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Peter Machamer & J. E. McGuire: Descartes's Changing Mind

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Chapter One

FROM METHOD TO EPISTEMOLOGY AND FROM METAPHYSICS TO THE EPISTEMIC STANCE

DESCARTES is always and ever concerned with knowledge. Around 1619 he begins his systematic philosophical work by starting to write, though never publishing, the *Rules for the Direction of the Mind* (*Regulae ad Directionem Ingenii*). In this work he lays out rules for directing the mind in its quest for knowledge. In 1649, toward the end of his life, he publishes the *Passions of the Soul* (*Les Passions de L'âme*) in which he worries about the ways in which the passions affect our knowledge and how to control them. However, the Galileo affair in 1633 provoked a crisis in Descartes's intellectual development, the import of which has not been sufficiently recognized.¹ Moreover, in replying to objections in 1640–41 to his *Meditations on First Philosophy* (*Meditationes de prima philosophiae*) he saw implications in his metaphysical position, the substance of which appears in the *Principles of Philosophy* (*Principia philosophiae*) of 1644. These events constitute significant reasons why Descartes's philosophical position concerning how we know and what we may know is different at the end of his life from what it was when he began. Descartes's epistemic views cannot be separated from other aspects of his work. Indeed, his changing position on the what, how, and why of knowledge has major implications for, and is often suggested by, his views concerning God, causality, metaphysics, and the nature of humans. A further metaimplication of the claim we are making is that any scholar who cites early Cartesian texts in support of late Cartesian positions, or uses later texts in conjunction with early ones to support a reading of Descartes's philosophy, will inevitably fall into interpretative errors.

We begin with a general outline of what we seek to establish. In the *Rules*, and in his ever forthcoming *The World* (*Le Monde ou traité de la lumière*), Descartes's aim is to develop a method for revealing how things really are. After 1633, at the time *The World* is suppressed (to Mersenne, end of November 1633; AT 1:270–71; CSMK 40–41), he begins to change his epistemic method and strategy with the result that some metaphysical shifts are evident in his later thinking. The *Discourse on Method* (*Dis-*

¹ Garber has recognized a number of these changes.

cours de la Méthode) of 1637, his first published philosophical work, is transitional in that it still maintains many of his previous ideas concerning methods and procedures for establishing the natures of things. He has, however, already made the first move toward his epistemic stance, indicated by his inclusion of the foundational cogito argument (*je pense donc je suis*) in Part IV of the *Discourse* (AT 6:32; CSM 1:127). But he still seeks truth on the basis of intuiting, through abstraction from sensory experience, the true natures of things. By 1641, in his *Meditations on First Philosophy*, Descartes begins a subtle shift toward acknowledging the epistemic foundations of what we are able to know, and now places more stress on ascertaining the limits of human knowledge. Human knowledge, for Descartes, is finite in comparison to God's knowledge, a doctrine that he held, in one form or other, at least since 1630 (to Mersenne, April 15, 1630; AT 1:146; CSMK 23). But in Descartes's post-*Meditations* period, human knowledge becomes increasingly more circumscribed in its finitude, and is tied to a teleological understanding of the role of sensations in preserving the mind-body union, and also to the ways in which we establish scientific understanding of the workings of the world. This is Descartes's shift from his earlier methodological, sensory-based orientation to an epistemological perspective specifically integrated into his metaphysical views. It is the introduction of Descartes's epistemic stance. In respect to this shift, the *Meditations* is transitional. In that work, Descartes believes himself to be in the business of apprehending simple essences or natures. For example, he conceives bodies as endowed with active powers to affect the mind (*Meditation VI*; AT 7:79; CSM 2:55; see also the letter to Regius, January, 1642; AT 3:504; CSMK 208). In *Meditation II* he argues that the essence of a piece of wax is perceived by the intellect alone, and in *Meditation V* he lays out an ontology of true and immutable natures directly apprehended by the mind alone (AT 7:65; CSM 2:77).

Sometime between 1641, the date of the *Meditations*, and 1644, when he publishes the *Principles of Philosophy*, Descartes completes his epistemic turn. Pushed by his critics' objections to the *Meditations*, in the course of making his *Replies* he begins to articulate in detail the final form of his epistemic stance. He no longer holds that humans can know with certainty all the simple natures that are present in the world. What there is instead, which we find especially in *Principles* Part II is a form of epistemic perspectivalism concerning the limited character of human knowledge. This completes the shift that begins with what we call the epistemic teleology arguments of *Meditation VI*; namely, that what we may know, and the form in which it is known, constitutes what is necessary for our mind-body preservation. The epistemic consequence of this, as we hope to show, is that the world may contain many things that we neither know

nor have the possibility of knowing. More specifically it means, for example, that we cannot know, or minimally we cannot know that we know, the real nature of substances, but only some of their useful attributes or particular modes that, yet, are still mind-independent. Concomitantly, the shift away from intuitions of simple natures is accompanied by a shift away from abstraction, as the epistemic model for gaining knowledge, to a model that requires many of our core ideas to be innate in the mind. Thus, in place of the earlier methods of abstracting by direct intuition and compounding from sensuous and nonsensuous experience, increasingly Descartes brings to the fore the view that knowledge always involves innate ideas. So at the end of his life, the conceptualization that he attributed previously to intuitions of simple natures is now largely accomplished by innate ideas, and a corresponding new doctrine concerning the establishment of complete, but not adequate, ideas. This is not to say that Descartes abandons the aim of intuitive knowledge across the board. On the contrary: as we will see in chapter 2, the cogito of *Meditation II* and the argument for God's existence in *Meditation III* rest on the belief that we possess basic and nonsensuous intuitions that are noninferential and non-propositional. Nor does he abandon abstract ideas. In the *Principles* they play a role in his account of universals that arise "from the fact that we make use of one and the same idea for thinking of all individual items that resemble each other" (AT 2:28; CSM 2:212).

Another important development needs to be noted. This is a shift from an early concept of idea that relates to corporeal bodies, to a later completely mental conception that begins to emerge around the time of the *Meditations*. In the *Rules*, *The World*, and the *Treatise on Man*, the latter based on extensive physiological investigations, Descartes's basic use of the term "idea" focuses on the movements of animal spirits in the brain and on what occurs in imagination. For example, in *The World*, we are told that "only those [impressions or patterns] which trace themselves on the [animal] spirits (*esprits*) at the surface of the [pineal] gland . . . should be taken for ideas, that is to say, as the forms or images (*les formes ou images*) that the rational soul immediately considers" (AT 11:176–77). This "empiricist" orientation toward the nature of ideas is left behind by the time of the *Meditations*, though earlier in *The World* and the *Discourse* (AT 6:35; CSM 1:128) he also holds that ideas in some sense only occur in the mind (AT 11:3; CSM 1:81). In his mature thought, he takes *idea* "to refer to whatever is immediately perceived by the mind" (*Third Reply to Hobbes*, AT 7:180; CSM 2:127; and Schmaltz 1997, 37). Thus, ideas, understood in this general sense, are placed squarely within the disembodied mind, and the term is often used by Descartes interchangeably with the terms "thought" and "concept". As we hope to show in chapter 5, this development has significant implications for the growing

importance of innate ideas in his late thinking. This in turn contributes to his mature account of perception and to the problem of the sorts of causal *relata* that obtain between mind and body, the topic of chapter 6. As we'll see, Descartes's handling of innate ideas is contextually nuanced and demands careful exposition. Moreover, we cannot assume that Descartes is forced to privilege innate ideas because he comes to see that his optical and physiological account of perception is inadequate. A cursory comparison with Descartes's discussion of grades of sensation in the *Sixth Reply* and the *Optics* is sufficient to dismiss this view. Indeed, it's precisely because Descartes understands the need for explaining how the mind accesses sensory input that he insists more and more that sensation has an intellectual content that the senses cannot provide.

We will argue that the *Principles* represent the first complete expression of Descartes's mature philosophy and contain the fruit of the shifts we have just enumerated. Put more succinctly, the epistemic stance Descartes establishes in the *Principles* is based on four core moves: the systematic employment of his causal principles for understanding the way in which God works in the world; the augmentation of the role of innate ideas; the demotion of the senses from a privileged position in the quest for human knowledge; and a reconceptualization of the nature of matter. At this time, he also makes clear that all knowledge of the world is limited to the extent it serves the teleological goal of mind-body preservation as well as the goal of establishing systematic and useful scientific knowledge of the world. To tell this story properly, Descartes's mature work, from the *Replies* to the *Objections* to the *Meditations* onward, needs to be compared with his earlier writings. The reading we give of Descartes's philosophy emphasizes the epistemic position sketched above and also considers his related metaphysical commitments and the role they play in his thought.

Finally, Descartes's epistemic stance, with its attendant view of causality, has implications for his conception of substance, and also for the positions he develops concerning the independence of mind and body and the mind-body union. We will argue that Descartes's "dualism" has to be understood in terms of what we call his *epistemic teleology*. This means that his understanding of the mind-body distinction fits uneasily into the philosophical categories standardly imposed upon it, such as substance or attribute dualism or trialism.

One caveat needs to be introduced here. Our claim is not that Descartes critically recognized all the changes and positions we ascribe to him in exactly the way we describe them. Nevertheless, we believe that what we attribute to him are views to which he was plausibly committed. At the same time, however, we are convinced that Descartes was not always fully and self-reflectively aware of these changes, especially when changing his

mind in the face of criticism. In this respect he is like some contemporary philosophers who, having changed their mind about certain topics, insist that this is what they meant all along.

DESCARTES'S EARLY WORK: THE *RULES*

We have claimed that Descartes's philosophy undergoes two kinds of major changes after 1633: from abstractionist methodology to epistemology and from an ontology of simple, knowable natures and common notions to the view that human knowledge of the world is limited to knowing some modes of some substances. We have also claimed that there is an additional shift leading to the ubiquity of innate ideas in his thinking, which is not to deny that earlier he considered certain ideas to be innate and to function in a more limited role. But the real shift is from ideas that represent external particulars to the view that the core of our understanding is innately constituted by ideas that are virtually nonrepresentational in their formal reality. Since this intellectual biography has implications for our reading of Descartes's philosophical views, we turn now to a chronological exposition of key aspects of his major works. We will sketch their content in order to mark clearly when the shifts take place and will weave into our narrative interpretative remarks concerning their significance.

