads Descartes to conclude:

that when the intellect is concerned with matters in which there is nothing corporeal or similar to the corporeal, it cannot receive any help from those faculties; on the contrary, if it is not to be hampered by them, the senses must be kept back and the imagination must, as far as possible, be divested of every distinct impression. If, however, the intellect proposes to examine something which can be referred to the body, the idea of that thing must be formed as distinctly as possible in the imagination. In order to do this properly, the thing itself which this idea is to represent should be displayed to the external senses. (C I, 43 [HR I, 39-40; AT X, 416])

That is to say, to understand nature we have to rely on “certain abbreviated representations” of them (C I, 43 [HR I, 40; AT X, 417]) and that is to say, we must construct models out of material simples such as shape, extension, and motion. (C I, 45 [HR I, 41; AT X, 419]) They will be mechanical models, as suggested by Descartes’ description of the body’s working.

In what sense are such models true? Presupposed is an understanding of the structural identity of the imagination and nature. The spatiality of the world is thought to correspond to the spatiality of the imagination. Indeed their form is fundamentally the same: both are objects in space. This allows for their structural identity.

3

But did we really have a right to assume the structural identity of our spatial models of reality and the reality they are supposed to describe? Let us consider what is presupposed by these models. Presupposed is an insight into extension that

is furnished by the imagination; presupposed is also that our mathematics does justice to the structure of reality, that Galileo was right, when he proclaimed that God wrote the book of nature in the language of mathematics.

In the *Rules*, as we have seen, Descartes thus appeals to simple natures to show us the exit from the labyrinth of appearances. But what if these so-called simple natures are our own inventions, fictions that exist only in our minds? What if the demand for such simplicity is one that reality does not meet, if the simple natures of Descartes are only logical atoms to which no real properties of things correspond? We know that while Descartes worked on the *Rules* he read Francis Bacon's *Novum Organum*⁵² and what he read there must have struck him as a direct challenge to his program:

The human understanding is of its own nature prone to suppose the existence of more order and regularity in the world than it finds. And though there may be many things in nature which are singular and unmatched, yet (the understanding) devises for them parallels and conjugates and relatives which do not exist. Hence the fiction that all celestial bodies move in perfect circles.⁵³

This is a denial of the thesis that God wrote the book of nature in the language of mathematics. Descartes needed to defend that thesis against Bacon.

Here is another passage that demands a response:

The human understanding is of its own nature prone to abstractions and gives a substance and reality to things which are fleeting. But to resolve nature into abstractions is less our purpose than to dissect her into parts, as did the school of Democritus, which went further into nature than the rest. Matter rather than forms should be the object of our attention, its configurations and changes of configurations, and simple action, and laws of action or motion; for forms are figments of the human mind.⁵⁴

And that goes also for mathematics; it, too, is considered by Bacon a figment of the mind.

⁵² See Lüder Gäbe, *Descartes Selbstkritik: Untersuchungen zur Philosophie des jungen Descartes* (Hamburg: Meiner, 1972), pp. 96-111.

⁵³ Francis Bacon, *Novum organum*, XLV, trans. J. Spedding in Francis Bacon of Verulam, *The Works of Francis Bacon*, eds. J. Spedding, R. Ellis, D. Heath (Boston: Brown and Taggard, 1860-1864), vol. I.

⁵⁴ Bacon, *Novum organum*, LI

The human understanding is unquiet; it cannot stop or rest, and still presses onward, but in vain. Therefore it is that we cannot conceive of any end or limit to the world; but always as of necessity, it occurs to us that there is something beyond: Neither again can it be conceived how eternity has flowed into the present day: for that distinction which is commonly received of infinity in time past and in time to come can by no means hold; for it would follow that one infinity is greater than another, and that infinity is wasting away and tending to become finite. The like subtlety arises touching the finite divisibility of lines, from the same inability of thought to stop⁵⁵

Descartes had hoped to appeal to mathematics to find the exit from the labyrinth of appearances. Now he has to read in Bacon that, so understood, mathematics, too, is but an idol of the tribe. The confidence that he had shared with Galileo, that God wrote the book of nature in the language of mathematics was thus severely challenged.

The *Meditations* address that crisis of confidence. They were written to restore faith in the power of mathematics to reveal the structure of reality. But to accomplish this, Descartes has to show that violence is not done to nature by such mathematization. Needed is a metaphysics or an ontology of nature. Descartes hopes to provide this by showing that the being of nature is extended substance, justifying Kepler's conviction: *Ubi materia, ibi geometria*. We are said to possess a clear and distinct idea of the being of nature as extension. And is geometry not based on extension? If the being of nature can indeed be shown to be extended substance, there can be no question of the applicability of mathematics to nature. The trust in mathematics would have been vindicated.

But what right does Descartes have to trust simple or clear and distinct ideas. Bacon warns that human nature is liable to mistake its own fictions for reality. And Bacon quite expressly considers our intuition of infinitely divisible space, i.e. that idea, which Descartes thought he held clearly and distinctly, such a fiction. To meet that challenge, Descartes has to show that whatever I perceive clearly and distinctly is indeed

⁵⁵ Bacon, *Novum organum*, XLVIII. See Gäbe, *Descartes' Selbstkritik*, pp. 96-111. Cf. Descartes's letters to Mersenne of Jan. 23, 1630, Dec. 10, 1630 and May 10, 1632, AT I, 109, 195-6, and 251-2.

as I perceive it. Here there can be no gap separating the idea and what the idea is about, between the logical and the ontological.

4

In the *Rules* Descartes makes an attempt to escape from the labyrinth of appearance and to arrive at a science of nature by turning to primary qualities and to what can be measured and numbered. But does this move really deliver us from perspectival illusion? Or are the mathematical descriptions that are to replace those directly based on the senses of such a nature that they cover up rather than reveal the nature of reality? Are we exchanging one set of illusions for another? Consider once more Bacon's distrust of mathematics. How can we justify the method of the *Rules*, which insists on a particular form of description? What is the relationship of that form to reality? What is the relationship of the order of knowing to the order of being?

To justify his method Descartes has to show the adequacy of his simples to reality. How can this be done? How can the gap between reality and knowledge that has opened up in the *Rules* be bridged?

Descartes hopes to solve the difficulty by an analysis of the *cogito*: I cannot doubt that I, a thinking thing exist. And if Descartes is right, what prevents me from doubting this is nothing but the simplicity, and that is to say, the clarity and distinctness of the idea involved.

The *cogito* had been mentioned already in the *Rules*. Consider once more *Rule III*:

Thus everyone can mentally intuit that he exists, that he is thinking; that a triangle is bounded by just three lines, and a sphere by a single surface, and the like. (C I, 14 [HR I, 7; AT X, 368])

The intuition that I exist and think here is mentioned first, but appears as a member of a series of indubitable intuitions. Cf also *Rule XII*:

If, for example, Socrates says that he doubts everything, it necessarily follows that he understands at least that he is doubting, and hence that he knows that something can be true true or false, etc, (C I, 46 [HR I, 43; AT X, 421])

In the *Rules* the *cogito* appears as one simple among others. And yet there is something distinctive about it: the intuition is here tied to a claim concerning existence. The orders of being and knowing are here inseparably intertwined. That distinguishes it from the geometrical examples. Thus it offers us the hope to bridge the gap that has opened up. The *Second Meditation* attempts to build that bridge.

5

In the *Rules* Descartes had written that he who embarks on the search for the truth is like someone who enters a labyrinth. The *Meditations* bear out the truth of this statement. The attempt to establish science on a firm and permanent foundation leads to a doubt that leaves Descartes no place where to stand. As he puts it in the Second Meditation:

It feels as if I have fallen unexpectedly into a deep whirlpool, which tumbles me around so that I can neither stand nor swim up to the top. ... Archimedes used to demand just one firm and immovable point in order to shift the entire earth; so too I can hope for great things if I manage to find just one thing, however slight, that is certain and unshakable. (C II, 16 [HR I, 149; AT VII, 24])

The second paragraph simply restates the by now familiar doubt:

I will suppose, then, that everything I see is spurious. I will believe that my memory tells me lies, and that none of the things that it reports ever happened. I have no senses. Body, shape, extension, movement, and place are chimeras. So what remains true? Perhaps just the one fact that nothing is certain. (C II, 16 [HR I, 149; AT VII, 24])

I want to underscore the use of “see” and “memory.” Also the inclusion of the imagination as the faculty of presenting extension in what is supposed to be spurious. And we should note that number is not included here in the list of what his doubt has rendered uncertain.

In the third paragraph he comes to the conclusion that we cannot doubt that we exist, a thought anticipated in *Rule XII*, where Descartes uses the example of the doubting Socrates, who doubting everything, yet cannot doubt that he is doubting.

... this proposition: *I am, I exist*, is necessarily true whenever it is put forward by me or conceived in my mind. (C II, 17 [HR I, 149; AT VII, 25])

I want to underscore the reference to the present moment.

I am prepared to grant this to Descartes. But how much content can we give to the thought of our existence? What do we usually take ourselves to be? Note that the 'I' whose existence has been proven has not been shown to be permanent. The thought is true every time I think it. The problem of time lurks in the background.

But what am I? Descartes begins by entertaining briefly the traditional suggestion that the human being is the *animal rationale*, the animal that has reason, but he is quick to dismiss it as leading to an endless number of other questions. Related is the understanding of the human being as body and soul. Of soul, he suggests, he has no very clear idea:

But as the nature of this soul, either I did not think about this or else I imagined it to be something tenuous, like a wind or fire or ether, which permeated my more solid parts. (C II, 17 [HR I, 151; AT VII, 26])

Of body he does seem to have a much clearer idea: it can be defined by a certain figure, fills a certain space, can be perceived in various ways, and can be moved. The power of self-movement is expressly denied to it. (C II, 17 [HR I, 151; AT VII, 26])

Descartes is speaking of body, not of his body.

But even if we grant that we seem to have a clear idea of body, does this entitle us to say that we are body or that there are bodies? The evil genius hypothesis calls the whole domain of body into question. The only attribute that I cannot call into question is thinking.

At last I have discovered it — thought; this alone is inseparable from me; it alone cannot be separated from me. I am, I exist — that is certain. But for how long? For as long as I am thinking. For it could

be that were I totally to cease from thinking, I should totally cease to exist. At present I am not admitting anything except what is necessarily true: I am, then, in the strict sense only a thing which thinks; that is, I am a mind, or intelligence, or intellect, or reason — words whose meaning I have been ignorant of until now. But for all that I am a thing which is real and which truly exists: but what kind of a thing? As I have just said — a thinking thing. (C II, 18 [HR I, 151-152; AT VII, 27])

But is that all? His imagination does indeed suggest that we are more and Descartes does not deny that he is a body or perhaps some other thing. All that he is saying is that so far he is not entitled to affirm this.

And yet may it not perhaps be the case that these very things which I am supposing to be nothing, because they are unknown to me, are in reality identical with the 'I' of which I am aware. I do not know, and for the moment I shall not argue the point, since I can make judgments only about things which are known to me. I know that I exist; the question is, what is this 'I' that I know? (C II, 18 [HR I, 152; AT VII, 27])

Thinking, Descartes suggests, is to imagining as waking is to dreaming. The reliability of the imagination is called into question:

If the 'I' is being taken strictly as we have been taking it, then it is quite certain that knowledge of it does not depend on things of whose existence I am as yet unaware; so it cannot depend on any of the things which I invent in my imagination. And this very word 'invent' (*effingo*) shows me my mistake. It would indeed be a case of fictitious invention if I used my imagination to establish that I was something or other; for imagining is simply contemplating the shape or image of a corporeal thing. Yet now I know for certain both that I exist and at the same time that all such images and, in general, everything relating to

the nature of body could be mere dreams <and chimeras>. (C II, 18-19 [HR I, 152; AT VII, 27-28])

The conclusion that I am a thing that thinks is consequently reiterated (C II, 19 [HR I, 153; AT VII, 28]) Every mental act supports the *cogito*: I feel, I imagine, I walk, etc. To be conscious of these activities, thought must be involved. In the *Rules* already we met with a sharp separation of understanding and imagination. That division is now underscored.

No surprise then that doubts should return. Again, at first it seems to Descartes that the corporeal things we encounter are more clearly known to us than the self. We are outward oriented. Consequently we are reluctant to make that inward turn that Descartes demands of us (CII, 19 [HR I, 153; AT VII, 28])

To counter such reluctance Descartes turns to a piece of wax. He chooses an object that presents itself to all five senses. The wax is then heated. The same wax is said to remain nonetheless, although all the evidence with which my senses had supplied me now has changed. What then is this wax that remains the same in spite of the fact that everything I sense seems to be different? After we have abstracted from all that has changed and therefore cannot belong essentially to the wax, what remains? An extended thing that is flexible and movable.

But what is meant here by 'flexible' and 'changeable'? Is it what I picture in my imagination: that this piece of wax is capable of changing from a round shape to a square shape, or from a square shape to a triangular shape? Not at all, for I can grasp (*comprehenndo*) that the wax is capable of countless changes of this kind, and yet I am unable to run through this immeasurable number in my imagination, from which it follows that it is not the faculty of the imagination which gives me my grasp of the wax as flexible and changeable. (CII, 20-21[HR I, 154-155; AT VII, 31])

Comprehension proves to have a much wider scope than the imagination. It extends to the infinite. The imagination is thus unable to understand the wax. Only the

mind can do so. What is said here about the imagination invites comparison with what was said about it in *Rule XII*.

The essence of things is not grasped by the senses; nor by the imagination. It is understood.

And yet, and here is the point, the perception I have of it is a case not of vision or touch or imagination — nor has it ever been, despite previous appearances — but of purely mental scrutiny; and this may be imperfect and confused, as it was before, or clear and distinct as it is now, depending on how carefully I concentrate on what the wax consists in. (CII, 21[HR I, 155; AT VII, 31])

Descartes draws an analogy between the judgment that something is wax and the judgment that the persons he sees walking in the street, as he looks down from his window, are persons and not automata. That is an act of the mind.

What is the function of the wax example? First of all, in the context of his *Meditations*, to show that, notwithstanding our first inclination to turn to the things we can see and touch and to think that it is here that we are most obviously in touch with reality, as a matter of fact these things prove more questionable than they at first appeared. The wax, on reflection, becomes an appearance of something that is not seen, nor imagined, but thought. Real access to reality is furnished not by the senses, but by the mind.

I see, that without any effort I have now finally got back to where I wanted. I now know that even bodies are not strictly perceived by the senses or the faculty of imagination but by intellect alone, and that this perception derives not from their being touched or seen but from their being understood; and in view of this I know plainly that I can achieve an easier and more evident perception of my own mind than of anything else. But since the habit of holding on to an old opinion cannot be set aside so quickly, I should like to stop here and meditate for some time on this new knowledge I have

gained, so as to fix it more deeply in my memory. (CII, 22-23 [HR I, 157; AT VII, 31])

6. The Turn to the Self Reconsidered

1

At the end of the *Rules* we are left with the question of how the descriptions furnished by Cartesian science, as understood in this early never completed text, relate to reality? Does that science offer us more than conjectures, hypothetical models that, while they may be clear, cannot claim truth? Or does it capture the very structure of reality, if not totally, perhaps, but nevertheless adequately? Important here is the distinction between a representation that rests on structural identity, and mere analogy, which rests on some perceived similarity.

How adequate is the recourse to simples to reality? For an answer Descartes turns to the *cogito*. Here we have an example of what in the *Rules* is termed intuition; and yet it is distinguished by the fact that here the inquirer is himself what he is inquiring about. Thus it promises us a unique opportunity to check the adequacy of the clear and distinct. The divide between the order of knowing and the order of being appears to have been bridged. The clear and distinct intuition I am supposed to have of myself forces me to recognize that I exist.

But do we in fact have a clear and distinct intuition of ourselves as a thinking substance? We do know with certainty that we are. But does such certainty rest on a clear and distinct idea that we have of ourselves? How clear and distinct is the meaning of “I,” “exist,” “think,” “doubt”?

This is the sort of objection Epistemon raises in *The Search After Truth*, after Polyander has been led by Eudoxus to embrace the Cartesian position.

You say that you exist and you know you exist, and you know this because you are doubting and because you are thinking. But do you really know what doubting is or what thinking is? Since you do not want to admit anything about which you are not certain or of which you do not have perfect knowledge, how can you be so sure that that you exist, on the slender basis of such obscure facts as these? You should really have taught Polyander first of all what doubt is, what thought is, what existence is, so that his reasoning might have the strength of a demonstration, and

that he might understand himself before trying to make himself intelligible to others. (CII, 416 [HR I, 323; AT X, 522])

Eudoxus grants the general point. But he suggests that it is misleading to demand a definition of such terms. We know their meaning by a kind of mental vision.

But do not imagine that in order to know what these are, we have to rack our brains trying to find the 'proximate genus' and the 'essential differentia' which go up to make their true definition. We can leave that to someone him who wants to be a professor or to debate in the Schools. ...there are, in my view, some things which are made more obscure by our attempts to define them; since they are very simple and clear, they are perceived and known just on their own, ...

I would never have believed that there has ever existed anyone so dull that he had to be told what existence is before being able to conclude and assert that he exists. The same applies to doubt and thought. (CII, 417 [HR I, 324; AT X, 523-524])

The same point is made in *Principle* I, X.

I did not in saying that deny that we must first know what thought, existence, and certainty are, and that it is impossible that that which thinks should not exist, and so forth. But because these are very simple notions, and ones which on their own provide us with no knowledge of anything that exists, I did not think they needed to be listed. (CI, 196 [HR I, 222; AT V IIIA, 8noptions]) (HR I, 222)

Note that Descartes here distinguishes two kinds of notions: our knowledge of the simplest notions, which he does not think worthy of discussion, is said to give us no insight into reality. But we should not think that all simple notions are of that kind. That suggests that clarity and distinctness are not sufficient to relate my ideas to something that transcends my thoughts or as he puts it, to give me knowledge of something that exists. Any intuition that gives us insight into what is cannot be like these simplest notions. The *cogito* expresses such an intuition.

But are matters that simple? Do I really know what existence is? In what sense? Descartes does indeed have a particular understanding of existence in mind:

existence is said by him to be a perfection (Med. V, CII, 46 [HR I, 132; AT VII, 67]). Descartes calls perfect what does not need something else to be itself. What exists by itself is thus more perfect than what depends for its existence on another. Descartes' discussion is guided by certain ontological assumptions that are spelled out in the *Principles*: key here is the concept of substance.

Principles I, LI: By *substance* we can understand nothing other than a thing which exists in such a way as to depend on no other thing for its existence. And there is only one substance which can be understood to depend on no other thing whatsoever, namely God. In the case of all other substances we perceive that they can exist only by the help God's concurrence. Hence the term 'substance' does not apply *univocally*, as they say in the Schools, to God and to other things, that is, there is no distinctly intelligible meaning of the term which is common to God and his creatures. (CI, 210 [HR I, 239; AT VIIIA, 24])

Properly speaking there is only one substance: God.

Principle LII: But as for corporeal substance and mind (or created thinking substance), these can be understood to fall under this common concept; things that need only the concurrence of God in order to exist. However, we cannot initially become aware of a substance merely through its being an existing thing, since this alone does not of itself have any effect on us. We can, however, easily come to know a substance by one of its attributes, in virtue of the common notion that nothingness possesses no attributes, that is to say, no properties or qualities. Thus, if we perceive the presence of some attribute, we can infer that there must also be present an existing thing or substance to which it may be attributed. (CI, 210 [HR I, 240; AT VIIIA, 24-25])

Substance, Descartes is saying, cannot be discovered by the mere fact that it exists. It is discovered only by one of its attributes, a point made also in his *Reply* to

Arnauld's objections. But that is to say, there is no knowledge of existence without a knowledge of essence.

Descartes goes on to argue that there is always a principal attribute:

Principle LIII: A substance may indeed be known through any attribute at all; but each substance has one principal property which constitutes its nature and essence and to which all its other properties are referred. Thus extension in length, breadth, and depth constitutes the nature of corporeal substance; and thought constitutes the nature of thinking substance. (CI, 210 [HR I, 240; AT VIIIA, 25])

We also can have a clear and distinct idea of God:

Principle LIV: ... We also can have a clear and distinct idea of uncreated and independent thinking substance, that is of God. Here we must simply avoid supposing that the idea adequately represents to us everything that is to be found in God; and we must not invent any additional features, but concentrate only on what is really contained in the idea and on what we clearly perceive to belong to the nature of supremely perfect Being. (CI, 211 [HR I, 241; AT VIIIA, 26])

Not all attributes, Descartes insists, reside in things. Some of them "are only in our thought." That goes for time, number, indeed for all universals (*Principles* LVII and LVIII). They are simply modes of thinking.

Principle LIX: These universals arise solely from the fact that we make use of one and the same idea in order for thinking all of the individual items which resemble each other; we apply one and the same term to all the things which are represented by the idea in question, and that is the universal term. When we see two stones, for example, and direct our attention not to their nature, but merely to the fact that there are two of them, we form the idea of the number which we call 'two'; and when we later see two birds or two trees, and consider not their nature but merely the fact that there are two of them, we go back to the same idea as before. (CI, 212 [HR I, 242-243; AT VIIIA, 27])

Descartes sounds here almost like a nominalist. The perception of similitude leads us to give them the same name. But there exists no universal, say, blue. What matters to us here is that clarity and distinctness is not sufficient to move from something that is only in our mind to something that exists. Number and indeed all universals would be examples. What else, beyond clarity and distinctness, is then needed to make that move?

2

But let us return to the *cogito*. From our ontological excursus we learned that, according to Descartes, to be means first of all to be as a substance. That understanding of being is profoundly opposed to any version of the Berkeleyan *esse est percipi*, including the Heideggerian understanding of being in *Being and Time*, which makes being dependent on Dasein. In the most proper sense, for Descartes, only God is.

His interpretation of the mediated knowledge of substance enables Descartes to tie the claim that I know that I am to the far more dubious claim that I have a clear and distinct idea of what I am: a thinking thing. A more careful analysis would seem to show rather that the certainty that I am now thinking does not depend on a clear and distinct idea of what I am. The *cogito* would seem to lack the transparency Descartes attributes to it.

The *cogito*, according to Descartes is supported by a simple intuition. There is consequently no syllogism involved. The supposed syllogism, I think therefore I am, only masks that simple intuition. But Descartes insists that notwithstanding such simplicity, our knowledge of existence is marked by a kind of double awareness. The knowledge that something is, is inevitably mediated by a knowledge of what it is.

To express this point somewhat differently: our knowledge of what something is mediated by concepts, but these does not exhaust its being. Consider how I know some particular thing. Consider once more what Descartes says in *Principle* LIX about universals. Say, I call something a tree. How adequate is that

designation to what is before me? How adequate are our linguistic frameworks? Certainly Descartes' own account is not free from presuppositions, but is supported by a particular ontology.

(Can I arrive at a language that captures the form that all languages must share in order to be languages at all? With his appeal to notions of the simplest kind Descartes took a step in the direction towards such a language.)

A more serious threat to the Cartesian program is posed by a second consideration: To know something is to have assigned it a place in a logical or linguistic space that has room not only for this, but for countless other possible worlds. This place is never so fully determined that it cannot be occupied by some other, very similar thing. The gap between reality and language cannot in principle be closed. And we should not see in this inevitable failure to close the gap between language and reality a defect of language. Were it not possible to subject the infinite richness of the reality we encounter to our measures, all our attempts to secure a place in the world would be vain. Reality would drown us. Reality reveals itself to us precisely when it reveals itself to us as surpassing all our forms of representation. This is not to say that we can dispense with the mediating role played by these forms. But it is to say that the gap that separates Descartes' clear and distinct ideas from reality will not be closed.

