

Descartes the Dreamer



Frontispiece of Descartes's Opuscula Posthuma (1701)

No single thinker has had a more decisive influence on the course of modern philosophy—and general intellectual inquiry—than René Descartes (1596–1650).

On the 400th anniversary of Descartes's birth, Anthony Grafton considers the forces that shaped the man and his thought.

by Anthony Grafton

All philosophers have theories. Good philosophers have students and critics. But great philosophers have primal scenes. They play the starring roles in striking stories, which their disciples and later writers tell and retell, over the decades and even the centuries. Thales, whom the Greeks remembered as their first philosopher, tumbled into a well while looking up

at the night sky, to the accompanying mockery of a serving maid. His example showed, more clearly than any argument could, that philosophy served no practical purpose. Those who take a different view of philosophy can cite a contrasting anecdote, also ancient, in their support: after drawing on his knowledge of nature to predict an abundant harvest, Thales rented

out all the olive presses in Miletus and Chios. He made a fortune charging high rates for them; better still, he showed that scholar rhymes with dollar after all.

At the other end of Western history, in the 20th century, Ludwig Wittgenstein held that propositions are, in some way, pictures of the world: that they must have the same “logical form” as what they describe. He did so, at least, until he took a train ride one day with Piero Sraffa, an Italian economist at Cambridge. Making a characteristic Italian gesture, drawing his hand across his throat, Sraffa asked, “What is the logical form of that?” He thus set his friend off on what became the vastly influential *Philosophical Investigations*, that fascinating, endlessly puzzling text which the American philosophers of my youth took as their bible, and to the exegesis of which they brought a ferocious cleverness that would do credit to any seminarian. If Helen’s face launched a thousand ships, Sraffa’s gesture launched at least a hundred careers.

In each case—and in dozens of others—the story has passed from books to lectures to articles and back, becoming as smooth and shiny in the process as a pebble carried along by a swift-flowing stream. In fact, these stories have become talismans of sorts: evidence that the most profound ideas, the most rigorous analyses, have their origins in curious, human circumstances and strange, all-too-human people. Such anecdotes accessibly dramatize the heroic originality and rigor of philosophers—qualities that one cannot always appreciate only by studying their texts, slowly and carefully.

It seems appropriate, then, that no philosopher in the Western tradition has left a more fascinating—or more puzzling—trail of anecdote behind him than the Frenchman René Descartes. Like Wittgenstein’s philosophy, Descartes’s began from curious experiences; but in his case the provocation was—or was remembered as—nothing so banal as a train ride.

Early in his life, Descartes became a soldier, serving two years in the Dutch army, before joining the Bavarian service. He writes that in the late fall of 1619, while stationed in the German city of Ulm, he

“was detained by the onset of winter in quarters where, having neither conversation to divert me nor, fortunately, cares or passions to trouble me, I was completely free to consider my own thoughts.” He refused all company, went on solitary walks, and dedicated himself to an exhausting search for . . . he did not quite know what. Suddenly he stumbled on what he called “the foundations of a marvellous science.” After an almost mystical experience of deep joy, Descartes fell asleep, in his close, stove-heated room. He then dreamed, three times.

In the first dream, terrible phantoms surrounded him. His efforts to fight them off were hindered by a weakness in his right side, which made him stagger in a way that struck him as terribly humiliating. Trying to reach a chapel that belonged to a college, he found himself pinned to the wall by the wind—only to be addressed by someone who called him by name, promising that one “M.N.” would give him something (which Descartes took to be a melon from another country). The wind died, and he awoke with a pain in his left side. Turning over, he reflected for some time, slept again, and dreamed of a clap of thunder. Waking, he saw that his room was full of sparks. In the third dream, finally, he found two books, which he discussed with a stranger. The second book, a collection of poems, included one about the choice of a form of life—as well as some copperplate portraits, which seemed familiar.

Waking again and reflecting, Descartes decided that these dreams had been divinely sent. He connected them, both at the time and later, with the discovery of the new method that would ultimately enable him to rebuild philosophy from its foundations. Paradoxically, Descartes, the pre-eminent modern rationalist, took dreams as the basis for his confidence in his new philosophy—a philosophy that supposedly did more than any other to deanimate the world, to convince intellectuals that they lived in a world uninhabited by occult forces, among animals and plants unequipped with souls, where the only ground of certainty lay in the thinking self.

