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FRANCIS BACON

1561-1626

Though for years he was a leading English politician, and though he devoted the majority of his time and energy to furthering his political career, Francis Bacon has been included in this book solely because of his philosophical writings. In those writings, he was the herald of the new age of science: the first great philosopher to realize that science and technology could transform the world, and an effective advocate of scientific investigation.

Bacon was born in London, in 1561, the younger son of a high government official under Queen Elizabeth. When he was twelve years old, he entered Trinity College in Cambridge; however, after three years he left without receiving a degree. Starting at sixteen, he served for a while on the staff of the British ambassador in Paris. But when Bacon was only eighteen, his father died suddenly, leaving him with rather little money. He therefore studied law, and at age twenty-one he was admitted to the bar.

His political career started soon after that. When he was twenty-three, he was elected to the House of Commons. However, although he had highly-placed relatives and friends, and despite his obvious brilliance, Queen Elizabeth steadily refused to appoint him to any major or lucrative position. One reason for this was his courageous opposition in Parliament to a certain tax bill which the queen strongly supported. Since Bacon lived extravagantly and was constantly in debt (once he was actually arrested for debt), he could ill afford such independent behavior.

Bacon became a friend and advisor of the Earl of Essex, a popular and politically ambitious young aristocrat. In turn, Essex became a friend and generous benefactor of Bacon. However, when Essex's overweening ambition led him to plan a coup against Queen Elizabeth, Bacon warned him that he would put loyalty to his Queen first. Essex tried his coup anyway; it failed, and Bacon played an active role in the earl's prosecution for treason. Essex was beheaded, and the entire affair left many persons with adverse feelings toward Bacon.

Queen Elizabeth died in 1603, and Bacon became an adviser to her successor, King James I. Although James did not always take his advice, he did appreciate Bacon, and during James's reign, Bacon advanced steadily in the government. In 1607, Bacon became solicitor general; in 1613, he became attorney general; and in 1618, he was appointed Lord Chancellor of England, a position roughly equivalent in importance to that of the Chief Justice of the Supreme Court in the United States. That same year, he was appointed a baron; and, in 1621, he was appointed a viscount.

But then disaster struck. As a judge, Bacon had accepted "gifts" from litigants before him. Though that was a rather common practice, it was plainly illegal. His political opponents in Parliament eagerly seized upon the opportunity to remove him from power. Bacon confessed and was sentenced to imprisonment in the Tower of London and a large fine. Also, he was permanently barred from public office. The king soon released

Bacon from jail and remitted his fine, but Bacon's political career was ended.

Now, one can recall quite a few instances of high-ranking politicians who have been caught taking bribes, or otherwise violating the public trust. Frequently, when such persons are caught, they whine and defend themselves by asserting that everybody else is cheating also. If taken seriously, this defense would seem to mean that no crooked politician should be punished unless every other crooked politician is punished first. Bacon's comment on his conviction was somewhat different: "I was the justest judge that was in England these 50 years; but it was the justest censure in Parliament that was these 200 years."

Such an active and crowded political career would not seem to leave much time for anything else. Still, Bacon's lasting fame, and his place on this list, are due to his philosophical writings rather than to his political activities. His first important work was his *Essays*, which first appeared in 1597 and were gradually enlarged. The *Essays*, which are written in a pithy and brilliant style, contain a wealth of penetrating observations, not merely on political matters but on many personal matters as well. Some characteristic remarks are:

> *Young men are fitter to invent than to judge, fitter for execution than for counsel, and fitter for new projects than for settled business; ...Men of age object too much, consult too long, adventure too little.... Certainly it is good to compound employments of both, ...because the virtues of either age may correct the defects of both....*
>
> OF YOUTH AND AGE

> *He that hath wife and children hath given hostages to fortune...*
>
> OF MARRIAGE AND SINGLE LIFE

(Bacon himself was married, but had no children.)

