THE ENLIGHTENMENT: FOUNDATIONS OF MODERNISM IN 17TH AND 18TH CENTURY EUROPE

RENÉ DESCARTES AND BLAISE PASCAL

“Ideas Have Consequences” (R. M. Weaver)

“For as he thinketh in his heart, so is he”
Prov. 23:7a (KJV)
The Age of Enlightenment (also known as the Age of Reason or simply the Enlightenment) was an intellectual and philosophical movement that dominated the world of ideas in Europe during the 17th and 18th centuries.

The Enlightenment included a range of ideas centered on the:

- pursuit of happiness.
- sovereignty of reason.
- evidence of the senses as the primary sources of knowledge (empiricism).
- pursuit of scientific knowledge.
- rejection of traditional authority and religion.
The Age of Enlightenment was preceded by and closely associated with the Scientific Revolution.

Earlier philosopher-scientists whose work influenced the Enlightenment included Francis Bacon, Blaise Pascal, and René Descartes.

Some of the major figures of the Enlightenment included David Hume, Immanuel Kant, Gottfried Wilhelm Leibniz, John Locke, Montesquieu, Jean-Jacques Rousseau, Adam Smith, Hugo Grotius, Baruch Spinoza, and Voltaire.

Many of these worked in the major European universities.
• René Descartes' rationalist philosophy laid the foundation for enlightenment thinking.
• He attempted to construct the sciences and mathematics on a secure metaphysical foundation.
• He also developed what he called the *method of doubt*, which he applied to philosophic areas.
• The *method of doubt* lead to a dualistic doctrine of mind and matter.
• His skepticism was refined by John Locke's *Essay Concerning Human Understanding* (1690) and David Hume's writings in the 1740s.
Descartes was a *rationalist*, as well as a skeptic and a dualist.

In philosophy, rationalism is the view that regards reason as the chief source and test of knowledge, or any view appealing to reason as a source of knowledge or justification.

More formally, rationalism is defined as a methodology or a theory in which the criterion of the truth is not sensory but intellectual and deductive.

Descartes applied rationalist thinking to all branches of knowledge.
• Rene Descartes was a French philosopher, mathematician, and scientist who discovered analytical geometry, linking the previously separate fields of geometry and algebra.

• He spent a large portion of his working life in the Dutch Republic, initially serving the Dutch Army.

• One of the most notable intellectual figures of the Dutch Golden Age, Descartes is also widely regarded as one of the founders of modern philosophy.

• Descartes was also a devout Roman Catholic, who believed that faith could be supported by reason.
Descartes held that all existence consists in three distinct substances, each with its own essence:
- matter, possessing extension in three dimensions.
- mind, possessing self-conscious thought.
- God, possessing necessary existence.

Descartes’ philosophy introduced a dualism between mind and matter, or between mind and body.

Descartes clearly identified the mind with consciousness and self-awareness and distinguished this from the brain as the seat of intelligence.

Hence, he was the first to formulate the mind–body problem in the form in which it exists today.
• Applying an original system of methodical *doubt*, he dismissed apparent knowledge derived from authority and the senses.

• He set up a new system based on the intuition that, when he is thinking, he exists.

• His famous quote, “Cogito ergo sum,” or ”I think, therefore I am,” sums up his approach.

• Descartes’s metaphysics is rationalist, based on the postulation of innate ideas of mind, matter, and God.

• His physics and physiology, based on sensory experience, are mechanistic and empiricist.
During the period when he was developing analytical geometry, he also developed a universal method of deductive reasoning, based on mathematics, that is applicable to all the sciences:

1. accept nothing as true that is not self-evident.
2. divide problems into their simplest parts.
3. solve problems by proceeding from simple to complex.
4. recheck the reasoning.

In addition, Descartes insisted that all key notions and the limits of each problem must be clearly defined.
• Descartes worked in a time of religious upheaval in Europe.
• The Roman Catholic persecution of the French Huguenots (Protestants) in France was coming to a climax, with death or exile as the end of the Huguenots.
• Calvinist Protestants were opposed to Descartes, and he found it difficult to publish some of his writings because of them.
• The Jesuits also were opposed to Descartes’ philosophy.
• The Netherlands proved to be a place with relative freedom from religious persecution.
• Descartes also advanced at least two proofs for the existence of God.