Like Wittgenstein, Descartes enjoys a

tribute that modern philosophers rarely offer their predecessors. He is still taken seriously enough to be attacked. Courses in the history of philosophy regularly skip hundreds of years. They ignore whole periods—such as the Renaissance—and genres—such as moral philosophy, since these lack the qualities of rigor, austerity, and explanatory power that win a text or thinker a starring position in the modern philosophical heavens. But Descartes continues to play a major role. In histories of philosophy, he marks the beginning of modernity and seriousness; he is, in fact, the earliest philosopher after ancient times to enjoy canonical status. Students of Descartes can rejoice in the existence of an excellent *Cambridge Companion to Descartes*, edited by John Cottingham, two helpful Descartes dictionaries, and even a brief and breezy *Descartes in Ninety Minutes*—as well as in a jungle of monographs and articles on Descartes's epistemology and ethics, physics and metaphysics, through which only the specialist can find a path. (One standard anthology of modern responses to Descartes's work extends to four thick volumes.) Descartes still provokes.

In a sense, moreover, he provokes more now than he did 20 years ago. In the last generation, developments in a wide range of disciplines—computer and software design, primate research, neurology, psychology—have made the question of how to define human consciousness more urgent, perhaps, than it has ever been. What would show that the computer or an ape thinks as humans do? Can one prove that the measurable physiological phenomena that accompany mental states should be identified with them? How can physical events cause mental ones, and vice versa? And who should settle such questions: philosophers, or scientists, or both in collaboration?

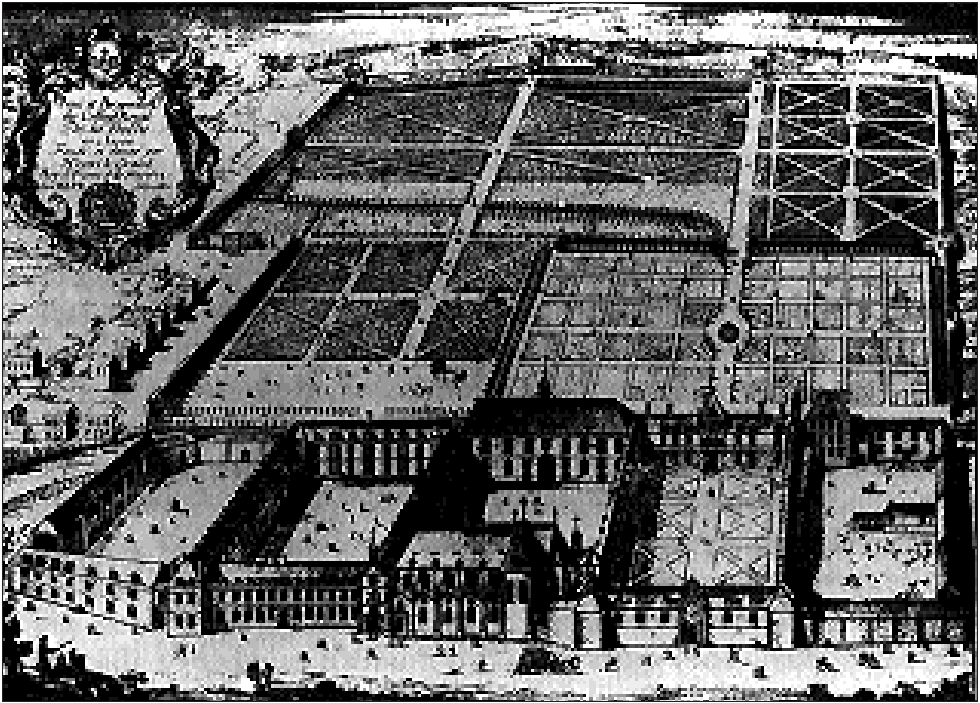
New interdisciplinary programs for the study of consciousness or artificial intelligence provide forums for the debate—which remains fierce—on these and other

issues. And the debates are, if anything, becoming fiercer. Successes in solving particular problems—such as the creation of a machine genuinely able to play chess, rather than the man disguised as a machine unmasked by Poe—excite some of the specialists responsible for them to declare victory: if a computer has a mind, then the mind is a computer. Stalwart opponents swat these optimists with rolled-up newspapers, insisting that vast areas of mental and emotional experience—like the pain caused by the rolled-up newspaper—undeniably exist and matter even though they have no counterpart in computer models. From whatever side they come, a great many of the contributions to these debates start with a reference to, or amount to, a sustained attack on Descartes.

