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The Cambridge Companion to
DESCARTES

Edited by John Cottingham

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CHRONOLOGY

- 1596 Born at La Haye, near Tours, 31 March
- 1606–14 Attends Jesuit College of La Flèche, in Anjou
- 1616 Takes law degree at University of Poitiers
- 1618 Goes to Holland; joins army of Prince Maurice of Nassau; meets Isaac Beeckman; composes a short treatise on music, the *Compendium Musicae*
- 1619 Travels in Germany; 10 November: has vision of new mathematical and scientific system
- 1621 Returns to France; during next few years spends time in Paris and travels in Europe
- 1628 Composes *Regulae ad directionem Ingenii* [Rules for the Direction of Our Native Intelligence]; leaves for Holland, which is to be his home until 1649, though with frequent changes of address
- 1629 Begins working on *Le Monde* [The World].
- 1633 Condemnation of Galileo; abandons plans to publish *The World*
- 1631 Birth of Descartes' natural daughter Francine, baptized 7 August (died 1620)
- 1637 Publishes *Discours de la Méthode* [Discourse on the Method] with *La Dioptrique* [Optics], *Les Météores* [Meteorology], and *La Géométrie* [Geometry]
- 1641 *Meditationes de prima philosophia* [Meditations on First Philosophy] published, together with first six acts of *Objectiones cum Responsionibus* [Objections and Replies]
- 1642 Second edition of *Meditations* published, together

- with *Objections and Replies* (including Seventh Set) and *Letter to Dinet*
- 1643 Cartesian philosophy condemned at the University of Utrecht; Descartes' long correspondence with Princess Elizabeth of Bohemia begins
- 1644 Visits France; *Principia philosophiae* (*Principles of Philosophy*) published
- 1647 Awarded a pension by the king of France; publishes *Notae in programma quoddam* (*Comments on a Certain Broadsheet*); begins work on *Description du corps humain* (*Description of the Human Body*)
- 1648 Interviewed by Frans Burman at Egmond-Binnen (*Conversation with Burman*)
- 1649 Goes to Sweden on invitation of Queen Christina; *Les Passions de l'Âme* (*The Passions of the Soul*) published.
- 1650 Dies in Stockholm on 11 February

ABBREVIATIONS

Throughout this book, references to Descartes' works are made in parentheses in the main body of the text, by page and volume number of the standard Franco-Latin and English editions of Descartes (AT and CSM or CSMK, respectively). For full details of these editions, see the Bibliography, p. 424, below. Section I of the Bibliography also contains full details of other editions (such as Hall and Giscamp), which are occasionally referred to by the editor's name, followed by a page reference. In the case of Descartes' *Principles of Philosophy* and *Passions of the Soul*, references are sometimes given simply by the original part and article numbers (which are reproduced in all editions and translations).

For all other works cited in the Notes at the end of each chapter, full publication details may be found in the Bibliography.

Introduction

Descartes is perhaps the most widely studied of all the great philosophers. Students in countless introductory courses find that their imagination is captured by the lonely quest for knowledge described in Descartes' masterpiece, the *Meditations on First Philosophy*. The radical critique of preconceived opinions or prejudices (*præiudicia*) which begins that work seems to symbolize the very essence of philosophical inquiry. And the task of finding secure foundations for human knowledge, a reliable basis for science and ethics, encapsulates, for many, what makes philosophy worth doing. The excitement felt on first encountering Cartesian philosophy does not diminish as one delves deeper. Descartes' inquiries into the nature and structure of the material universe, his views on human freedom and the existence of God, and his account of the human condition and the relationship between mind and matter, all exert a powerful intellectual pull on us even today. And even when the details of the system are forgotten, Descartes' starting point in the quest for truth, his *Cogito ergo sum* ("I am thinking, therefore I exist") remains the most celebrated philosophical dictum of all time.