3

Let me approach the *cogito* in a somewhat different manner. Consider the distinction between intuition and judgment. Does the *cogito* express an intuition or a judgment? The distinction seems to be blurred. Related is the question: is our understanding of ourselves immediate or is it mediated. It must, I take it, be thought of as sort of mediated. The idea I have of myself (objective reality) depends on, as Descartes puts it, certain very simple notion, and it refers beyond itself to myself. To make sense of this, we must posit a kind of double-awareness of the self: to know that the idea I have of myself does indeed refer to myself I must have a more immediate self-awareness, a more immediate access to what it represents, i.e.

to myself. Descartes takes such reflexivity to be characteristic of thought: “we cannot have any thought of which we are not aware at the very moment it is in us.” (C II, 160 [(HR II, 115; AT II, 246)]) An immediate self-awareness attends all ideas I have, including the idea I have of myself. It would seem to be this immediate self-awareness that provides the *cogito* with its certainty, and not the clarity and distinctness of the idea I have of myself. But if so, we have not succeeded in establishing clarity and distinctness as a criterion of truth.

It is perhaps confusing that immediacy may be used in two ways: what mediates may be an idea or certain simple notions, it may also be reflection. I might thus have an immediate perception of a simple idea, which reflection shows to be a representation of something that is not present to me with the same clarity and distinctness. Such it would seem, on the Cartesian account, is the idea I have of myself. Given their simplicity, one may be tempted to argue, the represented must either be completely present in such ideas or not at all. They must be like transparent glass through which we can see without loss what is on the other side, if they are to be representations at all. But is this a convincing argument? What distinguishes the *cogito* from other simples is that only in the case of the *cogito* am I actually on the other side and thus able to bear out that the clear and distinct is indeed a transparent medium and thus establish it as a criterion of truth. But again: is this a convincing argument?

There is a further problem. If ontological simples correspond to what is logically simple then it would appear that the idea of God alone can really be clear and distinct, since everything depends on it. In the *Third Meditation* Descartes seems prepared to grant this. The idea I have of God is said there to be *maxime vera, et maxime clara et distincta*, “utterly clear and distinct,” more literally, to the highest degree clear and distinct. (C II, 31 [(HR I, 166; AT VII, 46)]) But can there be degrees of clarity and distinctness? And what then are we to make of the proof of the existence of God (to which we shall turn next time)? If this is the idea that is most clear and distinct, is such a proof more than a device to get the reader to recollect what is already known to him? The human being would seem to be prior

in the order of knowing, God in the order of being. But once again the orders of being and knowing separate, again a gap threatens to render the hope for a fully adequate picture of the world vain.

4

With this let me turn to the critics of the Second Meditation. Let us briefly consider the main charges.

1. Caterus, the author of the first set of objections, finds himself in agreement with Descartes.

2. The crucial objection, which will be repeated by others, is already stated succinctly by Mersenne:

The position so far is that you recognize that you are a thinking thing, but you do not know what this thinking thing is. What if it turned out to be a body which, by its various motions and encounters, produces what we call thought? (C II, 87-88 [(HR II, 25; AT VII, 122)])

3. Hobbes repeats what is essentially the same point (H II, 61), but adds a positive argument that it is impossible to separate thinking from a thinker, and we must think such a thinker as embodied, i.e. as matter:

The knowledge of the proposition, 'I exist' thus depends on the knowledge of proposition, 'I am thinking'; and knowledge of the latter proposition depends on our inability to separate thought from the matter that is thinking. So it seems that the correct inference is that the thinking thing is material rather than immaterial. (C II, 123 [(HR II, 62; AT VII, 173-174)])

4. Weightier is the fourth set of objections by Arnauld. Arnauld begins by pointing out the similarity between the thought of Descartes and St. Augustine, who long before had used the *cogito* in similar fashion to refute the skeptics.⁵⁶ Arnauld grants Descartes that in thinking it is possible to separate thought and extension, but he raises the question whether it follows from the fact that I am not aware of

anything that belongs to my essence except thinking, that nothing else in fact belongs to my essence. Here we have once again the question of the relationship of the order of knowledge and the order of being. Has Descartes shown that mind can be thought adequately without body? (C II, 141 [(HR II, 82; AT VII, 201)])

Arnauld goes on to suggest that Descartes' argument proves too much. It claims that

nothing corporeal belongs to our essence, so that man is merely a rational soul and the body merely the vehicle for the soul — a view which gives rise to the definition of man as 'a soul which makes use of a body'. (C II, 143 [(HR II, 84; AT VII, 203)])

Does Descartes then arrive at his understanding of the human being as a *res cogitans* by an undue abstraction?

Geometers conceive of a line as a length without breadth, and they conceive of a surface as length and breadth without depth, despite the fact that no length exists without breadth and no breadth without depth. In the same way someone may perhaps suspect that every thinking thing is also an extended thing — an extended thing which, besides the attributes it has in common with other extended things, such as shape, motion, etc., also possesses the peculiar power of thought. (C II, 143 [(HR II, 84; AT VII, 203-204)])

Arnauld expresses agreement, however, with Descartes' understanding of the distance separating imagination and intellect

5. The most extensive set of objections is by Gassendi and it is this set that is treated most contemptuously by Descartes, excepting only the rambling seventh set, by Father Bourdin.

Gassendi repeats the charge that Descartes arrives at his view by an undue abstraction. At great length he suggests that thinking cannot be detached from the

⁵⁶ On Descartes' indebtedness to Augustine see Stephen Menn, *Descartes and Augustine* (Cambridge: Cambridge U. Press, 1998).

body, as Descartes would have it, thus developing the argument presented already by Hobbes.

If, after brain damage or some injury to the imaginative faculty, the intellect remained as before, performing its proper functions all unimpaired (*purae*), then we could say that the intellect was as distinct from the imagination as the imagination is distinct from the external senses. But since things do not appear this way, there is surely no ready way of establishing the distinction. (C II, 186 [(HR II, 143; AT VII, 267)])

Here Gassendi disagrees with Arnauld, who, appealing to St. Augustine, was prepared to grant Descartes the distinction.

At great length Gassendi disputes the Cartesian point that there is an essential difference between animals and human beings. He also attacks the wax example and the way it is analyzed by Descartes. Descartes, he sums up, has left obscure the nature of the thing which does the thinking and which I am.

6. The sixth set of objections by various theologians and philosophers repeats the charge that Descartes has failed to show that thought could not be a bodily motion.

7. I will say nothing here about the rambling seventh set of objections.

5

Let us consider these objections together.

All agree that we do indeed know with certainty that we are. But what kind of knowledge does this give us of what we are? Do we have in fact a clear and distinct idea of ourselves as thinking substance that excludes extension.

Hobbes makes a stronger point. He argues that thinking cannot be thought without body. Has he established his point? Descartes' reply does not seem unreasonable:

He is quite right in saying that 'we cannot conceive of an act without its subject'. We cannot conceive of thought without a thinking thing,

since that which thinks is not nothing. But then he goes on to say, quite without any reason, and in violation of all usage and all logic: 'It seems to follow from this that that a thinking thing is something corporeal.' It may be that the subject of any act can be understood only in terms of a substance (or even, if he insists, in terms of 'matter', i.e. metaphysical matter); but it does not follow that it must be understood in terms of a body. (C II, 123 [(HR II, 63; AT VII, 175)])

Gassendi makes essentially the same criticism. Do we ever think, he asks, apart from imagining, where imagining, as Descartes would agree, involves the body. Is there an intellection that can be distinguished from the working of the imagination? Gassendi returns to the example of the wax.

Do you not perceive it as something spread out and extended? For you do not conceive of it as a point, although it is the kind of thing whose extension expands and contracts. And since this kind of extension is not infinite, but has limits, do you not conceive of the thing as having some kind of shape? And when you seem as it were to see it, do you not attach some sort of colour, albeit not a distinct one? You certainly take it to be something more solid, and so more visible than a mere void. Hence even your 'understanding' turns out to be some sort of imagination. If you say you conceive of the wax apart from any extension, shape, and colour, then you must in all honesty tell us what conception you do have of it? (C II, 190 [(HR II, 147; AT VII, 272)])

Related is Gassendi's already mentioned claim that human beings and animals cannot be distinguished as sharply as Descartes does. Just what is the difference between them? Descartes could appeal to the traditional understanding of the human being as the *animal rationale*. Gassendi counters:

You say that the brutes lack reason. Well, of course they lack human reason, but they do not lack their own kind of reason. So it does not seem appropriate to call them *áloga* ['irrational'] except by

comparison with us or with our kind of reason; and in any case *lógos* or reason seems to be a general term, which can be attributed to them no less than the cognitive faculty or internal sense. (C II, 189 [(HR II, 146; AT VII, 270-271)])

Descartes is not convinced by the suggestion that the mind grows faint with the body. But in the end he does not really seem to meet Gassendi's criticisms. In a way they talk past one another. And does Gassendi not grant Descartes that he can think himself as a thing that thinks by abstracting from everything else?

You conclude: 'I am, then, a thing that thinks; that is, I am a mind, or intelligence, or an intellect, or a reason.' Here I must admit that I had been laboring under a misapprehension. I thought that I was addressing the human soul, or that internal principle by which a man lives, has sensations, moves around and understands. Instead I find I was addressing a mind alone, which has divested itself not just of the body but also of the very soul (C II, 183 [(HR II, 140; AT VII, 263)])

This is to suggest that the position of Descartes rests on a movement of self-transcendence that leaves behind the human being as he really is. It is a charge that we must take seriously. Would Descartes' method have us leave our humanity behind? Recall the charge of angelism.

This leads us back to a key objection raised by Arnauld:

But the author admits that in the argument set out in the *Discourse on the Method*, the proof excluding anything corporeal from the nature of the mind was not put forward 'in an order corresponding to the actual truth of the matter' but merely in an order corresponding to only to his 'own perception'. So the sense of the passage was that he was aware of nothing at all that belonged to his essence except that he was a thinking thing. From this answer it is clear that the objection still stands in precisely the same form as it did before, and that the question he promised to answer still remains outstanding: How does

it follow, from the fact that he is aware of nothing else belonging to his essence, that nothing else in fact belongs to it? (C II, 139-140 [(HR II, 81; AT VII, 199)])

We are back with the rift that separates the order of knowing and the order of being that the *cogito* was to help us overcome.

But so far as I can see, the only result that follows from this is that I can obtain some knowledge of myself without knowledge of the body. But it is not yet transparently clear to me that this knowledge is complete and adequate, so as to enable me to be certain that I am not mistaken in excluding the body from my essence. (C II, 141 [HR II, 83; AT VII, 201])

Arnaud elucidates the point with an example. Assume that someone has mastered Thales' theorem, i.e. has a clear and distinct understanding that the triangle inscribed into a semicircle is right-angled, yet is ignorant of the Pythagorean theorem, i.e. is ignorant of the fact that square of the base of such triangle is equal to the squares of its sides. Following Descartes' reasoning, he could insist that since he clearly and distinctly recognizes the former, but doubts the latter, the Pythagorean theorem does not belong to the essence of the triangle.

Descartes rejects the analogy. Consider especially the second part of his threefold reply:

... although we can clearly and distinctly understand that a triangle in a semi-circle is right-angled without being aware that the square on the hypotenuse is equal to the squares on the other two sides, we cannot have a clear understanding of a triangle having the square on its hypotenuse equal to the squares on the other two sides without at the same time being aware that it is right-angled. And yet we can clearly and distinctly perceive the mind without the body and the body without the mind. (C II, 158 [HR II, 100; AT VII, 224-225])

But that does not really answer the question of the relationship of the orders of knowing and being. In the end the answer cannot be furnished by the *Second*

Meditation. Here Descartes is content to emphasize that my knowledge of extension and my knowledge of mind are quite distinct; and he rejects the suggestion that the distinction rests on some illegitimate abstraction.

The crucial difference between Gassendi and Arnauld, which makes the latter more of a Cartesian, is that Arnauld is willing to grant the Augustinian distinction between imagination and intellection, on which Descartes insists. We return here to an old Platonic theme. Once this point has been granted, we have to grant also that we can conceive without deriving conception from sensation and imagination. In his ability to think the human being recognizes a faculty within himself that transcends sense and imagination and thus extension.

But has Descartes proved too much, as Arnauld wonders, in that he has separated what is essential in human being from the body? An answer will be given only in Meditation VI.

6

What these questions bring out and what the questioners clearly grasp is that central to the strategy of Descartes is the attempt to separate imagination and sense, the lower faculties tied to the body, from mind, transcending it. That point is far more important and far more problematic than the refutation of skepticism. We should ask: why does Descartes put so much weight on it?

More important than the exclusion of the corporeal from the mental is the reverse, the exclusion of the mental from the corporeal. Descartes wants to show that the essence of extension has no room for spirit. And he needs that for his physics, from which he would exclude all teleological explanation. He needs it also if it is to give us more than conjectures, if it is to give us truth.

Just on this point there is the most obvious point of difference between Descartes and St. Augustine. The similarities are evident, as Arnauld points out in his objections. Descartes thanks him for bringing to his aid the authority of Augustine, but leaves it at that. These similarities were indeed called to Descartes' attention almost immediately, so by Mersenne (Letter May 26, 1637). Descartes

does not seem overly interested in such matters as antecedents. In his letter to Colvius (AT III, 247-248) he points out that he and St. Augustine put the thought to very different use, Augustine to show that the human being is created in the image of the Trinity, in that we know, know that we are, and love that being and the knowledge that is in us. He, on the other hand, was interested in establishing the immateriality of the soul. That thought again is so important to him, because it helps found the mechanical explanation of nature that is to be given. As a matter of fact, not only do St. Augustine and Descartes agree in using the argument to refute the skeptics, but also to show the spirituality of the soul. The Platonic Augustinian roots of modern science become visible.

The other side of this is an understanding of the self so abstract that it threatens to dissolve the self. The distance separating soul from matter is emphasized until finally matter disappears from our view altogether and thinking substance threatens to become a pure nothingness, as it does with Sartre, who remains very much within the orbit of a Cartesian dualism.

7. The Existence of God

1

Last time we finished our discussion of the *cogito* by considering the *Objections to the Second Meditation* and Descartes' *Replies*. At issue was the attempt to use the *cogito* to bridge the gap between the orders of knowing and being. Descartes attempts to do this by establishing clarity and distinctness as the criterion of the truth of an idea, where truth is understood as the correspondence between the idea and the reality it represents. As he puts it at the beginning of *Meditation III*:

I am certain that I am a thinking thing. Do I not therefore also know what is required for my being certain of anything? In this first item of knowledge there is simply a clear and distinct perception of what I am asserting; this would not be enough to make me certain of the truth of the matter if it could ever turn out that something which I perceived with such clarity and distinctness was false. So I now seem to be able to lay it down as a general rule that whatever I perceive very clearly and distinctly is true. (C II, 24[HR I, 158; AT VII, 35])

But, if this is accepted, why would not any similarly clear and distinct idea do equally well? Why is the *cogito* privileged?

But do we in fact have a clear and distinct idea of ourselves as thinking thing? Descartes moves to this idea so readily because he takes for granted an understanding of being that thinks it in terms of substance bearing attributes. Is this an adequate understanding of being?

But even if we accept this ontology, Descartes' claim that the *cogito* furnishes us with a clear and distinct understanding of what we are must be questioned. Descartes, as we saw, maintains that there can be no direct intuition of substance; our knowledge of substance is always mediated by a knowledge of attributes. I would like to suggest that what is clear and distinct is always of the order of essence, attribute, universal, etc. But these, Descartes had insisted, are just modes of our thinking (CI, 212 [HR I, 242-243; AT VIIIA, 27]) Knowledge of existence may be clear, but it is never distinct. Clarity and distinctness, it would seem, only furnishes us with a criterion of what we can grasp

without loss. In no way does it give us an assurance that what we thus grasp is a true representation of what is.

I would like to suggest one further difficulty, also already mentioned before, which leads to *Meditation III*. If ontological simples correspond to what is logically simple, it would appear that the idea of God alone can be truly simple, since everything else depends on God. In *Meditation III*, as I pointed out before, Descartes seems to grant this, when he calls the idea of God *maxime vera, et maxime clara et distincta* (C II, 31[(HR I, 166; AT VII, 46)]) But, to repeat the question, how can there be degrees of clarity and distinctness? And what then are we to make of the proofs of the existence of God? Are they devices to get the reader to recollect what he already knew in some sense? A truly clear and distinct intuition, it would seem, requires no proof. For Descartes the human being would seem to be prior in the order of knowing, God in the order of being. A modern anthropocentrism and a still medieval theocentrism coexist uneasily in Descartes' philosophy, in keeping with the spirit of the Baroque.

2

Not surprisingly, following the claim that from the *cogito* I can derive the general rule that all things that I perceive clearly and distinctly are true, doubts return: I cannot be sure that the ideas which I certainly do have concerning the things that I experience, clear though they appear to be, picture truly. Descartes mentions "the earth, sky, stars, and all other objects which I apprehended by means of the senses. But how reliable are the senses? Plato, as we saw, already had raised this question in the *Republic*. What do we in fact perceive clearly and distinctly in such experiences?

Just that the ideas, or thoughts, of such things appeared before my mind. Yet even now I am not denying that these ideas occur within me. But there was something else which I used to assert, and which through habitual belief I thought I perceived clearly, although I did not in fact do so. This was that there were things outside me which were the sources of my ideas and which resembled them in all respects. Here was my mistake; or at any rate, if my judgment was true, it was not thanks to the strength of my perception. (C II, 24-25 [HR I, 158; AT VII, 35])

But what about mathematics and the *cogito*? Do we not here lay hold of truths that cannot be doubted?

And whenever my preconceived belief in the supreme power of God comes to my mind, I cannot but admit that it would be easy for him, if he so desired, to bring it about that I go wrong even in those matters which I think I see utterly clearly with my mind's eye. Yet when I turn to the things themselves which I think I perceive very clearly, I am so convinced by them that I spontaneously declare: let whoever can do so deceive me, he will never bring it about that I am nothing, so long as I think that I am something; or make it true at some future time that I have never existed, since it is now true that I exist; or bring it about that two and three added together are more or less than five, or anything of this kind in which I see a manifest contradiction. (C II, 25 [HR I, 158-159; AT VII, 36])

One thing should be noted: to claim truth for a proposition is to claim it for all time. Implied in every truth claim is the idea of eternity. Claiming truth the human being transcends himself as a time-bound subject.

But do we finite human knowers have a right to claim truth in that sense? Two kinds of conflicting considerations are juxtaposed. On one hand, Descartes suggests, it is easy for God to cause me to err, even though I may be convinced to be in possession of the truth. On the other, I am convinced that in what I really perceive clearly and distinctly I cannot be mistaken. On the one hand, there is the attempt to make our human ability to grasp things clearly and distinctly the measure of what is. On the other, God's knowledge is made the measure of our human knowledge. The tension between these two views generates Cartesian doubt. It reflects Descartes' position between a theocentric medieval and an anthropocentric modern understanding of truth.

And since I have no cause to think that there is a deceiving God, and I do not yet even know for sure whether there is a God at all, any reason for doubt which depends simply on this supposition is a very slight and, so to speak, metaphysical one. But in order to remove even this slight reason for doubt, as soon as the opportunity arises I must examine whether there is a God, and if there is, whether he can be a deceiver. For if I do not

know this, it seems that I can never be quite certain about anything else. (C II, 25 [HR I, 159; AT VII, 36])

A God who is not a deceiver is needed to assure us that our finite human understanding is indeed capable of seizing the truth.

3

Next Descartes divides his thoughts into different kinds. Only those that are images of things can properly be said to be true or false. Those alone should be called “ideas.” Not that all our ideas are either true or false. When I just imagine something there is no question of truth or falsity: “for whether it is a goat or a chimera that I am imagining, it is just as true that I imagine the former as the latter.” (C II, 26 [HR I, 159; AT VII, 37])

Only the claim to represent a reality that transcends my consciousness can make such an idea true or false. Considered just as modes of thought, our ideas cannot be called true or false, although that I have the thoughts I happen to have is necessarily true. Similarly there is no question of truth when we turn to will or affection.

Thus the only remaining thoughts where I must be on my guard against making a mistake are judgments. (C II, 26 [HR I, 159; AT VII, 37])

Descartes goes on to suggest that everything that can be properly called an idea is also a judgment.

And the chief and most common mistake which is to be found here consists in my judging that the ideas which are in me resemble, or conform to, things located outside me. Of course, if I considered just the ideas themselves simply as modes of my thought, without referring them to anything else, they could scarcely give me any material for error. (C II, 26 [HR I, 160; AT VII, 37])

Descartes proceeds to divide these ideas into three classes: some are innate, some adventitious, some formed by us. Descartes here focuses on the second class:

But the chief question at this point concerns the ideas which I take to be derived from things existing outside me: what is my reason for thinking that they resemble these things? Nature has apparently taught me to think this. But in addition I know by experience that these ideas do not

depend on my will, and hence that they do not depend simply on me.

Frequently I notice them even when I do not want to: ... (C II, 26 [HR I, 160; AT VII, 38])

But to say that it is our nature that lets us judge that things are as we experience them is not to say that they are therefore true. That spontaneous natural inclination should not be confused with that natural light that lets us recognize the truth of a judgment. And does the fact that these ideas do not depend on my will justify the claim that they are not in some sense produced by me? What about dreaming?

And finally, even if these ideas did come from things other than myself, it would not follow that they must resemble those things. (C II, 27 [HR I, 161; AT VII, 39])

Descartes gives the example of the sun, which looks quite small and yet astronomical reasoning demonstrates to be very large. Isn't the latter idea closer to the truth? But what justifies this judgment? Do I have access to the thing itself that these two ideas claim to represent? Doubt thus returns:

All these considerations are enough to establish that it is not reliable judgment, but merely some blind impulse that has made me believe up till now that there exist things distinct from myself which transmit to me ideas or images of themselves through the sense organs or in some other way (C II, 27 [HR I, 161; AT VII, 40])

Belief needs to be grounded or justified to deserve to be called knowledge. So far such justification is missing.

4

Descartes next considers ideas from a different angle.

In so far as the ideas are <considered> simply <as> modes of thought, there is no recognizable inequality among them: they all appear to come from within me in the same fashion. But in so far as different ideas <are considered as images which> represent different things, it is clear that they differ widely. (C II, 27-28 [HR I, 162; AT VII, 40])

The homogeneity of my ideas qua modes of thought is opposed to their heterogeneity qua representations or images. And not only do they then present themselves as different, but

they fall into an order that lets us recognize some of them as more perfect than others, an order of perfection, where perfection is understood, as noted before, in terms of ontological independence.

Undoubtedly, the ideas which represent substances to me amount to something more, and, so to speak contain within themselves more objective reality [i.e. participate by representation in a higher degree of being of perfection {added in French version}] than the ideas which merely represent modes or accidents. Again, the idea that gives me my understanding of a supreme God, eternal, infinite, <immutable,> omniscient, omnipotent and the creator of all things that exist apart from him, certainly has in it more objective reality than ideas that represent finite substances. (C II, 28 [HR I, 162; AT VII, 40])

But does the idea I have of a most perfect being justify the claim that such a being exists? Descartes' argument invites question:

Now it is manifest by the natural light that there must at least be as much <reality> in the efficient and total cause as in the effect of that cause. For where, I ask, could the effect get its reality from, if not from the cause? And how could the cause give it to the effect unless it possessed it? It follows from this both that something cannot arise from nothing, and likewise that what is more perfect — that is, contains in itself more reality — cannot arise from what is less perfect. And this is transparently true not only in the case of effects which possess <what the philosophers call> actual or formal reality, but also in the case of ideas, where one is considering only <what they call> objective reality. (C II, 28 [HR I, 162; AT VII, 40-41])

But does this really allow us to break out of the circle of objective reality? This is what Descartes claims:

A stone, for example, which previously did not exist, cannot begin to exist unless it is produced by something which contains, either formally or eminently everything to be found in the stone; similarly, heat cannot be produced in an object which was not previously hot, except by something of at least the same order <degree or kind> of perfection as heat, and so

on. But it is also true that the *idea* of heat, or of a stone, cannot exist in me unless it is put there by some cause which contains at least as much reality as I conceive to be in the heat or the stone. For although this cause does not transfer any of its actual or formal reality to my idea, it should not on that account be imagined that it must be less real. (C II, 28 [HR I, 162; AT VII, 41])

But in the case of my ideas of heat or a stone, could they not have their cause in the subject? This raises the question of Descartes' understanding of cause. As long as we remain within the realm of extended substances the meaning of "cause" seems quite clear; but can we use it to bridge the gap that separates formal from objective reality, in the case of the example of heat or a stone, the gap that separates extended and thinking substance? And how is Descartes' understanding of cause tied to his understanding of degrees of perfection?