Descartes was born in 1596. In or about the year 1619, he tells us (many years later in the *Discourse* of 1637), he began to think about philosophy and to ponder the nature of human knowledge in the sciences (*Discourse*, Part II; AT 6:12; CSM 1:16). "Science" of course, is the Latin *scientia*, and so the term covers all forms of natural knowledge: the word "philosophy" ("*philosophia*") has an equally wide-ranging use. Descartes recounts that he closeted himself (while in Germany) and began to think through the thoughts that will ultimately lead to the *Meditations* (1641). He recalls thinking about ridding himself of sensory-based opinions to which he had previously given credence, and of trying to discover new foundations for his thought. He sets himself rules to live by and then comes to the revelation that "of all those who have hitherto sought after truth in the sciences, mathematicians alone have been able to find any demonstrations" (*Discourse*, Part II; AT 6:18; CSM 1:120). So he sets about finding a "method which instructs us to follow the correct order, and to enumerate exactly all the relevant factors" (AT 6:21; CSM 2:21). He also remembers thinking that he shouldn't try to accomplish this prior to reaching an age more mature than his current twenty-three years.

When we turn to the *Rules*, it is clear that knowledge from sensory perception comes by “local motion” and “occurs in the same way in which wax takes on an impression from a seal” (Rule 12; AT 10:412; CSM 1:40). Yet “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 entity passing from the one to the other (*entis reali transitu ab uno ad aliud*)” (AT 10:413–14; CSM 1:41). Still, “the power through which we know things in the strict sense is purely spiritual . . . the cognitive power is sometimes passive, sometimes active; sometimes resembling the seal, sometimes the wax . . . nothing quite like this power is found in material things. It is one and the same power, when applying itself along with the imagination to the ‘common’ sense, it is said to see, touch, etc. . . . when applying itself to 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” (AT 10:142; CSM 1:42). The goal of such examination is to distinguish carefully the “notions of simple things from those which are composed of them” (AT 10:417; CSM 1:43). Descartes goes on, “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 composed out of these” (AT 10:418; CSM 1:44).

There are purely intellectual simple natures, material simple natures, as well as some common to both. Intellectual simple natures are such things as what knowledge consists in or the nature of the action of the will. The simple natures present in bodies are “shape, extension and motion” (AT 10:419–20; CSM 1:45), and the common notions are existence, unity, and duration as well as principles of rational inference.

The mental process that forms these clear ideas is the act of abstracting. When the mind performs an abstraction, certain features of an object are held attentively before it, while others are disregarded but not denied. Consequently, the whole is conceived imperfectly and confusedly while the mind attends clearly to one simple feature to the exclusion of others. For example, we abstract when we consider that shape is the limit of an extended thing. But, of course, the term “limit” is more general than “shape,” since we can also speak of the limit of duration, and of a motion, and so forth, from which, though they are different in kind, the term “limit” has also been abstracted. Thus, central to Descartes’s conception of what emerges from acts of abstracting is that “one always abstracts something more general from something less general” (AT 10:458; CSM

1:69). It is clear at this point that Descartes thinks some general (*genus*) terms arise from the process of abstraction.

In the *Rules* Descartes ties abstraction to intuition. The two main characteristics of intellectual intuition are first, the purely intellectual nature of the operation itself and, second, the absolute certainty and assurance that accompanies it. Thus, an intuition is an insight into necessary connections between two simple ideas or two elements of an idea. It is the product of attention that arises by the exclusion of irrelevant material that thereby leaves an idea's content clear and distinct. Descartes's aim here is to characterize the innate workings of the intellect to the extent that they are directed to things themselves and "in so far as they are within the reach of the intellect" (AT 10:399; CSM 1:32).

Interestingly, the examples he dwells on are the conceptions of place and motion. He jibingly argues against those who define "place" as "the surface of the surrounding body" and "motion" as the "actuality of a potential being, in so far as it is potential," two unmistakably Aristotelian doctrines. He rhetorically mocks such beliefs, asking, "Who does not know what motion is? It must be said, then, that we should never explain things of this sort by definition" (AT 10:426; CSM 1:49).

Nowhere does Descartes make his point more clearly than when he is trying to convince the reader that in dealing with bodies, we represent them best in terms of imaginable figures. He speaks in this context of the dimensions of bodies, which are modes or aspects with respect to which some subject is considered measurable. Such modes are length, breadth, depth, weight, and speed, "whether they have a real basis in the objects themselves and others are arbitrary inventions of our mind" (AT 10:448; CSM 1:63). He goes on: "The weight of a body is something real, so too is the speed of a motion, or the division of a century into years and days; but the division of the day into hours and minutes is not" (AT 10:448; CSM 1:63). Nevertheless, he says they all function similarly with respect to dimensionality and the techniques of the mathematical disciplines. It seems clear that in some cases we know what is ontically real, for example weight and speed, by means of an intuitive abstraction based on sensory perception of material objects; in other cases we know with certainty because there is a conceptual connection between the items (e.g., *century* equals *100* years by definition). Yet in still other cases, there is no basis in nature or concept for the particular measure or numeration; that is, nothing in objects or thought dictates that a day must consist of so many hours and so many minutes. This division of a unit into sixty is therefore arbitrary, that is, without a basis (AT 10:438–39; CSM 1:57).

In contrast to what will emerge in his mature philosophy, Descartes here believes that human beings are capable of knowing some simple natures that are *real* parts of objects in the external world. At this time, he

believes that by the proper use of his method, we may obtain knowledge of things themselves. So the limitation on cognitive capacity we noted above is not a very stringent limit. Importantly, one of the things we know about bodies is the property of their motion. Motion is *real* for Descartes at this point in his philosophical thinking. In other words, it has, as we saw above and shall see later, the same ontic status as extension, shape, and weight. All of this will change significantly.

Yet not all things are knowable:

if someone is blind from birth we should not expect him to have true ideas of colors just like the ones we have, derived as they are from the senses. But if someone at some time has seen the primary colors, though not the secondary or mixed colors, then by means of a deduction of sorts it is possible for him to form images even of those he has not seen, in virtue of their similarity to those he has seen. 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. (AT 10:438–39; CSM 1:56–57)

Note that the emphasis here is solely on knowledge from sense perception or deductions from that basis as given in experience. The magnet is unknowable to the extent that it does not affect our senses. This means that the clear and distinct ideas that are useful in science have to be based on, and limited to, intuitions of sense perception, except in cases in which they are innate.

In the *Rules* Descartes does not explicitly operate with the category of innate ideas. To be sure, he stresses that certain elements in our thinking such as “I am, therefore God exists” are necessarily conjoined (AT 10:422; CSM 1:46). Although this is an instance for Descartes of nonperceptual knowledge, he does not characterize it as an innate idea. Descartes’s concern is with what is necessarily conjoined in our thought, a necessity that “applies not just to things which are perceivable by the senses but to others as well” (ibid.). Thus, at this stage, the proposition “I am, therefore God exists” is an instance of necessary conjunction on all fours with the necessary conjunction of shape with extension and motion with duration (ibid.). It seems, therefore, that the notion of innateness, as used in the *Rules*, is confined largely to the working of the intellect and to a focus on what that process can produce. Thus the mind has an innate

ability to intuit simple ideas, and to assess necessary connections among them. Descartes puts his position clearly in Rule 3:

By “intuition,” I do not mean the fluctuating testimony of the senses or the deceptive judgment of 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 doubt about what we are understanding. Alternatively, and this comes to the same thing, intuition is the indubitable conception of a clear and attentive mind which proceeds solely from the light of reason. (AT 10:368; CSM 1:14)

Descartes’s emphasis here is on the mind’s power to discover simple natures and their connections by abstracting directly from perceptions of material objects or from thoughts that refer to such objects. The rules, if applied properly, are designed to allow human beings to obtain certain, complete, and sufficient knowledge of the simple natures of things. Certainly, Descartes sometimes uses epistemically qualifying phrases such as “those things which are said to be simple with respect to our intellect are . . .” But here he is drawing a distinction between the order of knowledge and the order of being: “Individual things ought to be viewed differently in relation to the order they have in respect to our knowledge, than if we speak of them as they really exist” (AT 10:419; CSM 1:44). This does not deny that such simple natures as, for example, shape and size, have a basis in the way things are. It simply means that these abstracted entities do not exist separately from the body that possesses them, since “the thing itself . . . is one single and simple entity” (ibid.). Thus, the main idea is that “each of us, according to the light of his own mind, must attentively intuit only those things which are distinguished from others” (AT 10:426–27; CSM 1:49). Descartes will come to regard abstraction by and from sensory intuition as vague and unhelpful as a means of establishing the positive features of our core concepts (*Second Reply*; AT 7:120; CSM 2:86).

In the *Rules* this early view takes sense perception as having a given content from which the mind abstracts in order to form representations in the imagination. These representations are spatial and their parts can be enumerated. But one can represent only what one has experienced. Descartes at this point is a good empiricist in regard to ideas that arise from sense perception. When a representation is “correct” the representation is true to the nature of the object. From this it follows that, although natures are present in the visible contents of sensation, they must be abstracted and isolated so that they may be known in a nonconfused and clear way. In the *Rules* it is well to note that Descartes conceives his method without any help from God, understood as the source and guar-

antor of truth, and without an explicit metaphysics. In fact, the terms “metaphysics” and “metaphysical” do not appear in the text, and God is mentioned only in an example used to illustrate the point that necessary propositions, when converted, are contingent (AT 10:422; CSM 2:46). This is soon to change.

Descartes has two kinds of clear ideas in the *Rules*: (1) ideas formed by innate internal apprehensions and deductions from them, and (2) representations in the imagination formed from sense experience and “quasi” deductions drawn from them. But how do the innate ideas relate to the sensory ideas? At this point Descartes lacks a theory for articulating that relation, or at the least, if he has one, he does not present it. In his later thought, the relation becomes crucial to his theory. In the *Rules* he’s too much of an empiricist. It may be that in some sense he recognizes this problem, and this could well provide a reason for why he does not publish them.