It is not hard to explain why this Frenchman, who has been dead for three and a half centuries, still seems modern enough to interest and irritate philosophers who otherwise feel contempt for most of their predecessors. He felt and wrote exactly the same way about his own predecessors.

Descartes, as is well known, began his career as a philosopher in a state of radical discontent with the resources of the intellectual disciplines. He described this state with unforgettable clarity, moreover, in the autobiography with which he began his most famous text, his *Discourse on the Method* (1637). Born in 1596, Descartes lost his mother as a baby and saw little of his father, a councilor in the *parlement* of Brittany at Rennes. For almost a decade, beginning around the age of 10, he attended the Jesuit college of La Flèche at Anjou. Here, he recalled, he made a comprehensive study of classical literature and science. He read—and wrote—much fine Latin, debated in public, learned how to produce an *explication du texte*. He knew all the clichés that humanists used to defend the classical curriculum, and he recited them with palpable irony: “I knew . . . that the charm of

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La Flèche, the Jesuit school in Anjou that Descartes attended for almost 10 years, beginning at age 10.

fables awakens the mind, while memorable deeds told in histories uplift it and help to shape one's judgment if they are read with discretion; that reading good books is like having a conversation with the most distinguished men of past ages."

But all this contact with traditional high culture left Descartes unconvinced. Knowledge of literary traditions and past events might give a young man a certain cosmopolitan gloss, but it could not yield profound and practical knowledge: "For conversing with those of past centuries is much the same as travelling. It is good to know something of the customs of various peoples, so that we may judge our own more soundly and not think that everything contrary to our own ways is ridiculous and irrational, as those who have seen nothing of the world ordinarily do. But one who spends too much time travelling eventually becomes a stranger in his own country; and one who is too curious about the practices of past ages usually remains quite ignorant about those of the present."

The humanists of the Renaissance had praised the Greeks and Romans, who did not waste time trying to define the good but made their readers wish to pursue it with their powerful rhetorical appeal. Descartes

recognized fluff when he heard it: "I compared the moral writings of the ancient pagans to very proud and magnificent palaces built only on mud and sand. They extol the virtues, and made them appear more estimable than anything else in the world; but they do not adequately explain how to recognize a virtue, and often what they call by this fine name is nothing but a case of callousness, or vanity, or desperation, or parricide." So much for the soft, irrelevant humanities—still a popular view in American and English philosophy departments. Descartes, in other words, was the first, though hardly the last, philosopher to treat his discipline as if it should have the austere rigor of a natural science.

Even the study of mathematics and systematic philosophy, however—at least as Descartes encountered them in his college—had proved unrewarding. The mathematicians had missed "the real use" of their own subject, failing to see that it could be of service outside "the mechanical arts." And the philosophers had created only arguments without end: "[philosophy] has been cultivated for many centuries by the most excellent minds, and yet there is still no point in it which is not dis-

Descartes insisted that most of philosophy's traditional tools had no function.

puted and hence doubtful." All previous thinkers, all earlier systems, seemed to Descartes merely confused.

He thought he knew the reason, too. All earlier thinkers had set out to carry on a tradition. They had taken over from their predecessors ideas, terms, and theories, which they tried to fit together, along with some new thoughts of their own, into new structures. Predictably, their results were incoherent: not lucid Renaissance palaces, in which all surface forms manifested the regular and logical structures underneath them, but messy Gothic pastiches of strange shapes and colors randomly assembled over the centuries. Such theories, "made up and put together bit by bit from the opinions of many different people," could never match the coherence of "the simple reasoning which a man of good sense naturally makes concerning whatever he comes across."

Descartes's "marvellous science" would be, by contrast, all his own work, and it would have the "perfection," as well as the explanatory power, that more traditional philosophies lacked. To revolutionize philosophy, accordingly, Descartes "entirely abandoned the study of letters." He ceased to read the work of others, turned his attention inward, and created an entire philosophical system—and indeed an entire universe—of his own. He hoped that this would make up in clarity and coherence for what it might lack in richness of content. And the first publication of his theories, in the form of the *Discourse* and a group of related texts, made him a controversial celebrity in the world of European thought.

