

Popkin, Richard. "Pascal, Blaise (1623-1662)." *Encyclopedia of Philosophy: Volume 7, 2nd Edition*. Ed. Donald M. Borchert. Detroit: Macmillan Reference USA, 2006: 129-135.

PASCAL, BLAISE

(1623–1662)

Blaise Pascal was a French mathematician, physicist, inventor, philosopher, and theologian. He was born in Clermont in Auvergne, the son of a minor noble who was a government official. Pascal's mother died in 1626. In 1631 the family moved to Paris but fled in 1638 because of the father's opposition to the fiscal regulations of Richelieu. The next year Pascal's younger sister, Jacqueline, successfully acted in a children's play performed for Richelieu and thus gained a pardon for her father, who then became the royal tax commissioner at Rouen.

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PHILOSOPHY OF MATHEMATICS AND SCIENCE

Pascal left unpublished his two most important philosophical works, the *Pensées* and *De l'esprit géométrique*. *De l'esprit géométrique* was first published in the eighteenth century. In it Pascal dealt with the problem of the method for discovering truths. The ideal method, he declared, would be one which defined all of the terms employed and demonstrated all propositions from already established truths, but this is impossible, because the basic terms to be defined presuppose others to explain their meaning, and the fundamental propositions to be proved presuppose still others. Thus, it is impossible to reach first terms and principles. Instead, we find primitive terms that admit of no further definitions that clarify them and principles that are so clear that nothing clearer can be found to aid in proving them. "From which it seems that men are naturally and unalterably powerless to deal with any science whatsoever in an absolutely perfected manner."

Given this state of affairs, geometrical procedure is the most perfect known to humankind—a balanced one in which those things that are clear and known to everyone are not defined and everything else is defined, and in which those propositions known by all are assumed and other propositions are derived from them. Pascal insisted that this did not mean either that human beings could know by natural means that the premises of geometry were really true or that the fundamental concepts were thoroughly understood. Rather, the geometrical method provided the greatest certitude attainable by use of our limited capacities. Essentially, it developed an axiomatic system in which, from primitive terms and axioms, a set of propositions could be logically derived. Such a set would be true if the axioms were true.

In the companion piece to *L'esprit géométrique*, *De l'art de persuader*, Pascal explained how we come to be convinced of first principles and of conclusions from them. Conclusions are explained via the geometrical method. The problem of first principles raises a basic point for Pascal's theory of knowledge that is developed in the *Pensées*. Our reason and understanding can only work out axiom systems. Because we cannot prove the first principles, we can always cast skeptical doubts upon their truths, no matter how certain they may appear to us at various times. We can overcome this constant tendency toward skepticism (which also occurs in scientific research, because we can never know the secrets of nature but only plausible and as yet

unrefuted hypotheses about the world) only by recognizing that principles are gained through instinct and revelation. This recognition requires admitting the importance of feelings and of submission to God in the quest for truth.

RELIGION

Pascal left the *Pensées* unfinished, with many notes of varying sizes pinned together. The first editors copied all the materials exactly as Pascal left them but published only those portions that they felt were completed, organizing them as they saw fit. Later editors assumed that the *Pensées* was a collection of fragments, left in a disordered state by their author, and that each editor could arrange the fragments as he wished. Victor Cousin in 1842 pointed out that only selections of the *Pensées*, often somewhat embellished by the various editors, existed in print, and he urged a definitive edition based on the manuscripts in the Bibliothèque Nationale. One of these, the *Recueil original*, consists of the fragments in Pascal's own handwriting, pasted on large sheets of paper. For the next century editors used this manuscript for varying presentations of the text. In the 1930s and 1940s Zacharie Tourneur and Louis Lafuma established that the *Recueil* was pasted together after Pascal's death and that another manuscript, a copy by one of Pascal's relatives, represented the actual state of the work as organized and partially completed by the author. This led to Lafuma's definitive edition in 1952, which radically changed the order of the fragments, finally presenting the development of the themes in the *Pensées* as Pascal had intended them to be read.

THE HUMAN CONDITION

In the Lafuma edition the initial sections, "Order," "Vanity," "Misery," "Boredom," and "Causes of Effects," all portray the human condition by showing humankind's ways of dealing with and reacting to the ordinary world. The sixth and seventh sections turn to the core of humankind's philosophical problem—how to find truth and happiness. If humans are miserable, vain creatures, unable by their own resources to find first truths from which to derive others, they have to realize that "we know truth not only by reason but more so by the heart. It is in this latter way that we know first principles, and it is in vain that reason, which plays no part in this, tries to combat them" (Lafuma 1952, p. 110; Brunschvicg, p. 292). The principles of geometry are known instinctively by the heart, and reason employs these principles to establish theorems. Both heart and reason yield results that are certain, but by different routes, and it would be ridiculous to require proofs of the heart's instincts and intuitions or intuitive knowledge of what is proved. The inability of reason to establish first principles serves to humiliate reason but not to undermine our certainty. The realization of the limitations of reason helps us, Pascal declared, to recognize our wretchedness, and the greatness of humankind is that people alone are capable of such a recognition.

The climax of this attempt to show the ultimate non-rational foundation of our knowledge of first principles comes in the next section, "Contradictions." In a famous passage on skepticism (131 and 434) Pascal began by pointing out that the strongest contention of the Pyrrhonists was that we have no assurance of the truth of any first principles apart from faith and revelation except that we feel them within us. This natural feeling is no convincing proof of their truth, because apart from faith we cannot tell whether humans were created by a good God, an evil demon, or by chance. The truth-value of the principles depends upon their source. Pascal then explored the

depths of complete skepticism and showed that if one had no assurance or any principles, one could be certain of nothing; but at the same time one could not even become a complete skeptic.

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The problem of knowledge thus becomes, for Pascal, a religious one. Only through submission to God and through acceptance of his revelation can we gain completely certain knowledge. The greatest achievements in science and mathematics rest on a fundamental uncertainty, because the basic principles employed, known through instinct and intuition, are open to question. Skeptical probing can only reveal the human predicament in its fullest and prepare us to submit and accept a religious foundation of knowledge.

The *Pensées* then proceeds to show how humans try to avoid recognizing their situation through diversion and philosophy. Philosophy can only lead us continually to skepticism, from which we are saved by our own intuitive knowledge of truth. We seek for happiness but cannot find it apart from religion. Pascal then tried to show in the famous wager argument (418 and 233) that it is not unreasonable to believe in God. God, he argued, is infinitely incomprehensible to us. But either God exists or he does not exist, and we are unable to tell which alternative is true. However, both our present lives and our possible future lives may well be greatly affected by the alternative we accept. Hence, Pascal contended, because eternal life and happiness is a possible result of one choice (if God does exist) and because nothing is lost if we are wrong about the other choice (if God does not exist and we choose to believe that he does), then the reasonable gamble, given what may be at stake, is to choose the theistic alternative. The person who remains an unbeliever is taking an infinitely unreasonable risk just because he or she does not know which alternative is true. Pascal's dialectic in his religious apologetics prods people to realize that there is not enough evidence to confirm the religious hypothesis and not enough to reject it. So, a person in his or her fallen state chooses on moral characters rather than philosophical ones.

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Pascal tried to show how belief can be achieved by curbing the passions, submitting to God, and using reason as a means of realizing that true religion is beyond reason and is known only through Jesus. We are suspended between two infinities, the infinitely small (the void) and the infinitely great (the Divine). Reason exposes our plight to us. Our desire for truth and happiness makes us see the futility of science, mathematics, and human philosophy as ways of finding the answers humans seeks.

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