In the *Principles* (I, XVII) Descartes illustrates his claim, "The greater the objective perfection in any of our ideas, the greater the cause must be," with the following example⁵⁷:

For example, if someone has within himself the idea of a highly intricate machine, it would be fair to ask what was the cause of his possession of the idea: did he somewhere see such a machine made by someone else; or did he make such a close study of mechanics, or is his own ingenuity so great, that he was able to think it up on his own, although he never saw it anywhere? All the intricacy which is contained in the idea merely objectively — as in a picture — must be contained in its cause, whatever kind of cause it turns out to be; and it must be contained not merely objectively or representatively, but in actual reality, either formally or eminently, at least in the case of the first and principle cause. (C I, 198-199) [HR I, 226; AT VIIIA, 41])

Descartes proceeds to inquire whether there are any ideas I have that are such that they could not have been created by me.

As far as concerns the ideas which represent other men, or animals, or angels, I have no difficulty in understanding that they could be put

together from the ideas I have of myself, of corporeal things and of God, even if the world contained no men besides me, no animals and no angels.
(C II, 29 [HR I, 164; AT VII, 103-106])

But what about the ideas of corporeal things and of God that go into this admixture? Could I have produced these? Descartes gives an affirmative answer to the first:

As to my idea of corporeal things, I can see nothing in them which is so great <or excellent> as to make it seem impossible that it originated in myself. (C II, 29 [HR I, 164; AT VII, 43])

This argument invites question, given how sharply Descartes has distinguished mind and body. How are we to think the production of the idea of *res extensa* by a *res cogitans*? Space, I want to suggest, poses a problem that time and number do not pose: the latter are indeed inseparably bound up with my self-awareness as a thinking substance:

Again, I perceive that I now exist, and remember that I have existed for some time; moreover I have various thoughts which I can count; it is in these ways that I acquire the ideas of duration and number which I can then transfer to other things. (C II, 30-31 [HR I, 165; AT VII, 44])

Note that duration and number are said to have a sufficient foundation in my self-awareness as a temporally existing being. But it would seem that the same argument cannot be given for space. Kant thus will thus distinguish the pure intuition of time from the pure intuition of space and make the former more fundamental.

Descartes, however, sees no reason why I could not have originated the idea of corporeal things. There remains only the idea of God. It alone could not have proceeded from myself, Descartes argues.

By the word 'God' I understand a substance that is infinite <eternal, immutable,> independent, supremely intelligent, supremely powerful, and which created both myself and everything else, (if anything else there be) that exists. (C II, 31 [HR I, 165; AT VII, 45])

Presupposed by this idea is an awareness of my own imperfection. I know about my finitude, know that I have not created myself. I also know that reality cannot be understood as being just for me. I have not constituted myself. The transcendence of

⁵⁷ Cf. the reply to Caterus (C II, 75-77 [AT VII, 41])

reality cannot be denied. If God is defined just as the ground of my Being then, no doubt, he exists, although there is no good reason to call such a ground God.

5

But I know not only that I am not the cause of my own being; doubting I measure what I seem to understand by a higher understanding.

And I must not think that, just as my conceptions of rest and darkness are arrived at by negating movement and light, so my perfection of the infinite is arrived at not by means of a true idea but merely by negating the finite. On the contrary, I clearly understand that there is more reality in an infinite substance than in a finite one, and hence that my perception of the infinite, that is God, is in some way prior to my perception of the finite, that is myself. For how could I understand that I doubted or desired — that is, lacked something — and that I was not wholly perfect, unless there were in me some idea of a more perfect being which enabled me to recognize my own defects by comparison? (C II, 31 [HR I, 166; AT VII, 45-46])

But the notion of the infinite does not justify the invocation of a divine cause. It is indeed inseparable from human freedom, as Descartes will point out in *Meditation IV*.

It is only the will, or freedom of choice, which I experience within me to be so great that the idea of any greater faculty is beyond my grasp; so much so that it is above all in virtue of the will that I understand myself to bear in some way the image and likeness of God. (C II, 40 [HR I, 175; AT VII, 57])

As a free being, the human being transcends itself as a being bound to a particular time and space, limited by particular perspectives. In thought I can transcend myself as thus limited.

Fundamental to Descartes' argument is the claim that I have a positive idea of infinite substance and that such an idea could never be produced by a finite being. But an idea of the infinite is inseparable from human freedom, as Descartes recognizes. Doubt would seem to be sufficient to allow us to project as a regulative ideal the idea of a

perfect knower such as God. Such an ideal is indeed inseparable from the traditional understanding of truth as correspondence.

Consider Thomas Aquinas' definition of truth as "the adequation of the thing and the understanding": *Veritas est adaequatio rei et intellectus*.⁵⁸ Does truth then depend on human beings? Aquinas, of course rejects such a suggestion: the truth of our thoughts or propositions has its measure in the truth of things, and that truth must be understood as the adequacy of the thing to the divine intellect. Aquinas thus has a theocentric understanding of truth that gives human discourse its measure in God's creative word, in the divine logos, which is nothing other than the Kantian thing in itself understood as a *noumenon*, a term that relates it to the divine *nous*. *Omne ens est verum*. "Every being is true." Given such an understanding of truth, it is indeed denied to us finite knowers. But if we are to measure the truth of an assertion by the thing asserted, that thing must disclose itself as it really is, as it is in truth. But what could "truth" now mean? Theology once had a ready answer: every created thing necessarily corresponds to the idea preconceived in the mind of God and in this sense cannot but be true. The truth of things, understood as *adaequatio rei (creandae) ad intellectum (divinum)*, "the adequacy of the (to be created) thing to the (divine) intellect," secures truth understood as *adaequatio intellectus (humani) ad rem (creatam)*, "the adequacy of the (human) intellect to the (created) thing."⁵⁹ As a regulative idea the idea of God is indeed inseparable from the *cogito*. This much we can grant Descartes. But this is not sufficient to establish God's existence.

What is the difference between appealing to the idea of an ideal observer and saying that God really exists? At issue is the affinity between our faculties and reality. Is there a harmony between the two? Is reality such that it can really be known? Descartes' proof does not succeed as a proof in the ordinary sense. But we can consider it an attempt to articulate a certain confidence, a faith in the power of human reason to lay hold of reality.

⁵⁸ Thomas Aquinas, *Questiones disputatae de veritate*, qu. 1, art. 1. See Martin Heidegger, *Einführung in die phänomenologische Forschung*, (WS 1923/24) G17, 162-194.

⁵⁹ See Martin Heidegger, "Vom Wesen der Wahrheit," *Wegmarken, Gesamtausgabe*, vol. 9 (Frankfurt am Main: Klostermann, 1976), pp. 178-182.

6

Descartes follows these considerations with what amounts to a second, closely related, but still somewhat different proof. The two should be distinguished. The first tries to prove the existence of God from the fact that I have the idea of God, the second from the fact that I, having the idea of God, exist. Let us consider this second proof.

From whom, in that case [if God did not exist], would I derive my existence? From myself presumably, or from my parents, or from some other beings less perfect than God; for nothing more perfect, or even as perfect, can be thought of or imagined. (C II, 33 [HR I, 168; AT VII, 48])

The first suggestion is quickly dismissed. I am not the ground of my being. I have been cast into the world ignorant, vulnerable, and mortal, in a way that I do not understand. God appears in this second proof as the power that maintains my being in its being, lends it a certain stability and comprehensibility. God rescues us from destructive time. Consider once more the point about deduction and its dependence on memory Descartes made in the *Rules*. If God is necessary as the guarantor of memory, he certainly must be capable of guaranteeing the continuity of life.

I do no escape the force of these arguments by supposing that I have always existed just as I do now, as if it followed from this that there was no need to look for any author of my existence. For a lifespan can be divided into countless parts, each completely independent of the others; so that it does not follow from the fact that I existed a little while ago that I must exist now, unless there is some cause which as it were creates me afresh at this moment — that is, which preserves me. For it is quite clear to anyone who attentively considers the nature of time that the same power and action are needed to preserve anything at each individual moment of its duration as would be required to create that thing anew if it were not yet in existence. Hence the distinction between preservation and creation is only a conceptual one, and this is one of the things that are evident by the natural light. (C II, 33 [HR I, 168; AT VII, 48-49])

Descartes presupposes the traditional conception of time as a series of now moments. There is no reason, he insists, why any being should maintain its being from one moment

to the next. And yet I know this to be the case and whatever is must have a reason or cause. That cause, Descartes claims, can only be God.

But could it not be a lesser being that has created me. Descartes dismisses the suggestion:

No; for as I have said before, it is quite clear that there must be at least as much [reality] in the cause as in the effect. And therefore whatever kind of cause is eventually proposed, since I am a thinking thing and have within me some idea of God, it must be admitted that what caused me is itself a thinking thing and possesses the idea of all the perfections which I attribute to God. (C II, 34 [HR I, 169; AT VII, 49])

The suggestion that several causes might have come together to create me is rejected with an appeal to the unity of God:

On the contrary, the unity, the simplicity or the inseparability of all the attributes of God is one of the most important of the perfections which I understand him to have. And surely the idea of the unity of all his perfections could not have been placed in me by any cause which did not also provide me with the ideas of the other perfections. (C II, 34 [HR I, 169-170; AT VII, 50])

Created in the image of God, the human being is ever in search of simplicity and unity. Descartes' project is an example.

The suggestion that my parents might be the cause of my being is similarly quickly dismissed. The dismissal is of interest because it once again raises questions concerning Descartes' sharp separation of *res cogitans* from *res extensa*.

Lastly, as regards my parents, even if everything I have ever believed about them is true, it is certainly not they who preserve me; and in so far as I am a thinking thing, they did not even make me; they merely placed certain dispositions in the matter which I have always regarded as containing me, or rather my mind, for that is all that I now take myself to be. So there can be no difficulty regarding my parents in this context. Altogether then, it must be concluded that the mere fact that I exist and have within me an idea of a most perfect being, that is, God, provides a

very clear proof that God indeed exists. (C II, 35 [HR I, 170; AT VII, 50-51])

Descartes proceeds to sum up his argument that God exists and that he is not a deceiver.

The whole force of the argument lies in this: I recognize that it would be impossible for me to exist with the kind of nature I have — that is, having within me the idea of a God — were it not the case that God really existed. By ‘God’ I mean the very being the idea of whom is within me, that is, the possessor of all the perfections which I cannot grasp, but can somehow reach in my thought, who is subject to no defects whatsoever [and has not one of the things which indicate some imperfection]. It is clear enough from this that he cannot be a deceiver, since it is manifest by the natural light that all fraud and deception depend on some defect. ((C II, 35 [HR I, 171; AT VII, 51-52])

Why can God not be a deceiver? What would it mean for God to deceive: God would have to be the author of certain adventitious ideas within me, which would not correspond to a formal reality. There would have to be a gap between knowing and being in God, but this is ruled out by the very conception of God.

7

Let me try to sum up some of the main points so far. We began with a reflection that transforms the subject into a being for whom the world is. The world becomes a picture, a stage on which we encounter different representations. The world is transformed by reflection into world for me.

A first escape from this subjective world is promised by mathematics. This is essentially the same exit from the labyrinth of perspective promised already by Plato. But doubts return. Is mathematics, as Bacon had suggested, not itself a human creation that does not give us insight into the essence of reality? This is Bacon’s challenge to the program outlined in the *Rules*.

This can be answered if we can show that human reason is fundamentally in tune with reality. Human reason and being must be commensurable. The principle of sufficient reason gives expression to such commensurability. Such commensurability is a necessary condition for the possibility of seizing the truth as understood by Descartes.

Only if such commensurability can be established can the confidence in reason's ability to master and possess nature be restored.

Can we have such confidence without accepting the existence of God? Who or what is the God of Descartes? More than the ground of our being, he is also its measure, particularly the measure of our being as knowers.

8. Questions and Objections

1

Let me begin by returning to the beginning of *Meditation III*:

I am certain that I am a thinking thing. Do I not therefore also know what is required for my being certain of anything? In this first item of knowledge there is simply a clear and distinct perception of what I am asserting; this would not be enough to make me certain of the truth of the matter if it could ever turn out that something which I perceived with such and clarity and distinctness was false. So I now seem to be able to lay it down as a general rule that whatever I perceive very clearly and distinctly is true. (C II, 24 [HR I, 158; AT VII, 35])

I asked: if the clarity and distinctness of our perception is sufficient to establish its truth in this case, why would not any other clear and distinct idea do equally well? Does the priority accorded to the *cogito* still make sense if the above paragraph is accepted? But suppose that the *cogito* were the only truly clear and distinct idea I have? In that case the insight it offers would prove completely unilluminating as far as any other ideas are concerned. As stated, we cannot accept the way the paragraph attempts to ground the veracity of clear and distinct ideas in the *cogito*. Can it be restated in a way that meets this objection?

Consider in this connection Gassendi's objection, although he is not raising quite the issue I just raised. He suggests that clear and distinct perception is a necessary, but not a sufficient condition of truth. Gassendi's objection is directed primarily against the assumption that the clear and distinct cannot itself be an appearance:

In the Third Meditation you recognize that your clear and distinct knowledge of the proposition 'I am a thing which thinks' is responsible for the certainty which you have regarding it; and you conclude from this that you can lay down the general rule 'Everything which I perceive very clearly and distinctly is true.' Admittedly this may be the best rule that it was possible to find when everything was shrouded in so much darkness. But when we see that many great thinkers, who ought surely to have perceived very many things clearly and distinctly, have judged that the

truth of things is hidden either in God or in a deep well, is it not reasonable to suspect that this rule may lead us astray? Moreover, given the arguments of the sceptics, of which you are aware, it seems that the only thing that we can consider as clearly and distinctly perceived and therefore infer to be true is that if something appears to anyone to be the case then it appears to be the case? I clearly and distinctly perceive the pleasant taste of a melon. But how shall I persuade myself that therefore it is true that such a savor exists in the melon, and hence it is true that the taste of a melon appears to be of this kind. But how can I convince myself that it is therefore true that a flavour of this kind really exists in the melon? When I was a boy and in good health I took a different view and clearly and distinctly perceived quite a different taste in the melon. And I see that many people also take a different view, as do many animals that have a strong sense of taste and are in the best of health. Is one truth then inconsistent with another? Or is it not rather as follows: if something is clearly and distinctly perceived this does not mean that it is true in itself; all that is true is that it is clearly and distinctly perceived to be such and such? And the same sort of account must be given of matters concerning the mind. (C II, 193-194 [HR II, 151; AT VII, 277-278])

Truth, Gassendi insists, cannot be identified with the object of clear and distinct perception. That makes it too relative to the perceiver. Descartes' reply, while not unexpected, is not altogether satisfying. That Descartes would dismiss the appeal to the sceptics cannot surprise us; nor that Descartes would point out that Gassendi has failed to take seriously Cartesian doubt and his understanding of the clear and distinct. That in his sense there can be no clear and distinct idea of the taste of a melon is evident. Secondary qualities cannot be experienced in a way that is clear and distinct. By its very nature the clear and distinct rules out such appearance.

But in that case, why is it necessary to prove the existence of God? Indeed, how is such a proof even possible, unless we already presuppose the validity of the clear and distinct? Are the proofs of the existence of God not either circular or superfluous? They are circular if we argue that God's guarantee is needed to assure us of the validity of our clear and distinct ideas. And they are superfluous if that guarantee is not necessary.

2

This objection was raised already by Mersenne:

Thirdly, you are not yet certain of the existence of God, and you say that you are not yet certain of anything, and cannot know anything clearly and distinctly until you have achieved a clear and certain knowledge of the existence of God. It follows from this that you do not yet clearly and distinctly know that you are a thinking thing, since on your own admission, that knowledge depends on the clear knowledge of an existing God; and this you have not yet proved in the passage where you draw the conclusion that you clearly know what you are. (C II, 89 [HR II, 26; AT VII, 124-125])

The same objection is more succinctly stated by Arnauld:

I have one further worry, namely how the author avoids reasoning in a circle when he says that we are sure that what we clearly and distinctly perceive is true only because God exists.

But we can be sure that God exists only because we clearly and distinctly perceive this. Hence before we can be sure that God exists, we ought to be able to be sure that whatever we perceive clearly and evidently is true. (C II, 150[HR II, 92; AT VII, 214])

Descartes' reply to Mersenne reaffirms the distinction between clear and distinct intuitions the truth of which cannot be doubted while we have them and science, which depends on memory.

Thirdly, when I said that we can know nothing for certain until we are aware that God exists, I expressly declared that I was speaking only of knowledge of those conclusions which can be recalled when we are no longer attending to the arguments by means of which we deduced them. Now awareness of first principles is not normally called 'knowledge' by dialecticians. And when we become aware that we are thinking things, this is a primitive notion which is not derived by means of any syllogism. When someone says, 'I am thinking, therefore I am, or I exist,' he does not deduce existence from thought by means of a syllogism, but

recognizes it as something self-evident by a simple intuition of the mind. This is clear from the fact that if it he were deducing it by means of a syllogism, he would have to have had previous knowledge of the major premiss, ‘everything which thinks is, or exists’; yet in fact he learns it from experiencing in his own case that it is impossible that he should think without existing. It is in the nature of our mind to construct general propositions on the basis of our knowledge of particular ones. (C II, 100 [HR II, 38; AT VII, 140-141])

The answer refers us to *Meditation V* where Descartes had insisted that, while I understand something clearly and distinctly I cannot help but take it to be true, “often the memory of a previously made judgment may come back, when I am no longer attending to the arguments that led me to make it.” (C II, 48 [HR I, 183; AT VII, 69]) (HR I, 183) Descartes gives the example of Thales’ theorem: I may not recall the proof and yet accept it as true, because I remember having proved it. Only in such cases, where memory plays a part in our thinking, Descartes insists, is there need to affirm the existence of God.

That answers Mersenne’s objection, but it leaves the question of how we are to understand the proofs of the existence of God, which do seem to rely on syllogistic reasoning or on what in the *Rules* is called deduction. Is that impression false?

Consider also the answer to Arnauld, which refers us back to the reply he had given to Mersenne.

I made a distinction between what we in fact perceive clearly and what we remember having perceived clearly on a previous occasion. To begin with, we are sure that God exists because we have attended to the arguments which prove this; but subsequently it is enough for us to remember that we have perceived something clearly in order for us to be certain that it is true. This would not be sufficient if we did not know that God existed that is not a deceiver. (C II, 171 [HR II, 115; AT VII, 246])

From this it would seem to follow that the “proofs” of the existence of God do not rely on syllogistic reasoning or deduction. Yet the arguments that Descartes offers us look very much like that. To repeat the question: Is that form then misleading? We can distinguish between an analytic and a synthetic method. The proofs of the existence of God are

analytic; they are attempts at recollection. Consider the following passage from *Meditation V*:

Not only are all these things very well known and transparent to me when regarded in this general way, but in addition there are countless particular features regarding shape, number, figures, motion and so on, which I perceive when I give them my attention. And the truth of these matters is so open and so much in harmony with my nature, that on first discovering them it seems that I am not so much learning something new as remembering what I knew before; or it seems like noticing for the first time things which were long present within me although I had never turned my mental gaze on them before. (C II, 44 [HR I, 179; AT VII, 63-64])

Descartes is here thinking of mathematics and we shall return to this passage in its proper context. But our knowledge of God must also be of that sort.

A key problem for Descartes, as we have seen, is the problem of memory and that is to say of time. Consider once more the beginning of *Meditation III*:

I am certain that I am a thinking thing. Do I not therefore also know what is required for my being certain of anything? In this first item of knowledge there is simply a clear and distinct perception of what I am asserting; this would not be enough to make me certain of the truth of the matter if it could ever turn out that something which I perceived with such clarity and distinctness was false. (C II, 24 [HR I, 158; AT VII, 35])

Doubt presupposes a shift of attention. To think of an idea as a representation is no longer to confront that idea, the object of my thought immediately, as object of a simple intuition. Rather I am aware of my idea possessing a referential status. The idea is now taken to mediate between myself and what it claims to represent. My idea of God cannot be just of that sort. It is not a picture. Nor, it would seem, can the idea I have of myself.

3

Let us consider the proof itself. Here once more are its essential elements.

1. We have an idea of God as infinite and perfect.
2. This idea could not have been produced by us finite knowers.

3. Since every idea requires a cause that is adequate to producing it, the idea of God requires an actually existing God.

4. This God cannot be a deceiver.

But do we in fact have an idea of God as infinite and perfect? Hobbes raises this question.

When I think of a man, I am aware of an idea or image made up of a certain shape and colour; and I can doubt whether this image is the likeness of a man or not. And the same applies when I think of the sky. When I think of a chimera, I am aware of an idea or an image; and I can doubt whether it is the likeness of a non-existent animal which is capable of existing, or one which may or may not have existed at some previous time.

But when I think of an angel, what comes to my mind is an image, now of a flame, now of a beautiful child with wings; I feel sure that this image has no likeness to an angel, and hence that it is not the idea of an angel. But I believe that there are invisible and immaterial creatures who serve God; and we give the name 'angel' to this thing which we believe in, or suppose to exist. But the idea by means of which I imagine an angel is composed of the ideas of visible things.

In the same way we have no idea or image corresponding to the sacred name of God. And this is why we are forbidden to worship God in the form of an image; for otherwise we might think we were conceiving of him who is incapable of being conceived. (C II, 126-127 [HR II, 66-67; AT VII, 179-180])

The objection does call our attention to a crucial assumption made by Descartes, that the imagination does not have the role in the formation of our ideas that Hobbes ascribes to it. Descartes' reply is thus expected.

Here my critic wants the term 'idea' to be taken to refer simply to the images of material things which are depicted in the corporeal imagination. (C II, 127 [HR II, 67; AT VII, 181])

That this fails to do justice to the way Descartes has used the term is readily granted. He takes the term to "refer for whatever is immediately perceived by the mind." (C II, 127

[HR II, 68; AT VII, 181]) Key here is Descartes' denial of the claim that ideas must be derived from images. That we have no image of God Descartes can grant Hobbes. But that does not mean that we have no idea of Him.

Gassendi raises a related objection:

Lastly, can anyone claim that he has a genuine idea of God, an idea which represents God as he is? What an insignificant thing God would be, if he were nothing more, and had no other attributes, than what is contained in our puny idea! Surely we must believe that there is less of a comparison between the perfections of God and man than there is between those of an elephant and a tick on its skin. If anyone, after observing the perfections of the tick, formed within himself an idea which he called 'the idea of an elephant' and said that it was an authentic idea, would he not be regarded as utterly foolish? So can we really congratulate ourselves if, after seeing the perfections of a man, we formed an idea which we maintain is the idea of God and is genuinely representative of him? How, may I ask, are we to detect in God those puny perfections which we find in ourselves? And when we do recognize them, what sort of divine essence will that allow us to imagine? God is infinitely beyond anything we can grasp, and when our mind addresses itself to contemplate him, it is not only in darkness but is reduced to nothing. Hence we have no basis for claiming that we have any authentic idea which represents God; and it is more than enough if, on the analogy of our human attributes, we can derive and construct an idea of some sort for our own use — an idea which does not transcend our human grasp and which contains no reality except what we perceive in other things or as a result of encountering other things. (C II, 200-201 [HR II, 159; AT VII, 287-288])

The separation between God and man becomes so great here that God threatens to evaporate altogether. One has to wonder whether, given Gassendi's understanding of God, his use of analogy is even appropriate or in good faith. Descartes' answer makes clear that what he finds lacking in Gassendi is his theory of knowledge, which fails to give the intellect its due.