By contrast, in the *Meditations* and the *Replies*, there is a clear emphasis on the role of innate ideas that are brought to bear by the mind on the particulars of experience. Yet as late as 1642, Descartes still refers to his conception of abstraction. Intellectual abstraction (*per abstractionem intellectus*), he writes, proceeds “by turning my thought away from a part of that which is comprised in the wider idea, in order to apply my thought in a better manner and to make it more attentive to the other part. This is the case when I consider a figure, without thinking of the substance or of the extension of which it is the shape” (letter to Guillaume Gibieuf, 1642; AT 3:475; CSMK 203). But by 1644, he makes clear the difference between two forms of mental apprehension: “There is a great difference between abstraction and exclusion (*entre l’abstraction & l’exclusion*). If I simply say that the idea which I have of my soul does not represent it to me as being dependent on a body and identified with it, this would merely be an abstraction, from which I could form only a negative argument, which would be unsound. But I say that this idea represents it to me as a substance which can exist even though everything belonging to body be excluded from it; from which I form a positive argument, and conclude that it can exist without the body” (letter to Mesland, May 2, 1644; AT 4:120; CSMK 236).

In 1629, Descartes arrived in Holland having, it seems, left his concern with method behind, his thoughts now turned more systematically to metaphysics. Letters to Marin Mersenne on April 15 and November 25, 1630, indicate that he has been at work on metaphysics. He tells Mersenne: “perhaps I may some day complete a little treatise of Metaphysics, which I began in Friesland, in which I set out principally to prove the existence of God and of our souls when they are separate from the body” (AT 1:82; CSMK 29). The manuscript hasn’t survived, so it’s impossible

to know to what extent it contained ideas that appear in Part IV of the *Discourse* and later in the *Meditations*. Descartes's reference to Friesland indicates that his metaphysical reflections began in 1628. So the years 1628–30 witness yet another significant turn in his thinking. The earlier *Rules* are methodologically and mathematically inspired, and concentrate on procedures by which truth can be elicited and known. In the correspondence with Mersenne, however, Descartes is concerned with the source of truth and with how certain truths come to be true. By the time of the *Meditations*, this perspective will have burgeoned, and Descartes will systematically portray God as both the truth producer and the truth sustainer. This decisive shift from a methodological and sensory-based foundationalism toward a metaphysics of God and truth is clear in Descartes's claim that his physical thinking would lack foundations without considering God's role in making human knowledge possible: "At least I think that I have found how to prove metaphysical truths in a manner which is more evident than the proofs of geometry" (letter to Mersenne, April 15, 1630; AT 1:135; CSMK 22). This is a claim that he will repeat frequently in the years to come.

What provoked this metaphysical turn in 1628? In our view no decisive answer is possible. Some scholars attribute the turn to Descartes's meeting in 1628 with Chandoux, and claim that it led him to an open espousal of Augustinian metaphysics (Kemp-Smith 1952, 23, 40–46; Menn 1998, 44–50, 209–20, 262–300; Menn 1997). Certainly, the theology of the French Counter-Reformation was anti-Aristotelian in spirit and based itself on the belief that Augustine's doctrines of God and the soul are the centerpiece of Catholic thinking. Moreover, in 1603 Cardinal de Bérulle established the Congregation of the Oratory. One of its central aims was to promote Augustinian theology as a tool in the advancement of Catholic causes in France. This aim chimed with a view widely held in France, that Aquinas's synthesis of Christian belief and Aristotelian philosophy had swamped the former to its detriment (Gilson 1951, 9–50; Menn 1998, 21–24).

In 1628, the papal nuncio, Guido Bagni, brought together some notables, including Descartes, Cardinal Bérulle, and Mersenne, to hear the anti-Scholastic alchemist Chandoux expound his new method of philosophizing. After Chandoux's presentation, Descartes, who appeared skeptical of Chandoux's method, was pressed to reveal his own views. Judging from Baillet's account, Descartes presented a method aimed at certainty and based on his *Rules*. Baillet also relates that later, at a private meeting with the Augustinian-inspired Bérulle, the cardinal impressed on Descartes that his duty lay in applying his talents to constructing a philosophy with theology as its focus (Baillet 1691, 1:161–63). For Stephen Menn this is a decided catalyst that helped propel Descartes to take up Augusti-

anism in pursuit of this aim, with the result that he begins to construct a physics based on non-Aristotelian metaphysical principles (1998, 44–50).

In arguing for this view, Menn appeals to the dedicatory letter of the 1641 edition of the *Meditations*. There Descartes speaks of the indispensable need to find arguments for God's existence and for the existence of the soul separate from the body in order to buttress the possibility of reliable human knowledge. He then remarks: "I was strongly pressed to undertake this task by several people who knew that I had developed a method . . . and I therefore thought it my duty to make some attempt to apply it to the matter at hand" (AT 7:3; CSM 2:4). Menn argues that Descartes's reference is to the Chandoux meeting and, in the light of Bérulle's intervention, to his renewed commitment to Augustinianism (Menn 1998, 49). This seems to be an overzealous interpretation, given that the obvious reference of Descartes to method in 1641 would be to his own *Discourse on Method* (1637). Moreover, given the complex character of the Parisian Platonic-Augustinian milieu in which Descartes moved intermittently until 1628, it is unlikely that his metaphysical turn can be pinned directly on Augustine in the way that Menn suggests. What we do know is that after the publication of his *Discourse*, Descartes was chastised for his philosophical omissions, and was besought by a number of people to develop more completely his metaphysical views concerning God, the soul, and the mind-body distinction (see below). The *Meditations* can be seen as a response to this challenge, and represents the final form of Descartes's metaphysics that contains elements of Augustinianism and Neoplatonism (Gilson 1951, 173–90; Menn 1998, 1–17). In this regard, it is well to remind ourselves that in the *Phaedo* and the *Phaedrus* Plato argues for the existence of mind or soul distinct from, and in some sense prior to, physical objects. Moreover, he conceives mind as a separate being known independently of sensory knowledge and the instrument that intuits the immaterial forms. In any event, if the Augustinian meditator seeks to achieve fuller knowledge of God in order to guide the will in acquiring virtue, Descartes's meditator is otherwise directed: he seeks divine knowledge to better know the strengths and limitations of his cognitive powers so as to curb the error-prone weaknesses of the will. Certainly both thinkers held that the self submerges itself into the infinity of God. But the difference in meditative aim between himself and Augustine was well recognized by Descartes. (See the letter to Colvius of November 14, 1640; AT 3:247; CSMK 159.) Augustine's was spiritual; Descartes's is cognitive.

However, given Baillet's penchant for hyperbole, we can be reasonably skeptical of his account of Descartes's encounter with Bérulle (Watson 2003, 142–45; Grayling 2005, 132–37). It is more likely that the meeting (if indeed it took place), far from affirming Descartes's commitment to

Augustinian metaphysics, may well have hastened his departure from France in 1628. In short, Bérulle may have informed him that he was no longer welcome in official circles. After all, Descartes was allied with the Jesuit-Hapsburg cause, which was at odds with the anti-Hapsburg position of the powerful Richelieu and the influential Bérulle, supporter of the Catholic League (Watson 2003, 147–51; Grayling 2005, 133–39).

What is important, however, is to understand the implications of this metaphysical shift. It is widely thought that Descartes, even from an early date, was concerned to ground his physics in metaphysics (Garber 1992, 280–93; Gilson 1951, 163–68; Hatfield 1986, 61–62; Hatfield 2003, 15–17; Schmaltz 1997, 49–50). Certainly Descartes’s reference in the Mersenne letter to a treatise on metaphysics bears this out. In our view, however, it’s not entirely clear what “metaphysical grounding” means for Descartes in this early period. It may well be that he thought the principles employed in *The World* provide the necessary metaphysical grounding, since he began to work on it in the early 1630s, not long after his correspondence with Mersenne. The metaphysics that we find in *The World* restricts itself to an appeal to a transcendent being—in Descartes’s case, God—whose existence and creative power is separate from the things of nature. Certainly, there’s no sign in *The World* of the metaphysics that comes to fruition in the *Meditations*, a metaphysics based on the establishment of the inner certitude of his own existence as the ultimate certainty. Furthermore, since the treatise on metaphysics has not survived, we have no way of knowing the extent to which it embraced a “*Meditations* style” metaphysics (if such was the case), or of knowing how far Descartes’s metaphysical speculation had advanced in the period in which *The World* was composed. The possibility cannot be discounted, of course, that his views on eternal truth (as outlined to Mersenne in 1630) were part of, or were rooted in, the early metaphysical treatise. This supports the conjecture that Descartes may have articulated, at least in part, an account of innate ideas in relation to knowledge of the human self and its dependence on divine omnipotence. Part IV of the *Discourse* does list many metaphysical commitments that will become (in developed form) the central doctrines of the *Meditations*, including an early version of the first proof for God’s existence in *Meditation* III, which in a letter to Mersenne in 1637 Descartes claims to have worked out in the treatise on metaphysics (c. 1628) (AT 6:31–36; CSM 1:126–29; AT 1:350; CSMK 53). But significantly, the *Discourse* lacks any discussion of skepticism or the evil genius hypothesis, so essential to the programmatic structure of the *Meditations*.

Moreover, it remains an open question how continuous the early metaphysics is with what appears in the *Meditations*. As the letters to Mersenne and Silhon in 1637 make clear, Descartes did not think that his manner of presenting his metaphysical views in the *Discourse* was ade-

quate (AT 1:350, 354; CSMK 53, 55). He puts this down to the exigencies of composition, and the character of the audience he wishes to reach; but we cannot dismiss the possibility that he had yet to put his views together with the necessary, dialectical clarity so evident in the *Meditations*. In short, while various metaphysical arguments existed in various forms, they may not have been fashioned into a consistent and self-contained metaphysics, sufficient from Descartes's point of view to ground the physics that he develops in *The World*. It is well to note in this regard that Descartes goes out of his way in 1640 to stress how essential it is, for understanding his thought, to grasp the integrated and meditative structure of the arguments of the *Meditations* (letter to Mersenne; AT 3:266–67; CSMK 163–64). We will return to the issue of the early metaphysics below. But most importantly, as we hope to show, what Descartes presents in *The World* is not what he thought, nor what he argues for, in the *Principles*, which fall into the period after which he has decisively made his metaphysical and epistemic turn.