But Bacon's most important writings concern the philosophy of science. He had planned a great work, the *Instauratio Magna* (or *Great Renewal*), in six parts. The first part was intended to review the present state of our knowledge; the second part was to describe a new method of scientific inquiry; a third was to include a collection of empirical data; a fourth was to contain illustrations of his new scientific method at work; the fifth was to present some provisional conclusions; and the last part was to be a synthesis of the knowledge gained from his new method. Not surprisingly, this grandiose scheme—perhaps the most ambitious undertaking since Aristotle—was never completed. However, *The Advancement of Learning* (1605) and the *Novum organum* (1620) can be considered the first two parts of his great work.

The *Novum organum* (or *New Instrument*) is perhaps Bacon's most important book. The book is basically a plea for the adoption of the empirical method of inquiry. The practice of relying entirely upon the deductive logic of Aristotle was stultifying, and a new method of inquiry, the inductive method, was required. Knowledge is not something we start with and deduce conclusions from; rather it is something we arrive at. To understand the world, one must first *observe* it. First collect the facts, Bacon said, then draw conclusions from these facts by means of inductive reasoning. Although scientists have not followed Bacon's inductive method in every detail, the general idea he expressed—the crucial importance of observation and experimentation—form the heart of the method used by scientists ever since.

Bacon's last book was *The New Atlantis*, an account of a utopian commonwealth situated on a fictional island in the Pacific. Although the setting is reminiscent of Sir Thomas More's *Utopia*, the whole point of Bacon's book is different. In Bacon's book, the prosperity and welfare of his ideal commonwealth depend upon and result directly from a concentration on scientific research. By implication, of course, Bacon was telling his readers that intelligent application of scientific research could make the people of Europe as prosperous and happy as those living on his mythical island.

One might fairly say that Francis Bacon was the first truly modern philosopher. His overall outlook was secular, rather than religious (though he firmly believed in God). He was rational rather than superstitious; an empiricist rather than a logic-chopping scholastic. In politics, he was a realist rather than a theoretician. And along with his classical learning and great literary skill, he was sympathetically attuned toward science and technology.

Though a loyal Englishman, Bacon had a vision which went far beyond his own country. He distinguishes three kinds of ambition:

> *The first is of those who desire to extend their own power in their native country; which kind is vulgar and degenerate. The second is of those who labor to extend the power of their country and its dominion among men; this certainly has more dignity, though not less covetousness. But if a man endeavor to establish and extend the power and dominion of the human race itself over the universe, his ambition...is without doubt both a more wholesome thing and a nobler than the other two.*

Though Bacon was the apostle of science, he was not a scientist himself, nor did he keep abreast of the advances being made by his contemporaries. He ignored Napier (who had recently invented logarithms) and Kepler, and even his fellow Englishman, William Harvey. Bacon correctly suggested that heat was a form of motion—an important scientific idea; but in astronomy, he refused to accept the ideas of Copernicus. It should be remembered, though, that Bacon was not attempting to present a complete and correct set of scientific laws. Instead, he was trying to present a survey of what needed to be learned. His scientific guesses were only intended to serve as a starting point for further discussion, not as the final answer.

Francis Bacon was not the first person to recognize the usefulness of inductive reasoning; nor was he the first to understand the possible benefits which science could bring to society. But no man before him had publicized those ideas so widely and

so enthusiastically. Furthermore, partly because Bacon was such a good writer, and partly because of his fame as a leading politician, Bacon's attitudes toward science actually had a great deal of influence. When the Royal Society of London was founded, in 1662, to promote scientific knowledge, the founders named Bacon as their inspiration. And, when the great *Encyclopedie* was written during the French Enlightenment, major contributors, such as Diderot and d'Alembert, credited Francis Bacon with the inspiration for their work. If the *Novum organum* and *The New Atlantis* are less read today than they once were, it is because their messages have become so widely accepted.

"...those that want friends to open themselves unto are cannibals of their own hearts;..."

FRANCIS BACON
in OF FRIENDSHIP