A similar objection is made by Mersenne, who also argues that we human knowers are able to produce the idea of God, even though we may not know whether a supreme being exists.

Secondly, from the idea of a supreme being, which, you maintain is quite incapable of originating from you, you venture to infer that there must necessarily exist a supreme being who alone can be the origin of the idea which appears in your mind. However, we can find simply within ourselves a sufficient basis for our ability to form the said idea, even though that supreme being did not exist. For surely I can see that I, in so far as I think, I have some degree of perfection and hence that others besides myself have a similar degree of perfection. And this gives me the basis for thinking an indefinite number of degrees and thus positing higher and higher degrees of perfection up to infinity. Even if there were just one degree of heat or light, I could always imagine further degrees and continue the process of addition up to infinity. In the same way, I can surely take a given degree of being, which I perceive within myself and add on a further degree, and thus construct the idea of a perfect being from all the degrees which are capable of being added on. (C II, 88 [HR II, 25; AT VII, 123])

Descartes' answer is interesting. Of course we can construct the idea of God, even if we do not know that God exists. But we could not do this, he claims, if He did not exist.

Secondly, when you say that we can find simply within ourselves a sufficient basis for forming the idea of God, your claim in no way differs from my own view. I expressly said at the end of the Third Meditation that 'this idea is innate in me' — in other words that it comes to me from no other source than myself. I concede also that 'we could form this very idea even supposing that we did not know that a supreme being exists'; but I do not agree that we could form the idea, 'even supposing that the supreme being did not exist'. On the contrary, I pointed out that the whole force of the argument lies in the fact that it would be impossible for me to have the power of forming this idea unless I were created by God. (C II, 96 [HR II, 33; AT VII, 133])

Crucial here is the concept of infinity. God is said by Descartes to be to man as an infinite number is to a finite number:

For I readily and freely confess that the idea we have of the divine intellect, for example, does not differ from that we have of our own intellect, except in so far as the idea of an infinite number differs from that of a number raised to the second or fourth power. And the same applies to the individual attributes of God of which we recognize some trace in ourselves. (C II, 98 [HR II, 36; AT VII, 137])

Counting, I cannot reach the highest of all numbers. The very thought of such a number seems to conflict with that idea, since we can always add to any number. Descartes concludes from the fact that “when I cannot reach a largest number” that “in the process counting” there is something that “exceeds my power.” This is said to lead to the notion of “a being which is more perfect than I am.” (C II, 100 [HR II, 37; AT VII, 139]) All finite numbers fall short of the perfect maximum number in that to them you can always add one. The thought of a maximum number would rule this out. For this very reason the idea of such a maximum number exceeds my power. But the conclusion to be drawn, Descartes insists, is “not that an infinite number exists, nor indeed that it is a contradictory notion, as you say, but that I have the power of conceiving that there is a thinkable number which is larger than any number that I can ever think of, and hence that this power is something which I have received not from myself but from some other being which is more perfect than I.” (C II, 100 [HR II, 38; AT VII, 139]) The invocation of the maximum number recalls the speculations of Nicolaus Cusanus, with whose thought Descartes was familiar. To say that a number is thinkable, which, however cannot be thought by me, has to make one wonder just how we are to understand “thinking” here. Our thought is here said to be capable of transcending the limits of what we can think, is indeed by its very nature led to this limit where the principle of non-contradiction is called into question, and in thinking it as a limit, cast beyond it.

Similar considerations return in Descartes’ reply to Arnauld. At issue here is the meaning of “self-caused.”

The author maintains that I could not derive my existence from myself since ‘if I had bestowed existence on myself I should also have given myself all the perfections of which I find I have an idea. But his

theological critic [Caterus] has an acute reply to this: the phrase ‘to derive one’s existence from oneself’ should be taken not positively but negatively, so that it simply means ‘not deriving one’s existence from another’. ‘But now’, the critic continues, ‘if something derives its existence from itself in the sense of “not from another”, how can we prove that this being embraces all things and is infinite? ...

To refute this argument, M. Descartes contends that the phrase, ‘deriving one’s existence from oneself’ should be taken not negatively but positively, even when it refers to God, so that God ‘in a sense stands in the same relation to himself as an efficient cause does to its effect. This seems to me to be a hard saying, and indeed to be false. (C II, 146 [HR II, 88; AT VII, 207-208])

What do we mean by “cause.” Does the thought of a *causa sui* make any sense? Is “cause” not so tied to this temporal world that it cannot be applied to God? Descartes resists such reasoning.

I am aware that theologians writing in Latin do not use the word *causa* in matters of divinity when they are dealing with the procession of Persons in the Holy Trinity, and that where the Greeks used *aitios* and *arché* interchangeably, they preferred to use only the word *principium* {‘principle’] taken in its most general sense, to avoid giving anyone an excuse to infer that the Son is less important than the Father. But where there is no such risk of error, and we are dealing with God not as a Trinity but simply as a unity, I do not see why the word *cause* is to be avoided at all costs, especially when we come to a context where it seems extremely useful and almost necessary to use the term. (C II, 166 [HR II, 109; AT VII, 237-238])

But just what makes it “almost” necessary? Presupposed is faith in the principle of sufficient reason: “We cannot develop this proof with precision unless we grant our minds the freedom to inquire into the efficient cause of all things, even God himself.” (C II, 166 [HR II, 109; AT VII, 238]) Descartes grants that if we use efficient cause as it is properly used, where causes are prior in time to their effects, we would want to say that God does not have a cause and is not Himself a cause. But if we restrict our use of cause

in this way we would have no way to prove God from His effects. But this leaves the question: how is “cause” now to be understood? To answer this question Descartes relies once more on analogous reasoning familiar from Nicolaus Cusanus:

To give a proper reply to this, I think it is necessary to show that, in between ‘efficient cause’ in the strict sense and ‘no cause at all’, there is a third possibility, namely ‘the positive essence of a thing’, to which the concept of an efficient cause can be extended. In the same way in geometry the concept of an arc of an indefinitely large circle is customarily extended to the concept of a straight line; or the concept of a rectilinear polygon with an indefinite number of sides is extended to that of a circle. (C II, 167 [HR II, 110; AT VII, 239])

But with such thoughts, do we not leave behind the clear and distinct? The doctrine of imitation is given up for a version of the doctrine of analogy. What God is, his essence, determines Him to be. That is the ontological argument. We shall return to it in *Meditation V*.

But here another question: what is the origin of the distinction between essence and existence? Does the concept of essence not have its foundation in the human ability to recognize similarities among things, to give them the same name? The realm of essence is a conceptual space that has room for all worlds we take to be possible. The principle of sufficient reason is an expression of a desire to defeat contingency. Everything has a reason.

4

Let me review some of the points made. Let me return once more to the question, what kind of evidence does Descartes appeal to with his proof? The answer is restated once more in the beginning of *Meditation IV*:

During these past few days I have accustomed myself to leading my mind away from the senses; and I have taken careful note of the fact that there is very little about corporeal things that is truly perceived, whereas much more is known about the human mind, and still more about God. The result is that I now have no difficulty in turning my mind away from imaginable things and towards things which are objects of the intellect

alone and are totally separate from matter. (C II, 37 [HR I, 171; AT VII, 52-53])

The idea of God and the arguments that unfold what is implicit in that idea are grounded in our self-experience as lacking. That lack finds expression in doubt. To doubt is to consider the possibility that things may not be in reality as I assert or take them to be. To doubt is not to be sure that I have gotten hold of the truth. But this presupposes that I have an idea of truth. Doubt and truth belong together. Consider once more Thomas Aquinas' definition of truth as "the adequation of the thing and the understanding": *Veritas est adaequatio rei et intellectus*.⁶⁰ The measure of such adequacy for him is provided by God, in whom there is no gap separating thing and intellect. Descartes' thinking still moves in this orbit. This is why my ability to doubt is thought to be sufficient to establish the existence of God. Crucial is the presupposed understanding of truth, to which we shall turn next time as we take up *Meditation IV*.

⁶⁰ Thomas Aquinas, *Questiones disputatae de veritate*, qu. 1, art. 1. See Martin Heidegger, *Einführung in die phänomenologische Forschung*, (WS 1923/24) G17, 162-194.

9. Truth and Error

1

Before turning to Meditation IV let me consider once more Thomas Aquinas' definition of truth as "the adequation of the thing and the understanding": *Veritas est adaequatio rei et intellectus*.⁶¹ Descartes' thinking, I suggested, still moves in this orbit. This is why my ability to doubt is taken to be sufficient to establish the existence of God.

On first consideration the definition seems quite in keeping with our everyday understanding of truth, which understands truth as correspondence. The Thomistic definition claims that there can be no truth where there is no understanding. The question we today might want to raise is: but can there be understanding without human beings? Does truth then depend on human beings? Aquinas, of course would have rejected such a suggestion: the truth of our thoughts or propositions has its measure in the truth of things, and that truth must be understood as the adequacy of the thing to the divine intellect. Aquinas thus has a theocentric understanding of truth that gives human discourse its measure in God's creative word, in the divine logos, which is nothing other than the thing in itself understood as a *noumenon*, a term that relates it to the divine *nous*. *Omne ens est verum*. "Every being is true." Given such an understanding of "the pure truth," truth is indeed denied to us finite knowers, as Kant, too, knew.

Thomas Aquinas' understanding of God leaves no room for thoughts of a cosmos from which understanding would be absent. His, as I said, was a theocentric understanding of truth, where we should note that the definition *veritas est adaequatio rei et intellectus* invites two readings: *veritas est adaequatio intellectus ad rem*, "truth is the adequation of the understanding to the thing" and *veritas est adaequatio rei ad intellectum*, "truth is the adequation of the thing to the understanding." And is the second not presupposed by the first? Is there not a sense in which the truth of our assertions presupposes the truth of things?

If we are to measure the truth of an assertion by the thing asserted, that thing must disclose itself as it really is, as it is in truth. But what could "truth" now mean? Certainly

⁶¹ Thomas Aquinas, *Questiones disputatae de veritate*, qu. 1, art. 1. See Martin Heidegger, *Einführung in die phänomenologische Forschung*, (WS 1923/24) G17, 162-194.

not an adequation of the thing to our finite, perspective-bound understanding: that would substitute appearances for the things themselves. Theology once had a ready answer: every created thing necessarily corresponds to the idea preconceived in the mind of God and in this sense cannot but be true. The truth of things, understood as *adaequatio rei (creandae) ad intellectum (divinum)*, “the adequacy of the (to be created) thing to the (divine) intellect,” secures truth understood as *adaequatio intellectus (humani) ad rem (creatam)*, “the adequacy of the (human) intellect to the (created) thing.”⁶² And such talk of the truth of things does accord with the way we sometimes use the words “truth” and “true”, e.g., when we call something we have drawn “a true circle,” we declare it to be in accord with our understanding of what a circle is. What we have put down on paper accords with an idea in our intellect. Here the truth of things is understood as *adaequatio rei (creandae) ad intellectum (humanum)*, “the adequacy of the (to be created) thing to the (human) intellect.”

But what right do we have to think that we can bridge the abyss that separates God’s infinite creative knowledge from our finite human understanding? The Heidegger of *Being and Time*, like Nietzsche before him, insists that there is no such bridge.

Because the kind of Being that is essential to truth is of the character of Dasein, all truth is relative to Dasein’s Being. (SZ 227)⁶³

Absolute truth and the absolute subject are declared to be rests of Christian theology philosophy ought to leave behind:

The idea of a ‘pure “I”’ and of a ‘consciousness in general’ are so far from including the *a priori* character of actual subjectivity that the ontological characters of Dasein’s facticity and its state of Being are either passed over or not seen at all. Rejection of a ‘consciousness in general’ does not signify that the *a priori* is negated, any more than the positing of an idealized subject guarantees that Dasein has an *a priori* character grounded upon fact.

⁶² See Martin Heidegger, “Vom Wesen der Wahrheit,” *Wegmarken, Gesamtausgabe*, vol. 9 (Frankfurt am Main: Klostermann, 1976), pp. 178-182.

⁶³ *Gesamtausgabe*, vol. 2, *Sein und Zeit* (1927); *Being and Time*, trans. John Macquarrie and Edward Robinson (New York: Harper and Row, 1962). Page references are to the 7th edition of SZ, 1953.

Both the contention that there are ‘eternal truths’ and the jumbling together of Dasein’s phenomenally grounded ‘ideality’ with an idealized absolute subject, belong to those residues of Christian theology within philosophical problematics which have not as yet been radically extruded. (SZ 229)

I would like to question Heidegger: The idea of God or the related idea of a “pure ‘I’” or of a transcendental subject is not dismissed quite that easily. Heidegger would make truth relative to the human knower. But our everyday understanding of truth would seem to resist such relativity. Heidegger indeed, although much later, was to admit that we do not arrive at an adequate understanding of truth by understanding it, as he did in *Being and Time*, as disclosure, i.e. *aletheia*, thought relative to Dasein. Correspondence, he grants in *On Time and Being*⁶⁴ is the original meaning of truth. That certainly was what Kant thought, who in the *Critique of Pure Reason* writes in answer to the question: What is Truth? that the common understanding of truth as correspondence is taken for granted and presupposed by him (B83/A58). In his *Logic*, to be sure, he raises the obvious objection:

Now I can, however, compare the object with my cognition only by cognizing it. My cognition shall thus conform to itself, which is yet far from sufficient for truth. For since the object is outside me and the cognition in me, I can judge only whether my cognition of the object agrees with my cognition of the object.⁶⁵

The only possible criterion of truth would thus seem to be, as Kant put it, “the agreement of cognition with itself. But do I then not lose sight of the transcendence of reality?

Hegel’s answer to this problem deserves quoting.

Ancient metaphysics has a higher conception of thinking than is current today. For it based itself on the fact that the knowledge of things obtained through thinking is alone what is really true in them, i.e. not things as such (*an sich*) but as things thought. Thus this metaphysics believed that

⁶⁴ Heidegger, *On Time and Being*, trans. Joan Stambaugh (New York: Harper and Row, 1972), pp. 70-71.

⁶⁵ Kant, *Logik*, A 69-A83

thinking is not anything alien to the object, but rather is its essential nature.⁶⁶

Note the cognitive optimism. This presupposes that thinking is able to transcend itself. And something like that is also held by Kant: truth, according to Kant, who is thinking here of science, is the correspondence of our thoughts and the transcendental objects, where the transcendental object is thought as the object as it would give itself to a knowing free from the distorting power of perspective, i.e. to an ideal subject. To make sense of truth we have to understand the human subject as transcending itself and measuring itself by the idea of an ideal subject. The similarity of this argument to that advanced by Descartes should be evident. Human beings are thought to be capable of the truth. To think them as thus capable we have to argue also that what I expressed in terms of the ideal subject is not a mere fiction. Descartes proofs of the existence of God articulate such a cognitive faith.

2

But let me turn to *Meditation IV*. Descartes begins with a summary of what has been accomplished that makes clear the transcendental-analytic character of the argument. Our ordinary knowledge of the world around us — think of the wax example — is said to presuppose a knowledge of the self; this, in turn, is said to rest on an understanding of God. The idea we have of Him is thus the most clear and distinct idea that we can have. Let me read once more the beginning of *Meditation IV*.

During these past few days I have accustomed myself to leading my mind away from the senses; and I have taken careful note of the fact that there is very little about corporeal things that is truly perceived, whereas much more is known about the human mind, and still more about God. The result is that I now have no difficulty in turning my mind away from imaginable things and towards things which are objects of the intellect alone and are totally separate from matter. ... And when I consider the fact that I have doubts, or that I am a thing that is incomplete and dependent,

⁶⁶ Georg Wilhelm Friedrich Hegel, *Wissenschaft der Logik, Werke V*, ed. ed. Eva Moldenhauer und Karl Markus Michel (Frankfurt am Main: Suhrkamp/Insel, 1986), p. 38

then there arises in me a clear and distinct idea of a being who is independent and complete, that is, an idea of God. And from the mere fact that there is such an idea within me, or that I who possess this idea exist, I clearly infer that God also exists, and that every single moment of my existence depends on him. So clear is this conclusion that I am confident that the human intellect cannot know anything that is more evident or more certain. (C II, 37 [HR I, 171-172; AT VII, 52-53])

3

The problem that *Meditation IV* addresses is posed by the conclusion of *Meditation III*. If God has been shown to exist and not to be a deceiver, because deception is incompatible with the perfection that is part of His essence, how are we to understand that we fall into error? Two questions are thereby posed:

1. How is error possible?
2. How is error compatible with divine perfection?

The key to the answer to both questions is provided by human freedom. Freedom is the necessary condition for the possibility of judging. But that is to say: Only because the human being is free can he understand the truth. But only because he is free can he affirm as true what in fact is false:

So what then is the source of my mistakes (*errores*)? It must be simply this: the scope of the will is wider than that of the intellect; but instead of restricting it within the same limits, I extend its use to matters which I do not understand. C II, 40 [HR I, 175-176; AT VII, 58])

The sole fact that the will is wider in range than the understanding is said to be responsible for my errors. Gassendi objects to this argument:

You next ask what is the cause of error or falsity in you. First of all, I do not question your basis for saying the intellect is simply the faculty of being aware of ideas, or of apprehending things simply and without any affirmation or negation; nor do I dispute making the will or freedom of choice a faculty whose function is to affirm or deny, to give or withhold assent. My only question concerns why, our will and freedom of choice is not restricted by any limits, whereas the intellect is restricted. In fact it

seems that these two faculties have an equally broad scope; certainly the scope of the intellect is at the very least no narrower than that of the will, since the will never aims at anything which the intellect has not already perceived. (C II, 218 [HR II, 179; AT VII, 314])

At issue is the meaning of “intellect.” Gassendi equates it with “awareness of ideas.” Descartes would seem to have a narrower understanding of “intellect.” Does he really meet Gassendi’s objection with his reply:

You here ask me to say briefly whether the will can extend to anything that escapes the intellect. The answer is that this happens whenever we go wrong. Thus when you judge that the mind is a kind of rarefied body, you can understand that the mind is itself, i.e. a thinking thing, and that a rarefied body is an extended thing; but the proposition that it is one and the same thing that thinks and is extended is one which you certainly do not understand. You simply want to believe it, because you have believed it before and do not want to change your view. (C II, 259 [HR II, 224; AT VII, 376-377])

But this presupposes an understanding of “intellect” as precluding error and not simply as the faculty of being aware of ideas. Is the disagreement then more than verbal? Suppose I entertain the idea that Sydney is the capital of Australia, but not being certain, refuse to claim it to be true. Descartes would seem to want to say that in this case there is no understanding. But I am certainly entertaining an idea. And this idea could possibly be true. Our awareness of ideas would seem to be of wider compass than our understanding (*intellectus*) so understood. Or, to give a Cartesian example: “whether it is a goat or a chimera that I am imagining, it is just as true that I imagine the former as the latter.” (C II, 26 [HR I, 159; AT VII, 37])

But if to understand means simply to be aware of an idea then we cannot accept Descartes’ response. Descartes would have us distinguish the having of ideas from understanding: it is precisely when we have some ideas without genuinely understanding them all that we are liable to error. Should we then equate freedom with our ability to have ideas? What is the relationship?

4

Inseparable from human freedom, according to Descartes is the negative idea of nothing.

And certainly, so long as I think only of God, and turn my whole attention to him, I find no cause of error, or falsity. But when I turn back to myself, I know by experience that I am prone to countless errors. On looking for a cause of these errors, I find that I possess not only a real and positive idea of God or a being who is supremely perfect, but also what may be described as a certain negative idea of nothingness, or of that which is farthest removed from all perfection. I realize that I am, as it were, something intermediate between God and nothingness, or between supreme being and non-being: my nature is such that in so far as I was created by the supreme being, there is nothing in me to enable me to go wrong or lead me astray; but in so far as I participate in nothingness or non-being, that is, in so far as I am not myself the supreme being and am lacking in countless respects, it is no wonder that I make mistakes. (C II, 38 [HR I, 172-173; AT VII, 54])

We human beings experience ourselves as lacking and seek to fill that lack. With this we return to a thought familiar from Plato's *Symposium*, where the human being is similarly placed between the plenitude of Being and lack, a placement that finds expression in the story of the dual parentage of eros. Ours is indeed a freedom that knows no limits, but unlike God's freedom, this freedom is not creative, but opens up an infinite space of possibilities: Why is the world as it is? Why, indeed, is there something rather than nothing? Take this tree? It could not have been. The transcendence of human consciousness over the given is bound up with this nothingness. It makes error possible.

But what sort of idea do we have of this nothing? Is it clear and distinct: Descartes speaks of "a certain negative idea of nothingness." Is that idea sufficient to absolve God from all responsibility for my errors? Gassendi raises these questions:

Next you reason that it is impossible that God should deceive you; and in order to make excuses for the deceptive and error-prone faculty which God gave you, you suggest that the fault lies in nothingness, which

you say you have some idea of, and which you say you participate in, since you make yourself something intermediate between nothingness and God. This is a splendid argument! I will pass over the impossibility of explaining how we can have an idea of nothingness, and what kind of an idea it is, and how we participate in nothingness, and so on. I will simply point out that this distinction does not obviate the fact that God could have given man a faculty of judgment that was immune from error. (C II, 214 [HR II, 174; AT VII, 308])

The last Descartes does not dispute.

5

Descartes himself raises as a possible objection to his account of the question: why would a perfect God have allowed such imperfections as error?

There is, moreover, no doubt that God could have given me a nature such that I would never be mistaken; again, there is no doubt that he always wills what is best. Is it then better that I should make mistakes than that I should not do so? (C II, 38 [HR I, 173; AT VII, 55])

Our finite human understanding is incapable of understand why God created us as he did. This must indeed be the best of all possible worlds, but we have no way of understanding the divine plan:

As I reflect on these matters more attentively, it occurs to me first of all that it is no cause for surprise if I do not understand the reasons for some of God's actions; and there is no call to doubt his existence if I happen to find that there are other instances where I do not grasp why or how certain things were made by him. (C II, 38-39 [HR I, 173; AT VII, 55])

Although God ordered the world to perfection, this cannot be understood by us finite knowers.

For since I now know that my own nature is very weak and limited, whereas the nature of God is immense, incomprehensible, and infinite, I also know without more ado that he is capable of countless things whose causes are beyond my knowledge. And for this reason alone

I consider the customary search for final causes to be totally useless in physics; there is considerable rashness in thinking myself capable of investigating the <impenetrable> purposes of God. (C II, 39 [HR I, 173; AT VII, 55])

The distance between man and God has been stretched to a point where God's will has become inscrutable. This has an enormous significance for the study of nature. Science now has to be content with explanations in terms of efficient causation. With this Aristotelian science has been left behind, although one may object with Schopenhauer that teleology does not depend on theology, as Aristotelian science demonstrates, that it is only our Christian heritage that lets us tie these two so closely together.