THE WORLD

In *The World*, or as it is called when it is published, *Le Monde de Mr. Descartes ou le Traité de la Lumière* (1664), Descartes continues to uphold, though in a rhetorically odd way, the position that our knowledge is about the real, essential properties of bodies and that motion is based in the simple natures of bodies. At this point it is well to note that there is a special problem in dealing with Descartes's *World*. It was not published until 1664, some fourteen years after Descartes's death, and this is the text with which we work. In November 1633, Descartes writes to Mersenne saying that he has learned about the condemnation of Galileo by the Holy Office of the Inquisition for publishing his *World System*, as Descartes calls it, and that this will cause him to suppress publication of his work. Descartes, in *The World*, like Galileo, claims that the earth moves. So in his letter to Mersenne he writes, "I must admit that if the view is false [that the earth moves], so too are the entire foundations of my philosophy, for it can be demonstrated from them quite clearly. . . . But for all the world I did not want to publish a Discourse in which a single word could be found that the Church would have disapproved of, so I preferred to suppress it rather than publish it" (November 1633; AT 1:270; CSMK 40–41). Still, at the end of the letter he tells Mersenne to "allow me a year's grace so that I can revise and polish it." Later in 1635 he tells Mersenne again that "after Galileo's condemnation I revised and completed the treatise [*Optics*] I had begun some time ago. I have detached it completely from *The World*" (June or July 1635;

AT 1:322; CSMK 49). All of this seems to indicate that publishing *The World* is still an option for Descartes, and we can presume that he is still at work revising it.

In 1637, when Descartes beseeches Mersenne to obtain a license for him to publish his *Discourse*, which by then has been completed, he writes: “it seems you are afraid that the publication of my opening *Discourse* may commit me never afterwards to publish my *Physics* [his *World*]. You need not be afraid of that, because I do not anywhere promise never to publish it during my lifetime . . . if the reasons which prevent me from publishing should be altered, I could make a fresh resolve, without thereby being inconstant; because when a cause is removed, its effect is removed. . . . I spoke of my *Physics* as I did solely in order to urge those who want to see it to put an end to the causes which prevent me from publishing it” (May 1637; AT 1:368; CSMK 57). Descartes is here referring to Parts V and VI of the *Discourse*, in which he reports what is in his *World*, but in the *Discourse* he says only that “certain considerations prevent me from publishing” (AT 6:41; CSM 1:132) and that he wants to avoid confrontation and argument.

Later that year, in October 1637, Descartes writes to Christian Huygens, “I have even laid aside all work on my *Monde*, so that I shall not be tempted to put the finishing touches to it” (October 6, 1637; AT 1:434; CSMK 66). Five months later, writing this time to Constantine Huygens, Descartes despairs that “I cannot yet see any hope that I shall be able to give my *Monde* to the world in the near future” (March 23, 1638; AT 2:50; CSMK 92). He refers again to his *Monde* in February 1639 (letter to Mersenne, February 20, 1639; AT 2:525; CSMK 134) and later in two letters (letters to Florimond Debeaune and to Huygens in April and June 1639; AT 2:544, 552; CSMK 136). In the latter, he says, “I think that my *Monde* is the sort of fruit that cannot be picked too late, and should be left to ripen on the tree . . . I would not fail to publish it if there should be some advantage in it for me” (June 6, 1639; AT 2:552–53; CSMK 136). Still later in 1640, he continues talking about his *Monde* and the theory of the tides contained therein (letter to Mersenne, August 6, 1640; AT 3:144; CSM 3:151). Only in November 1640 does Descartes mention “a complete textbook of my philosophy” (letter to Mersenne, November 11, 1640; AT 3:157; CSMK 157). This signals an important change in intention away from completing his *World* to writing the *Principles of Philosophy*. But, it is important to note, this intention is formed *only after* the *Meditations* is already written and he has begun to collect and answer objections.

The point we emphasize in making these citations is to show that Descartes did not give up working on his *World*, even though he refused to publish it. This suggests strongly that the text we have is the result

of many years' work and the fruit of many revisions. Furthermore, it clearly follows, it is hard to date any given part of it. But if we have to assign it to a period, it should be dated in the late 1630s rather than 1633, and should not be considered a work completed and set aside prior to the *Discourse*. Further evidence for major revisions to *The World* appears in 1638, when Descartes, in reaction to criticisms of his views on subtle matter by Jean-Baptiste Morin, changes the diagrams in *The World*. This is five years after the date at which he is standardly said to have abandoned it!

Rosaleen Love (1975) has demonstrated the reasons for this change: "Descartes altered the form of the 1633 version [of *The World*] in order to incorporate into it some suggestions made by the theologian Jean-Baptiste Morin in 1638." In her view, this means that the version of the *World* published in 1664 "cannot be taken as the version which Descartes had ready for publication in 1633" (Love 1975, 128). In corresponding with Descartes, Morin argues that *The Optics* and *The Meteorology* (1637) are inconsistent in two respects: how can Descartes maintain that the subtle matter is a plenum if in *The Meteorology* its parts are spherical and leave room for a void; and how can the sun be said to be the cause of the subtle matter's motion when in *The Meteorology* the subtle matter itself is said to be in continual motion? (For details of Descartes's response to Morin, see his letter of July 13, 1638; AT 2:197–218; CSMK 106–11.)

Love also shows that Descartes revised the 1633 *World* further by incorporating, in modified form, two diagrams first drawn by Morin to illustrate difficulties in Descartes's position. The second diagram challenges Descartes's claim, in *The Optics*, that light is transmitted by rays that are exactly straight (AT 2:300). Descartes modifies Morin's diagram, and it becomes the "tube" diagram that he adds to *The World*, together with the admission that the parts of the second element, which transmit light, need not be placed upon one another in absolutely straight lines (AT 2:412). Here we have further evidence that Descartes refined his ideas between 1633, when he refused to publish *The World*, and the appearance of the *Principles* in 1644. Thus, the version of *The World* that has come down to us with the addition of the 1638 diagrams does not indicate the theory of matter Descartes had accepted earlier. Yet it does show that in the late 1630s Descartes is still a realist concerning different kinds of particles of matter, a position he will have modified before the time of the publication of the *Principles*.

The World cannot be seen, then, as a clear instance of Descartes's early thinking. But this makes it a more interesting document since, whatever its date, it indicates that at that time Descartes has not yet reached his mature position. Descartes begins his unpublished *World* by considering the nature of light and the role it plays in sensation. He develops a familiar

theme that will become epistemologically more fruitful in the *Meditations*. He asserts, “In putting forward an account of light, . . . it is possible for there to be a difference between the sensation (*sentients*) we have of it . . . and what it is in objects that produces that sensation in us (*les choses qui les produisent*)” (AT 11:3; G 3). He then introduces for the first time an important analogy he will use later: “the fact that words bear no resemblance to the things they signify (*signifiant*) does not prevent them from causing us to conceive of those things, often without paying attention to the sounds of the words or to their syllables” (AT 11:4; G 3–4). He elaborates this claim in a way that highlights the mind’s action as well as the material object’s. “[I]t is our mind that represents to us the idea of light each time the action that signifies [*signifie*] it touches our eye” (AT 11:4; G 4). This epistemic point about perception and sensation is used to lead his reader into an analysis of the nature of light, namely, that light is the motion of certain types of particles.

This line of thinking is developed in the claim that there are three types of basic particles or basic elements (chapter 5; AT 11:24; G 17). First is the element of fire, “as the most subtle and penetrating fluid in the world” (AT 11:24; G 17). Second is the element of air, “a very subtle fluid in comparison to the third, but . . . we need to attribute some size and shape to each of its parts” (AT 11:25; G 17). Then finally, he says, “Beyond these two elements, I accept only a third, namely that of earth. I judge its parts to be proportionately larger than and more slowly moving than those of the second . . . it is enough to conceive of it as one or more large masses, whose parts have very little or no motion that might cause them to change position with respect to one another” (AT 11:25; G 17–18).

We quote this section at some length for two important reasons. First, it’s clear that Descartes conceives these particles in a very realistic manner, and that they have motion as a property of their nature. This, in the context of his physics, is the development of Descartes’s idea of simple natures that he sets out in the *Rules*. He is, it seems, establishing himself as a corpuscularian. This is a strong position, since in an earlier chapter the possibility of a void is not yet ruled out, something he will do hypothetically later in this work, and most emphatically in the *Principles*. “I do not want to say categorically that there is no void in Nature” (AT 11:20; G 15). In other words, although he sketches putative explanations of things that avoid positing a void, he leaves its existence an open possibility. The second point is more difficult to describe and creates a problem that arises in regard to *The World* and the *Principles*. It is clear in chapter 5 of *The World* that Descartes is making ontological claims, but this contrasts in a bizarre and emphatic way with what he goes on to do in chapter 6. There he wants to describe “another, wholly new world (*nouveau Monde*)” (AT 11:31; G 26). This is a world constructed according to our suppositions.

We may imagine “this matter as we fancy, [so] let us attribute to it, if we may, a nature in which there is absolutely nothing that everyone cannot know as perfectly as possible” (AT 11:33; G 22). So here Descartes postulates an imaginary world according to which we know natures absolutely and perfectly. This is both an ontological and an epistemological claim.