As Wittgenstein, 300 years later, cleared the decks of philosophy by insisting that most of its traditional problems had no meaning, so Descartes insisted that most of philosophy's traditional tools had no function. Like Wittgenstein, he became the idol of dozens of young philosophers, who practiced the opposite of what he preached by taking over bits of his system and combining them with ideas

of their own. Unlike Wittgenstein, however, he also became the object of bitter, sometimes vicious criticism, from both Protestant and Catholic thinkers who resented the threat he posed to theological orthodoxy or simply to the established curriculum. No wonder that he, unlike his opponents, remains a hero in the age that has none. What characterizes modernity—so more than one philosopher has argued—is its state of perpetual revolution, its continual effort to produce radically new ideas and institutions. Modern heroes—from Reformation theologians such as Martin Luther to political radicals such as Karl Marx—established their position by insisting that traditional social and intellectual structures that looked as solid and heavy as the Albert Memorial would dissolve and float away when seen from a new and critical point of view. The Descartes who wrote the *Discourse* belongs to this same line of intellectual rebels, and in this sense he is deservedly regarded as the first modern philosopher.

Again like Wittgenstein, Descartes refused to take part in normal or in academic high society. Though he devoted a period at the University of Poitiers to study of the law, he made little effort to follow a career as a lawyer—a path chosen by many intellectuals at the time. Though admired by patrons and intellectuals in France and elsewhere, he took little interest in court or city. He did not spend much time in Paris, where in his lifetime the classic French literary canon was being defined on stage and in the Academy and where the fashionable gossiped brilliantly about literature, history, and sex.

Descartes, who contributed so much to the development of that classic French virtue, clarity, kept aloof from his colleagues in the creation of the modern French language. He lived most contentedly in Holland, sometimes in towns such as Leiden and Deventer but often in the deep country, where he had at most one or two partners in conversation—one was a cobbler with a gift for mathematics—and led an existence undisturbed by great excitements. He only

once showed great sorrow, when his illegitimate daughter Francine, who was borne by a serving maid named H el ene in 1635, died as a young child. And he only once departed from his accustomed ways: when he moved to the court of that eager, imperious student of ideas, texts, and religions, Queen Christina of Sweden. There he became mortally ill when she made him rise at four in the frozen northern dawn to give her philosophy lessons. He died at the age of 53, a martyr to intellectual curiosity, in February 1650.

Descartes’s “marvellous science” portrayed a whole new universe: one that consisted not, like that of traditional philosophy, of bodies animated by a number of souls intimately connected to them, and related to one another by occult influences, but of hard matter in predictable motion. He cast his ideas not in the traditional form of commentary on ancient texts and ideas, but in the radically antitraditionalist one of systematic treatises that did not cite authorities—other than that of Descartes’s own ability to reason. He said that he saw no point in weaving together chains of syllogisms, as the Scholastics of the Middle Ages had, in the vain hope that major and minor premises of unclear validity, drawn at random from old texts and swarming with unexamined assumptions, could somehow yield new and important conclusions. He did not try to protect his weaker arguments from attack by covering them with a thick, brittle armor plating of quotations from ancient and modern sources in the manner of the Renaissance humanists, who saw philology as the mainstay of philosophy.

Descartes, instead, claimed that he could build entirely on his own something new, coherent, and symmetrical. He liked to compare his work to that of the great town planners of his time, who saw the ideal city as a lucid walled polyhedron surrounding a central square, rather than an irregular, picturesque embodiment of centuries of time and change. The “crooked and irregular” streets and varied heights of the buildings in old cities suggested that “it is chance, rather than the will of men using reason, that placed them so,” he said. Coherence, uniformity, symmetry attract-

ed him: the Paris of the Place des Vosges rather than the palaces and alleys of the older parts of the city.

Descartes saw mathematics as the model for the new form of intellectual architecture he hoped to create. For he himself, as he discovered later than stereotypes would lead one to expect, was a very gifted mathematician, one of the creators of modern algebra and the inventor of analytical geometry. Like a mathematician, he tried to begin from absolutely hard premises: ideas so “clear and distinct” that he could not even begin to deny them. In these, and only in these, he found a place to stand. Descartes could imagine away the physical world, the value of the classics, and much else. But he could not deny, while thinking, the existence of his thinking self. *Cogito, ergo sum.*

From this narrow foothold he began to climb. He proved the existence of God in a way that he himself found deeply satisfactory though many others did not: the idea of God includes every perfection, and it is more perfect to exist than not to exist. Hence God must exist—and be the source of the innate faculties and ideas that all humans possess. He worked out the sort of universe that God would have to create. And he devised, over the course of time, a system that embraced everything from the nature of the planets to that of the human mind, from the solution of technical problems in mathematics to the circulation of the blood.