But despite the fame of Descartes' system, there is much about the Cartesian project that, from a twentieth-century standpoint, seems radically misguided. Many philosophers working today, whether in the theory of knowledge or the philosophy of mind, would probably define their position as systematically anti-Cartesian. The reasons for this go far beyond the fact that developments in physical science have rendered many of Descartes' scientific results obsolete. It is of course true that his theories of cosmology and astronomy are now little more than historical curiosities, his naively mechanistic account of gravity, for example, has long since been discarded by work-

ing scientists. But the philosophical worries about the structure of the Cartesian account of knowledge are of a deeper nature. Some of the worries began to be voiced less than a century after Descartes' death, and one central problem which seems to beset his ambitious program for reaching the truth was aptly summarized by Hume:

much inculcated by Des Cartes as a sovereign preservative against error [is a method proceeding] by a chain of reasoning, deduced from some original principle which cannot possibly be fallacious . . . But neither is there any such original principle, which has a prerogative above all others, . . . [nor] if there were, could we advance a step beyond it, but by the use of those very faculties of which we are already supposed to be diffident.

Descartes enjoined philosophers to sweep all away and make a new start: *omnia semel in vita evertenda atque a primis fundamentis denovo inchoandum* ("Once in a lifetime we must demolish everything completely and start again right from the foundations" AT VII 17; CSM II 12). But Hume, many would now say, rightly exposed the pretensions of reason to reconstruct knowledge from scratch, and in our modern, post-Wittgensteinian world, the lesson seems to have been reinforced: human knowledge can only operate within the socially and linguistically conditioned forms of life we find ourselves inhabiting. Philosophers can no longer hope to step outside the boundaries of history and culture and construct a master language that "limns the ultimate structure of reality."²

Revolutions in philosophy, however, are seldom neat and tidy affairs; the true story is not one of unconditional surrenders but of continuing skirmishes, advances, and retreats. In the first place, Descartes' views on philosophy and science are often far more subtle and complex than is assumed by his post-Humean critics; to look at his actual writings on truth and knowledge is to realize that his system is very far from matching the caricature of "rationalist foundationalism" with which it is so often identified.³ In the second place, we cannot properly comprehend the state of modern philosophy without studying the structures of thought, determined in large part by Descartes' ideas, that have generated the models of knowledge and understanding against which twentieth-century thinkers have reacted. Descartes is still rightly called the father of modern philosophy, not in the sense that our present-day belief systems lamely follow the Cartesian model, but in the richer and more interesting sense that, without

Descartes' philosophy, the very shape of the problems with which we still wrestle, about knowledge and science, subjectivity and reality, matter and consciousness, would have been profoundly different. Descartes' system, and the seventeenth-century philosophical framework in which it arose, richly repay serious study, both for their intrinsic fascination, and also because they mark out the broad territory within which our modern culture developed.

René Descartes was born in 1596 in the small town between Tours and Poitiers (formerly La Haye), which now bears his name. He was educated by the Jesuits at the newly founded college of La Flèche in Anjou, where he remained a boarding pupil for eight or nine years. The exact chronology of Descartes' time at La Flèche has long been the subject of scholarly dispute, and the problems of accurate dating are discussed in detail in Geneviève Rodis-Lewis's reconstruction of Descartes' early life (see Chapter 1). While Descartes' middle and later career is pretty well documented (partly as a result of his voluminous correspondence, much of which has survived), the accounts we have of his early years contain many gaps; we owe many points of interest to his biographer Baillet (whose *Vie de Monsieur Descartes* was published in 1691), although, as Rodis-Lewis demonstrates, Baillet was sometimes prepared to invent what seemed to him plausible details when he found the record incomplete.