Obviously one needs to ask what Descartes is doing in constructing this imaginary world, and why he uses the ploy of imagination. Something like this will appear again, though with significant differences, in the *Principles*, Part III, article 44 (AT 8.1:99; CSM 1:255). There he will include, for epistemic reasons, the three types of particles or elements within the scope of his suppositions or hypotheses. So the contrast is between real particles in *The World* and hypothesized particles in the *Principles*. Roger Ariew thinks there is really no shift (2005). He believes that the fable of *The World* has the same form as hypotheses used by astronomers, and that the hypotheses of the *Principles* merely continue to reflect this practice. Daniel Garber calls this shift in the status of the corpuscular substructure, and how it is known, a “radical change” in Descartes’s views (2001, 112). For Garber, Descartes moves from “the position that we can have genuine certain knowledge of the corpuscular substructure, to the rather different view that our conjectures about corpuscular substructures are at best devices that enable us to predict future experience” (2001, 113). We agree with the core of Garber’s claim, but think that the change is more radical. Certainly, as Garber argues, one reason for Descartes’s shift is that by the time of the *Principles* he realizes that complete a priori knowledge of the individual particles that constitute the matter of the world is not possible, yet he needs to be able to refer to differently sized and differentially moving particles to explain gravity and other physical properties. He explains in *Principles* III, 46:

From what has already been said we have established that all the bodies in the universe are composed of one and the same matter . . . moreover, the same quantity of motion is always preserved in the universe. However, we cannot determine by reason alone how big these pieces of matter are, or how fast they move, or what kinds of circles they describe. Since there are countless different configurations which God might have instituted here, experience alone must teach us which configurations He actually selected in preference to the rest. We are thus free to make any assumptions on these matters with the sole proviso that all the consequences of our assumptions must agree with experience. (AT 8.1:100–101; CSM 1:256)

It becomes clear in the *Principles* that intuitive abstraction from experience (*pace* the *Rules*) is not possible, since simple natures such as the particular sizes, the shapes, and the definite configurations of particles

that make up the physical world cannot be directly intuited in accordance with the procedures of the *Rules*. So we must argue by supposition, which can then be confirmed or disconfirmed by experience. Furthermore, we are epistemically limited with respect to what we can derive by reasoning from our concepts regarding what it is possible to know about the workings of nature, so again we must make suppositions. All of this, as well as Descartes's rejection of his early aim of establishing sensory-related knowledge by means of intuition and abstraction, must be understood within the larger framework of the principles of causal harmony and epistemic teleology that emerge in *Meditation VI*, as we will endeavor to show.

But for the moment let's return to the text and consider the nature of Descartes's suppositional construction in *The World*. He begins by talking about matter, and says we should conceive it as "a real perfectly solid body, which uniformly fills the entire length, breadth, and depth of this great space in the midst of which we have brought our mind to rest. Further, let us suppose that God does divide it [matter] into . . . parts . . . and let us think of the differences that He creates as consisting wholly in the diversity of motions He gives to its parts. From the first instant of their creation, He causes some to start moving in one direction and others in another, some faster and others slower (or even, if you wish, not at all); and he causes them to continue moving thereafter in accordance with the ordinary laws of nature" (AT 11:34; G 23).

This is a very realistic picture of space, matter, and motion presented in a hypothetical and imaginary manner. It's important to note that the indefinite material world, which consists of moving parts, is imagined by Descartes to exist *in* a preexisting space. In other words, the universe is conceived to be a container in which matter is situated, a view suggested by Descartes's earlier example of the wine cask. He tells us that the wine cannot flow from an unstopped hole in the cask unless a vent is provided that allows the air to take its place "because outside everything is completely full, and the part of the air whose place the wine would occupy if it were to flow out can find nowhere else in the universe to occupy, unless an opening is made in the top of the cask through which the air can rise in a circle into its place" (chapter 4; AT 11:20; G 15). Clearly Descartes still entertains a distinction between space and what it contains, which indicates that he has not made (at least in *The World*) a principled identification of material extension with spatial extension, a doctrine essential to the physics of the *Principles*. It is not surprising, then, that the wine cask example doesn't appear in the *Principles*. There Descartes reconceptualizes space, and the cask example, which turns on the distinction between container space and what is contained, is no longer relevant (Palmer 1999, 2–3). It is well to note, however, that Descartes identifies

body and extension in Rule 14. We are told that the statement “Body is extended” is equivalent to “That which is extended is extended.” According to Descartes, extension is here inseparable from the entity “body” and cannot “be conceived apart from [that] subject” in the imagination. This contrasts with the statement “Paul is wealthy,” the content of which is very different from saying, “The wealthy man is wealthy.” If we fail to notice this difference, Descartes claims, “we make the mistake of thinking that extension contains something distinct from that which is extended, in the same way as Paul’s wealth is distinct from Paul” (AT 10:444; CSM 1:60). There is nothing in this line of argument, however, that indicates that Descartes has moved to the strict *in re* identification of extension, space, and material substance with external and internal place, a view central to the systematic development of the *Principles*.

But now we need to look more closely at the laws of nature that pertain to the moving parts of the universe, since the contrast with what comes later is striking. Intriguingly, Descartes states: “For God establishes these laws in such a marvelous way that even if we suppose He creates nothing more than what I have said, and even if He does not impose any order or proportion on it but makes it of the most confused and muddled chaos . . . the laws of nature are sufficient to cause the parts of this chaos to disentangle themselves and arrange themselves in such a good order that they will have the form of a most perfect world” (AT 11:34; G 23). Here the picture of God’s action in creating and sustaining the material world contrasts strongly with the picture found in the *Meditations* and in the *Principles*. In these later works, Descartes speaks of the continual creation of the world from moment to moment and, as we shall argue in chapters 3 and 4, utilizes an enriched and nuanced version of efficient causation. In *The World*, the laws of nature are autonomous such that, once God has put everything into motion, the world will continue on its own. Moreover, since the world’s development follows the laws of nature, things will sort themselves out into “a most perfect world.”

Descartes elaborates his view of the autonomy of the laws in the subsequent chapter, 7. He puts forward a conservation principle: “that God continues to preserve it [matter . . . and the totality of qualities . . . attributed to it] in the same way he created it” (AT 11:37; G 25). Yet “it necessarily follows from the mere fact that he continues to conserve (*conserve*) it thus that there may be many changes in its parts that cannot . . . properly be attributed to the action of God, because this action never changes, and which I therefore attribute to Nature” (ibid.). He tellingly elaborates this: “among the various qualities of matter we have supposed that its parts have had various different motions from the moment they were created, and furthermore that they all touch one another on all sides, without there being any void. . . . From this it follows necessarily that from the

time they begin to move, they also begin to change and diversify their motions by colliding with one another. Thus, while God subsequently conserves them in the same way He created them, He does not conserve (*conserve*) them in the same state. That is to say, if God always acts in the same way and consequently always produces the same effect, many differences in this effect occur as if by accident” (AT 11:37–38; G 25). He closes this section by saying that he will not go further into “these metaphysical considerations,” but will present “two of the three principal rules by which we must believe God to cause the nature of this new world” (AT 11:38; G 25).

Descartes’s first rule for his new world is a version of his “inertial” principle: this is “that each particular part of matter always continues in the same state unless collision with others forces it to change its state” (AT 11:38; G 25). Descartes elaborates his conception of motion in an interesting way by saying there is no one who does not believe in the truth of this principle with respect to “size, shape, rest and a thousand other things.” That is, he claims that everyone believes these properties are constant, and remain as they are unless some external force changes them. “But the Philosophers have exempted motion from it, which is the one thing I most explicitly wish to include” (AT 11:38; G 26). At this point Descartes contrasts the Scholastic definition of motion, as *motus est actus entis in potentia, prout in potentia est* (motion is the action of an entity’s potential, insofar as it has that potential) with his own. He has already in the *Rules* attacked this Scholastic definition as nonsensical. But here he elaborates his own conception of motion by aligning it with the geometers, “who among all men are the most concerned to conceive the things they study very distinctly . . . [and they] have judged it [motion] simpler and more intelligible than the nature of surfaces and lines” (AT 11:39; G 26). So again, at this point in his thinking, Descartes has a concept of motion that is real, ontologically fundamental, and intuitively knowable by the mind. This is further supported by a declaration he makes in chapter 3 of *The World* in which he discusses the hardness and fluidity of bodies. He says that “virtue or power of self-movement (*la vertu ou la puissance de se mouvoir soi-même*) found in one body may indeed pass wholly or partially into another and thus be no longer present in the first; but it cannot entirely cease to exist in the world” (AT 11:11; CSM 1:85). Here Descartes is not merely claiming that bodies communicate motion to one another through spatial contact. He is saying that they possess an internal power according to which they are able to move themselves and, as well, bodies that are adjacent to them.

He continues in chapter 7 by presenting his second and third rules (even though he said he would present only two). Again, he speaks about real motions and the giving of motion from one body to another. “My second

rule [is] that when one of these bodies pushes another it cannot give the other any motion except by losing as much of its own motion at the same time” (AT 11:41; G 27). This again is justified by a conservation principle, phrased in terms of God’s retaining or transferring motions among the parts of matter (AT 11:43; G 29). His third rule is “when a body is moving, even if its motion most often takes place along a curved line . . . each of its parts individually tends always to continue moving along a straight line” (AT 11:44; G 29). He goes on, “This rule rests on the same foundation as the other two, and depends solely on God’s conserving everything by a continuous action, and consequently on His conserving it not as it may have been some time earlier but precisely as it is at that very instant He conserves it” (AT 11:44; G 29–30). The new introduction of “the instant” is significant. It indicates that God’s conservation of motion results in the tendency of bodies to move along a straight line (because that is the most simple). Finally, Descartes gives us a version of God’s primary causality concerning motion. “God alone is the author of all the motions in the world in so far as they exist and in so far as they are straight, but that it is the various dispositions of matter that render the motions irregular and curved” (AT 11:46; G 30).