Wherever possible, precise quantitative models showed how Cartesian nature would work in detail: he not only devised laws for the refraction and reflection of light, for example, but also designed a lens-grinding machine that would apply them (and prove their validity). Parts of his system clanked and sputtered. His elaborate cosmology—which interpreted planetary systems as whirlpools, or vortices, of matter in motion—was technically outdated before it appeared. It could not account for the mathematical details of planetary motion established by Tycho Brahe and Johannes Kepler. Nonetheless, the rigor and coherence of his system inspired natural philosophers on the

Continent for a century and more after his death.

The reception of Descartes's philosophy was anything but easy or straightforward. At the outset of his career as a published writer, in the *Discourse on the Method*, he invited those who had objections to his work to communicate them to him for reply. He circulated his *Meditations* for comment before he published them in 1641, and printed them along with systematic objections and his own replies. Thomas Hobbes, Marin Mersenne, Pierre Gassendi, and others now known only to specialists pushed him to define his terms and defend his arguments. At the same time, his thought became controversial in wider circles. Descartes long feared this outcome. Both a good Copernican and a good Catholic, he was appalled by the condemnation of Galileo in 1633. This led him both to delay publication of his treatise *The World* and to try to devise a metaphysics that would prove his natural philosophy legitimate.

But once his work reached print, Descartes could not avoid controversy. In 1639, his supporters in the faculty of the University of Utrecht began to praise his new philosophy, holding public debates about his theories. The influential theologian Gisbert Voetius defended traditional theology, not only against Cartesianism but against Descartes, whose beliefs and morality Voetius attacked. Descartes found himself forced to defend himself in a series of pamphlets. He lost some sympathizers—such as the scholar Anna Maria van Schurmann, one of a number of women with whom he discussed theological or philosophical issues.

In the 1640s, Descartes's political and legal situation became extremely serious, and his life in the Netherlands increasingly exhausting and disturbing. Nor did he always agree with those who considered themselves his followers. Ironically, if inevitably, Descartes's philosophy mutated

into Cartesianism—one more of the philosophical schools whose competing claims had driven the young Descartes to try something completely different. Some academic Cartesians—as Theo Verbeek and others have shown—even used his philosophy along with others in a deliberately eclectic way their master would have condemned.

Nonetheless, until recent years philosophers generally thought they had a clear idea both of what Descartes meant to do and about why he framed his enterprise as he did. The question of consciousness, of the nature of the mind and

*The drawing from
Treatise of Man (1662)
illustrates Descartes's
theory of how nerves
transmit sensations to
“animal spirits” in
the brain.*

its relation to the body, provides a good example of how Descartes has generally been read. Earlier philosophers, drawing on and adding to a tradition that went back to Aristotle, explained life and consciousness in a way that varied endlessly in detail but not in substance. A whole series of souls, hierarchically ordered, each of them equipped with particular faculties, accounted for organic life in plants, movement in animals, and consciousness in humans. The number and quality of faculties possessed by each being corresponded to its position in the hierarchical chain of being, which determined the number and kinds of souls that being possessed. And the well-established nature and location of these faculties in the body could be used to show how body and soul were intimately and intricately connected. It made perfectly good sense to assume—as the astrol-

ogers, then almost as fashionable as now, regularly did—that celestial influences, acting on the four humors in the body, could affect the mind. No one could establish an easy, clear division between mind and body, man and nature.