At La Flèche Descartes studied classical literature, and traditional classics-based subjects such as history and rhetoric. Later, he took courses in mathematics, moral philosophy, and theology, as well as "natural philosophy," or physical science. Descartes' attitude toward the education he received at La Flèche was an ambivalent one: he later wrote that the college was "one of the best schools in Europe," but that he considered the philosophy he had learned there, "despite being cultivated for many centuries by the best minds, contained no point that was not disputed and hence doubtful" (AT VI 8; CSM I 113). As a mature philosopher, Descartes was to make the replacement of the scholastic philosophy he had imbibed as a schoolboy a major plank in his program for inaugurating a new method in the sciences; but we should be careful not to project back these later aspirations when interpreting Descartes' outlook as a young man. As Rodis-Lewis notes, Descartes' early correspondence shows that he did "recognize the value of the complete course in philosophy which the

Jesuits provided," and the point is reinforced in Roger Ariew's study of the scholastic influences that shaped the intellectual climate in which Descartes grew up (see Chapter 2). To understand Descartes' later outlook, it is important to know something of the principles of scholastic pedagogy in the sixteenth and seventeenth centuries, and Ariew's study sets out its most important elements: the allegiance to Thomist views on theology, and the broad assumption of the correctness of Aristotle's doctrines in the realm of logic, natural philosophy, ethics, and metaphysics. As Ariew shows, the conservatism implicit in the Jesuit educational program nonetheless allowed scope for cautious and subtle modifications of established doctrines in selected areas. As far as his later philosophy is concerned, there is no doubt of Descartes' ambition to develop a system that would avoid conflict with the received faith of the Church by relying only on the most general abstract principles, which, he believed, would command the universal assent of all human beings, irrespective of religious presuppositions. "I have written my philosophy in such a way as to make it acceptable anywhere – even among the Turks" (AT V 159; CSMK 342). These principles might seem in conflict with scholastic doctrines, but Descartes' strategy was a broadly reconciliationist one of emphasizing the points of contact: "as far as principles are concerned, I accept only those which in the past have always been common ground among all philosophers without exception, and which are therefore the most ancient of all" (AT VII 580; CSM II 392).

At the age of twenty-two (after taking a law degree at Poitiers), Descartes set out on a series of travels in Europe, "resolving" (as he later recounted) "to seek no knowledge other than that which could be found either in myself or in the great book of the world" (AT VI 9; CSM I 115). An important influence on Descartes in this early period was his friendship with the Dutchman Isaac Beeckman, who stimulated his lifelong interest in mathematics – a subject in which he discerned precision and certainty of the kind which genuinely deserved to be called *scientia* – reliable and systematic knowledge based on indubitable first principles. A great deal of Descartes' energy as a young man was devoted to pure and applied mathematics, and the first sample of his work, which he finally ventured to publish (anonymously) in 1637, – the collection of three essays prefaced by the *Discourse on the Method* – contained three notable examples of his success: the sine law of refraction (in the *Optics*), the calcula-

tion of the angles of the bows of the rainbow [in the *Meteorology*], and the solution of Pappus's problem, in the *Geometry* (see Stephen Gaukroger's essay, Chapter 3). One of the most important general results to emerge from Descartes' work in these areas was, as Gaukroger shows, the emergence of the idea of a general algebra that would enable abstract relations to be exhibited in a way that was free from specific numerical interpretations. Descartes' achievement here represented, Gaukroger argues, a remarkable and substantial advance on earlier classical conceptions of geometry, which had largely relied on spatial intuitions. The invention of highly abstract structures of thought, neutral with respect to subject matter, is proclaimed by Descartes in his early work, the *Regulæ* ("Rules for the Direction of our Native Intelligence"), as the hallmark of his new approach to knowledge:

I came to see that the exclusive concern of mathematics is with questions of order or method, and that it is irrelevant whether the measure in question involves numbers, shapes, stars, sounds, or any other object whatsoever. This made me realize that there must be a general science which explains all the points that can be raised concerning order and measure irrespective of subject matter. (LAT X 377: CSM I 19)

The conception leads straight on to the famous Cartesian idea of science as the unfolding of abstract mathematical relations, an idea that remains to this day central to what we think of as the scientific enterprise.⁴