• The final proof, presented in his *Fifth Meditation*, begins with the proposition that Descartes has an innate idea of God as a perfect being.

• It concludes that God necessarily exists, because, if he did not, he would not be perfect.

• This ontological argument for God’s existence, introduced by the medieval English logician St. Anselm of Canterbury (1033/34–1109), is at the heart of Descartes’s rationalism.
• Descartes’ philosophical method establishes certain knowledge about an existing thing solely on the basis of reasoning from innate ideas, with no help from sensory experience.

• Work in the sciences, however, required careful construction of experiments and collection of data, and conclusions about physical phenomena must rely on empiricism.

• Descartes held liberal views for his day.

• He advocated religious toleration for all, not just Christians, but for “the Turk” (non-Christians) as well.
• Later in life Descartes worked on the branches of mechanics, medicine, and morals.
• Mechanics is the basis of his physiology and medicine, which in turn is the basis of his moral psychology.
• Descartes believed that all material bodies, including the human body, are machines that operate by mechanical principles.
• He dissected animal bodies to show how their parts move.
• He argued that, because animals have no souls, they do not think or feel.
• He also described the circulation of the blood but came to the erroneous conclusion that heat in the heart expands the blood, causing its expulsion into the veins.

• Descartes argued further that human beings can be conditioned by experience to have specific emotional responses (behaviorism).

• Descartes believed, for example, he had been conditioned to be attracted to cross-eyed women because he had loved a cross-eyed playmate as a child.

• When he remembered this fact, however, he was able to rid himself of his passion. This insight is the basis of Descartes’s defense of free will and of the mind’s ability to control the body.
• Descartes’s morality is anti-Jansenist and anti-Calvinist in that he maintains that the grace that is necessary for salvation can be earned and that human beings are virtuous and able to achieve salvation when they do their best to find and act upon the truth.

• Jansenist Roman Catholics advocated for the necessity of grace for any good act, the infallible efficacy of grace, and the absolutely arbitrary character of predestination.

• Descartes’s optimism about the ability of human reason and will to find truth and reach salvation contrasts starkly with both Jansenist and Calvinist views.
• Descartes was accused of holding the view of Jacobus Arminius (1560–1609), the anti-Calvinist Dutch theologian, that salvation depends on free will and good works rather than on grace.

• Free will, according to Descartes, is the sign of God in human nature, and human beings can be praised or blamed according to their use of it.

• People are good, he believed, only to the extent that they act freely for the good of others; such generosity is the highest virtue.

• Descartes was *Epicurean* in his assertion that human passions are good in themselves.
• He was an extreme moral optimist in his belief that understanding of the good is automatically followed by a desire to do the good.
• Moreover, because passions are “willings” according to Descartes, to want something is the same as to will it.
• Descartes was also *Stoic*, however, in his admonition that, rather than change the world, human beings should control their passions.
• The last years of Descartes’s life were difficult.
• He went to Sweden to serve in the court of Queen Christina.
• Descartes said that in a Swedish winter, men’s thoughts freeze like the water.
• The harsh climate and conditions at the court were difficult for Descartes, whose health had always been fragile.
• While delivering legal statutes that he had written for the queen, at 5:00 AM on February 1, 1650, he caught a chill, and he soon developed pneumonia.
• He died in Stockholm on February 11, at the age of 53.
• One of the most important figures in Western European philosophy and the sciences had died quite young.
• Descartes’s papers came into the possession of Claude Clerselier, a pious French Catholic, who began the process of turning Descartes into “a saint” by cutting, adding to, and selectively publishing his letters.

• This cosmetic work culminated in 1691 in the massive biography by Father Adrien Baillet, who was at work on a 17-volume Lives of the Saints.

• Even during Descartes’s lifetime there were questions about whether he was a Catholic apologist, primarily concerned with supporting Christian doctrine, or an atheist.
• Some said he was concerned only with protecting himself with pious sentiments while establishing a deterministic, mechanistic, and materialistic physics.

• All the papers, letters, and manuscripts available to Clerselier and Baillet are now lost.

