

Rationalists and Empiricists

Rationalist philosophers maintain that reason is the most reliable source of knowledge. "Knowledge comes from thinking, not looking."

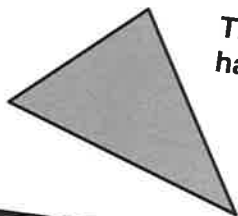
Geometry provides the best systematic example of infallible, permanent knowledge based wholly on deduction. But empiricists claim that, although geometrical and mathematical forms of knowledge are "necessary", they are only reliable because they are "trivial". Logic and mathematics do no more than "unpack" or clarify the inevitable consequences of a few preliminary definitions or axioms.

THE ANGLES OF
A TRIANGLE HAVE
TO ADD UP TO 180 DEGREES
- IF YOU ACCEPT THAT THE
SHORTEST DISTANCE
BETWEEN TWO POINTS IS A
STRAIGHT LINE, AND A
FEW OTHER AXIOMS.

AND, IF ALL CATS
HAVE WHISKERS, AND
THIS IS A CAT,
THEN IT MUST HAVE
WHISKERS.

BUT THIS IS
A CONCLUSION
DERIVED FROM WORDS,
NOT CATS.

T is for Triangle



They all
have 180°

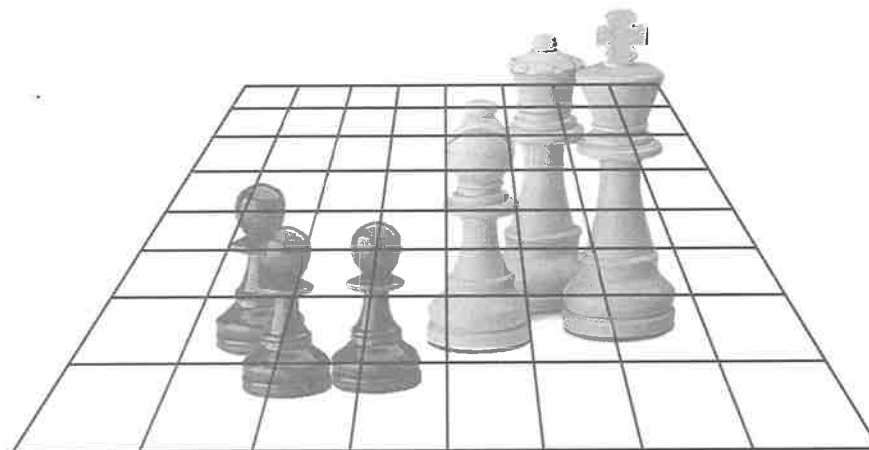
C is for Cat



All cats
have whiskers

Logic and a Deeper Reality?

Empiricists say that neither geometry nor logic will tell you anything about the real world. The cerebral wonders of mathematics and logic are like chess – "closed" and "empty" systems constituted by their own sets of rules.



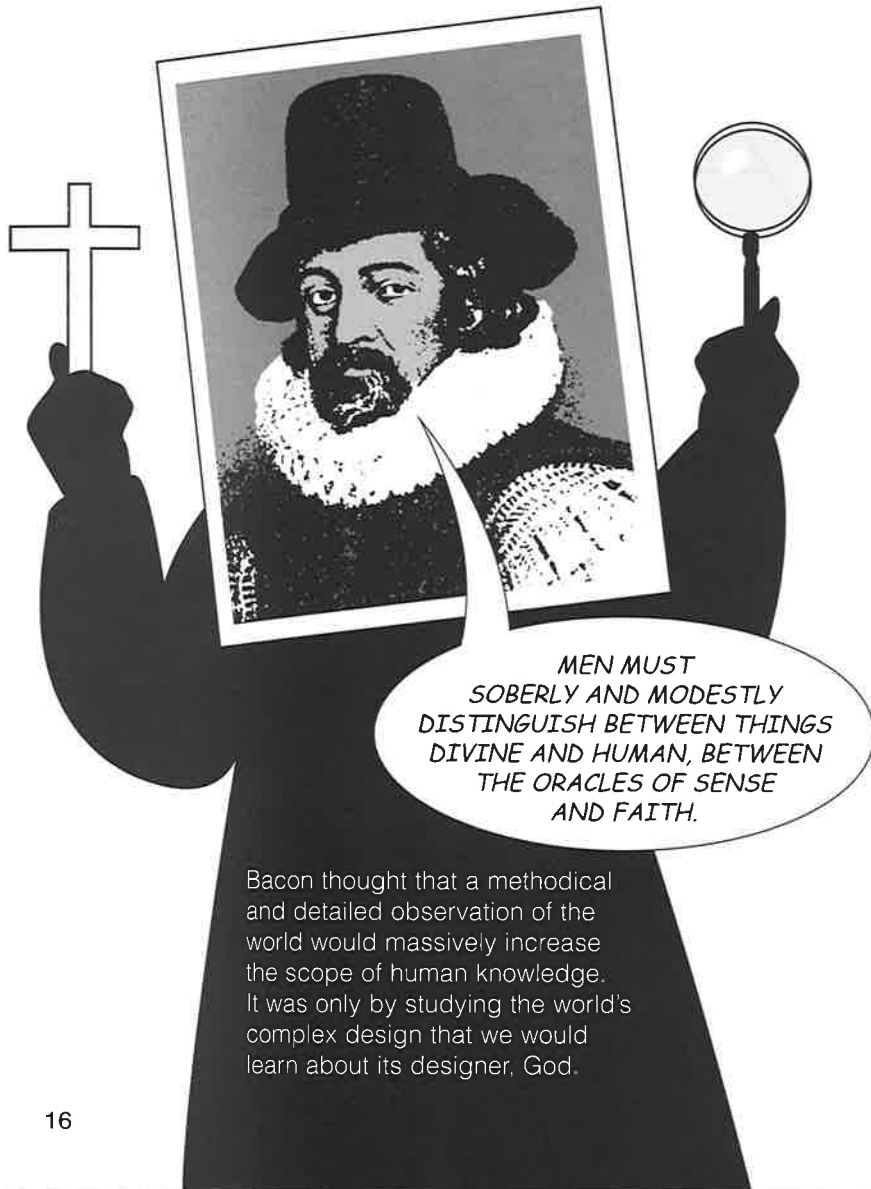
REAL KNOWLEDGE
HAS TO ORIGINATE
FROM SENSORY
EXPERIENCES AS OUR ONLY
GUIDE TO WHAT IS
ACTUALLY TRUE.