In Rule XII of the *Regulæ*, Descartes outlined a model for all human knowledge as based, ultimately, on self-evident intuition of what he called the "simple natures." These included not only the "corporeal" natures (such as shape, extension, and motion), which were to be the building blocks for Cartesian physics, but also the "intellectual" natures, which enable us to understand fundamental mentalistic concepts such as those of doubt, knowledge, and volition. In his study of the role played by the simple natures in Descartes' system (see Chapter 4), Jean-Luc Marion argues that what is involved is no mere terminological innovation but an epistemological revolution. Descartes in effect banishes from metaphysics the Aristotelian realm of objective essence and nature (*ousia* and *physis*), which antecedently determines the objects of knowledge,

and substitutes the notion of intuitible objects directly and immediately accessed by the human intellect. It follows that, so far from being (as is sometimes argued) a preliminary study in “method,” the *Regulae* is a profoundly metaphysical work, containing (though not in fully worked out form) all the elements necessary for the deployment of Descartes’ mature metaphysics. What is prefigured here is a remarkably ambitious conception of the scope of philosophy, inspired by the simplicity and clarity of mathematical reasoning, but ranging far beyond it: “Those long chains of very simple and easy reasonings, which geometers customarily use to arrive at their most difficult demonstrations, gave me occasion to suppose that all the things which come within the scope of human knowledge are interconnected in the same manner” [AT VI 19; CSM I 120]. The task of linking together the simple natures in the appropriate way, so as to generate a unified system of reliable knowledge, was the goal Descartes set himself. And it is a project he envisaged in a way that was strikingly original in comparison with anything that had gone before. The key to true knowledge was to be found not from the deliverances of the senses or the received wisdom of the past, but by turning inward to the resources of the human mind itself:

I shall bring to light the true riches of our souls, opening up to each of us the means whereby we can find, within ourselves, without any help from anyone else, all the knowledge we may need for the conduct of life, and the means of using it in order to acquire all the most abstruse items of knowledge that human reason is capable of possessing. [AT X 296; CSM II 400]

Descartes had already begun to work on metaphysics in the late 1620s (see Chapter 1), but it was not until much later that he published any systematic account of his views, first in outline form in Part IV of the *Discourse* (published in French in 1637), and then in rich and dramatic detail in his masterwork, the *Meditations on First Philosophy* (first published in Latin in 1641; the definitive second edition, with the full set of *Objections and Replies*, was published in Amsterdam in the following year). Descartes chose the title to make it clear that “the discussion is not confined to God and the soul, but treats in general of all the first things to be discovered by philosophizing” (letter to Mersenne of 11 November 1640). By this time Descartes had been living in Holland for a considerable period

[though with frequent changes of address], and that country was to remain his home for most of the rest of his life.'

The Cartesian program for metaphysics begins with a systematic exercise of doubt, designed to clear out the rubble of preconceived opinions, often based on unreliable sources or unscrutinized presuppositions. The testimony of the senses is challenged, and doubt is then pushed further (by the various phases of the so-called dreaming argument), as the meditator questions the nature and existence of the world around him, and even the fundamental truths of mathematics [how do I know that a deceiving God might not make me go wrong "every time I add two and three or count the sides of a square"]. Eventually, by the end of the First Meditation, Descartes conjures up the nightmare scenario of a "malicious demon of the utmost power and cunning" who employs all his energies in order to deceive: "[I shall suppose that the sky, the earth, the air, colors, shapes, sounds and all external things are merely the delusions of dreams which he has devised in order to ensnare my judgment" (AT VII 22; CSM II 175)]. But the torrent of doubt is checked by the rock of certainty encountered at the start of the Second Meditation – the meditator's indubitable knowledge of his own existence as a thinking being: "I am, I exist, is necessarily true whenever it is put forward by me or conceived in my mind." Elsewhere expressed in the famous sentence *je pense, donc je suis*, this is Descartes' "Archimedean point," on which he proposes to build a new and reliable system of knowledge: "observing that this proposition, *I am thinking, therefore I exist*, was so firm and sure that all the most extravagant suppositions of the sceptics were incapable of shaking it, I decided that I could accept it without scruple as the first principle of the philosophy I was seeking" (*Discourse*, Part IV, AT VI 32; CSM I 117).