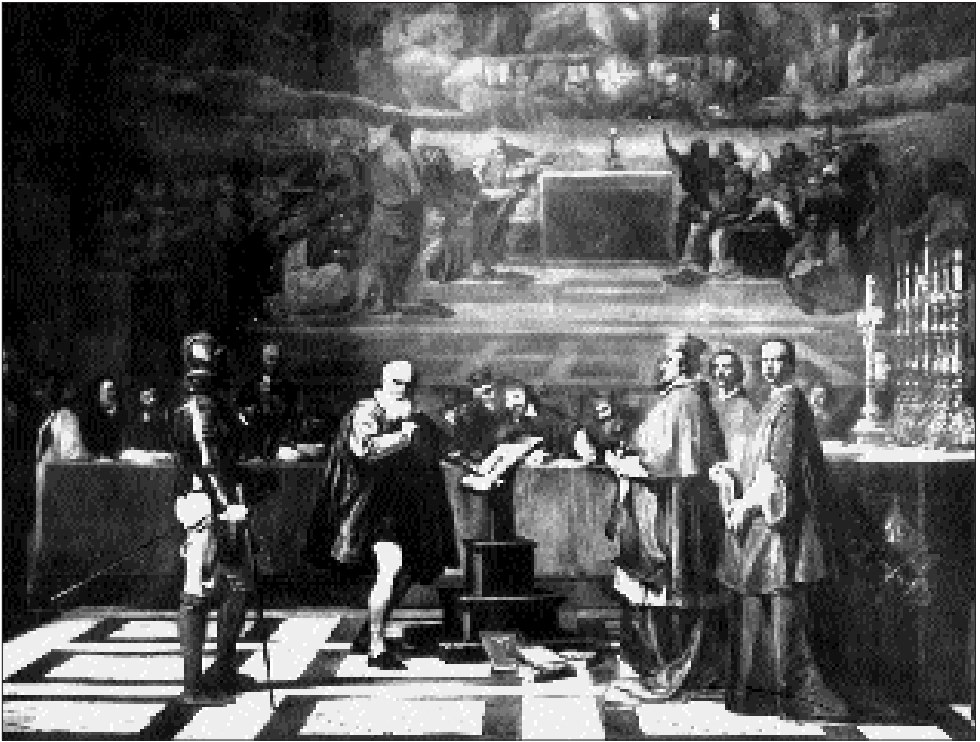
Descartes, by contrast, drew a sharp line, here as elsewhere, both between his views and traditional ones and between physical and mental processes. He proved, as he insisted he could, that mind and body were in fact separate. Descartes could imagine that he had no body at all, but he could not imagine that he, the one imagining, did not exist. The mind, in other words, was fundamentally different from the body. Bodies had as their defining properties hardness and extension. Their other attributes—such as color and texture—were merely superficial, as one could see, for example, by melting a lump of wax. The material world, accordingly, could be measured, divided, cut. The mind, by contrast, was clearly indivisible; when conscious, one always had access to all of it. Descartes divided human beings, accordingly, into two components: a material, extended body, mobile and mortal, and an immaterial, thinking soul, located somewhere within the body but at least potentially immortal. He redefined the struggles between different souls which Saint Augustine had so influentially described in his *Confessions* and of which others regularly spoke as struggles between the body and the soul. These took place, Descartes argued, in a particular organ: the pineal gland, within the brain, the one point where soul and body interacted. He held that animals could not have minds, at least in the sense that human beings do. And the firm distinction he made between the physical plane that humans share with other beings and the mental operations that attest to their existence on more than a physical plane continues to irritate philosophers—just as his sharp distinction between the real world of solid matter in motion and the qualitative, unreal world of perception and passion once enraged T. S. Eliot and

Basil Willey, who held him guilty of causing the 17th century’s “dissociation of sensibility.”

Descartes’s position in the history of thought has seemed, in recent years, as easily defined as his innovative contributions to it. By the time he was born, in 1596, intellectual norms that had existed for centuries, even millennia, were being called into question. The discovery of the New World had challenged traditional respect for the cosmology and philosophy of the ancients. The Protestant Reformation had destroyed the unity of Christendom, offering radically new ways of reading the Bible. The Scholastic philosophers who dominated the faculties of theology in the traditional universities, though all of them worked within a common, basically Aristotelian idiom, had come into conflict with one another on many fundamental points, and some humanists claimed that their vast Gothic structures of argument rested on misunderstandings of the Bible and Aristotle.

Some thinkers looked desperately for moorings in this intellectual storm. Justus Lipsius, for example, a very influential scholar and philosopher who taught at both Calvinist Leiden and Catholic Louvain, tried to show that ancient Stoicism, with its firm code of duties, could provide an adequate philosophy for the modern aristocrat and military officer. Others began to think that there were no moorings to be found—and even to accept that fact as welcome, since it undermined the dogmatic pretensions that led to religious revolutions and persecutions. The philosophy of the ancient Sceptics, in particular, offered tools to anyone who wished to deny that philosophers could attain the truth about man, the natural world, or anything else.