There is no magical way of going beyond the limits of what we can see, hear, taste, smell and touch.

Later historians have often imagined a kind of "war" between the down to earth British "Empiricists" like Locke, Berkeley and Hume, and the more fanciful "Rationalist" continentals, like Descartes, Spinoza and Leibniz. But this controversy was not very real for those supposedly taking part. Few would have considered themselves stuck in either opposed "camp". The labels "Empiricist" and "Rationalist", although useful, can obscure the actual views of individual philosophers.

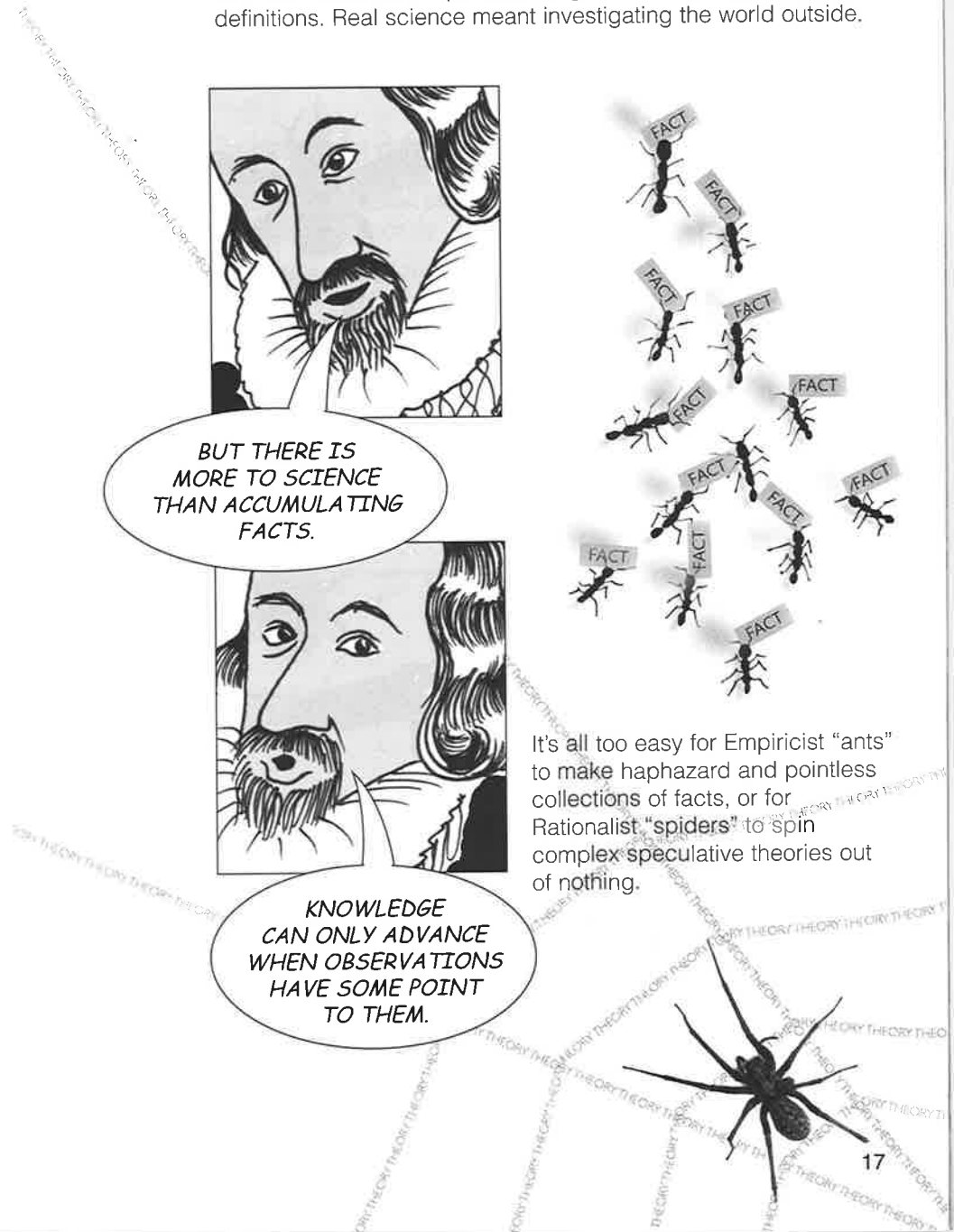
Francis Bacon

Francis Bacon (1561–1626) was a lawyer who eventually became Lord Chancellor. He was a corrupt politician, as well as a devoted scholar. He was obsessed with learning, of all kinds, and put forward several schemes for public libraries, laboratories and colleges. (The most famous is "Solomon's House" in his book *New Atlantis*.) Bacon believed in scientific progress, even though he was constantly aware of the limitations of human knowledge.



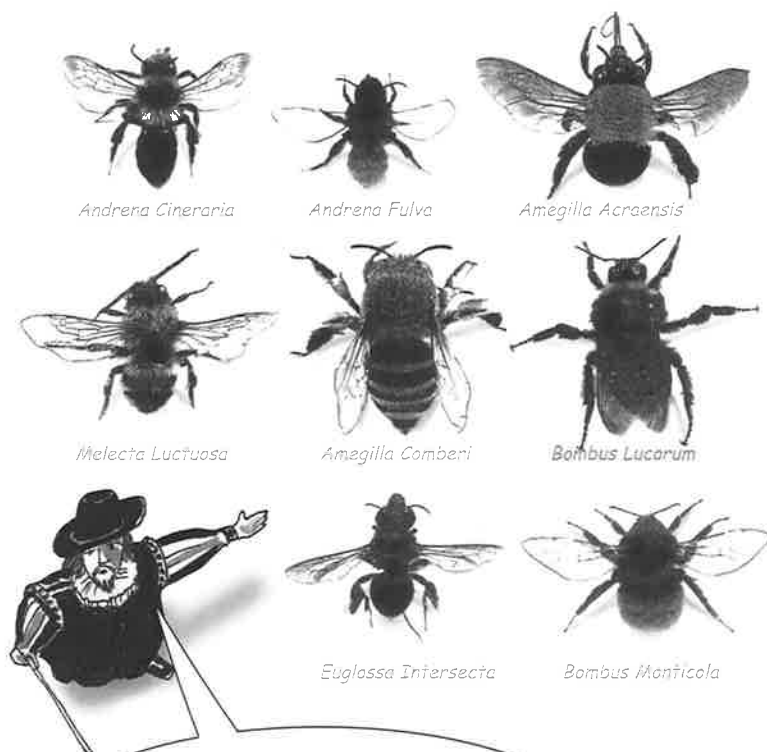
Empiricist Ants and Rationalist Spiders

Bacon was scathing about scholars who worshipped past "authorities" and obscured the "advancement of learning". Medieval "scientists" spent too long in libraries, arguing about definitions. Real science meant investigating the world outside.



Scientific Bees and Induction

Successful “natural philosophers” are like sensible “bees”. Their methodical collections of information stimulate theory, give rise to experiments, and produce the “honey” of scientific wisdom. Bacon devised a whole series of procedural methods for ambitious bee-scientists.