• In 1667 the Roman Catholic Church made its own decision by putting Descartes’s works on the *Index Librorum Prohibitorum* (Index of Prohibited Books) on the very day Descartes’s bones were ceremoniously placed in the church of Sainte-Geneviève-du-Mont in Paris.
During his lifetime, Protestant ministers in the Netherlands called Descartes a Jesuit and a papist—which is to say, an atheist.

He retorted that they were intolerant, ignorant bigots.

Up to about 1930, a majority of scholars, many of whom were religious, believed that Descartes’s major concerns were metaphysical and religious.

By the late 20th century, however, numerous commentators had come to believe that Descartes was a Catholic in the same way he was a Frenchman and a royalist—that is, by birth and by convention.
• Descartes himself said that good sense is destroyed when one thinks too much of God.
• He once told a German protégée, Anna Maria van Schurman (1607–78), who was known as a painter and a poet, that she was wasting her intellect studying Hebrew and theology.
• He also was perfectly aware of—though he tried to conceal—the atheistic potential of his materialist physics and physiology.
• To some, Descartes seemed indifferent to the emotional depths of religion.
A key aspect of Descartes’s legacy is the idea that the ground or starting point of truth comes from within man.

Instead of an emphasis on the Hebrew and Christian Scriptures (Bible) as the foundation of God’s revealed truth about God, man and the universe, Descartes relies on the mind of man.

The idea of “I think, therefore I am” is thus diametrically opposed to the “I AM” of God in the Scriptures.

While Descartes may not have taken his ideas to their logical conclusions, postmodern, post-Christian man has.
Blaise Pascal was a mathematician, physicist, inventor, philosopher, writer and Catholic theologian.

He laid the foundation for modern mathematical probability theory.

He formulated what came to be known as Pascal’s principle of pressure in fluid mechanics.

In religion, he proposed that one must experience God through the heart rather than through reason.

The establishment of his principle of intuitionism had an impact on such later French philosophers as Jean-Jacques Rousseau, Henri Bergson and the 20th century Existentialists.
• Pascal was born in eastern France, close to the Swiss border.
• He lost his mother, Antoinette Begon, at the age of three.
• His father, Étienne Pascal (1588–1651), who also had an interest in science and mathematics, was a local judge and member of the "Noblesse de Robe".
• Pascal had two sisters, the younger Jacqueline and the elder Gilberte.
• In 1631, when Pascal was eight years old, the family moved to Paris.
• Étienne, who was also respected as a mathematician, devoted himself henceforth to the education of his children.
• While his sister Jacqueline (born in 1625) became known as an infant prodigy in literary circles, Blaise proved himself no less precocious in mathematics.
• In 1640, at the age of 16, he wrote an essay on conic sections, *Essai pour les coniques*, based on his study of the now classical work of Girard Desargues on synthetic projective geometry.
• The young man’s work, which was highly successful in the world of mathematics, aroused the envy of no less a personage than the great French Rationalist and mathematician René Descartes.
Between 1642 and 1644, Pascal devised a machine, the Pascaline, to help his father - who in 1639 had been appointed the local tax administrator at Rouen - in his tax computations.

The machine was regarded by Pascal’s contemporaries as his main claim to fame, and with reason, for in a sense it was the first digital calculator since it operated by counting integers.

The significance of this contribution explains the youthful pride that appears in his dedication of the machine to the chancellor of France, Pierre Seguier, in 1644.
Pascal’s drawing of his mechanical calculator, the *Pascaline*. 
• Until 1646 the Pascal family held strictly Roman Catholic principles, although they might have been characterized as nominally religious.
• An illness of his father, however, brought Blaise into contact with a more profound expression of religion.
• He met two disciples of the Abbé de Saint-Cyran, who, as director of the Convent of Port-Royal, had brought the moral and theological concepts of Jansenism into the life and thought of the convent.
• Jansenism was a 17th-century form of Augustinianism in the Roman Catholic Church.
It repudiated free will, accepted predestination, and taught that divine grace, rather than good works, was the key to salvation.

Pascal himself was the first to feel the necessity of entirely turning away from the world to God, and he won his family over to the spiritual life in 1646.