Skepticism, as Richard Popkin and Charles Schmitt have shown, interested a few intellectuals in the 15th century, such as Lorenzo Valla. But it first attracted widespread interest during the Reformation. Erasmus, for example, drew on skeptical arguments to show that Luther was wrongly splitting the Catholic Church on issues about which humans could never attain certainty. The major ancient skeptical texts,



After Galileo appeared before the Inquisition and was condemned in 1633, Descartes feared the Church would find fault with his own work.

the works of Sextus Empiricus, appeared in Latin translation late in the 16th century—just as the Wars of Religion between French Calvinists and Catholics were reaching their hottest point. Michel de Montaigne, the great essayist whom Descartes eagerly read and tacitly cited, drew heavily on Greek Skepticism when he mounted his attacks on intellectual intolerance. To some—especially the so-called Politiques, such as Montaigne, who was not only a writer but one of the statesmen who negotiated religious peace in France at the end of the 16th century—Skepticism came as a deeply desirable solution to religious crisis. To others, however—especially to Catholic and Protestant philosophers who still felt the need to show that their religious doctrines not only rested on biblical authority but also corresponded to the best possible human reasoning—Skepticism came as a threat to all intellectual certainties, including the necessary ones.

Descartes tried on principle to doubt everything he knew. (He called his method, eloquently, one of “hyperbolic doubt”.) But he found, as we have seen, that there were

some things even he could not doubt, and many others found his arguments convincing. Accordingly, Descartes appears in many histories of philosophy above all as one of those who resolved a skeptical crisis by providing a new basis for physics, metaphysics, and morality. Similarly, he appears in many histories of science, alongside Francis Bacon, as one of those who created a whole new method for studying the natural world.

For the last 20 years or so, however, this view of Descartes’s place in the history of thought has begun to undergo scrutiny and criticism. Not only students of consciousness but historians of philosophy and science have begun to raise questions about Descartes’s isolation in his own intellectual world. For all his insistence on the novelty of his views and the necessity for a serious thinker to work alone, he always looked for partners in discussion.

And this was only natural. “Even the most radical innovator,” write the historians of philosophy Roger Ariew and Marjorie Grene, “has roots; even the most

outrageous new beginner belongs to an intellectual community in which opponents have to be refuted and friends won over.” Descartes, moreover, not only belonged to a community, as he himself acknowledged; he also drew, as he usually did not like to admit, from a variety of intellectual traditions.

For example, Stephen Gaukroger, whose intricately detailed new intellectual biography of Descartes elegantly balances close analysis of texts with a rich recreation of context, finds an ancient source for Descartes’s apparently novel notion that certain “clear and distinct” ideas compel assent. The core of the Jesuit curriculum Descartes mastered so well was formed by rhetoric, the ancient art of persuasive speech. Quintilian, the Roman author of the most systematic ancient manual of the subject, analyzed extensively the ways in which an orator could “engage the emotions of the audience.” To do so, he argued, the orator must “*exhibit* rather than *display* his proofs.” He must produce a mental image so vivid and palpable that his hearers cannot deny it: a clear and distinct idea.

Gaukroger admits that Roman orators saw themselves first and foremost as producing such conviction in others, while Descartes saw his first duty as convincing himself. But Gaukroger elegantly points out that classical rhetoric, for all its concern with public utterance, also embodied something like Descartes’s concern with the private, with “self-conviction.” The orator, as Quintilian clearly said, had to convince himself in order to convince others: “The first essential is that those feelings should prevail with us that we wish to prevail with the judge.”

Descartes’s doctrine of clear and distinct ideas is usually described as radically new. It turns out, on inspection, to be a diabolically clever adaptation to new ends of the rhetorical five-finger exercises the philosopher had first mastered as a schoolboy. Gaukroger’s negative findings are equally intriguing: he interprets Descartes’s famous dreams as evidence not of a breakthrough but of a breakdown, and he argues forcefully that Skepticism played virtually no role in Descartes’s original formulation of his method and its consequences.