I RECOGNIZED THE
IMPORTANCE OF INDUCTION
AS A METHOD OF RESEARCH AND A
WAY OF STIMULATING
THEORY.

Induction – as opposed to geometric deduction – means something like “drawing conclusions from the evidence”. By observing many instances of the same phenomena (all sorts of bees make honey), we are able to draw probable conclusions (all bees make honey) and make predictions (these bees will make honey next year), and even emerge with explanatory theories for why things behave as they do (bees make honey in order to survive the winter months).

Bacon, Scientism and Thomas Hobbes

In Bacon's view, science was a moral activity. “The ‘New Philosophy’ will produce great and marvellous works for the benefit of all men.” But he remains a propagandist for empirical methods, rather than a philosopher. He has little to say about the classic problems of empiricism. Nevertheless, after Bacon, it became harder for philosophers to dismiss empirical observations as trivial.

The young Thomas Hobbes (1588–1679) met Francis Bacon on several occasions and agreed wholeheartedly with this new “natural philosophy”. Aristotelian ideas had to be abandoned in favour of a new “scientific” approach.

Hobbes was a radical materialist who declared that everything that exists must be physical – including minds and God himself (if He exists at all).

Hobbes was deeply impressed by the geometric method. From a few initial axioms, an extensive system of informative and certain knowledge could be deduced.