His letters indicate that for several years he was his family’s spiritual adviser, but the conflict within himself, between the world and ascetic life, was not yet resolved.

Absorbed again in his scientific interests, he tested the theories of Galileo and Evangelista Torricelli (an Italian physicist who discovered the principle of the barometer).
To do so, he reproduced and amplified experiments on atmospheric pressure by constructing mercury barometers and measuring air pressure, both in Paris and on the top of a mountain overlooking Clermont-Ferrand. These tests paved the way for further studies in hydrodynamics and hydrostatics.
• While experimenting, Pascal invented the syringe and created the hydraulic press.

• He developed **Pascal’s principle**: pressure applied to a confined liquid is transmitted undiminished through the liquid in all directions regardless of the area to which the pressure is applied.

• His publications on the problem of the vacuum (1647–48) added to his reputation.

• He also studied and wrote on the equilibrium of liquid solutions, on the weight and density of air, on the arithmetic triangle and the calculus of probabilities.
• But for Pascal, being spiritual meant living a life apart from the world.
• He viewed his scientific and mathematical work and studies as “worldly.”
• Given the religious and social climate of his day, and the Catholic basis of his faith, it is not hard to see how Pascal would view science as completely unrelated to religion.
• The idea that he could pursue his scientific work “to the glory of God” was not something he could see.
• By the end of 1653, however, he had begun to feel religious scruples and he experienced a religious conversion.
• He described it as the “night of fire” that he experienced on November 23, 1654, and he believed it to be the beginning of a new life.

• He entered the Port-Royal convent in January 1655, and though he never became one of the solitaires (monks), he thereafter wrote only at their request and never again published in his own name.

• The two works for which he is chiefly known, Les Provinciales and the Pensées, date from the years of his life spent at the Port-Royal convent.
Pascal wrote eighteen letters dealing with divine grace and the ethical code of the Jesuits in defense of Antoine Arnauld, an opponent of the Jesuits and a defender of Jansenism.

Arnauld was on trial before the faculty of theology at the University of Paris for his controversial religious writings.

Pascal’s letters became known as “The Provincial Letters.”

They included a blow against the relaxed morality that the Jesuits were said to teach and that was the weak point in their controversy with the Convent of Port-Royal.
• Pascal freely quotes Jesuit dialogues and discrediting quotations from their own works, sometimes in a spirit of derision, sometimes with indignation.

• In the two last letters, dealing with the question of grace, Pascal proposed a conciliatory position that was later to make it possible for the Convent of Port-Royal to subscribe to the “Peace of the Church,” a temporary cessation of the conflict over Jansenism, in 1668.

• The Provinciales were an immediate success, and their popularity has remained undiminished.

• Pascal’s writing style was praised for its variety, brevity, tautness, and precision of style.
• As Nicolas Boileau, the founder of French literary criticism, recognized, they marked the beginning of modern French prose.

• Pascal’s letters show the passionate conviction of a man in love with the absolute.

• He saw no salvation apart from a heartfelt desire for the truth, together with a love of God that works continually toward destroying all self-love.

• For Pascal, morality cannot be separated from spirituality.

• After this, Pascal decided to write a Christian apologetical work that would further refine his thoughts.
• In this work, Pascal shows the man without grace to be an incomprehensible mixture of greatness and abjectness, incapable of truth or of reaching the supreme good to which his nature nevertheless aspires.
• A religion that accounts for these contradictions, which he believed philosophy and worldliness fail to do, is for that very reason “to be venerated and loved.”
• The indifference of the skeptic, Pascal wrote, is to be overcome by means of the “wager”: if God does not exist, the skeptic loses nothing by believing in him; but if he does exist, the skeptic gains eternal life by believing in him.
Pascal insists that men must be brought to God through Jesus Christ alone, because a creature could never know the infinite if Jesus had not descended to assume the proportions of man’s fallen state.

Later he composed the “prayer for conversion” that the English clergymen Charles and John Wesley, who founded the Methodist Church, were later to regard so highly.

Plagued by illness from 1659 to his death in 1662, Pascal gave himself over to helping the poor and remained cloistered, pursuing the ascetic and devotional life.