Descartes adds to his consideration another, which softens the point of the preceding and to some extent calls it into question in that it introduces a consideration of final causes, but argues that the complexity of the world is such that a part may contribute to the greater perfection of the whole by its own imperfection just as light and dark may be necessary to a painting (C II, 39 [HR I, 173-174; AT VII, 55-56]) Gassendi hammers away at this:

When you discuss this objection, you state that it is no cause for surprise if you do not understand the reason for some of God's actions. That is correct, but it is still surprising that you should have a true idea which represents God as omniscient, omnipotent and wholly good, and yet that you should nonetheless observe that some of his works are not wholly perfect. For given that he could have made things more perfect but did not do so, this seems to show that he must have lacked either the knowledge or the power or the will to do so. He was certainly imperfect if, despite having the knowledge and the power, he lacked the will and preferred imperfection to perfection. (C II, 214-215 [HR II, 175; AT VII, 308])

Gassendi also objects to Descartes's dismissal of final causes from the study of nature. He admits that there may be a point to this, when just considering nature, but when considering nature as God's creation, can we really dispense with them?

but since you are dealing with God, there is obviously the danger that you may be abandoning the principal argument for establishing by the natural

light the wisdom, providence, and power of God, and indeed his existence.
(C II, 215 [HR II, 175; AT VII, 309])

Descartes' answer is not very convincing, although it makes clear what is at stake for him: his physics:

The points you make to defend the notion of a final cause should be applied to efficient causation. The function of the various parts of plants and animals etc. makes it appropriate to admire God as their efficient cause — to recognize and glorify the craftsman through examining his works; but we cannot guess from this what purpose God had in creating any given thing. In ethics, then, where we may often legitimately employ conjectures, it may admittedly be pious on occasion to try to guess what purpose God may have had in mind in his direction of the universe; but in physics, where everything must be backed up by the strongest arguments, such conjectures are futile. We cannot pretend that some of God's purposes are more out in the open than others; all are equally hidden in the inscrutable abyss of his wisdom. (C II, 258 [HR II, 223; AT VII, 174-175])

But if we are allowed to rely on conjecture in ethics, why not in physics? The importance of the former should be evident as should be the danger of falling into sin. God is made so distant from the world that it becomes futile to ask what purpose He may have had in creating it as he did. And yet, when it is a question of the purpose of our life, conjecture is said to be permitted, perhaps necessary. We should note the difference between ethics and physics.

6

There is some tension between Descartes' understanding of the relationship of ethics and physics and the following already cited passage:

So what then is the source of my mistakes (*errores*)? It must be simply this: the scope of the will is wider than that of the intellect; but instead of restricting it within the same limits, I extend its use to matters which I do not understand. (C II, 40 [HR I, 175-176; AT VII, 58])

Descartes would seem to equate sin with error. But while the quote offers us an explanation of what makes both truth and error possible, it does not give us an adequate account of why human beings would fall into sin and error.

Are there constraints on the will? Descartes seems to vacillate between two conceptions of freedom, one positive, the other negative. By negative freedom I understand the freedom to do whatever I want to. By positive freedom I understand the freedom to act in accord with one's essence. The free person, so understood is truly himself. Thus, on this second view, I am truly free when I attune myself to my finite status, instead of pretending to a quasi-divine self-sufficiency that must plunge me into error and sin. Negative freedom knows no limits. It is infinite:

It is only the will or freedom of choice, which I experience within me to be so great that the idea of any greater faculty is beyond my grasp; so much so that it is above all in virtue of the will that I understand myself to bear in some way the image and likeness of God. For although God's will is incomparably greater than mine, both in virtue of the knowledge and power that accompany it and make it more firm and efficacious, and also in virtue of its object, in that it ranges over a greater number of items, nevertheless it does not seem any greater than mine when considered as will in the essential and strict sense. This is because the will simply consists alone in our ability to do or not to do something (that is, to affirm or deny, to pursue or avoid; or rather, it consists simply in the fact that when the intellect puts something forward for affirmation or denial or for pursuit or avoidance, our inclinations are such that we do not feel that we are determined by any external force. (C II, 49 [HR I, 175; AT VII, 57])

My will lacks the power to create as it wishes. Freedom, Descartes claims, is thus increased when I act in accord with my finite nature. Negative freedom then becomes positive freedom. Thus it becomes more perfect.

In order to be free, there is no need for me to be inclined both ways; on the contrary, the more I incline in one direction — either because I clearly understand that reasons of truth and goodness point that way or because of a divinely produced disposition of my inmost thoughts — the freer is my choice. Neither divine grace nor natural knowledge ever diminishes

freedom; on the contrary, they increase and strengthen it. (C II, 40 [HR I, 175; AT VII, 57-58])

Gassendi downgrades the importance of freedom:

Finally, the essence of error does not seem to consist in the incorrect use of free will, as you allege, so much as in the disparity between our judgement and the thing which is the object of our judgement. And it seems that error arises when our intellectual apprehension of the thing does not correspond with the way the thing really is. Hence the blame does not seem to lie with the will for not judging correctly, so much as with the intellect for not displaying the object correctly. The dependence of the will on the intellect seems to be as follows. If the intellect perceives something clearly, or seems to do so, the will in that case will make a judgement that is approved and settled, irrespective of whether it is in fact true, or merely thought to be true. But when the intellect's perception is obscure, then the will in this case will make a judgement that is doubtful and tentative, but which will, nonetheless, be regarded for the time being as truer than its opposite, irrespective of whether it really accords with the truth of the matter or not. This means that we do not have the power so much to guard against error, as to guard against persisting in error; and if we want to use our judgment correctly, we should not so much restrain our will as apply our intellect to develop clearer awareness, which the judgement will then always follow. (C II, 220 [HR II, 181-182; AT VII, 317])

Descartes refuses to really address the points Gassendi had raised, appealing to his own experience of freedom. And he argues that Gassendi, despite the general tenor of his objections, has in fact had the Cartesian experience of freedom, thus undercutting his objections:

You deny that we can guard against making mistakes, because you refuse to allow that the will can be directed to anything which it is not determined by the intellect; but you admit at the same time that we can guard against persisting in error. Now this would be quite impossible unless the will had the freedom to direct itself without the determination of

the intellect, towards one side or the other, and this you have just denied.

(C II, 260 [HR II, 225; AT VII, 378])

But am I free to deny what I clearly and distinctly understand to be true, or to affirm what I clearly and distinctly understand to be false? What sort of constraints does the understanding place on the will according to Descartes? What allows him to say that our freedom increases when in accord with the true? Descartes' sharp separation of understanding and the will invites question.

God is not responsible for our errors, according to Descartes. Errors have their foundation in our freedom. It follows that, according to Descartes, animals cannot be in error. They can't be mistaken because their being is not marked by freedom. But is this convincing?

6

Having shown to his satisfaction how error is possible, Descartes returns to the question of how to reconcile human error with God's perfection:

As for the privation involved — which is all that the essential definition of falsity and wrong consists in — this does not in any way require the concurrence of God, since it is not a thing; indeed when it is it is referred to God as its cause, it should be called not a privation, but merely a negation [understanding these terms in accordance with scholastic usage]. For it is surely no imperfection in God that he has given me the freedom to assent or not to assent in those cases where he did not endow my intellect with a clear and distinct perception. (C II, 42 [HR I, 177; AT VII, 60-61])

Here Descartes would seem to grant that clear and distinct ideas bind freedom. The distance between him and Gassendi would seem to be less great than his disdainful reply suggests.

Had God made me this way [where I had a clear and distinct perception of everything on which I had to deliberate], then I can easily understand that, considered as a totality (as if there were only myself in the world), I would have been more perfect than I am now. But I cannot therefore deny that there may in some way be more perfection in the universe as a whole because some of its parts are not immune from error, while others are

immune, than there would be if all the parts were exactly alike. And I have no right to complain that the role God wished me to undertake in the world is not the principal one or the most perfect of all. (C II, 42-43 [HR I, 178; AT VII, 61])

God's ways are inscrutable. I have to accept whatever part God has assigned to me in the theater of the world. To try to justify his ways is to refuse to accept our human condition.

10. The Ontological Argument

1

In Meditation V Descartes returns to what I take to have been his central concern: what can we know regarding material things?

There are many matters which remain to be investigated concerning the attributes of God and the nature of myself, or my mind; and perhaps I shall take these up at another time. But now that I have seen what to do and what to avoid in order to reach the truth, the most pressing task seems to be to try to escape from the doubts into which I fell a few days ago, and see whether any certainty can be achieved regarding material objects. (C II, 44 [HR I, 179; AT VII, 63])

Material things are outside me. Knowledge of them is mediated by my senses, i.e. by the body. But sensation would seem to be inescapably perspective-bound and as such incapable of yielding clear and distinct knowledge. Yet there are aspects of my experience of nature that can be rendered clear and distinct.

Quantity, for example, or ‘continuous’ quantity as the philosophers commonly call it, is something I distinctly imagine [*distincte imaginor*]. That is, I distinctly imagine the extension of the quantity (or rather of the thing which is quantified) in length, breadth, and depth. I also enumerate various parts of the thing, and to these parts I assign various sizes, shapes, positions, and local motions; and to the motions I assign various durations. (C II, 44 [HR I, 179; AT VII, 63])

I find the expression “distinctly imagine“ (*distincte imaginor*) a bit difficult to reconcile with my understanding of Descartes’ position. In *Meditation VI* Descartes will indeed distinguish sharply between *imaginatio* and *pura intellectio*, between imagination and pure intellection. And that is in keeping with many other passages. Here, however, he slips into a way of speaking that would seem to be in some tension with the main point of the *Meditations*. But keep in mind that in the *Rules* already he had distinguished between a bodily and an intellectual imagination. Consider once more the following passage:

applying itself along with the imagination to the 'common' sense, it [the cognitive power] is said to see, touch, etc. ; when addressing itself to the imagination alone, in so far as the latter is invested with various figures, it is said to remember; when applying itself to the imagination in order to form new figures, it is said to imagine or conceive; and lastly, when it acts on its own, it is said to understand. (C I, 42 [HR I, 39; AT X, 416])

Pura intellectio lets one think of Kant's pure intuitions. Kant might have said, Descartes has a right to claim to have pure intuitions of space and time, presupposed by our experience of material things.

Not only are all these things very well known and transparent to me when regarded in this general way, but in addition there are countless particular features regarding shape, number, motion and so on, which I perceive when I give them my attention. And the truth of these matters is so open and so much in harmony with my nature, that on first discovering them it seems that I am not so much learning something new as remembering what I knew before; or it seems like noticing for the first time things which were long present within me, although I had never turned my mental gaze on them before. (C II, 44 [HR I, 179; AT VII, 63-64])

The Platonism of Descartes is particularly apparent here: we can know, according to him, a great many things that are not derived from experience. Using Plato's language, Descartes, too, says that in these cases we do not so much learn something new as we seem to recollect what we formerly knew. We possess *a priori* knowledge and such knowledge provides mathematics with a firm ground.

When, for example, I imagine a triangle, even if perhaps no such figure exists, or has ever existed, anywhere outside my thought, there is still a determinate nature, or essence, or form of the triangle which is immutable and eternal, and not invented by me or dependent on my mind. This is clear from the fact that various properties can be demonstrated of the triangle, for example that its three angles equal two right angles, that its greatest side subtends its greatest angle, and the like; and since these

properties are ones which I now clearly recognize whether I want to or not, even if I never thought of them at all when I previously imagined a triangle, it follows that they cannot have been invented by me. (C II, 44-45 [HR I, 180; AT VII, 64])

Geometry is an *a priori* science, not based on experience. The truths it offers us are said to be eternal and independent of the human mind. Not all knowledge is therefore based on experience. While Descartes recognizes the value of experience, he is definitely not an empiricist.

Again it is Hobbes, who criticizes Descartes most vigorously from an empiricist point of view:

If the triangle does not exist anywhere, I do not understand how it has a nature. For what is nowhere is not anything, and so does not have any being or nature. A triangle in the mind arises from a triangle we have seen, or else it is constructed out of things we have seen. But once we use the label 'triangle' to apply to the thing which we think gave rise to the idea of a triangle, then the name remains even if the triangle itself is destroyed. Similarly, once we have conceived in our thought that the angles of a triangle add up to two right angles, and we bestow on the triangle this second label 'having its angles equal to two right angles', then the label would remain even if no angles existed in the world. And thus eternal truth will belong to the proposition 'a triangle is that which has its three angles equal to two right angles.' But the nature of a triangle will not be eternal, for it might be that every triangle ceased to exist.

Similarly the proposition, 'Man is an animal' will be eternally true, because the names are eternal; but when the human race ceases to be, there will be no human nature any more. (C II, 135-136 [HR II, 76-77; AT VII, 193])

Appealing to the distinction between essence and existence, Descartes dismisses Hobbes' objection. And indeed, the objection seems confused. How are we to understand the construction of the triangle out of triangles we have beheld? And what sense can we make of names that are of eternal duration, that continue to be, even if humanity should have perished? And yet his objection invites us to think about the origin of our concepts.

According to Hobbes, names do not give us an insight into the essence of things. Reason reveals only the conventions governing our language use. What is mistaken for the essence of things, Hobbes suggests, is really just an insight into the grammar of our language. The ground of our concepts and thus of our reasoning is our language — one thinks of Wittgenstein's *Investigations*. Hobbes had already made this point in an earlier objection to Descartes' use of his example of the wax:

Now, what shall we say, if it turns out that our reasoning is simply the joining together and linking of names or labels by means of the verb 'is'? It would follow that the inferences in our reasoning tell us nothing at all about the nature of things, but merely tell us about the labels applied to them; that is, all we can infer is whether or not we are combining the names of things in accordance with the arbitrary conventions which we have laid down in respect of their meaning. If this is so, as may well be the case, reasoning will depend on names, names will depend on the imagination, and imagination will depend (as I believe it does), merely on the motion of our bodily organs; and so the mind will be nothing more than motion occurring in various parts of an organic body. (C II, 125-126 [HR II, 65; AT VII, 178])

Gassendi's objection presupposes related convictions:

How can people defend the thesis that the essence of man, which is in Plato, say, is eternal and independent of God? Is this supposed to be because it is universal? But everything to be found in Plato is particular. It is true that after seeing the nature of Plato and of Socrates, and similar natures of other men, the intellect habitually abstracts from them some common concept in respect of which they all agree, and which can then be regarded as the universal nature or essence of man, in so far as it is understood to apply to every man. But it is surely inexplicable that there should have been a universal nature before Plato and the others existed, and before the intellect performed the abstraction. (C II, 222 [HR II, 183; AT VII, 319-320])

Essences on this view are human creations, formed in response to experiences of resemblances among things. Only individuals have real existence. There are no essences

as such. Universals are products of the abstracting mind. Once again the importance of language is recognized. There is no universal man.

All that is meant is that if anything is a man, it must resemble other things to which we apply the same label 'man', in virtue of their mutual similarity. This similarity, I maintain, belongs to the individual natures, and it is from this that the intellect takes its cue in forming the concept, or idea, or form of a common nature to which everything that will count as a man must conform. (C II, 222-223 [HR II, 184; AT VII, 320])

Gassendi goes on to suggest that the same is true in the case of a triangle. The triangle is a mental rule that enables us to recognize something as a triangle. "But we should not therefore say that such a triangle is something real, or that it is a true nature distinct from the intellect." (C II, 223 [HR II, 184; AT VII, 321]). Gassendi adds the observation that the triangle that exists could not be that figure composed of lines that have no breadths, points that have no extension. (C II, 223 [HR II, 185; AT VII, 321])

Descartes dismisses Gassendi's objection. He does not challenge Gassendi's critique of universals, but points out that this is not his position. What he does challenge is the analogy on which Gassendi relies between the essence "man" and the essence "triangle." The realm of the *a priori* is not as large for Descartes as for the Platonist, in this respect closer to what was to be Kant's position. But Descartes does insist that mathematical objects have actual existence. This, he suggests, is entailed by their evident truth. Presupposed is an understanding of truth as correspondence.

But, unless you are maintaining that the whole of geometry is also false, you cannot deny that many truths can be demonstrated of these essences, and since they are always the same, it is right to call them immutable and eternal. The fact that they may not accord with your suppositions about the nature of things, or with the atomic conception of reality invented by Democritus and Epicurus, is merely an extraneous feature which changes nothing; in spite of this they undoubtedly conform to the true nature of things established by God. Not that there are in the world substances which have length but no breadth, or breadth but no depth; it is rather that the geometrical figures are considered not as substances but as boundaries

within which a substance is contained. (C II, 262 [HR II, 227; AT VII, 381])

Descartes rejects the view that our understanding of a triangle is adequately explained as somehow abstracted from experience. Nothing that we experience is absolutely straight.

But since the idea of the true triangle we already in us, and could be conceived by our mind more easily than the more composite figure of the triangle drawn on paper, when we saw the composite figure we did not apprehend the figure we saw, but rather the true triangle. (C II, 262 [HR II, 228; AT VII, 382])

Descartes is a realist about mathematics.⁶⁷ This distinguishes him from Kant, who grounds mathematical knowledge in the pure intuitions of space and time and thereby denies them absolute reality, although any possible human knower will be bound by their truth.

2

Descartes goes on to suggest that the argument he had presented with respect to extension can also be used to construct an argument for the existence of God. This is the famous ontological argument. As a possible objection, Descartes points out, we might invoke the distinction between essence and existence. This suggests that we should be able to think the essence of God without claiming His existence.

But when I concentrate more carefully, it is quite evident that existence can no more be separated from the essence of God than the fact that its three angles equal two right angles can be separated from the essence of a triangle, or than the idea of a mountain can be separated from the idea of a valley. Hence it is just as much of a contradiction to think of God (that is, a supremely perfect being) lacking existence (that is, lacking a perfection), as it is to think of a mountain which has no valley. (C II, 46 [HR (HR I, 181); AT VII, 67]) (HR I, 181)

Descartes himself raises the objection that, while I cannot think of a mountain without a valley, it does not follow that a mountain exists; similarly, although I cannot think of God

⁶⁷ See however *Principle* LIX, discussed in our sixth session.

except as existing, this does not mean that he exists. But this argument is rejected as a sophism:

But from the fact that I cannot think of God except as existing, it follows that existence is inseparable from God, and hence that he really exists. It is not that my thought makes it so, or imposes necessity on any thing; on the contrary, it is the necessity of the thing itself, namely the existence of God, which determines my thinking in this respect. (C II, 46 (HR I, 181); AT VII, 66])

And Descartes adds:

And it must not be objected at this point that while it is indeed necessary for me to suppose that God exists, once I have made the supposition that he has all perfections (since existence is one of the perfections), nevertheless the original supposition was not necessary. ... Now admittedly, it is not necessary that I ever light upon any thought of God; but whenever I do choose to think of the first and supreme being, and bring forth the idea of God from the treasure house of my mind as it were, it is necessary that I attribute all perfections to him, even if I do not at that time enumerate them or attend to them individually. (C II, 46-47 (HR I, 182); AT VII, 67])

The ontological argument has of course had a long history, beginning with Anselm of Canterbury and continuing to the present, where Alvin Plantinga deserves special mention. Just as long is the history of its critics, beginning with Gaunilo and including St. Thomas Aquinas and Kant, and continuing into the present. To Descartes' audience it had to seem a questionable argument since it had been rejected by no less an authority than Thomas Aquinas. That point is raised in the first set of objections by Caterus, who points out that Aquinas offers pretty much the argument presented by Descartes as an objection to his own doctrine, which he then refutes:

As soon as we understand the meaning of the word 'God', we immediately grasp that God exists. For the word 'God' means 'that than which nothing greater can be conceived'. Now that which exists in reality as well as in the intellect is greater than that which exists in the intellect alone. Hence, since God immediately exists in the intellect as soon as we have

understood the word ‘God’, it follows that he really exists.⁶⁸ (C II, 71 [HR II, 6; AT VII, 98])

Caterus turns to Aquinas to reject this argument, where Aquinas is thinking of Anselm, although the argument would also appear to be essentially that of Descartes:

‘Let it be granted’, he says

that we all understand that the word ‘God’ means what it is claimed to mean, namely ‘that than which nothing greater can be thought of’. However, it does not follow that we all understand that what is signified by this word exists in the real world. All that follows is that it exists in the apprehension of the intellect. Nor can it be shown that this being really exists unless it is conceded that there really is something such that nothing greater can be thought of; and this premiss is denied by those who maintain that God does not exist.”

My own answer to M. Descartes, which is based on this passage, is briefly this. Even if it is granted that a supremely perfect being carries the implication of existence in virtue of its very title, it still does not follow that the existence of God is anything actual in the real world; all that follows is that the concept of existence is inseparably linked to the concept of a supreme being. So you cannot infer that the existence of God is anything actual, unless you suppose that the supreme being actually exists; for then it will actually contain all perfections, including the perfection of real existence. (C II, 71-72 [HR II, 7; AT VII, 99])

Aquinas had admitted only *a posteriori* proofs of the existence of God, such as arguments from motion to a first mover, from the need for an efficient cause to a first cause, from possibility to a necessary being, from gradation to perfection, from the order of creation to an author. Versions of such *a posteriori* proofs appear in the *Third Meditation*, although Descartes there cannot assume the reality of the sensible world, but must reshape such proofs in light of the fact that at this stage he can only assume that he exists.

Aquinas’ full answer to his own objection is interesting. It brings out the difference between his position and that of Descartes.

⁶⁸ *Summa Theologiae*, Pars I, Q. 2, art 1.

I answer that, a thing can be self-evident in either of two ways: on the one hand self-evident in itself, though not to us; on the other, self-evident in itself, and to us. A proposition is self-evident because the predicate is included in the essence of the subject: e.g. man is an animal, for animal is included in the essence of man. ... If, however, there are some to whom the essence of predicate and subject is unknown, the proposition will be self-evident in itself, but not to those who do not know the meaning of the predicate and subject of the proposition. ... Therefore I say that this proposition, God exists, of itself is self-evident, for the predicate is the same as the subject, because God is His own existence as will be hereafter shown. Now, because we do not know the essence of God, the proposition is not self-evident to us, but needs to be demonstrated by things that are more known to us, though less known in their nature — namely by his effects.

Yet granted that everyone understands that by this name *God* is signified something than which nothing greater can be thought, nevertheless, it does not therefore follow that he understands that what the name signifies exists actually, but only that it exists mentally. Nor can it be argued that it actually exists, unless it be admitted that there actually exists something than which nothing greater can be thought; and this precisely is not admitted by those who hold that God does not exist. (S.T., Qu. II, Art. I, Answer and Rep., Obj. 2)

How would Descartes answer Aquinas? Is he saying that his *a priori* proof in some sense presupposes the preceding *a posteriori* proofs? Something like that is hinted at in his Reply to Caterus:

... I did have considerable doubts to begin with about whether I should use it; for I feared it might induce those who did not grasp it to have doubts about the rest of my reasoning. But there are only two ways of proving the existence of God, one by means of his effects, and the other by means of his nature or essence; and since I expounded the first method to the best of my ability in the Third Meditation, I thought that I should include the second method later on. (C II, 85 [HR II, 22; AT VII, 120])

Earlier in his reply to Caterus Descartes had himself pointed to a key difficulty. Presupposing that everything we clearly and distinctly perceive is true and that after a sufficient examination of the nature of God we perceive clearly and distinctly that existence belongs to God's nature, we can say that the existence of God has been proved. But there is a difficulty with the part existence plays in the argument.

In the first place we are so accustomed to distinguishing existence from essence in the case of all other things that we fail to notice how closely existence belongs to essence in the case of God as compared with that of other things. Next, we do not distinguish what belongs to the true and immutable essence of a thing from what is attributed to it merely by a fiction of the intellect. So, even if we observe clearly enough that existence belongs to the essence of God, we do not draw the conclusion that God exists, because we do not know whether his essence is immutable and true, or merely invented by us. (C II, 83 [HR II, 19; AT VII, 116])

The idea of God is said to be unique in that only in this case is existence contained in the essence. But what does it mean to say that existence belongs to the essence of God in a way it does not belong to the essence of other things"? Do we really have a clear and distinct idea of existence? Existence is a curious predicate, as Gassendi points out in his objection:

You say: that you are not free to think of God without existence (that is, a supremely perfect being without a supreme perfection) as you are free to imagine a horse with or without wings. The only comment to be added to this is as follows. You are free to think of a horse not having wings without thinking of the existence, which would, according to you, be a perfection in the horse if it were present; but in the same way, you are free to think of God as having knowledge and power and other perfections, without thinking of him as having the existence which would complete his perfection. (C II, 225-226 [HR II, 187; AT VII, 324-325])

Descartes, Gassendi charges, assumes what he claims to prove when he claims that existence is included in the idea of a being of the highest perfection. Gassendi invites us to think of a perfect Pegasus.

