

# FRANCIS BACON (1561–1626)

Forever changing the way we look at science

Francis Bacon is one of the most important philosophers to come out of the Renaissance era due to his immense contributions in advancing natural philosophy and scientific methodology.

Bacon was born in London, England, on January 22, 1561. He was the youngest child of his father, Sir Nicholas Bacon, Lord Keeper of the Seal, and his mother, Lady Anne Cooke Bacon, who was the daughter of the knight that tutored Edward VI.

In 1573, when he was just eleven years old, Francis Bacon attended Trinity College, Cambridge. After completing his studies in 1575, Bacon enrolled in a law program the next year. It didn't take him very long to realize that this school was too old-fashioned for his tastes (Bacon recalled that his tutors favored Aristotle, while he was much more interested in the humanistic movement that was spreading across the land due to the Renaissance). Bacon left school and became an assistant to the ambassador in France. In 1579, when his father passed away, Bacon returned to London and resumed studying law, completing his degree in 1582.

In 1584, Francis Bacon was elected to Parliament as a member for Melcombe in Dorsetshire, and he would continue to work in Parliament for the next thirty-six years. Eventually, under James I, Francis Bacon became Lord Chancellor, the highest political office. It was as Lord Chancellor, at the pinnacle of his political career, that Bacon encountered a great scandal that would end his political career entirely, making way for his philosophical pursuits.

In 1621, Francis Bacon, then-Lord Chancellor, was accused of accepting bribes and arrested. Bacon pled guilty to his charges and was fined £40,000 and sentenced to serve a prison sentence in the Tower of London. While his fine was waived and he would only spend four days in prison, Bacon would never be allowed to hold political office or sit in Parliament ever again, thus ending his political life.

It was at this point in Francis Bacon's life that he decided to dedicate the remainder of his life (five years) to philosophy.

## THE PHILOSOPHICAL WORK OF FRANCIS BACON

Francis Bacon is perhaps best known for his work in natural philosophy. Unlike Plato (who claimed knowledge could be gained through understanding the meaning of words and content) and Aristotle (who placed emphasis on empirical data), Bacon emphasized observation, experimentation, and interaction and set out to create methods that would rely on tangible proof in an effort to explain sciences.

### Bacon's Four Idols

Francis Bacon believed the works of Aristotle (which up to that point, scholastic thinkers had agreed with) actually prevented the ability to think independently and acquire new ideas about nature. Bacon argued that through the advancement of science, the quality of human life could improve, and therefore, people should no longer rely on the work of ancient philosophers. Francis Bacon became so disillusioned with the philosophical thinking of his time that he categorized the thought process of people as four categories of false knowledge, which he referred to as "idols." The four idols were:

1. **Idols of the tribe:** These are the false notions that arise from human nature that are common to everyone. For example, human nature causes people to seek out evidence that supports their own conclusions, causes people to try to have things fit into patterns, and causes beliefs to be affected by what people want to believe.
2. **Idols of the cave:** These are interpretations that come about as a result of individual makeup and disposition. For example, some people might favor similarities while others favor differences, and some might favor notions that support their earlier conclusions.
3. **Idols of the marketplace:** These are false notions that arise from the use of language and words as a means to communicate with one another. For example, words can have a variety of meanings, and people have the ability to name and imagine things that do not actually exist.

4. **Idols of the theater:** Francis Bacon believed that philosophies weren't any better than plays. To Bacon, sophisticated philosophy like the work of Aristotle focused more on smart but foolish arguments rather than the natural world; empirical philosophy only focused on a small range of experiments and excluded too many other possibilities; and superstitious philosophy, which was philosophy established by religion and superstition, was a corruption of philosophy. To Francis Bacon, superstitious philosophy was the worst type of false notion.

### The Inductive Method

With his belief that knowledge should be pursued and his criticism of present-day philosophies, Francis Bacon set out to create a new and organized method that would eventually become his most impactful contribution to the world of philosophy. In his book,

*Novum Organum*, he details his inductive, also known as scientific, method.

The inductive method combined the process of carefully observing nature with systematically accumulating data. While the deductive method (like the work of Aristotle) began by using one or more true statements (or axioms) as a base and then attempted to prove other true statements, the inductive method begins by taking observations from nature and attempts to uncover laws and theories pertaining to how nature works. In essence, the deductive method uses logic and the inductive method uses nature.

### Bacon's Emphasis on Experiments

Bacon emphasized the importance of experimentation in his work and believed experiments needed to be carefully recorded so that the results could be both reliable and repeatable.

The process of the inductive method is as follows:

1. Accumulate a series of specific empirical observations about the characteristic being investigated.
2. Classify these facts into three categories: instances when the characteristic being investigated is present, instances when it is absent, and instances when it is present in varying degrees.
3. Through careful examination of the results, reject notions that do not seem to be responsible for the occurrence and identify possible causes responsible for the occurrence.