We will end our treatment of *The World* at this point, but will return to it in detail in chapter 4. Yet some important themes are worth emphasizing. First, Descartes is a corpuscularian who hasn’t committed himself strongly (though he does to some extent in the fable section) to the anti-atomist position that there is no void. This suggests again that he may not have established a consistent set of metaphysical and epistemological principles. He seems to have no way of providing ontological arguments for the existence of the three types of basic particles, nor of arguing categorically against a void. Moreover, he seems to lack the epistemological foundations on which to base such arguments. Providing such foundations will become his concern, to some extent in the *Discourse*, but later and more searchingly in the *Meditations*. This may be a major reason why so much of *The World* is put into fable form, a form reminiscent of Plato’s *Timaeus* and its likely story of the world’s creation by the action of the Demiurgos. What better way to prevent possible criticisms than to put your position forward as only a possible way according to which things might work? However, the stratagem of a possible world cannot apply to the basic corpuscular theory, for this occurs before Descartes invokes his new world posited in the fable mode. Nor can the invocation of the new world apply to his equivocation concerning the void, as it too appears before he describes his new world. Presumably the corpuscular theory articulated is one that Descartes took over from Isaac Beeckmann, during his early days of scientific work (1618; AT 10:77). And presumably he sees no clear alternative at this stage in his thinking. Writing in 1637

to Plempius (Vopiscus-Foruntatus Plemp) for Fromondus (Libert Froidmont), who had objected to things in his *Meteorology*, Descartes writes: “If my philosophy seems too ‘crass’ for him, because, like mechanics, it considers shapes and sizes and motions, he is condemning what seems to me its most praiseworthy feature . . . I mean that in my kind of philosophy I use no reasoning which is not mathematical and evident, and all my conclusions are confirmed by true observational data . . . I am surprised that he does not realize that the mechanics now current is nothing but a part of the true physics which, not being welcomed by supporters of the common sort of philosophy, took refuge with the mathematicians. This part of philosophy has in fact remained truer and less corrupt than the others, because it has useful and practical consequences, and so many mistakes in it result in financial loss. So if he despises my style of philosophy because it is like mechanics, it is the same to me as if he despised it for being true” (October 3, 1637; AT 1:421; CSMK 64).

The major lesson to take from this appears to be that Descartes has no fully developed philosophical position for justifying his claims in *The World*. Certainly, as we’ve noted, he had embarked on a metaphysical treatise in 1628. But given that a metaphysical grounding in the manner of either the *Meditations* or the *Discourse* appears nowhere in *The World*, it doesn’t seem unreasonable to assume that Descartes had not sufficiently developed his metaphysical thinking in that direction. Alternatively, he may have thought that a full-blown metaphysics of God, the self, and the world was unnecessary for justifying the project of *The World*. Although in *The World* Descartes evokes an ontology of simple natures, he is still working in the *method* tradition and has yet to shift to a systematic epistemology backed by metaphysical grounding as the means for justifying his natural philosophy. The emphasis on method is also present in the *Discourse* (Garber 2001, 33–51). It is justified, so Descartes claims, by its usefulness and its conduciveness to the practical benefits of life (Machamer 2000, 96–97). Later too, as noted above, Descartes will acknowledge that his metaphysics of God, which he regards as the necessary basis for his metaphysical thinking, is weakly expounded even in the *Discourse* (cf. letters to Mersenne, February 27, 1637; AT 1:620; CSMK 53; to Silhon May 1637; AT 1:353; CSMK 55). A second point to note about *The World* is that Descartes is a realist about motion in the sense that he takes it to be a fundamental property of physical things. Indeed, as we’ll see shortly, motion, conceived as an active property of matter, is a doctrine he will not give up until *after* the *Meditations*.

To get an initial feel for Descartes’s shift in his conception of matter, let’s jump ahead and look at what he says after the *Meditations*, at the time he is working on his textbook, *Principles of Philosophy*. (See the letter to Mersenne, December 31, 1640; AT 3:276; CSMK 167.) In 1643,

he writes to Mersenne: “I do not believe there are in nature any real qualities, attached to substances and separable from them by divine power like so many little souls in their bodies. Motion, and all other modifications of substance which are called qualities, have no greater reality, on my view, than is commonly attributed by philosophers to shape, which they call only a mode and not a real quality. My principal reason for rejecting these real qualities is that I do not see that the human mind has any notion, or particular idea to conceive them by; so that when we talk about them and assert their existence we are asserting something we do not conceive, and doing something we do not understand. . . . Since motion is not a real quality but only a mode, it can only be conceived as the change by which a body leaves the vicinity of some others” (April 26, 1643; AT 3:648–49; CSMK 216). This is the first occurrence we have found of Descartes’s explicit rejection of the doctrine of accidents and real qualities in favor of an ontology of modes and, as a consequence, the rejection makes a significant shift to motion conceived simply as a relational mode, that is, as a transference of a body from one adjacent vicinity to another, notions that will be central to the ontology of the *Principles*.

THE *DISCOURSE ON METHOD*

But we are moving too quickly. Let’s step back chronologically, and take a brief look at the *Discourse*. More accurately, this work, published in June 1637, is entitled *Discourse de la Méthode pour bien conduire sa raison, et chercher la vérité dans les sciences. Plus la Dioptrique, les Meteores et la Geometrie qui sont des essais de cette Methode*. Descartes commences the *Discourse* by recounting autobiographical, first-person reflections that lead him to claims about method very similar to the *Rules*. He makes much of clearing his mind, ordering problems, and doing things in the systematic manner of the mathematicians. But he’s still concerned with proper method as that which “instructs us to follow the correct order, and to enumerate exactly all the relevant factors, [and] contains everything that gives certainty to the rules of arithmetic” (Part II; AT 6:21; CSM 1:121). In Part IV, he introduces some metaphysics and epistemology and presents doctrines later developed in the *Meditations*. He mentions the method of doubt, the cogito, and the existence of God in a short compass of five or so pages (AT 6:32; CSM 1:127). Then in Part V he summarizes some of the things he has done in his *World*, and in Part VI he explains why he did not publish it.

There are two points that need comment in regard to the *Discourse*. First, it is notable that Descartes repeats almost verbatim the claim made in *The World* that nature organizes itself under the laws of motion and

what we can know about that organization, but this time he doesn't appeal to the guise of a fable. In so doing he refers to God's act of creation, which will be developed differently when he has thought through the new foundational position that first appears in the *Meditations*, according to which God re-creates the world in each of the independent parts of time. He says in *Discourse V*:

Yet I did not wish to infer from all this that our world was created in the beginning the way I proposed [Descartes's likely-story rhetoric], for it is much more likely that from the beginning God made it just the way it had to be. But it is certain, and it is the opinion commonly accepted among theologians, that the act by which God now conserves it is just the same as that by which he created it. So, even if in the beginning God had given the world only the form of a chaos, provided that he established the laws of nature and then lent his concurrence to enable nature to operate as it normally does, we may believe without impugning the miracle of creation that by this means alone all purely material things could in the course of time have come to be just as we now see them. And their nature is much easier to conceive if we see them develop gradually in this way than if we consider them only in their completed form. (AT 6:43; CSM 2:33–34)

It is clear that Descartes is changing the likely-story strategy as it is found in *The World*. Specifically, he here attributes the world's emergence from chaos to a theological doctrine of creation that he says is one the theologians commonly accept. In the beginning there were only simple natures, and God, having established the laws of nature, allows them to combine those simples into the complexes we observe in the world. In other words, God produces the complexes of nature *indirectly* through the operation of nature's laws. In *The World* and the *Discourse*, the laws of nature work in this manner without God's continual and active involvement in nature, but this conception is nowhere present in the *Principles* (1644). Indeed, in Part III of the *Principles* Descartes explicitly revokes the view that the world may have began from a primitive chaos and from there moved to a cosmos under the guidance of the laws of motion alone: "I once undertook to provide such an explanation. But confusion seems less in accordance with the supreme perfection of God the creator of all things than proportion and order; and it is not possible for us to have such a distinct perception of it." In other words, Descartes now holds that it is a greater testament to God's omnipotence that the world be conceived as emerging directly from primordial particles "initially equal in respect of both their size and their motion" rather than from a disproportionate chaos (AT 8.1:103; CSM 1:257). But a deeper conceptual movement is involved. As

we hope to show, this shift gestures to an important change in how Descartes views God's causal relation to the created world. It denotes a movement away from the causal conservatism of *The World* to the causal re-creationism of the *Meditations* and the *Principles*.

The second point to notice is that Descartes, for the first time, refers to the concept of substance in Part IV of the *Discourse*. After establishing the nature and consequences of the cogito, he observes: "From this I knew I was a substance whose whole essence or nature is simply to think, and which does not require any place, or depend on any material thing, in order to exist. Accordingly this 'I'—that is, the soul by which I am what I am—is entirely distinct from the body, and indeed is easier to know than the body, and would not fail to be whatever it is, even if the body did not exist" (AT 6:33; CSM 1:127). This passage affords insight into the sort of ontology Descartes had established either in the "little treatise" (his metaphysical turn of 1628) or had developed subsequently. He tells us that in the face of doubt we can establish the truth "I am thinking, therefore I exist. But if in thinking necessarily I exist, it follows that I am something, viz., that I am, in essence, a thinking thing or substance" (ibid.). What he tells us here in regard to substance foreshadows, in broad outline, his later mature account. But he has yet to articulate a principled account of the nature of substance, and yet to establish a philosophical vocabulary by which to talk about it. For example, it seems that the distinction between substance and mode, on which his mature ontology rests, is not even considered. Moreover, at this time, it is not clear whether he has formulated the view that substance is defined by its principal attribute, the basis on which the real distinction between mind and body is established in the *Meditations*. What is clear, however, is that he has moved beyond the ontology of natures intuited by abstraction, an ontology fundamental to the methodology of the *Rules*.

Above we gave a general account of Descartes's comments to Mersenne and Silhon regarding the philosophical defects and shortcomings of the *Discourse*. What he singles out in three letters (two in 1637 and one in 1638) is discontent with his treatment of divine existence and the nature of soul. It will be instructive to quote what he says to these scholars, since it provides some indication of where he may have arrived in his metaphysical reasoning. Awaiting the publication of the *Discourse* and its essays, Descartes writes to Mersenne in February 1637 to say that he intentionally did not elaborate his proof for the existence of God or his argument for the distinction of the soul from the body. "I left this out on purpose and after deliberation, mainly because I write in the vernacular. I was afraid that weak minds might avidly embrace the doubts and scruples I would have had to propound, and afterwards been unable to follow as fully the arguments by which I endeavored to remove them." He goes

on, “Eight years ago, however, I wrote in Latin the beginnings of a treatise of metaphysics in which this argument is conducted at length; if a Latin version of my present book is made, as is planned, I could have it included” (AT 1:361; CSMK 53).