For just as God is thought of as perfect in every kind of perfection, so Pegasus is thought of as perfect in his own kind. It seems that there is no point that you can raise in this connection which, if we preserve the analogy, will not apply to Pegasus if it applies to God, and *vice versa*. (C II, 226 [HR II, 187; AT VII, 325])

Descartes insists, challenging Gassendi, that existence is a property:

Here I do not see to what sort of a thing you want existence to be, nor why it cannot not be said to be a property just like omnipotence, — provided of course, that we take the word ‘property’ to stand for any attribute, or for whatever can be predicated of a thing; and this is exactly how it should be taken in this context. Moreover, in the case of God necessary existence is in fact a property in the strictest sense of the term, since it applies to him alone and forms part of his essence as it does of no other thing. Hence the existence of a triangle should not be compared with the existence of God, since the relation between existence and essence is manifestly quite different in the case of God from what it is in the case of a triangle. (C II, 262-263 [HR II, 228; AT VII, 382-383])

But again the question: what do we mean by the word “exists”? We do have some grasp of it when we speak of the existence of, say, a tree, something that can be given in experience. Here it is essential that what exists could also not exist. What about a triangle? And does the expression “necessary existence” make any sense?

Descartes, as we know, does not think he has been refuted by Aquinas’ rejection of the ontological argument. He claims not to rely on a mere concept, but on what he takes to be a clear and distinct idea that refers to an other that is not merely subjective. This he takes to have been established by the preceding proofs; Descartes’ ontological proof does not lead us to infer God’s existence from a mere concept; rather it shows us that this concept is an expression of a certain intuition. Consider the seemingly contingent world in which we find ourselves. Everything in that world, it seems, could have been different; perhaps this world could not have been at all. So understood the word presents itself to us *sub specie possibilitatis*, as groundless. From such an experience of the world there is no way to God. But is our experience of the world of

that sort? Can the gap between essence and existence be bridged as the ontological argument attempts to do?

Consider once more the *cogito*. My insight into what I am, thinking substance, is in this case inseparable from my insight that I am. We have here something like an ontological argument. The insight into God's being is inseparable from insight into my own imperfect being which has its measure and ground in a reality that transcends it. But one has to agree with Thomas Aquinas: that insight is hardly clear and distinct. The proofs *a posteriori* would indeed seem to have priority over the *a priori* ontological argument. I have to recollect the presupposed idea of God for that argument to be at all convincing. But in that case the proof becomes superfluous and circular.

3

Let me conclude with another objection by Gassendi that Descartes does not think merits a serious reply. At issue is the truth of mathematical propositions, which Gassendi maintains are not in need of support by some proof of the existence of God. Descartes had claimed that while I have clear and distinct insight into some mathematical truth, I am unable to call it into question, but as soon as I begin to reflect I begin to wonder about the trustworthiness even of what I thought I had perceived clearly and distinctly. To secure the truth of mathematical propositions we need to prove that there is indeed a God who is not a deceiver. This Gassendi challenges:

Here, Sir, I accept that you are speaking seriously; and there is nothing I can say except that I do not think you will find it easy to make anyone believe that before you established the above conclusion about God you were less certain of those geometrical proofs than you were afterwards. These poofs certainly seem to be so evident and certain that they compel our assent all by themselves, and once they have been perceived they do not allow the intellect to remain in further doubt. (C II, 227 [HR II, 189; AT VII, 327])

The truth of the propositions of mathematics does indeed seem to be independent of the existence of God. But in this case, too, Descartes holds on to his understanding of truth as correspondence: can we be sure that our mathematics corresponds to the mathematics of God? Consider Kant's interpretation, which grounds the evidence of mathematics in

the pure forms of intuition, space and time, which are indeed a presupposition of experience, but as such relative to us human knowers. Is mathematics grounded in the nature of our human understanding? And suppose we argue that we have no clear and distinct intuition that serves to ground mathematics: Could the supposed necessity of mathematics rest on all too human conventions? Could there be other conventions, other language games, as the Wittgenstein of the *Investigations* was to suggest?

11. The Existence of Material Things

1

In *Meditation V* Descartes attempted to show that we have a clear and distinct idea of extension, or extended quantity, of figure and motion and of similar ideas (HR I, 179). But do material things really exist? Descartes thinks that he has shown at least this much: that they may exist, for, he has claimed, everything that we perceive clearly and distinctly can indeed exist.

But just how are we to understand “clear and distinct”? Could one not argue — and I shall return to this point — that, on the contrary, whatever I am able to grasp clearly and distinctly *cannot* exist? Think of a circle. The circle I have drawn on some piece of paper would seem to be no longer clear and distinct, but infinitely complex. Can clarity and distinctness do justice to such complexity? Descartes, to be sure, thinks that whatever can be known clearly and distinctly can really exist:

And at least I know that they are capable of existing, in so far as they are the subject-matter of pure mathematics, since I perceive them clearly and distinctly. (C II, 50 [HR I, 185; AT VII, 71])

Clear and distinct thinking thus opens up a logical space, a space of possibilities.

For there is no doubt that God is capable of producing everything that I am capable of perceiving in this manner; and I have never judged that something could not be made by him except on the grounds that there would be a contradiction in perceiving it distinctly. (C II, 50 [HR I, 185; AT VII, 71])

Again: at stake for Descartes is the doctrine that those structures that I grasp clearly and distinctly are not just human constructions, i.e. fictions.

2

Crucial to the argument for the existence of the material world is the function of the imagination:

The conclusion that material things exist is also suggested by the faculty of imagination, which I am aware of using when I turn my mind to

material things. For when I give more attentive consideration to what imagination is, it seems to be nothing else but an application of the cognitive faculty to a body which is intimately present to it, and which therefore exists. (C II, 50 [HR I, 185; AT VII, 71-72])

We are beings that possess both imagination and intellect. The distinction is crucial to Descartes. In the very fact that I have an imagination, the body is given to me. Thinking need not involve the body in that way.

To make this clear, I will first examine the difference between imagination and pure understanding [*intellectio*]. When I imagine a triangle, for example, I do not merely understand that it is a figure bounded by three lines, but at the same time I also see [*intueor*] the three lines with my mind's eye [*acies mentis*] as if they were present before me; and this is what I call imagining. But if I want to think of a chiliagon, although I understand that it is a figure consisting of a thousand sides just as well as I understand the triangle to be three-sided figure, I do not in the same way imagine the thousand sides or see them as if they were present before me. It is true that since I am in the habit of imagining something whenever I think of a corporeal thing, I may construct in my mind a confused representation of some figure; but it is clear that this is not a chiliagon. (C II, 50 [HR I, 186; AT VII, 72])

But the imagination is taken not to be a necessary element of human nature:

And in doing this I notice quite clearly that imagination requires a peculiar effort of mind which is not required for understanding [*intelligendum*]; this additional effort of mind clearly shows the difference between imagination and pure understanding [*intellectio*]. (C II, 51 [HR I, 186; AT VII, 72-73])

That I have an imagination depends thus on something different from me:

And I can easily understand that, if there does exist some body to which the mind is so joined that it can apply itself to contemplate it, as it were, whenever it pleases, then it may possibly be this very body that enables me to imagine corporeal things. So the difference between this mode of thinking and pure understanding may simply be this: when the mind

understands, it in some way turns towards itself and inspects one of the ideas which are within it; but when it imagines, it turns towards the body and looks at something in the body which conforms to an idea understood by the mind or perceived by the senses. (C II, 51 [HR I, 186; AT VII, 73])

But Descartes does not think that the clear and distinct idea he has of corporeal nature by virtue of having an imagination is sufficient to establish the existence of material objects.

3

Descartes turns next to sensation. Here we are passive. Such passivity suggests that something acts on me and thus transcends me.

And since the ideas which perceived by the senses were much more lively and vivid and even, in their own way, more distinct than any of those which I deliberately formed through meditating or which I found impressed on my memory, it seemed impossible that they should have come from within me; so the only alternative was that they came from other things. Since the sole source of my knowledge of these things was the ideas themselves, the supposition that the things resembled the ideas was bound to occur to me. (C II, 52 [HR I, 188; AT VII, 75])

Inseparable from such confidence in the senses is the conviction that my body is inseparable from me.

As for the body which by some special right I called 'mine', my belief that this body, more than any other, belonged to me had some justification. For I could never be separated from it, as I could from other bodies; and I felt all my appetites and emotions in, and on account of, this body; and finally, I was aware of pain; and pleasurable ticklings in parts of this body, but not in other bodies external to it. (C II, 52 [HR I, 188; AT VII, 75]) (HR I, 188)

But all that is thought not to be sufficient to establish a reality beyond me and to defeat Cartesian doubt.

And despite the fact that the perceptions of the senses were not dependent on my will, I did not think that I should on that account infer that they proceeded from things distinct from myself, since I might perhaps have a

faculty not yet known to me which produced them. (C II, 53-54 [HR I, 189; AT VII, 77])

4

Once again the ability to distinguish with clarity and distinctness body from mind is taken to establish that there is an absolute difference between the two. It is this trust in the clear and distinct that, as we saw, the proof that God exists and is not a deceiver was meant to secure. (Cf, Principle I, XXX and XLV). But to repeat, should we not say just the opposite: that there is no clear and distinct knowledge of anything that is real; that what deserves to be called real transcends the clear and distinct? The experience of reality is an experience of transcendence. Even our own being transcends us and is not given to us clearly and distinctly. Things are clear and distinct only to the extent that we can produce them. Think once more of the definition of a circle. It gives us a rule for its construction. Descartes, to be sure, wants to defeat this objection by means of his proof of the existence of a God who is not a deceiver.

What is right about claiming the existence of God is that we are transcended and in some sense measured by a reality beyond us; also that our knowledge is in some sense in tune with reality. But do I need for this that identity of structure expressed in the Cartesian theory of imitation? The notion of conjecture seems strong enough. And why should our conjectures concerning nature have a mathematical form? Because that form does justice to the nature of human reason? But must it not also do justice to the nature of reality? Did God, as Galileo insisted, write the book of nature in the language of mathematics? In the language of our human mathematics?

5

What has been established so far is, as we saw, said not to be sufficient to establish a reality beyond me. Once more Descartes insists that “everything which I clearly and distinctly understand is capable of being created by God so as to correspond exactly with my understanding of it.” (C II, 54 [HR I, 190; AT VII, 77]). And once again he emphasizes the separation of mind and body:

Thus, simply by knowing that I exist and seeing at the same time that absolutely nothing else belongs to my nature or essence except that I am a

thinking thing, I can infer correctly that my essence consists solely in the fact that I am a thinking thing. It is true that I may have (or to anticipate, that I certainly have) a body that is closely joined to me. But nevertheless, on the one hand I have a clear and distinct idea of myself, in so far as I am simply a thinking, non-extended thing; and on the other hand I have a distinct idea of body, in so far as this is simply an extended, non-thinking thing. And accordingly it is certain that I am really distinct from my body, and can exist without it (C II, 54 [HR I, 190; AT VII, 78])

But I find in me modes of thinking, namely imagination and sensory perception that, while according to Descartes not essential to my being, yet are part of my experience.

But it is clear that these other faculties, if they exist, must be in a corporeal or extended substance and not an intellectual one; for the clear and distinct conception of them includes extension, but does not include any intellectual act whatsoever. (C II, 55 [HR I, 190; AT VII, 79])

They thus must issue from some reality different from myself as thinking substance.

So the only alternative is that it is in another substance distinct from me — a substance which contains either formally or eminently all the reality which exists objectively in the ideas produced by this faculty (as I have just noted). This substance is either a body, that is, a corporeal nature, in which case it will contain formally <and in fact> everything which is to be found objectively < or representatively> in the ideas; or else it is God, or some other creature more noble than a body, in which case it will contain eminently whatever is to be found in the ideas. But since God is not a deceiver, it is quite clear that he does not transmit the ideas to me, either directly from himself, or indirectly, via some creature which contains the objective reality of these ideas not formally but only eminently. (C II, 55 [HR I, 191; AT VII, 79])

But while this is thought sufficient to establish the existence of corporeal objects, do these objects present themselves to us as they really are?

They may not at all exist in a way that exactly corresponds with my sensory grasp of them, for in many cases the grasp of the senses is very obscure and confused. But at least they possess all the properties which I

clearly and distinctly understand, that is, all those which, viewed in general terms, are comprised within the subject-matter of pure mathematics. (C II, 55 [HR I, 191; AT VII, 79])

Nature has not given us our senses to perceive things as they are in truth. The primary point of our senses is to signify to the mind what is necessary to our well-being.

For the proper purpose of the sensory perceptions given me by nature is simply to inform the mind of what is beneficial or harmful for the composite of which the mind is a part; and to this extent they are sufficiently clear and distinct. But I misuse them by treating them as reliable touchstones for immediate judgements about the bodies located outside us; yet this is an area where they give only very obscure information. (C II, 57-58 [HR I, 194; AT VII, 83])

With this Descartes returns once more to the Platonic theme of the deceptiveness of the senses. As Nietzsche was to put it, we have no organ for the truth. Indeed they do not even reliably serve the welfare of the body.

And yet it is not unusual for us to go wrong even in cases where nature does urge us towards something. Those who are ill, for example, desire food or drink that will shortly afterwards turn out to be bad for them (C II, 58 [HR I, 194; AT VII, 84])

Again the question: how are we to reconcile this with the goodness of God? To answer that question Descartes appeals once more to the difference between mind and body, the former indivisible, the latter divisible. (C II, 59 [HR I, 196; AT VII, 85-86])

My next observation is that the mind is not immediately affected by all parts of the body, but only by the brain, or perhaps by just one small part which is said to contain the 'common sense' (*sensus communis*). Every time this part of the brain is in a given state, it presents the same signals to the mind, even though the other parts of the body may be in a different condition at the time. This is established by countless observations, which there is no need to review here. (C II, 59-60 [HR I, 196; AT VII, 86])

We shall return to that tiny part of the brain, which is said to provide something like a bridge linking body to mind, presently. But Descartes' main concern here is how to

understand the deceptiveness of the senses. He is thinking of phenomena such a phantom pain. The same sensation can be produced in more than one way. Thirst has more than one cause. Normally, when in good health, our bodies do not deceive us and serve us well. And similarly, normally I have no difficulty distinguishing waking from dreaming. Waking life has a coherence that our dreams lack. (C II, 61-62 [HR I, 199 AT VII, 89-90])

Why then do we so often fall into error? Because of an inevitable impatience, Descartes suggests, concluding his *Meditations*:

But since the pressure of things to be done does not allow is to stop and make such a meticulous check, it must be admitted that in this human life we are often liable to make mistakes about particular things, and we must acknowledge the weakness of our nature. (C II, 62 [HR I, 199 AT VII, 90])

6

Let me return to that tiny part of the brain, said to provide something like a bridge linking body to mind. Having emphasized the separation of body and mind, Descartes is yet forced to admit that body and mind are intimately linked in man. But can that link be understood? Or is the presence of consciousness a mystery on which clear and distinct thinking can cast little light?

There is nothing that my own nature teaches me more vividly than that I have a body, and that when I feel pain there is something wrong with the body, and that when I am hungry or thirsty the body needs food and drink, and so on. So I should not doubt that there is some truth in this.

Nature also teaches me, by these sensations of pain, hunger, thirst, and so on, that I am not merely present in my body as a sailor [pilot] in a ship, but that I am very closely joined and, as it were, intermingled with it, so that I and the body form a unit. (C II, 56 [HR I, 192 AT VII, 80-81])

Note the difference between these two locutions: I have a body — I am a body. There would seem to something right about both. In the first formulation the “I” is thought as transcending the body. In the *Phaedo* Plato likens the relationship to that of a person to the coat he is wearing. I am indeed such that I can transcend my embodied being in thought — Descartes’ *cogito* is a good example — and form the idea that while I have a

body, in my essence I transcend that body. But does this transcendental subject allow me to recognize myself in it?

Could I have been someone else? Inhabited a different body? Take the proposition: “If I had been Descartes I would not have accepted the invitation to go to Sweden.” Does this make sense? Can I make sense of my having been Descartes? What sort of “I” would that be? That “I” remains formal and abstract. I cannot recognize myself in this “I”. There is no real “I” that somehow comes to be incarnated in this body. It is this fact that “I am my body” expresses. But Descartes would have us reject that conclusion, raising the question of how we are to understand our sense of being ourselves.

This may seem like an innocent enough squabble, but quite a bit is at stake. What do I consider essential about myself? Am I essentially male or female? When I treat you as a person, not as male or female, not as American or Chinese or whatever, do I do justice to you? The question has become especially acute in this age of gender change.

That the distinction between body and mind is central to Descartes’ thinking is evident. Also the problem it raises about the relationship of mind and body. This makes *The Passions of the Soul* of special interest: Consider *Article II*:

Next I note that we are not aware of any subject which acts more directly upon our soul than the body to which it is joined. Consequently we should recognize that what is a passion in the soul is usually an action in the body. Hence there is no better way of coming to know about our passions than by examining the difference between the soul and the body, in order to learn to which of the two we must attribute each of the functions present in us. (C I, 328 [HR I, 332; AT XI, 328])

The very word “passion” is interesting. It suggests that the passionate individual is somehow alienated from him- of herself. The passionate individual is suffering. But is it obvious that the word passion, so understood, captures something essential? Descartes clearly thinks so. And indeed, as commonly used, the word does seem to presuppose something like a Cartesian view of the self. But that this understanding can be challenged is shown by Nietzsche, who in his *Zarathustra* coins the word *Freudenschaft* to oppose it to *Leidenschaft*, passion. Think of sexual desire: do we really suffer when we desire?

For Descartes all life is essentially a mechanical process and to be understood as such:

Article III

We shall not find this very difficult if we bear in mind that anything we experience as being in us, and which we can see also exist in wholly inanimate bodies, must be attributed only to our body. On the other hand, anything is in us which we cannot conceive in any way as capable of belonging to a body, must be attributed to our soul. (C I, 329 [HR I, 332; AT XI, 329])

Descartes compares the active body to a functioning watch or an automaton:

Article VI

... And let us recognize that difference between the body of a living man and that of a dead man is just like the difference between, on the one hand a watch or other automaton (that is a self-moving machine) when it is wound up and contains within itself the corporeal principle of the movements for which it is designed, together with everything required for its operation; and, on the other hand, the same watch or machine when it is broken and the principle of its movement ceases to be active. (C I, 329-330 [HR I, 333; AT XI, 330-331])

Death is to be explained in purely mechanical terms. We do not die because the soul perishes, but the soul quits the body when we die. But again, can I recognize myself in that soul?

Descartes develops his understanding of the automaton man in the following *Article VII*. The heat of the heart keeps the machine going. The human being is rather like a locomotive: the animal spirits are simply the very subtlest parts of the blood.

In the following articles Descartes develops a brief account of his anatomy. The details need not detain us. What matters is that the body is a complicated machine and to be understood as such. The brain is very much part of that machine. Think of a robot with a computer brain. But that account has no place for our thoughts and thus for mind.

Article XVII

Having thus recognized all the functions belonging solely to the body, it is easy to recognize that there is nothing in us which we must

attribute to our soul except our thoughts. These are of two principal kinds, some being actions of the soul and others its passions. Those I call its actions are all our volitions, for we experience them as proceeding directly from our soul and as seeming to depend on it alone. On the other hand, the various perceptions or modes of knowledge present in us may be called its passions, in a general sense, for it is often not our soul which makes them such as they are, and the soul always receives them from the things that are represented by them. (C I, 335 [HR I, 340; AT XI, 342])

The following table offers a summary of Descartes' understanding of human behavior:

I. Functions that pertain to the body alone

II. Thoughts

1. Actions of the soul: volitions

- a. Actions of the soul terminating in the soul itself. Example: love of God.
- b. Actions of the soul terminating in our body. Example: decision to eat or walk.

2. Passions of the soul: perceptions

a. Caused by the soul

- i. Perceptions of our volitions and the imaginings and all other thoughts depending on them.
- ii. Imaginations and other thoughts formed by the soul.
Example: Thinking of a chimera.

b. Caused by the body

- i. Perceptions that we relate to the soul, but are caused by some movement of spirits. Example: dreams and daydreams.
- ii. Perceptions that involve the nerves
 - 1. Perceptions that we relate to objects without us.
Perceptions of external objects
 - 2. Perceptions that we relate to our body. Example: thirst, hunger.
 - 3. Perceptions that we refer to the soul: joy, anger.

The last are passions of the soul in the most proper sense. The state of the soul is here caused by the body. This raises the question of how the soul is joined to the body. Descartes here argues once more that while the soul is joined to the whole body, there is yet a small gland in the brain, the pineal gland, privileged by the fact that while the other parts of the brain are double, it is single and thus able to unite what comes to it from two eyes, two ears, etc. In it the function of the soul are most especially exercised.⁶⁹ The details of Descartes' analysis need not detain us: his understanding of the anatomy of the brain has proven deficient in any number of ways. But regardless of details, Descartes' sharp division of mind and body raises the question, how are we to understand mind causing change in the corporeal world and being changed by it. Consider the following:

Article XXXIV

And conversely, the mechanism of our body is so constructed that simply by this gland's being moved in any way by the soul or by any other cause, it drives the surrounding spirits towards the pores of the brain, which

⁶⁹ See "Descartes and the Pineal Gland," Stanford Encyclopedia of Philosophy, First published Mon Apr 25, 2005; substantive revision Wed Sep 18, 2013. Copyright © 2013 by Gert-Jan Lokhorst g.j.c.lokhorst@tudelft.nl) In that article Lokhorst claims: "In the secondary literature one often meets the claim that Descartes maintained that the soul has no spatial extension, but this claim is obviously wrong in view of Descartes' own assertions. Those who make it may have been misled by Descartes' quite different claim that extension is not the principal attribute of the soul, where 'principal' has a conceptual or epistemic sense." I find this unconvincing. Consider e.g. the following, cited in the article: "And the soul is of such a nature that it has no relation to extension, or to the dimensions or other properties of the matter of which the body is composed: it is related solely to the whole assemblage of the body's organs. This is obvious from our inability to conceive of a half or a third of a soul, or of the extension which a soul occupies. Nor does the soul become any smaller if we cut off some part of the body, but it becomes completely separate from the body when we break up the assemblage of the body's organs" (AT XI, 351).

direct them through the nerves to the muscles; and in this way the gland makes the spirits move the limbs. (C I, 341 [HR I, 347; AT XI, 355])

But in what sense can the soul be said to be the cause of bodily action. What does “cause” mean here? Clear is that we will not be able to create some sort of mechanical model to illustrate such “causation.” Interesting in this connection is the following remark, cited by Lonkhorst:

The soul is conceived only by the pure intellect; body (i.e. extension, shapes and motions) can likewise be known by the intellect alone, but much better by the intellect aided by the imagination; and finally what belongs to the union of the soul and the body is known only obscurely by the intellect alone or even by the intellect aided by the imagination, but it is known very clearly by the senses. [...] It does not seem to me that the human mind is capable of forming a very distinct conception of both the distinction between the soul and the body and their union; for to do this it is necessary to conceive them as a single thing and at the same time to conceive them as two things; and this is absurd. (28 June 1643, AT III: 693)

Given Descartes' separation of mind from body there can be no adequate scientific account explaining human behavior. When we attempt to do so, we will encounter events that resist such modeling. In the *Passions of the Soul* this finds expression in Descartes' emphasis on the “extreme minuteness” of the brain processes involved. *Article X* is of special interest in this connection:

How the animal spirits are produced in the brain

...What makes them go there [the cavities of the brain] rather than elsewhere is that all the blood leaving the heart through the great artery follows a direct route towards this place, and since not all this blood can enter there because the passages are too narrow, only the most active and **finest (plus subtiles)** parts pass into while the rest spread out in the other regions of the body. But these **very fine (très subtiles)** parts of the body make up the animal spirits. For them to do this the only change they need to undergo in the brain is to be separated from the other less fine parts of the blood. For what I am calling ‘spirits’ here are merely bodies; they

have no property other than of being **extremely small bodies (très petits)** which move very quickly, like the jets of flame that come from a torch. (C I, 331-332 [HR I, 335-336; AT XI, 334-335, my emphases])

When encountering bodies of such extreme subtlety and minuteness our modeling ability breaks down. Do modern attempts to understand the brain and to make room for consciousness encounter similar problems?