Descartes' "Cogito" (to use the label by which his first principle of metaphysics has come to be known) appears at first so simple and straightforward as to be entirely unproblematic. Descartes himself, indeed, claimed here to be doing no more than following the self-evident inner "light of reason," which "when it operates on its own is less liable to go wrong than when it anxiously strives to follow numerous different rules, the inventions of human ingenuity and idleness, which serve more to corrupt it than to render it more perfect" (AT X 321; CSM II 415). But despite Descartes' disarming

appeals to the self-evident simplicity of the Cogito, its precise logical status, and the exact basis for its supposed indubitability, were subjected to close critical analysis even in his own day; moreover, what Descartes himself said when challenged about his first principle involves an implicit concession that a great deal more is needed in order to explain the basis for its certainty and the role it plays in the subsequent development of the Cartesian system. Perhaps no part of Descartes' philosophy has called forth more rigorous and exhaustive discussion in our own day, and Peter Markie's essay (see Chapter 5) sets out to examine the main interpretative and philosophical issues involved. Among the problems he discusses are the relation between intuition and deduction in Descartes' account of knowledge, the extent to which the allegedly "primary" truth of the Cogito presupposes various kinds of prior knowledge, and the relationship between our knowledge of the Cogito and Descartes' general claims about a class of "clear and distinct perceptions" that command assent. The suggested conclusion is that a defender of Descartes needs to show that the meditator's beliefs about his thought and existence are so well grounded in reason as to be certain; such grounding resists even the most exaggerated reasons for doubt that can be devised.

Once assured of the certainty of his own existence, the Cartesian meditator can proceed to the construction of a system of knowledge, moving 'from the inside outwards.' The crucial first step is to establish the existence of a perfect, nondeceiving God. In a much criticized causal argument, Descartes reasons that the representational content (or "objective reality") of the idea of God, which he finds within him, is so great that it cannot have originated from inside his own (imperfect) mind, but must have been implanted there by an actual perfect being, God (Third Meditation). The proof is later supplemented by a second demonstration (in the Fifth Meditation), that the idea of perfection logically implies existence (the so-called ontological argument). Once the deity's existence has been established, Descartes can proceed to reinstate his belief in the world around him: the strong propensity we have to believe that many of our ideas come from external objects must (since God is no deceiver) be in general terms correct, and hence the external world exists (Sixth Meditation). More important still, the knowledge of God generates a

reliable method for the pursuit of truth: although human beings are often prone to error (particularly when they rely on the obscure and confused deliverances of the senses), provided they confine their judgments to the "clear and distinct ideas" God has implanted in each soul, and remember to withhold assent on matters where they do not have clear and distinct cognition, they can construct guaranteed chains of reasoning about the nature of minds and the material world. Genuine science is possible.

The importance of God in Descartes' system of knowledge can thus scarcely be exaggerated. But as Jean-Marie Beysade argues in his essay on the idea of God (see Chapter 6), there is a paradox at the heart of Cartesian metaphysics. On the one hand, Descartes' whole system of science depends on our assured knowledge of God; on the other hand, the idea of God is explicitly stated by Descartes to be beyond our comprehension. Through a careful critical examination of what Descartes says about the idea of God, and the various versions of the proofs of His existence found in the *Discourse*, *Meditations* and *Principles of Philosophy*, Beysade sets out to resolve the paradox. The infinite is indeed, by its very nature, beyond the *comprehension* of finite human minds, but for all that we can achieve genuine *understanding* of it, by a complex movement of thought from one divine attribute to another, which Descartes terms "induction." Further, the unity we experience within our own finite minds provides an analogy by which we can accurately glimpse the complete, perfect, and unitary uncreated thinking substance that is God. As Beysade acknowledges, the chief problem for Descartes is to show how the [never fully comprehended] idea of God is nonetheless free of vagueness and inconsistency; what emerges is the resolute honesty with which Descartes grasped the problem, and the remarkably subtlety of his attempts to solve it.