A few months later, in May 1637, Descartes again admits the presence of this defect in his work, but with a slightly different excuse. “I agree, as you observe, that there is a great defect in the work you have seen [the *Discourse*], and that I have not expounded, in a manner that everyone can easily grasp, the arguments by which I claim to prove that there is nothing at all more evident and certain than the existence of God and of the human soul. But I did not dare to do so, since I would have had to explain at length the strongest arguments of the skeptics to show there is no material thing of whose existence one can be certain” (letter to Silhon, May 1637; AT 1:353; CSMK 55). Again in February 1638, he writes to Vatiér: “It is true I have been too obscure in what I wrote about the existence of God in this treatise on method, and I admit that although the most important, it is the least worked out section in the whole book. This is partly because I did not decide to include it until I had nearly completed it and the publisher was becoming impatient. But the principal reason for its obscurity is that I did not dare go into detail about the arguments of the skeptics or say everything that is necessary to withdraw from the senses . . . these thoughts did not seem suitable for inclusion in a book which I wished to be intelligible in part even to women” (letter to Vatiér, February 22, 1639; AT 1:560; CSMK 85–86).

Despite his gender prejudices, it is clear that Descartes worries that his philosophy will not be understood. We conjectured above that at this stage he may have thought that his metaphysical arguments were insufficiently worked out. But now we can be more specific. There is an important philosophical conception missing from Descartes’s proof for God’s existence in *Discourse* Part IV, to which he refers in these letters. In the *Discourse* he embarks on the proof by saying that he wanted to inquire into an “ability to think of something more perfect than I was; and I recognized very clearly that this had to come from some nature that was in fact more perfect” (AT 6:34; CSM 1:128). But the proof that this perfect nature must be God invokes no aspect of the causal theory that provides the necessary framework of the elaborate version of the argument given in *Meditation* III. There, Descartes invokes a complex causal theory, involving relations among objective, formal, and eminent reality, in order to construct an account of how the content of the immediate idea he possesses of a perfect being has its unique source in an infinitely perfect being who exists apart from him. Certainly these concepts are present in the causal tradition that Descartes inherits, most notably in the works of Suárez and Eustachius a Santo Paulo. It is important to remember, how-

ever, that Descartes's argument for God's existence is very different from traditional causal arguments. It is based on the immediate fact of his own existence, the first truth that he can claim to know, and thus "does not depend on any chain of causes and is better known to me than anything else could possibly be. And the question I asked myself was not what was the cause that originally produced me, but what is the cause that preserves me at present" (*First Reply*; AT 7:107; CSM 2:77). Moreover, the argument in *Meditation* III turns crucially on the view that the objective being of an idea must have a cause. It is clear that the version of the argument in the *Discourse* lacks this essential causal framework. It is possible, then, that in 1637 Descartes had yet to link his levels-of-perfection ontology together with the support of a fully worked out causal theory. Sorting out these connections in the *Meditations* (1640–41) will be the first move toward the epistemic stance. By the spring of 1640, Descartes has a text of the *Meditations* finished. In May of that year he sends a copy of the manuscript to Regius (Henri le Roy) for comments.

We saw above that Descartes takes motion to be a real property of body. Let us note that this realist position concerning motion and the active powers of bodies is still present in the *Meditations*. The structure of what we will call the *causal realist argument* of *Meditation* VI rests on the traditional notion that an effect's reality derives productively from its cause, and that the cause must possess at least as much reality and perfection as the effect it produces. Here is Descartes's argument in full:

Now there is in me a passive power (*facultas*) of sensory perception—of receiving and recognizing the ideas of sensible objects; but I could not make use of it unless there were in existence also something active (*quaedam activa*), either in me or in something else, which has produced (*producendi*) or brought about (*efficiendi*) these ideas. But this power (*facultas*) cannot be in me, since clearly it presupposes no intellectual act on my part, and the ideas in question are produced (*producuntur*) without my cooperation and often even against my will. 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 (*productis*) by this power (as I have just noted). This substance is either a body, that is, a corporeal nature, in which case it will contain formally everything which is to be found objectively in the ideas; or else it is God, or some 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 completely obvious that he does not transmit (*immittere*) these ideas immediately and through himself, nor even with the help of some creature in which their objective reality

is contained not formally but only eminently. For God has plainly given me no faculty at all for recognizing any such source for these ideas; on the contrary, he has given me a great propensity to believe that they are transmitted (*emitti*) by corporeal things. So I do not see how God could be understood to be anything but a deceiver if the ideas were transmitted (*emitterentur*) from a source other than corporeal things. Thus, corporeal things exist. They may not exist in a way that exactly comports (*comprehendo*) 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 (*intelligo*), that is, all those which, viewed in general terms, are comprised within the subject-matter of pure mathematics. (CSM 2:55; AT 7:79–80)

How are we to understand Descartes's reference to "something active" inherent in bodies external to him that produces in him ideas of sensible things if, as every commentator assumes, such bodies are essentially passive extension? And how do we explain the fact that the phrase "something active" is no longer used in the variant of the argument that appears in the Latin *Principles of Philosophy* of 1644 or in its French translation of 1647 (Part II, art. 1; AT 8.1:40–41; AT 9.2:63–64; CSM 1:223)? In the *Principles*' variant of the argument, Descartes states, in reference to extended matter: "we clearly understand this matter as being quite different from God and from ourselves and from our minds and we appear to see clearly that the idea of it comes (*advenire*) to us from things located outside ourselves to which it is altogether similar" (Part II, art. 1; AT 8.1:40–41; CSM 1:223). Descartes's language still preserves the causal sense that there's something external to the mind that produces or brings about the idea of body in the mind. Nevertheless, his terminology has shifted, in that he no longer speaks of an external "active power" that bodies may possess if they exist. But it would be a mistake to suppose that Descartes's use of the notion of "active power" in the *Meditations* is simply a convenient employment of Scholastic terminology that, for Descartes, had already degenerated into mere jargon. On the contrary: he is using this terminology in a major argument designed to show that an external world is the unique source for key beliefs that we are compelled to hold. Moreover, his use of "active power" in the *Meditations* fits what Descartes will call dismissively in the *Principles* the ordinary conception of motion, whereby it is conceived to be an "action by which a body travels from one place to another" (AT 8.1:53; CSM 1:233). The shift from the *Meditations* to the *Principles* is interestingly illuminated by Descartes's response to Burman, who asks, referring to the argument in *Principles*, Part II, article 1, whether the phrase "we appear to see clearly that

the idea of it comes to us from objects” signals a case of doubt. Descartes replies: “The reason I use that word is that someone may perhaps deny that we indeed see it. But in any case, what ‘appears’ to us is enough to prove what I want. For since what appears is the work of the mind and consciousness (*opus mentis et conscientiae*) what we ‘see’ must ultimately reduce to what ‘appears’ to us. And what appears to us in fact requires the existence of objects as a source of the ideas in question” (AT 8.1:41; CSM 1:223; Cottingham 1976, 34).

In his later work, Descartes places more stress on the active work the mind performs, without denying that the presence of particular objects on particular occasions is necessary for the mind to have the sensations and perceptions that it has. This relationship is made clear in the French translation of *Principles* II, article 1 (1647). There the phrase “l’idée [qui] se forme en nous à l’occasion des corps de dehors” is used (AT 11.2:64). This characterizes Descartes’s late view of the active faculty of mind that is triggered on a particular occasion by the presence of bodily motions. We’ll return to this issue in chapter 5 when we discuss Descartes’s notion of innateness in *Notes on a Certain Program* (1648). It’s important to keep in mind that, for Descartes, the contents of immediate awareness are not simply given; they need to be created as *mental* contents by the mind’s active intentionality. Thus, as we’ll see in chapter 6, the motions emitted by bodies are used by the mind’s active powers to bring it about that the mind possesses sensory ideas that direct it to certain bodily features rather than to others. In Descartes’s later thought, innate ideas play an increasingly important role (chapter 5) in his account of sensory awareness and contribute to a significant epistemic shift in his thinking. Describing this result will involve laying out Descartes’s view that the mind is active (in a nonvolitional manner) in sensation, and the manner in which sensations have intellectual content.

This shift can be seen in the *Principles*. There he claims that by the use of intellect alone, “we shall perceive that the nature of matter, or body considered in general, consists not in being something which is hard, heavy, colored, or which affects the senses in any way, but simply in being something which is extended in length, breadth and depth” (Part II, art. 4; AT 8.1:42; CSM 1:224). Descartes refers here to what he will call in the early 1640s the *principal* attribute of substance. Prior to that time, even in the *Meditations*, he lacks a settled philosophical vocabulary for expressing the various features of things. However, probably while drafting Part I of the *Principles*, in late 1640, and wanting to make his philosophy appropriate for teaching in the schools, he strives to articulate his basic concepts in the fashion of the Scholastic texts he hopes to supplant. This demands that he give a principled account of substance, a task he had not previously undertaken. Thus, in *Principles*, Part I, article 53, he

states: “And a substance is indeed known by any attribute of it; but each substance has only one principal property which constitutes its nature and essence, and to which all other properties are related. Thus extension in length, breadth, and depth constitutes the nature of corporeal substance” (AT 8.1:25; CSM 1:210). And in article 56 he gives a systematic account of the distinction between mode and attribute, so fundamental to his new ontology of substance that emerges in the early 1640s. If extension expresses the essence of matter as its principal attribute, we may infer that matter is passive and inert. This obviously raises problems for the notion that motion is a proper property of bodies, and for the notion that bodies possess power or force as an essential part of what they are. In other words, matter, whose principal attribute or essence is extension, can cause nothing. This confronts Descartes with the need to provide a new definition of motion. Ironically enough, it turns out to have an Aristotelian ring—change of place—a view he had mocked in earlier writings. In Descartes’s new definition, motion is not an action or force that causes transference. To attribute an action or force to matter would be to claim that it has active properties. But there is a secondary sense in which he wants to legitimize the use of terms like “force,” “impulse,” “tendency,” or “inclination”: this is how ordinary people speak about such matters, and Descartes doesn’t want to depart too far from ordinary speech when explaining how the material world works. Thus, in the *Principles*, but not before, motion becomes transference relative to bodies that *we take* to be at rest. In other words, humans have the epistemic ability to conceive motion when they have the experience of something that is undergoing a relative change of place. This is one of the strongest arguments for the claim that Descartes is no longer dealing with the metaphysical simples of the *Rules* that he took the mind to be able to intuit through abstraction. In chapter 4, we will analyze this important shift by giving an account of God’s action in regard to motion thus conceived. This will involve a detailed consideration of the development of Descartes’s conception of efficient causality and the role secondary causes play in the mature world picture he presents in the *Principles of Philosophy*.