12. The Foundations of Science

1

Let me begin with a metaphor Descartes offers us in his *Author's Lettter*, which served as a preface to the French translation by Picot of the *Principles*.

Thus the whole of philosophy is like a tree. The roots are metaphysics, the trunk is physics, and the branches emerging from the trunk are all the other sciences, which may be reduced to three principal ones, namely medicine, mechanics and morals. By 'morals' I understand the highest and most perfect moral system, which presupposes a complete knowledge of the other sciences and is the ultimate level of wisdom.

Now just as it is not the roots or the trunk of a tree from which one gathers the fruit, but only from the ends of the branches, so the principal benefit of philosophy depends on those of it which can only be learnt last of all. (C I, 186 [HR I, 211; AT IXB, 14-15])

Metaphysics is here said to be the roots of philosophy, physics its trunk, where the branches that issue from this trunk reduce to fundamentally three: medicine, mechanics, and morals. But what is the ground from which these roots draw their nourishment? Martin Heidegger raises this question in *What is Metaphysics?*⁷⁰ But first the question: what is metaphysics? Here is Descartes' answer:

I tried to explain the principal point in a book of *Meditations*. Although this work is not very large, the size of the volume was increased, and the contents greatly clarified, by the addition of the objections that several very learned persons sent me on the subject, and by the replies I made to them. And finally, when I thought that these earlier works had sufficiently prepared the minds of my readers to accept the *Principles of Philosophy*, I published these, too. I divided the book into four parts. The first of which contains the principles of knowledge, i.e., what may be called 'first philosophy' or 'metaphysics'; so in order to gain a sound understanding

of this part it is appropriate to read first of all the *Meditations* which I wrote on the same subject. The other three parts contain all that is most general in physics, namely an explanation of the first laws or principles of nature and the manner of composition of the heavens, the fixed stars, the planets, the comets and, in general, the entire universe. (C I, 187 [HR I, 212; AT IXB, 16]) (HR I, 212)

Metaphysics here is understood as the inquiry into the principles of knowledge. It inquires into the conditions that make knowledge possible. This makes metaphysics most essentially an inquiry into what distinguishes truth from error. But true knowledge comprehends or grasps what is as it is. Metaphysics can therefore not be content with epistemology. Part of metaphysics is then the exhibition of what allows us to really grasp something. Descartes' answer: it must be clear and distinct. But, as we saw, this does not assure me that I have gotten hold of reality as it really is. To answer that question metaphysics has to turn to ontology, more specifically to onto-theology.

What then is the soil in which metaphysics grows? A certain intuition about being and its intelligibility! Metaphysics attempts to grasp the essence of being. But we can grasp only what has a certain hardness and is not so evanescent that it vanishes the moment I attempt to seize it. Metaphysics thus thinks being against time — recall Descartes's recurrent anxiety about the problem of time. And it has to analyze what is complex into its simple constituents and transparently reconstitute it from these.

We should note that Descartes did not complete his project. The *Principles of Philosophy* deals only with metaphysics and physics. It does not progress very far towards the specific sciences: medicine, mechanics and morals. Descartes is very much aware of that incompleteness. The edifice of philosophy remains unfinished:

... and I do not yet feel so old or so diffident about my powers, or so far away from knowledge of these remaining topics, that I would not now boldly try to bring the plan to its conclusion provided I had the resources to make all the observations I should need in order to back up and justify my arguments. (C I, 188 [HR I, 213; AT IXB, 17])

⁷⁰ Heidegger, "Einleitung zu 'Was ist Metaphysik?'" (1949), *Wegmarken*, GA 9, (Frankfurt am Main: Klostermann, 1976), p. 365.

Descartes is aware that many centuries may well pass before the promise of his *Principles* is fulfilled. Needed is research that will adhere to the principles he has outlined. Descartes is concerned that the bad opinion that just the most intelligent of his contemporaries have formed of philosophy will stand in the way of a quick adoption of the path he has charted. But he is confident that his philosophy will eventually bear fruit and so he concludes the prefatory letter:

My earnest wish is that our descendants may see the happy outcome of this project. (C I, 186 [HR I, 215; AT IXB, 20]) HR I, 215)

2

Descartes inclusion of morals among the sciences that branch off the trunk of metaphysics invites question: did he really think that morals should be subordinated to physics? Just what did he have in mind? The relative absence of a moral philosophy in Descartes is indeed striking. We come closest to a statement of his moral philosophy in the provisional and very much personal code that we are offered in the third part of the *Discourse on the Method*. But it is of course only a provisional code, to be replaced by a more firmly established one. Let us consider that code, said to be required by the necessity of acting. (C I, 122-125 [HR I, 95-98; AT XI, 22-28])

1. Obedience to the laws and customs of country; moderation.

Descartes refuses to bind himself. He keeps his distance for the world, stays aloof.

2. Be firm and resolute!
3. Conquer yourself rather than fortune!

Having reviewed other occupations, Descartes decides that he could not do better than follow the solitary path he has chosen for himself.

But again, this is only a personal and provisional code. It leaves us wondering: why should the moral science envisioned by Descartes be dependent on physics? Physics, as we know, as Descartes understands it, is incapable of setting up ends since it does not know anything of final causes. Does morality have a place in Descartes' philosophy at all? Does *The Passions of the Soul* help? We do indeed find in Descartes repeatedly suggestions of the Kantian imperative: be reasonable! That requires a certain self-control, which in turn presupposes that we know the passions, know also how to control them. Indeed the imperative that seems to underlie all of Descartes' doing is to

subject the material to the spiritual, to render ourselves that masters and possessors of nature, including our own nature. Key to such mastery is technology and it is indeed our technology, which most strikingly bears witness to the fruitfulness of Cartesian method. But what is the relationship of such mastery to genuine morality?

3

But let us turn to the second part of philosophy as Descartes outlines it for us, to Cartesian physics.

The first part of the *Principles*, as Descartes himself suggests, pretty much repeats and summarizes the material found in the *Meditations*. And much of what is said in the second part of the *Principles* should similarly be familiar. Consider *Principles* II, I-IV. Descartes recapitulates here his reasons for claiming that we can have certain knowledge of material things. Key here are considerations that figured importantly already in the discussion of the piece of wax in *Meditation II*.

Principle II, IV. That the nature of body consists not in weight, hardness, colour, or the like, but simply in extension.

If we do this, we shall perceive that the nature of matter, or body considered in general, consists not in its being something which is hard or heavy or coloured, or which affects the senses in any way, but simply in its being something which is extended in length, breadth and depth. (C I, 224 [HR I, HR I, 255-256; AT VIII A, 42])

According to Descartes matter can be reduced to extension. Space cannot be opposed to matter. The two are indistinguishable. This raises the obvious question: what then bounds extension? What allows us to distinguish different material objects? We shall have to return to this problem.

In *Principle V* Descartes raises a related possible objection to his account. How can it account for the phenomenon of rarefaction — say we heat a body until it finally turns into a gas filling a much larger volume — or a vacuum. *Principle VI* attempts to answer the objection:

But with regard to rarefaction and condensation, anyone who attends to his own thoughts, and is willing to admit only what he clearly perceives, will not suppose that anything happens in these processes beyond a change of

shape. Rarefied bodies, that is to say, are those which have many gaps between their parts — gaps which are occupied by other bodies; and they become denser simply in virtue of the parts coming together and reducing or completely closing the gaps. In this last eventuality a body becomes so dense that it would be a contradiction to suppose that it could be made any denser. (C I, 225 [HR I, 256-257; AT VIIIA, 43])

The obvious question this raises is: when Descartes speaks of gaps filled with other bodies, is he not presupposing a distinction between body and space? Descartes gives the example of a sponge, which expands when filled with water. Here the substance that fills the interstices is visible, but Descartes observes, there is no reason to suppose that we should “perceive with our senses all the bodies that exist around us.” (HR I, 257) We have no reason to equate the visible world with the real world. Invisible bodies are thought to fill the interstices.

Descartes does not begin with an idea of infinite Euclidean space into which material objects are then inserted, but with a multiplicity of extended subjects. A collection of such objects can be counted, each object can be measured, but, as *Principle VIII* insists,

There is no real difference between quantity and the extended substance, the difference is merely a conceptual one, like that between number and the thing is numbered. (C I, 226 [HR I, 258; AT VIIIA, 44])

Descartes insists that we cannot clearly and distinctly distinguish our idea of corporeal substance from that of extension. (*Principle II, IX*). And yet, do we not want to say that every material body occupies a portion of space, has its particular place, so that it becomes necessary to distinguish space from place? *Principle II, X* addresses this concern:

There is no real distinction between space, or internal place, and the corporeal substance contained in it; the only difference lies in the way in which we are accustomed to conceive of them. For in reality the extension in length, breadth and depth which constitutes a space, is exactly the same as that which constitutes a body. The difference arises as follows: in the case of a body, we regard the extension as something particular, and thus think of it as changing whenever there is a new body; but in the case of a

space, we attribute to the extension only a generic unity, so that when a new body comes to occupy the space, the extension of the space is reckoned not to change but to remain one and the same, so long as it retains the same size and shape and keeps the same position relative to certain external bodies which we use to determine the space in question.

(C I, 227 [HR I, 259; AT VIIIA, 45])

Body and space are said to be related as the particular is to the genus. Infinite Euclidean space would seem to be an abstraction, possessing no reality. So understood space has its foundation in our mode of conceiving things, not in the things themselves. Similarly quantity and number would seem to have no being in themselves.

What then is external place?

Principle II, XIII:

The terms 'place' and 'space', then, do not signify anything different from the body which is said to be in a place; they merely refer to its size, shape, and position relative to other bodies. (C I, 228 [HR I, 260; AT VIIIA, 47])

Descartes thus denies that there exists something such as absolute space. Space is essentially relational. When we say something is in a particular place we mean that it is related in specific ways to other objects. The absolute space of a Newton cannot be made clear and distinct. Absolute rest or absolute motion cannot be made sense of. The statement that the earth or the sun are at rest at the center of the universe cannot be made clear and distinct. "Nothing has a permanent place, except as determined by our thought." (C I, 228 [HR I, 260; AT VIIIA, 47])

Principle II, XIV:

When we say that a thing is in a given place, all we mean is that it occupies such and such a position relative to other things; but when we go on to say that it fills up a given space or place, we mean in addition that it has precisely the size and shape of the space in question. (C I, 229 [HR I, 261; AT VIIIA, 48])

From this conception of space it follows that there can be no absolute vacuum or empty space. We cannot make sense of the thought that nothing should have extension. Even God could not have created a vacuum.

Principle II, XVIII:

Hence, if someone asks what would happen if God were to take away every single body contained in a vessel, without allowing any other body to take the place of what has been removed, the answer must be that the sides of the vessel would, in that case, have to be in contact. For when there is nothing between two bodies they must necessarily touch each other. And it is a manifest contradiction for them to be apart or to have a distance between them, when the distance in question is nothing; for every distance is a mode of extension, and therefore cannot exist without extended substance. (C I, 229 [HR I, 263; AT VIIIA, 50])

With this Descartes rejected the position held by the 1277 Paris condemnations of Bishop Etienne Tempier, which insisted that there to be no restriction on God's omnipotence. — Can there be a perfect vacuum? The discussion continues.

4

From Descartes' understanding of corporeal substance as essentially extension follows the non-existence of atoms.

Principle XX:

We also know that it is impossible that there should exist atoms, that is, particles of matter that are by their very nature indivisible <as some philosophers have imagined>. For if there were any atoms, then no matter how small we imagined them to be, they would necessarily have to be extended; and hence we could in our thought divide each of them into two or more smaller parts, and hence recognize their divisibility. (C I, 231 [HR I, 264; AT VIIIA, 51])

And he adds:

Even if we imagine that God has chosen to bring it about that some portion of matter is incapable of being divided into smaller particles, it will still not be correct, strictly speaking, to call this particle indivisible. (C I, 231 [HR I, 264; AT VIIIA, 51])

I want to turn to Descartes' discussion of the indefinite extension of the universe, which follows, next time. Here I want to focus on the question: What is at stake for Descartes when he denies the distinction between space and things that are in space? Presupposed

is his conviction that reality and clear and distinct thinking are commensurable. The proof of the existence of a God who is not a deceiver was meant to cement this conviction. Given this conviction, he can offer the reader a powerful argument for the thorough-going mathematization of nature.

Of interest in this connection is an objection raised by Henry More. Gravity, More insisted, could not be accounted for in purely mechanistic terms. What kind of an account can Descartes give of gravity?⁷¹ Does gravity not testify to the existence something like a “spirit of nature,” some force in nature that resists comprehension? Gravity seems to admit something like a spiritual agency into nature, an occult quality. But it was just the introduction of such occult qualities into nature that Descartes’ sharp distinction between extended and thinking substance was meant to prevent.

5

In the *Third Part* of the *Principles* Descartes reiterates and spells out his rejection of explanations using final causes. *Principle I* reminds the reader of the greatness of God, which far transcends what our finite understanding can grasp.

The first is that we must bear in mind the infinite power and goodness of God, and not be afraid that our imagination may over-estimate the vastness, beauty, and perfection of his works. On the contrary, we must beware of positing limits here, when we have no certain knowledge of any, on pain of appearing to have an insufficient appreciation of the magnificence of sensible of God’s creative power. (C I, 248 [HR I, 270; AT VIIIA, 80])

It is difficult to know to what extent Descartes is concerned here to guard against anticipated criticism from the Church. In 1663, i.e. after his death in 1650, Descartes’ writings were indeed placed on the *Index Romanus*. But we have to ask whether this admonition does not call his confidence that we finite knowers are nevertheless capable of seizing the truth into question. A remark in his letter to Henry More of February 5, 1649 is of interest in this connection.

⁷¹ Cf. Alexander Koyré, *From the Closed World to the Infinite Universe* (New York: Harper Torchbook, 1958), p. 111.

For my part, I know that my intellect is finite and God's power infinite, and so I set no bounds to it; I consider only what I can conceive and what I cannot conceive, and I take great pains that my judgment should accord with my understanding. And so I boldly assert that God can do everything that which I conceive to be possible, but I am not so bold as to deny that He can do whatever conflicts with my understanding. And so, since I see that it conflicts with my understanding for all the body to be taken out of a container and for there to remain extension, which I conceive in no way differently from the body which was previously contained, I say that it involves a contradiction that such extension should remain there after the body has been taken away. I conclude that the sides of the container must come together; and this is altogether in accord with my other opinions. For I say elsewhere that all motion is in a manner circular; from which it follows that it cannot be clearly understood how God could remove a body from a container without another body, or the sides off the container, moving into its place by a circular motion.⁷²

Descartes here seems to concede that God is not bound by the principle of non-contradiction, adopting now a position in keeping with what had been asserted by the Condemnation of 1277, calling into question what he had maintained in Part II of the *Principles*. But with this concession to the Church doubt in the veracity of the clear and distinct has to return.

The following *Principle* reminds us once more of the finitude of our understanding.

Principle III, II:

The second is that <we must always remember that our mental capacity is very mediocre, and > we must beware of having too high an opinion of ourselves. We should be doing this if we chose to assign limits to the world in the absence of knowledge based on reason, or divine revelation — as if our powers of thought could stretch beyond what God has actually made. And it would be the height of presumption if we were

⁷² Descartes, *Philosophical Letters*, trans. and ed. Anthony Kenny (Minneapolis, U. of Minnesota Press, 1981), p. 241.

to imagine that all things were created by God for our benefit alone, or even to suppose that the power of our minds can grasp the ends which he set before himself is creating the universe. (C I, 248 [HR I, 270-271; AT VIIIA, 80-81])

Physics should not appeal to final causes. We have to settle for explanations in terms of efficient causation. Descartes is willing to concede that as far as Morals is concerned it is edifying to think of God as having created all things for us. But given the vastness of the universe and our modest place in it, it is impossible to take such a thought seriously. In light of his physics, Descartes calls such a thought ridiculous. But if the universe should not be looked as created for us, are we entitled to assume harmony between our faculties and the order of nature, a harmony expressed in Descartes' confidence in the reliability of clear and distinct ideas? How seriously are we to take Descartes' remarks about the omnipotence of God?

6

In *Part IV* Descartes returns to the question: how, given the reduction of nature to extended substance and thus to the geometrical, are we to understand the information given to us by the senses? The fundamentals of this account should by now be familiar to us: the mechanics of sensation need to be understood.

Principle IV, CXCVI

There is clear proof that the soul's sensory awareness, via the nerves, of what happens to the individual limbs of the body, does not come about in virtue of the soul's presence in the individual limbs, but simply because of its presence in the brain <or because the nerves by their motions transmit to it the actions of the external objects which touch the parts of the body where the nerves are embedded>. (C I, 283 [HR I, 293; AT VIIIA, 319])

Nothing, Descartes insists can be considered a phenomenon of nature that cannot be an object of sensory perception.

Principle IV, CXCI

Now I have given an account of the various sizes, shapes and motions which are to be found in all bodies; and apart from these the only things we perceive by our senses as being located outside us are light, colour,

smell, taste, sound, and the tactile qualities. And I have just demonstrated that these are nothing else in the objects — or at least we cannot apprehend them as being anything else — than certain dispositions depending on size, shape, and motion. (C I, 285 [HR I, 297; AT VIIIA, 323])

To claim that nothing can be considered a phenomenon of nature that cannot present itself to our senses is not to say that the sensible world is coextensive with the real world.

Quite the opposite:

Principle IV, CCI

I do consider, however, that there are many particles in each body which are <so small that they are> not perceived by any of our senses; and this may not meet with the approval of those who take their own senses as the measure of what can be known? (C I, 286 [HR I, 297; AT VIIIA, 324])

Nature, as it really is, is invisible. That is a corollary of the demand for clarity and distinctness. Descartes likens the relationship of the surfaces of things presented to our senses to the underlying reality to the relationship of the appearances presented by certain automata to the mechanism that animates them.

Principle IV, CCIII

In this matter I was greatly helped by considering artefacts. For I do not recognize any difference between artefacts and natural bodies except that the operations of artefacts are for the most part performed by mechanisms which are large enough to be easily perceivable by the senses — as indeed must be the case if they are capable of being manufactured by human beings. The effects produced in nature, by contrast, almost always depend on structures which are so minute that they completely escape our sense. Moreover, mechanics is a division or special case of physics, and all the explanations belonging to the former also belong to the latter; so it is no less natural for a clock, mad up of this or that set of wheels to tell the time than it is for a for a tree which grew from this or that seed to produce the appropriate fruit. (C I, 288 [HR I, 299-300; AT VIIIA, 326])

But are such explanations adequate? Descartes' answer is interesting. It suggests a retreat from his claim that physics gives us insight into the way things really are.

Principle II, CCIV

Just as the same craftsman could make two clocks which tell time equally well and look completely alike from the outside but have completely different assemblies of wheels inside, so the supreme craftsman of the real world could have produced all that we see in several different ways. I am very happy to admit this; and I shall think that I have achieved enough provided only that what I have written is such as to correspond accurately with all the phenomena of nature. (C I, 289 [HR I, 300; AT VIIIA, 326])

Descartes goes on to compare the scientist to someone who attempts to read a letter in code:

Principle II, CCV

Suppose for example that someone wants to read a letter written in Latin but encoded so that the letters of the alphabet do not have their proper value, and he guesses that the letter B should be read wherever A appears and C when B appears, i.e. that each letter should be replaced by the one immediately following it. If, by using this key, he can make up Latin words from the letters, he will be in no doubt that the true meaning of the letter is contained in these words. It is true that his knowledge is based merely on a conjecture, and it is conceivable that the writer did not replace the original letters with their immediate successors in the alphabet, but with others, thus encoding quite a different message; but this possibility is so unlikely <especially if the message contains many words> that it does not seem credible. Now if people look at all the many properties relating to magnetism, fire and the fabric of the entire world, which I have deduced in this book from just a few principles, then, even if they think that my assumption of these principles was arbitrary and groundless, they will still perhaps acknowledge that it would hardly have been possible for so many items to fit into a coherent pattern if the original principles had been false. (C I, 290 [HR I, 301; AT VIIIA, 327-328])

If we accept that God's power is infinite, or perhaps just the infinite divisibility of matter, there is no way for science to take the measure of nature. Measured by his own conception of absolute truth, all that Descartes can claim for most propositions of science is that they are well founded conjectures, good enough to suffice for the conduct of life. Descartes, to be sure, modifies this claim by insisting that there are “some matters, even in relation to the things of nature, which we regard as absolutely, and more than just morally, certain.” (C I, 290 [HR I, 301; AT VIIIA, 328]). He mentions mathematical demonstrations, knowledge that material things exist, and indeed “all evident reasoning about material things.” (C I, 290 [HR I, 302; AT VIIIA, 328]). He goes on to count among these absolutely certain conclusions those arrived at by “the first and simplest principles of human knowledge.” (C I, 290 [HR I, 302; AT VIIIA, 328]). But where in the *Principles* do evidence and deduction leave off and conjectures begin? How much here is concession to the Church and how much is necessitated by rigorous thinking?

13. Conclusion: Problems of Infinity

1

Last time we considered Descartes' analysis of the essence of material things and his identification of space and corporeal substance. From that identification follows the nonexistence of atoms and the denial of a vacuum. Presupposed is the commensurability of thought and reality, although in his denial of the existence of atoms Descartes grants that God could have rendered an object so small that it was beyond the ability of any creature to divide it. Still, absolutely speaking, material things are essentially divisible.

It was precisely on this point that Descartes had to encounter the opposition of Francis Bacon. Let me read again a telling passage from the *Novum Organum*:

The human understanding is unquiet; it cannot stop or rest, and still presses onward, but in vain. Therefore it is that we cannot conceive of any end or limit to the world; but always as of necessity, it occurs to us that there is something beyond: Neither again can it be conceived how eternity has flowed into the present day; for that distinction which is commonly received of infinity in time past and in time to come can by no means hold; for it would follow that one infinity is greater than another, and that infinity is wasting away and tending to become finite. The like subtlety arises touching the finite divisibility of lines, from the same inability of thought to stop.⁷³

This restlessness Bacon takes to be constitutive of the human understanding and it implies a predisposition that will lead it astray unless checked. The difference between Bacon's view and those of Descartes is evident. Bacon's remarks not only had to challenge Descartes' argument against atomism, but also his argument against the finitude of the world. Consider *Principle XXI*:

What is more, we recognize that this world, that is the whole universe of corporeal substance, has no limits to its extension. For no matter where we imagine the boundaries to be, there are always some indefinitely

extended spaces beyond them, which we not only imagine but perceive to be imaginable in a true fashion, that is, real. And it follows that these spaces contain corporeal substance which is indefinitely extended. For, as has already been shown very fully, the idea of the extension which we conceive to be in a given space is exactly the same as the idea of corporeal substance. (CI, 232 [HR I, 265; AT VIIIA, 52])

Descartes' universe is infinite, although he prefers the term "indefinite", suggesting that we come to no end, as we come to no end when counting, in that there can always be a greater number, reserving the term "infinite" for God. From this he infers the homogeneity of matter:

Principle II, XXII

It can also easily be gathered from this that celestial matter is no different from terrestrial matter. And even if there were an infinite number of worlds, the matter of which they were composed would have to be identical; hence, there cannot in fact be a plurality of worlds, but only one. For we very clearly understand that the matter whose nature simply consists in its being an extended substance already occupies absolutely all the imaginable space in which these alleged additional worlds would have to be located; and we cannot find within us an idea of any other sort of matter. (CI, 232 [HR I, 265; AT VIIIA, 52])

What then accounts for the variety of things we experience? Descartes' answer: motion.

