

ing else exists, have been cre-
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 ould compare myself with the
 o clear and distinct that I am
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 : come from that potentiality,
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 criticism of these attempts

From his own existence Descartes has proved God's existence. Along the way he has also established the criterion of truth and provided thereby the foundation for mathematical thought and for all rational activity. Now, Descartes takes another look at the physical world, at his own body, and other things, and asks whether he can be certain that they exist. To be a thinking thing does not of itself prove that my body exists, for my thinking self "is entirely and absolutely distinct from my body and can exist without it." How, then, can I know that my body and other physical things exist?

Descartes answers that we all have the clear and distinct experiences of changing our position and moving about, activities that imply a body, or what he calls "an extended substance." We also receive sense impressions—of sight, sound, and touch—frequently even against our will, and these lead us to believe that they come from bodies other than our own. This overwhelming inclination to believe that these impressions "are conveyed to me by physical objects" must come from God; otherwise, he could not "be defended from the accusation of deceit if these ideas were produced by causes other than physical objects. Hence we must allow that physical objects exist." For Descartes, then, knowledge of the self is prior to knowledge of God, and both the self and God are prior to our knowledge of the external world.

Mind and Body

Descartes has now reversed all his doubts and has satisfied himself absolutely that the self, things, and God exist. He has concluded that there are thinking things and things that are extended, that have dimension. Since a person has both a mind and a body, Descartes is left with the problem of determining how body and mind are related. The whole drift of his thought is in the direction of *dualism*—the notion that there are two different kinds of substances in nature. We know a substance by its attribute, and since we clearly and distinctly know two quite different attributes—namely, *thought* and *extension*—there must be two different substances, the spiritual and the physical, mind and body. Because Descartes defines a *substance* as "an existent thing which requires nothing but itself to exist," he considers each substance as thoroughly independent of the other. To know something about the mind, therefore, we need make no reference to the body, and similarly, the body can be thoroughly understood without any reference to the mind. One of the consequences of this dualism was that Descartes hereby separated theology and science and assumed that there need be no conflict between them. Science would study physical nature in isolation of any other discipline, since material substance possessed its own sphere of operation and could be understood in terms of its own laws.

If thought and extension are so distinct and separate, how can we account for living things? Descartes reasoned that because living bodies partake of extension, they are part of the material world. Consequently, living bodies operate according to the same mechanical and mathematical laws that govern other things in the material order. Speaking, for example, of animals, Descartes

considered them to be automata, saying that "the greatest of all prejudices we have retained from infancy is that of believing that brutes think." We assume animals think, he says, only because we see them act as humans do on occasion, as when dogs do acrobatic tricks. Because humans have two principles of motion, one physical and the other mental, we assume that when animals perform humanlike acts, their physical movements are caused by their mental faculties. But Descartes saw no reason for attributing mental abilities to animals, because all of their motions, or actions, can be accounted for by mechanical considerations alone. For it is "nature which acts in them according to the disposition of their organs, just as a clock, which is only composed of wheels and weights." Thus, animals are machines or automata. But what about human beings?

Many activities of the human body, said Descartes, are as mechanical as those of animals. Such physical acts as respiration, circulation of the blood, and digestion are automatic. The workings of the human body could be reduced, he thought, to physics. Every physical event can be adequately accounted for by a consideration of mechanical or "efficient causes," as Aristotle called them; there is no need to consider a "final cause" when describing the physical processes of the body. Moreover, Descartes believed that the total quantity of motion in the universe is constant. This led him to conclude that the movements of the human body could not *originate* in the human mind or soul; the soul, he said, could only affect or alter the direction of the motion in certain elements and parts of the body. Just how the mind could do this was difficult to explain precisely, because thought and extension—mind and body—were for Descartes such different and separate substances. He argued that the soul does not move the various parts of the body directly. Instead, having "its principal seat in the brain," in the pineal gland, comes first of all in contact with the "vital spirits," and through these the soul interacts with the body. Clearly, Descartes tried to give the human body a mechanical explanation and at the same time preserve the possibility of the soul's influence on human behavior through the activity of the will. Humans, therefore, unlike animals, are capable of several kinds of activities. We can engage in pure thought, our minds can be influenced by physical sensations and perceptions, our bodies can be directed by our minds, and our bodies are moved by purely mechanical forces.

But Descartes's strict dualism made it difficult for him to describe how the mind and body could interact with each other. If each substance is completely independent, the mind must dwell in the body as a pearl in an oyster or, to use his own metaphor, as a pilot in a ship. Scholastic philosophy had described humans as a unity, in which mind is the form and body is the matter, and said that without one there could not be the other. Hobbes had reduced mind to bodies in motion and achieved human unity in that way. But Descartes aggravated the separation of mind and body by his novel definition of "thinking." For he included in the act of thinking some experiences that had traditionally been referred to the body, namely, the whole sphere of sense perceptions—for example, "feeling." When Descartes defines "what I am" as "a thing which thinks," he makes no mention of the body, for everything essential to him is included in "thinking." A thinking thing "is a thing which doubts, understands, affirms,

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denies, wills, refuses, and which also imagines and *feels*." Presumably, the self could feel heat without a body. But here Descartes cannot, apparently, fully accept his own dualism. He admits that "nature also teaches me by these sensations of pain, hunger, thirst, etc., that I am not lodged in my body as a pilot in a vessel, but that I am very closely united to it, and, so to speak, so intermingled with it that I seem to compose with it one whole." While he tried to locate the mind in the pineal gland, the technical problem of interaction remains. If there is interaction, there would have to be contact, and so mind would have to be extended. On this problem, his rules of method did not lead him to any clear and distinct conclusion.

SPINOZA

Spinoza's Life

Baruch Spinoza was among the greatest of Jewish philosophers. His originality of mind is suggested by his expulsion from the Synagogue of Amsterdam for his unorthodox views. His refusal to accept the chair of philosophy at Heidelberg was further evidence of his desire to preserve his freedom to pursue his ideas wherever the search for truth might lead him. Though he was content to live in simplicity, to earn a modest living grinding lenses, his fame as a thinker spread abroad and inspired both admiration and condemnation. Spinoza was born in Amsterdam in 1632 in a family of Portuguese Jews who had fled from persecution in Spain. He was trained in the study of the Old Testament and the Talmud and was familiar with the writings of the Jewish philosopher Maimonides. Forced to leave Amsterdam, in 1663 he went to The Hague, where he carried on his literary career, of which his *Ethics* is the crowning work. In 1677, at the age of 45, he died of consumption.

Spinoza was influenced by Descartes's rationalism, his method, and his choice of the major problems of philosophy. But their similarity of interest and even terminology does not mean that Spinoza was a follower of Descartes. At many points Spinoza brought something new to Continental rationalism, which Descartes had begun.

Spinoza's Method

In common with Descartes, Spinoza thought that we can achieve exact knowledge of reality by following the method of geometry. Descartes had worked out the basic form of this method for philosophy, starting with clear and distinct first principles and attempting from these to deduce the whole content of knowledge. What Spinoza added to Descartes's method was a highly systematic arrangement of principles and axioms. Whereas Descartes's method was simple, Spinoza set out almost literally to write a geometry of philosophy, that is, a complete set of axioms or theorems (about 250 altogether) that would explain the whole system of reality the way geometry explains the relations and movement of things. In geometry conclusions are demonstrated, and Spinoza