These issues raise important questions for our interpretation. According to the reading we advance in chapter 4, there are substantial differences separating *The World* and the *Principles*. This goes counter to the received view, which claims that the treatises differ only in detail rather than in substance. If, according to our interpretation, Descartes shifts from a conservationist to a re-creationist view of God’s creative action in *Meditation III*, to claim that the *Principles* differs from *The World* merely in matters of style and detail seems implausible. Moreover, as we will note, Part II of the *Principles* is replete with epistemic qualifiers rooted in how we regard and conceive things relative to our perceptions

and conceptions. Certainly, the metaphysics of the *Meditations* is continuous in large measure with the metaphysical picture that Descartes presents in Part I of the *Principles*. Both works proceed from doubt and move via the cogito to God, and from God to the question of the existence of the external world. Nevertheless, the unmistakable presence in *Principles* Part II of claims rooted in what is epistemically viable relative to us, cannot be ignored or explained away, especially since they arise only at the end of *Meditation* VI and play no overt role earlier in the *Meditations* or elsewhere. So the question we explore in chapter 4 is the way in which the *Meditations* make a difference to the natural philosophy of the *Principles*.

However, there is another question relevant to this issue, namely, how to account for the differences between Descartes's metaphysics as presented in the *Meditations* and the version he lays out in *Principles* Part I. It is frequently claimed that these differences can be explained by the fact that the *Meditations* are written according to the analytic method, whereas the *Principles* are composed according to the synthetic method. Garber and Cohen show decisively that this ploy is a red herring (2001, 52–63). They argue that Descartes, though he had occasion to do so in a number of contexts, never characterizes the *Principles* as a synthetic work. Descartes presents and discusses a version of the analytic/synthetic distinction in the *Second Reply* prior to adding the geometrical appendix, which is a formal exposition, in the synthetic style, of some of the arguments of the *Meditations* (AT 7:155–56; CSM 2:115–20). We know from a letter to Mersenne in December 31, 1640, that Descartes begins to compose *Principles* Part I roughly at the same time he is at work on the geometrical appendix, which uses definitions, postulates, axioms, and proofs in the synthetic style. Clearly, the *Principles* are not constructed in accordance with this style of method or presentation. Furthermore, as Garber and Cohen point out, the writing out of the appendix would have afforded Descartes an ideal occasion to connect the *Principles* with the synthetic method if he thought they satisfied that format. He does not do so, although he says that the *Meditations* were written in the analytic mode of instruction (AT 7:156; CSM 2:111). Similarly, in the *Fourth Reply* to Arnauld, written shortly after the *Second*, he mentions the *Principles* while discussing work in progress, but again he doesn't link them to the synthetic method of presentation appended to the *Second Reply* (Garber and Cohen 2001, 60–61). Nor does he do so in the French translation of the *Second Reply* that appeared in 1647, three years after the first edition of the *Principles*, in which there are significant alterations to the section on analysis and synthesis probably written by Descartes himself. As Garber and Cohen point out, this again would have been a perfect opportunity to tell his readers that the metaphysics of the *Principles* is presented synthetically (2001, 61). In the light of these passages, it seems reasonable

to conclude that for Descartes the *Principles* are not constructed according to the synthetic method.

Thus, it seems to us unhelpful to explain the differences between the *Meditations* and the *Principles* in terms of a distinction that is foreign to Descartes's own conception of their relationship. This means, of course, that the relationship needs to be explained in another way. To some extent the differences can be accounted for by the fact that Descartes intended the *Principles* to function as a textbook that he hoped would emulate and certainly supplant the Scholastic textbooks of the period. So, not surprisingly, unlike the *Meditations*, the arguments of the *Principles* are explicitly structured in the manner and order reminiscent of the typical Scholastic textbook. But this in itself does not illuminate important internal differences between the two works, especially those evident in the "theoretical" Parts I and II of the *Principles*. To this end we'll consider what implications the re-creationist hypothesis adopted from the *Meditations* has for the *Principles*. This consideration, in conjunction with the development in the *Principles*, of the epistemic teleology of *Meditations* VI, provides deeper insight not only into the differences between the *Meditations* and the *Principles*, but also into the differences between the latter and *The World*. Also significant in this respect is the fact that Descartes gives the metaphysics contained in Part I of the *Principles* the title "The Principles of Human Knowledge" in both the Latin and the French editions. This raises an intriguing question: what does metaphysics mean for Descartes in this late period, especially since the metaphysics set forth in Part I of the *Principles* is the basis for the perspectivalist epistemology developed in the rest of the treatise? We'll consider these interpretative issues in chapter 4.

It is clear that many important shifts occur in Descartes's developing thought. In order to draw together the import of the claims we have made, and to provide a synopsis of where our study is going, we'll end this chapter by summarizing three of the most significant changes that we think are supported by the texts, and for which we hope to supply sufficient documentation in the chapters to come:

1. Although *The World* and the *Principles* share features in common, at bottom, they are conceptually far apart theologically, ontologically, and epistemically. In *The World*, Descartes is a strong conservationist. Under the remote superintendence of God's ordinary concourse, created things act causally according to their intrinsic natures and are the source of their duration and existence through time. In other words, God contributes to the actions of created things simply by creating and conserving them with their active powers, and in virtue of their own intrinsic agency they are able to bring about effects without God's direct and immediate

action. The *Principles* are strikingly different. In chapter 4, we will show, by examining *Meditation III*, that Descartes establishes, most probably for the first time, two significant doctrines: (a) that the parts of time are mutually, logically, and causally independent; and (b) that principle or *per se* efficient causes are *necessarily* simultaneous with their effects. This radical shift in his metaphysics powerfully affects the natural philosophy of the *Principles*. In the later treatise, Descartes moves from a conservationist position to embrace re-creationism, the view that God re-creates the world in each successive and independent part of time. According to the re-creationism of the *Meditations* and the *Principles*, divine conservation is no longer remote: now it is immediate and direct at each moment at which the world exists. Obviously, this raises the question whether the created world possesses genuine efficient causation, and whether Descartes is forced to accept some form of occasionalism. As we will show in chapters 2, 3, and 4, important changes in his conception of secondary efficient causation occur as his thought develops. In contrast to the received interpretation, which claims that *The Principles* are just *The World* having been taught “to speak Latin” (letter to Constantijn Huygens, 1642; AT 3:523; CSMK 210), what appears in 1644 tells a significantly different story.

2. As we’ll argue in chapter 3, *Meditation VI* advocates, for the first time, a genuinely teleological conception of the representation of the senses. Descartes tells us that human beings have the sensations they do in order to preserve the mind-body union. The senses can’t report the truth about the nature or essence of things: only the intellect can do that. Nevertheless, they provide the mind with a representation of what is harmful or beneficial for the survival of the mind-body union: “Concerning those things regarding the well-being of the body, I know that all my senses report the truth much more frequently than falsehood” (AT 7:89; CSM 2:61). Certainly, as Descartes argues, we can’t know God’s ends. Nevertheless, we can know that the world is constructed such that there is a “fit” between the way it is created and the manner in which our modes of cognition and learning operate. Thus, although the world is not created for us, it and we are created such that we can survive in it, and do so in a manner conducive to our ability to establish reliable knowledge of it: sensations are not only from but also *for* the mind-body system. We are not restricted, however, to establishing reliable sensory knowledge solely for our physical well-being. In the *Principles* Descartes develops a view that we call *epistemic teleology* that involves the establishment of scientific or theoretical knowledge. Thus, as we endeavor to show, Descartes’s treatments of motion, its laws and conservation, and body-body causation are each articulated from an epistemic perspective that is irreducibly

teleological. This perspective, in connection with his causal harmony principle, results in what we call Descartes's epistemic stance.

3. Closely connected to these shifts are important developments in Descartes's theory of ideas, mind, and perception that we explore in chapters 5 and 6. As we have noted, there is an evident "empiricist" bent in his early thinking according to which some general notions are generated by abstraction from the particulars of experience. By the 1640s, Descartes thinks the method of abstraction is a negative procedure able only to produce an inadequate understanding of things, and in the *Replies* he develops what we'll call the *method of exclusion* according to which the nature of things can be understood directly and positively by intellectual reflection. His main example is the real distinction between mind and body, but this shift in his epistemic stance transforms his entire theory of mind, perception, and ideas. Significantly, innate ideas take on a greater importance. Concomitant with the shift away from abstraction to exclusion is the shift from establishing ideas, on the basis of inductive experience, to the epistemic process of bringing particulars, represented in experience, under the requisite general and innate ideas. We've indicated that Descartes's conception of innate ideas is nuanced and plays different sorts of contextual roles in his thought. Nevertheless, innate ideas, as an epistemic category, begin to play a fundamental role in Descartes's mature theory of mind and perception, and have an important place in the development of his epistemic teleology. As we'll see, innate ideas are formed, for Descartes, in the mind by the mind, are produced by an innate mental faculty not fully exercised at birth, and—with the notable exception of ideas of the self and God and a host of common notions—would count for nothing if various sorts of correlations with physical stimulation were absent. This is not to deny, of course, that the ideas of the self and God have contents that are connected causally to extramental metaphysical realities. Descartes's concern, that is, is not only with the idea of a self that thinks and the idea of God but with what those ideas are ideas of. In one way or another, these changes are all connected to Descartes's new theory of ideas that emerges around the period of the *Meditations*.