Principle II, XXIII

... any variation in matter or diversity in its many forms depends on motion. This seems to have been widely recognized by the philosophers, since they have stated that nature is the principle of motion and rest. And what they meant by 'nature' in this context is what causes all corporeal things to take on the characteristics of which we are aware in experience. (CI, 232-233 [HR I, 265; AT VIIIA, 52-53])

⁷³ Francis Bacon, *Novum organum*, XLVIII, trans. J. Spedding in Francis Bacon of Verulam, *The Works of Francis Bacon*, eds. J. Spedding, R. Ellis, D. Heath (Boston: Brown and Taggard, 1860-1864), vol. I.

But what is motion? How, given the denial of a finite world, can we make sense of definite location? And if not of definite location, how of motion? For Descartes all motion is relative to some body taken to be at rest. Take someone at rest on a moving ship. The earth is like that ship.

The considerations Descartes advances concerning motion and the indefinite extension of space are very much like those that had been advanced by Nicholas of Cusa in *De Docta Ignorantia*. We know that Descartes had read that work, although I know of only one reference to Cusa: in a letter to Chanut of June 16, 1647 Descartes defends his own understanding of the infinity of the cosmos by pointing out that long ago the Church had found such a view perfectly acceptable:

In the first place I recollect that the Cardinal of Cusa and many other Doctors have supposed the world to be infinite without ever being censured by the Church; on the contrary, to represent God's work as very great is a way of doing Him honor. And my opinion is not as difficult to accept as theirs, because I do not say that the world is infinite, but only that it is indefinitely great. There is quite a notable difference between the two: for we cannot say that something is infinite without an argument to prove this such as we can give only in the case of God himself; but we can say that a thing is indefinitely large, provided we have no argument to prove that it has bounds."⁷⁴

As a matter of fact, Nicholas of Cusa, too, had been unable to consider the world absolutely infinite. On this point Descartes and he agree. Their reasoning, too, bears significant similarities. (See *Principle II, XXV*) Descartes, to be sure, would have rejected Cusanus' speculations concerning the coincidence of opposites as refusing to honor sufficiently the essential finitude of our understanding, although he himself appears to admit in his letter to Henry More of February 5, 1649, that God is not bound by the law of non-contradiction.⁷⁵ But that is not sufficient to allow a philosopher to speculate about God's transcendent essence, as Nicholas of Cusa did. To be sure, Descartes would have agreed with Cusanus that it is "self-evident that there is no comparative relation of the

⁷⁴ Descartes, *Philosophical Letters*, ed. Kenny, p. 221.

⁷⁵ Ibid., p. 240-241.

infinite to the finite.”⁷⁶ But while Cusanus concludes from this that a finite intellect cannot “precisely attain the truth about things,”⁷⁷ Descartes denied that infinity is so constitutive of things that whenever we try to understand them we become entangled in what he would dismiss as fruitless debates concerning the infinite.

Principle I, XXVI:

Thus we will never be involved in tiresome arguments about the infinite. For since we are finite, it would be absurd for us to determine anything concerning the infinite; for this would be to attempt to limit it and grasp it. So we shall not bother to reply to those who ask if half an infinite would itself be infinite, or whether an infinite number is odd or even, and so on. It seems that nobody has any business to think about such matters unless he regards his own mind as infinite. (CI, 201-202 [HR I, 229-230; AT VIIIA, 14-15])

This dismissal covers up an abyss that lies beneath the supposedly secure realm of truth. The question I want to raise is this: must not the infinity of extended substance introduce an element of uncertainty into the descriptions of science that renders them uncertain? This had been Kepler’s point when he argued against the infinity of the cosmos: "We shall show them [those who like Cusanus and Bruno hold that the universe is infinite] that by admitting the infinity of the fixed stars they become involved in inextricable labyrinths."⁷⁸ And again: "This very cogitation [the thought of infinite space] carries with it I don't know what secret, hidden horror; indeed one finds oneself wandering in this immensity, to which are denied limits and center and therefore also all determinate place."⁷⁹ Kepler, as Koyré tells us, thought that he had good astronomical reasons for his view. To be sure, these reasons proved inadequate.

But what concerns me here is the threat that the infinity of space posed to the astronomer's claim to truth. Descartes himself was forced to acknowledge this. Indeed in the *Principles* he seems in places closer to Osiander, the Lutheran minister who in his preface distorted the teaching of Copernicus, presenting it as a mere hypothesis, to make

⁷⁶ Nicolaus Cusanus, *De Docta Ignorantia* I, chapter 3, 9. Trans. Jasper Hopkins

⁷⁷ Nicolaus Cusanus, *De Docta Ignorantia* I, chapter 3, 10.

⁷⁸ Kepler, *De stella nova in pede Serpentari*, cap. xxi, p. 667 (*Opera Omnia*, ed, Frisch, vol. II, Francofurti at Erlangae, 1959), cited in Koyré, p. 61.

⁷⁹ Ibid.

it more acceptable to readers committed to Biblical teaching, than he does to either Copernicus or Kepler. Thus he admits that we cannot finally establish the absolute truth of the Copernican over the Ptolemaic or the Tychonic hypotheses. The infinite extension of space makes the old debate between the three world hypotheses seem rather pointless. Properly speaking the earth does not move, according to his teaching, but is carried along by the heaven surrounding it. Consider once more *Principle III, II*:

The second point is that <we must always remember that our mental capacity is very mediocre, and> we must beware of having too high an opinion of ourselves. We should be doing this if we chose to assign limits to the world in the absence of knowledge based on reason, or divine revelation — as if our powers of thought could stretch beyond what God has actually made. And it would be the height of presumption if we were to imagine that all things were created by God for our benefit alone, or even to suppose that the power of our minds can grasp the ends which he set before himself in creating the universe. (C I, 248 [HR I, 270-271; AT VIIIA, 80-81])

It would seem that we are, by our very nature, shut off from a genuine understanding of God's infinite creation. It would be the sin of pride to think that God had created the world so that it would be in accord with our faculties. The three world hypotheses, those of Ptolemy, Tycho, and Copernicus must be considered as just that, as hypotheses. They should be considered, not in light of a demand for absolute truth — such truth is denied to us in such matters, but as hypotheses, *positiones*, which should be considered in light of how well they are suited to explain the relevant phenomena. Under these considerations the hypothesis of Ptolemy is found to be not very useful, that of Tycho to be as adequate to the phenomena as that of Copernicus, but much less elegant. Once more the model character of Cartesian science becomes evident. Recall the earlier example of two clocks that tell time equally well, but with very different arrangements of wheels.

2

Is the Ariadne's thread offered by Descartes' method a thread that leads us to the truth, or rather, as far as science is concerned, an admonition to settle for less than absolute truth, for humanly constructed models? The *Principles* strongly suggest the

latter. But in that case, what happens to the doctrine of imitation, to the conviction that the order of knowing mirrors the order of being? Is Descartes forced to give it up?

Consider Principle I, XXXIII:

Now when we perceive anything, so long as we do not make any assertion or denial about it, we clearly avoid error. And we equally avoid error when we confine our assertions and denials to what we clearly and distinctly perceive should be asserted or denied. Error arises only when, as often happens, we make a judgement about something even though we do not have an accurate perception of it. (C I, 204 [HR I, 232; AT VIIIA, 17-18])

When I understand what my model asserts, understanding also its hypothetical nature, refusing to absolutize my knowledge, is my knowledge then clear and distinct?

What then lays to rest the uneasiness of the human understanding? Is it a surrender of the claim to absolute truth, a willingness to settle for what Descartes calls moral certainty. Consider Principle IV, CCV:

It would be disingenuous, however, not to point out that some things are considered as morally certain, that is as having sufficient certainty application to ordinary life, even though they may be uncertain in relation to the absolute power of God. (C I, 289-290 [HR I, 301; AT VIIIA, 327])

We meet with a certain pragmatic stance in Descartes. And yet, he wants more than moral certainty. He wants absolute truth. But is this something of which we finite knowers are capable?

With this we come to a second labyrinth, the labyrinth of the infinity of God. Do we have a clear and distinct idea of God as infinite and perfect, where perfection rules out deception, at least when we think clearly and distinctly?

Gassendi challenged Descartes on just this point:

You say that it does not matter that you do not grasp the infinite or everything that is in it, but that it is enough that you should understand a few of its attributes for it to be said that you have a true and completely clear and distinct idea of it. But if you do not grasp the infinite, but merely the finite, you do not have a true idea of the infinite, but only of the finite. You can at most be said to know part of the infinite, but this

does not mean that you know the infinite itself. A man who has never left an underground cave may be said to know part of the world, but that does not mean that he knows the world itself. (C II, 206 [HR II, 166; AT VII, 296-297])

Gassendi likens Descartes to someone stuck in Plato's cave. Descartes' reply reiterates that the infinite is incomprehensible, but insight into this incomprehensibility is precisely what allows us to have a true idea of the infinite:

My point is that, on the contrary, if I can grasp something it would be a total contradiction for that which I grasp to be infinite. For the idea of the infinite, if it is to be a true idea, cannot be grasped at all, since the impossibility of being grasped is contained in the formal definition (*ratio*) of the infinite. Nonetheless, it is evident that the idea which we have of the infinite does not merely represent one part of it, but really does represent the infinite in its entirety. The manner of representation, however, is the manner appropriate to a human idea; and undoubtedly God, or some other intelligent nature more perfect than a human mind, could have a much more perfect, i.e. more accurate and distinct, idea. ... Just as it suffices for the possession of an idea of the whole triangle to understand that it is a figure contained within three lines, so it suffices for the possession of a true and complete idea of the infinite in its entirety if we understand that it is a thing which is bounded by no limits (C II, 253-254 [HR II, 218; AT VII, 368])

The reply raises a number of questions: Can it be reconciled with the distinction Descartes draws in the *Principles* between true infinity and the unboundedness of the universe? Here he seems to collapse the two. And this raises a further question, keeping in mind Bacon's observation that "The human understanding is unquiet; it cannot stop or rest, and still presses onward, but in vain. Therefore it is that we cannot conceive of any end or limit to the world; but always as of necessity, it occurs to us that there is something beyond." Does the idea of infinity have its foundation in this restlessness of the human understanding? Is the supposed infinity of God but a reflection of the ever restless human mind? Has man created God in his own image?

3

With this we come to a third labyrinth: the labyrinth of freedom. Is it because we human beings are free that we have an idea of the infinite? Recall:

It is only the will or freedom of choice, which I experience within me to be so great that the idea of any greater faculty is beyond my grasp; so much so that it is above all in virtue of the will that I understand myself to bear in some way the image and likeness of God. For although God's will is incomparably greater than mine, both in virtue of the knowledge and power that accompany it and make it more firm and efficacious, and also in virtue of its object, in that it ranges over a greater number of items, nevertheless it does not seem any greater than mine when considered as will in the essential and strict sense. This is because the will simply consists alone in our ability to do or not to do something (that is, to affirm or deny, to pursue or avoid); or rather, it consists simply in the fact that when the intellect puts something forward for affirmation or denial or for pursuit or avoidance, our inclinations are such that we do not feel that we are determined by any external force. (C II, 40 [HR I, 175; AT VII, 57])

4

In our first session I pointed to *Rule V*, in which Descartes likens the method that he is offering his readers to Ariadne's thread. It is to help us, as it helped him, to find our way out of the labyrinth of the world. As I pointed out, the metaphor of the labyrinth is picked up by the rather muddled author of the seventh set of *Objections*, Father Pierre Bourdin (1595-1653), a Jesuit, who taught mathematics and related subjects at La Flèche and later at the Jesuit collège Clermont in Paris. So far we have given little attention to him. Descartes is clearly dismissive in his replies to Bourdin's overly rhetorical, verbose objections, whose tone had to annoy him. As we learn from the Letter to Dinet, the two had tangled before. Bourdin had attacked Descartes' scientific work, especially his optics. But Bourdin does raise the question with which I began: whether Descartes is not perhaps more like Icarus than like Theseus.

Bourdin's criticism is interesting, because he is one of the first to argue that, far from overcoming skepticism, pointing the way out of the labyrinth, Descartes, by the

radical nature of his doubt and the exaggerated demands of his method, was doomed to end up with an extreme form of skepticism, unable to find the firm ground he seeks:

Reply 1. The method is faulty in its principles, which are either non-existent or unlimited. Other systems which aim to derive certain results from certain starting points lay down clear, evident and innate principles ... But your method is quite different, since it aims to derive something not from something but from nothing. It chops off, renounces and forswears all former beliefs without exception; it requires the will to be turned in completely the opposite direction, and, to avoid the impression that it has no wings to rise aloft, it puts on artificial wings of wax and adopts new principles which are the complete opposite of those formerly held. Thus it divests itself of all old preconceived opinions in order to put on new ones; it lays aside what is certain in order to take up what is doubtful; it equips itself with wings, but they are made of wax; it soars aloft only to fall; and finally, it struggles to derive something from nothing, only to end up producing nothing at all. (C II, 359 [HR II, 318; AT VII, 527-528])

Reply 2. The Method is faulty in the implements it uses, for as long as it destroys the old without providing any replacements, it has no implements at all. Other systems have formal logic, syllogisms and reliable patterns of argument, which they use like Ariadne's thread to guide them out of the labyrinth; with these instruments they can safely and easily unravel the most complicated problems. But your new method denigrates the traditional forms of argument, and instead grows pale at a new terror — the imaginary fear of the demon which it has conjured up. It fears that it may be dreaming; it has doubts about whether it is mad. (Objections VII, Reply I, C II, 359 [HR II, 318; AT VII, 528])

Reply 3. The method goes astray by failing to reach its goal, for it does not attain any certainty. Indeed it cannot do so since it has itself blocked off all the roads to the truth. You yourself have seen and experienced this during the long odyssey when you wandered around and exhausted both yourself and me, your companion. (C II, 359 [HR II, 319; AT VII, 529])

Descartes does not really answer Bourdin, but makes him look ridiculous. He does so by means of a by now familiar simile that he spins out in his answer to the third reply.

Throughout my writings I made it clear that my method imitates that of an architect. (C II, 366 [HR II, 319; AT VII, 536])

Here, however, the house become a chapel:

My critic, by contrast, is like a jobbing bricklayer, who, because he wants to be regarded as a professional expert in his town, has a grudge against an architect who happens to be building a chapel there, and looks for every opportunity to criticize his work. But being so ignorant that he cannot grasp the point of anything the architect does, he only dares to attack the first and most obvious stages off the work (C II, 366 [HR II, 319; AT VII, 536])

Descartes presents Bourdin's attempt to deconstruct his chapel as a play in five scenes or acts:

Scene I: First the bricklayer calls into question the digging of the trenches.

Nothing is to be left; but nothing cannot provide architecture with a foundation.

Scene II: the descent into the depth is likened to a descent into a labyrinth in which evil spirits lurk. Feigning fear, the bricklayer pretends to be reluctant to follow the architect and in mock hesitation begs the architect to forgive him his lack of confidence.

Scene III: The bricklayer now shows his true colors, ridiculing the architect's careful work:

In scene three, he represents the architect as showing him the stone or rock at the bottom of the trench — the rock on which he intends that the entire building shall rest. But he picks up the rock with a sneer. "This is excellent, my distinguished friend! You have found your Archimedean point, and without doubt you can now move the world if you so wish. Look, the whole earth is already shaking." (C II, 368 [HR II, 328; AT VII, 539])

Scene IV: The bricklayer tries to prevent the architect from doing anything, attempting to reduce it to nothing.

Scene V: Changing comedy for tragedy, the bricklayer recounts all the faults of the architect to a large crowd that has assembled, repeating Reply 1.

Bourdin had suggested that Descartes, by rejecting the trusted old ways of doing philosophy, had trapped himself in a skepticism from which he could not extricate himself. Instead of escaping from the labyrinth, like Icarus, he would drown. Descartes answers by insisting that he has raised a splendid chapel on solid foundation to the glory of God.

5

Descartes reply to Bourdin, as we saw, takes the form of a sketch for a play. Descartes is aware that such theatrical rhetoric is out of place in philosophical discourse:

Besides, all these metaphors are just as unsuitable for discussing my method of searching for the truth, yet this is the use to which my critic puts them. (C II, 370 [HR II, 330; AT VII, 542])

The theater is opposed to philosophy. Its methods are essentially different. And yet theatrical metaphors abound in Descartes' writings. In the *Cogitationes Privatae* Descartes had thus likened himself to someone first watching, and then entering the play of life.

Actors, taught not to let any embarrassment show on their faces, put on a mask. I will do the same. So far I have been a spectator in this theatre which is the world, but I am now about to mount the stage, and I come forward masked. (C I, 2 [AT X, 213])

The metaphor of the dream and that of the theater are intimately linked. I would like to link theater and perspective, theater and doubt. The defeat of the evil genius is at the same time Descartes' victory over the theatre. Reflections on the distorting power of perspective thus reveal the world to be a theater of appearances; but they also offer us a more adequate understanding: if first of all we see the world from a point of view assigned to us by our body and our senses, it is nevertheless possible for us to escape from these perspectives. The light of reason lets us transcend the limitations of the here and now and arrive at a more objective mode of representing the world. By re-presenting the world we initially perceive as a collection of objects moving in an endless homogeneous space, the perspective-bound form of representation characteristic of painting is transformed into the trans-perspectival form of representation characteristic of science.

Let me return to the promise of the *Discourse*:

But as soon as I had acquired some general notions in physics and had noticed, as I began to test them in various particular problems, where they could lead and how much they differ from the principles used up to now, I believed that I could not keep them secret without gravely sinning against the law which obliges us to do all in our power to secure the general welfare of mankind. For they opened my eyes to the possibility of gaining knowledge which would be very useful in life, and of discovering a practical philosophy which might replace the speculative philosophy taught in the schools. Through this philosophy we could know the power and action of fire, water, air, the stars, the heavens, and all other bodies in our environment, as distinctly as we know the various crafts of our artisans; we can in the same way employ them in all those uses to which they are adapted, and we could use this knowledge — as the artisans use theirs — for all the purposes for which it is appropriate — and thus make ourselves, as it were, the lords and masters of nature. (C I, 143 [HR I, 119; AT VI 61-62])

As I suggested, we have to understand mastery and possession quite literally. What is it that we can grasp? What are the necessary conditions that render reality graspable? For one, it must be sufficiently stable. Time is the first source of dread. Consider *Axiom II* of the “Arguments arranged in geometrical fashion” that Descartes appended to his *Reply to Objections II*:

There is no relationship of dependence between the present time and the immediately preceding time, and hence no less a cause is required to preserve something than is required to create it in the first place. (C II, 116 [HR II, 56; AT VII, 165])

The stability of reality, according to Descartes, requires God as its necessary ground.

The second condition is that it be sufficiently simple. Complexity, a lack of definition, is the second source of dread. Implicit is the demand for clarity and distinctness. Bacon presents a challenge to this demand:

The human understanding is of its own nature prone to suppose the existence of more order and regularity in the world than it finds. And

though there be many things in nature that are singular and unmatched, yet it devises for them parallels and conjugates and relatives which do not exist. Hence the fiction that all celestial bodies move in perfect circles; spirals and dragons being (except in name) utterly rejected ... And so on of other dreams. And these fancies affect not dogmas only, but simple notions also.⁸⁰

Novum organum li

The human understanding is of its own nature prone to abstractions and gives a substance and reality to things which are fleeting. But to resolve nature into abstractions is less to our purpose than to dissect her into parts; as did the school of Democritus, which went further into nature than the rest. Matter rather than forms should be the object of our attention, its configurations and changes of configuration, and simple action or motion; for forms are figments of the human mind, unless you will call those laws of action forms.⁸¹

Keep in mind also Bacon's statements on infinity that we considered before. The charge that Descartes' view of reality is an Idol of the Tribe is not easily dismissed: Is Descartes, too, subject to a natural illusion that we human beings are subject to by our very nature, but that nevertheless does violence to reality? Nietzsche was later to see science in just this way. How just is the charge? Quite a number of considerations advanced in the course of this seminar supported it. And again the question poses itself: what is the meaning of "reality"?

5

To conclude let me return once more to the five simple steps that are to lead us out of the labyrinth of the world:

⁸⁰ Francis Bacon, *Novum organum*, XLV, trans. J. Spedding in Francis Bacon of Verulam, *The Works of Francis Bacon*, eds. J. Spedding, R. Ellis, D. Heath (Boston: Brown and Taggard, 1860-1864), vol. I.

⁸¹ Francis Bacon, *Novum organum*, Li, trans. J. Spedding in Francis Bacon of Verulam, *The Works of Francis Bacon*, eds. J. Spedding, R. Ellis, D. Heath (Boston: Brown and Taggard, 1860-1864), vol. I.

1. In order to gain an indubitable, unshakeable foundation Descartes begins by trying to doubt all that he had up to then taken for granted.
2. He establishes that foundation by reflecting on the *cogito*: I cannot doubt that I, a thinking thing, exist.
3. This is to lead to the discovery of a criterion of what is necessary if I am to truly know something: I must have a clear and distinct representation of it.
4. But doubts return: how do I know whether what presents itself to me clearly and distinctly is really true? Have I not been deceived in the past and may I not be deceived again? How can I make sure that clear and distinct ideas will not also prove deceptive? That they allow me to get hold of reality?
5. The proof of the existence of God is designed to defeat such doubts and thus to secure the trust put in clarity and distinctness.

The proof, as has often been noted, is circular. God may well be the necessary condition that makes science possible as Descartes demands it, i.e. that assures us that clear and distinct thinking does indeed put us in possession of the truth. Yet even the *cogito* proved questionable as a paradigm of clear and distinct knowledge. I even inverted the Cartesian position and argued that we have no clear and distinct understanding of reality, that the clear and distinct has its foundation in the nature of our finite human understanding. We understand things clearly and distinctly to the extent that we can make them. I thus take what Bacon has to say about infinity and abstraction very seriously.

What then are we to make of Descartes' method? Should we agree with Bourdin that Descartes resembles Icarus more than Theseus?

For that his method has proven much too fruitful. Descartes was right to insist that the models we make ourselves of reality should be clear and distinct; right again to recognize that mathematics holds the key to such clarity. But we should not confuse the picture of reality presented to us by such models with reality. They present us with hypotheses that must be tested and can be challenged. Experience prevents us from dismissing them as mere fictions. The Galilean claim that God wrote the book of nature in the language of mathematics cannot simply be dismissed. Following the path Descartes outlined we human beings have indeed asserted ourselves as the masters and possessors of nature. Descartes did not lose himself in idle speculation. What prevented

him from doing so was his pragmatism, his insistence that thinking be tied to activity. That pragmatic bent is evident already in the *Rules*. Consider *Rule X*:

Still, since not all minds have such a natural disposition to puzzle things out by their own exertions, the message of this Rule is that we must not take up the more difficult and arduous issues immediately, but must first tackle the simplest and least exalted arts, and especially those in which order prevails — such as weaving and carpet-making [I prefer tapestry-making], or the more feminine arts of embroidery, in which threads are interwoven in an infinitely varied pattern. Number-games, and any games involving arithmetic and the like, belong here. It is surprising how much all these activities exercise our minds, provided of course we discover them for ourselves and not from others. For, since nothing in these activities remains hidden and they are totally adapted to human cognitive capacities, they present us in the most distinct way with innumerable instances of order, each one different from the other, yet all regular. Human discernment consists almost entirely in the proper observance of such order. (C I, 35 [HR I, 31; AT X, 404])

The choice of examples is interesting. Like paintings, tapestries offer us pictures. So do embroideries. They are arts of representation that, relying on a finite number of threads, produce works of infinite variety.

As we saw, Descartes was to return the paradigm of the craftsman in the *Discourse on Method*, where he likened the practical philosophy he envisioned to the knowledge possessed by craftsmen. Knowledge here means know-how. This explains the importance Descartes placed on mechanics as an applied mathematics.

Returning to the characters associated with the Cretan labyrinth: perhaps the Daedalus image is most appropriate. We need to do justice to the power of Cartesian method even while recognizing its final failure to do justice to reality, especially to important dimensions of our human being. That is to say, we have to recognize both the legitimacy and the limits of our modern world picture.