The role of God as guarantor of the possibility of genuine human knowledge generates another deep tension in the Cartesian system, which was pointed out in Descartes' own day by Marin Mersenne and Antoine Arnauld, and has come to be known as the problem of the 'Cartesian circle'. If the reliability of the clear and distinct perceptions of the human intellect depends on our knowledge of God, then how can that knowledge be established in the first place? If the answer is that we can prove God's existence from premises we clearly

and distinctly perceive, then this seems circular; for how are we entitled, before we are assured of God's existence, to assume that our clear and distinct perceptions are reliable? An enormous contemporary literature offers a plethora of solutions to this problem, but Louis Loeb in his essay on the Cartesian circle (Chapter 7) distinguishes these into two broad types of interpretation: the *epistemic* (according to which Descartes claims to provide a truth rule that gives us good reason not to doubt our clear and distinct perceptions), and the *psychological* (according to which Descartes' arguments are designed to show that it is psychologically impossible for us to doubt such perceptions). Loeb sets out to offer a detailed and carefully qualified version of the psychological interpretation that does justice to the central texts where Descartes discussed the circle problem – texts that provide some of the most complex and philosophically rich argumentation in the entire Cartesian corpus. Loeb's account yields the broader lesson that our understanding of the project of Cartesian epistemology needs to accord a greater place than is often allowed to the psychological role of our cognitive faculties in generating irresistible and unshakeable beliefs. This in a sense narrows the gap between the "rationalist" conception of knowledge often attributed to Descartes, and the "naturalized" epistemology of Hume and the post-Humeans. That said, there remains a crucial divergence, which Loeb hints at at the close of his paper, namely, that for Descartes reason is, par excellence, the generator of irresistible assent, while, for Hume, other aspects of our human nature take over where reason fails. The issue is but one instance of the extent to which Cartesian concerns feed through into central philosophical problems about the validation of human knowledge that are still very much alive today.

Perhaps the best known result to come out of Descartes' metaphysical reflections is his theory of the nature of the mind as a sui-generis substance, whose nature is utterly alien to that of matter. This doctrine (the doctrine of "Cartesian dualism," as it is generally known today) is announced with a flourish of confidence in Part IV of the *Discourse*: "this 'I' by which I am what I am is entirely distinct from the body and could exist without it" [AT VI 33; CSM I 127]. The doctrine is markedly out of step with most (though not all) modern approaches to the phenomenon of con-

sciousness, and in Descartes' own day it marked a break with the traditional Aristotelian account of the soul, which resisted the reification of the mental as a separate substance, and tended to treat reason and thought as attributes, grounded (like other functions such as sensation, locomotion, and digestion) in the organic operations of the whole human being. In my essay on Cartesian dualism (see Chapter 8), I outline various types of motivation – theological, metaphysical, and scientific – that appear to have led Descartes to his uncompromising insistence on the incorporeal nature of the thinking self. I suggest that, while Descartes clearly saw his views as serving the cause of religious faith by facilitating belief in personal survival of bodily death, his version of dualism is not, in fact, necessary for that belief, nor does it provide unambiguous support for it. As far as Descartes' purely metaphysical arguments for dualism are concerned, there seems no escaping the conclusion that they are irreparably flawed (for reasons his contemporary critics had no difficulty in exposing). But when Descartes approached the nature of thought and its close concomitant, language, from the standpoint of a scientist concerned as far as possible to reduce complex phenomena to simple descriptions of matter in motion, he deployed quite different arguments to show why semantic and linguistic operations were radically resistant to such physical explanation. Some of these arguments depend on what were (at the time) plausible empirical claims (though they are vulnerable in the light of what is now known about the workings of the nervous system), while others seem to rest on somewhat cavalier pronouncements on the limitations of "mere matter," which are harshly out of tune with the vigorous ambitions of Descartes' reductionistic program for science in general. As for the general status of Descartes' account of the mind, its detractors and defenders alike must admit that it constitutes an awkward lacuna in his organic conception of knowledge as an interconnected system of truths. The unitary metaphor of the "tree of knowledge," with metaphysics as the roots, physics as the trunk, and the practical sciences as the branches (AT IXB 13; CSM I 186), masks the reality of a Cartesian universe containing disparate and incompatible elements – mind and matter – whose operations cannot be brought under a single set of explanatory principles.

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