Several other studies have revealed similarly creative uses of tradition in many pockets of Descartes’s philosophy. As John Cottingham has shown, Descartes more than once found himself compelled to use traditional philosophical terminology—with all the problematic assumptions it embodied. Despite his dislike of tradition, he also disliked being suspected of radicalism, and claimed at times not to offer a new theory but to revive a long-forgotten ancient one—for example, the “*vera mathesis*” (“true mathematical science”) of the ancient mathematicians Pappus and Diophantus. No one denies the substantial novelty of Descartes’s intellectual program; but students of his work, like recent students of Wittgenstein, show themselves ever more concerned to trace the complex relations between radicalism and tradition, text and context.

Descartes’s dreams—and his autobiographical use of them—play a special role in this revisionist enterprise. His earliest substantial work, composed in the late 1620s but left unfinished, takes the form of *Rules for the Direction of the Mind*; his great philosophical text of 1641 bears the title *Meditations*. In structure as well as substance, both works unmistakably point backward to his formation in a Jesuit college. There he had not only to study the classics and some modern science but to “make” the *Spiritual Exercises* laid down for Jesuits and their pupils by the founder of the Jesuit order, Ignatius Loyola. These consisted of a set of systematic, graded exercises in contemplation, visualization, and meditation. Students—and candidates for membership in the order—had to reconstruct as vividly as they could in their minds the Crucifixion, Hell, and other scenes that could produce profound emotional and spiritual effects in them. These exercises were intended to enable those who did them to discipline their minds and spirits, to identify and rid themselves of their besetting weaknesses, and finally to choose the vocation for which God intended them. Visions—and even mystical experiences—regularly formed a controlled part of the process, as they had for Ignatius himself. The similarity between these exercises in spiritual self-discipline

and Descartes's philosophical self-discipline is no coincidence. Here too Descartes transposed part of the education he thought he had rejected into the fabric of his philosophy.

In seeing visions as a form of divine communication—evidence of a special providence that singled recipients out as the possessors of a Mission—Descartes remained firmly within the Jesuit intellectual tradition. He was, in fact, far from the only product of a good Jesuit education to trace his own development in minute interpretative detail. Consider the case of his near contemporary Athanasius Kircher—another mathematically gifted young man, who studied in Jesuit schools in south Germany before becoming the central intellectual figure in baroque Rome. Kircher's interests were as varied as Descartes's were sharply defined: he spelunked in volcanoes, experimented with magnets, reconstructed the travel of Noah's Ark, and studied languages ranging from Coptic to Chinese, with varying degrees of success. But he defined the core of his enterprise with Cartesian precision, if in totally un-Cartesian terms, as an effort to decipher the ancient philosophy encoded in the hieroglyphic inscriptions on Egyptian obelisks. This effort attracted much criticism but also received generous papal support. Ultimately it inspired some of Bernini's most spectacular Roman works of sculpture and architecture, in the Piazza Navona and before the church of Santa Maria sopra Minerva.

Descartes would have found most of Kircher's project risible. Yet they had something vital in common. Kircher, like Descartes, tried to prove the rigor and providential inspiration of his work by writing an autobiography. Kircher's dreams and

visions played as large a role in this work as his colorful and sometimes terrifying experiences. Like Descartes, he saw his unconscious experiences as evidence that God had set him on earth to carry out a particular plan. His accidental encounter with a book in which Egyptian hieroglyphs were reproduced and discussed exemplified—he thought in retrospect—the sort of special providences by which God had led him in the right direction. Evidently, then, Cartesian autobiography was actually Jesuit autobiography. Brilliant style, concision, and lucidity set off the beginning of the *Discourse on the Method* from Kircher's Latin treatise. But the enterprises were basically as similar as the larger enterprises they were meant to serve were different. And Descartes's dreams not only make a nice



story to adorn the beginning of a lecture but actually shed light on the origins of his central intellectual enterprise.

In effect, then, Descartes has come back to new life in recent years—in two radically different ways. The Descartes who appears in so many studies of the philosophy and physiology of mind—the radical innovator, owing nothing to his predecessors, who devised the brutally simple theory about “the ghost in the machine”—seems hard to reconcile with the Descartes now being reconstructed by historians: the complex, reflective figure, whose relation to tradition took many different forms, and whose system embodied foreign elements even he did not recognize as such. Gaukroger's book marks a first and very rewarding effort to bring the two Descartes together. But the task will be a long one. It may prove impossible to fit Descartes the dreamer into traditional genealogies of modern thought—or to establish a simple relation between his theories of intelligence and current ones. Descartes lives, a troubling ghost in the machine of modern philosophy.