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Machiavelli, Bacon and Hobbes: The Age of Science

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Machiavelli, Bacon and Hobbes: The Age of Science

Three thinkers of the sixteenth and seventeenth centuries changed how Europe thought about power, knowledge and human nature.



Niccolò Machiavelli, portrait by Santi di Tito. Photo: Santi di Tito, Wikimedia Commons, public domain.

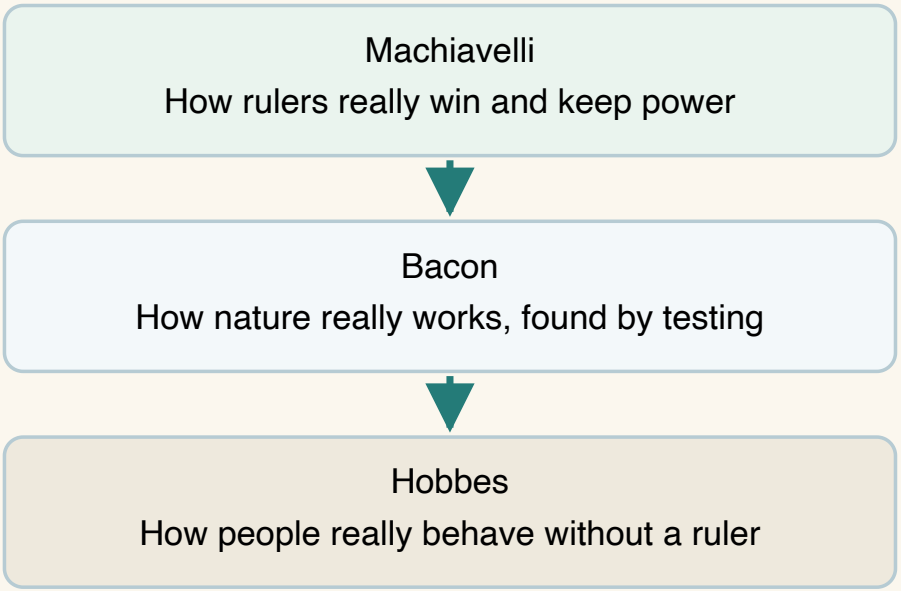
1 Why are Machiavelli, Bacon and Hobbes studied together?

Each of them set out to look at things as they are. Machiavelli wanted the real truth of politics, not an imagined ideal. Bacon wanted a new method in place of Aristotle's. Hobbes asked what people are like without any ruler.

What did they have in common?

Machiavelli looked at how rulers actually win and lose power. Bacon looked at how people actually learn about nature. Hobbes looked at how people behave when no one rules them.

When did each live?



Start from reality. Original explanatory diagram.

Machiavelli lived from 1469 to 1527 in Florence, Italy. Bacon lived from 1561 to 1626 in England. Hobbes lived from 1588 to 1679, also in England. So their lives together cover the years from 1469 to 1679.

Is there a single theory that links them?

No. They never formed a school. The link is a habit of mind: look at real human behaviour and real evidence, then reason from it.

What is the memory hook?

Machiavelli is about power, Bacon is about knowledge, Hobbes is about order. All three start from what is real.

Quick check 1. Machiavelli, Bacon and Hobbes each began from how things really are, not from an ideal. *(True or False?)* See answer ↓

Sources: plato.stanford.edu

2 What did Machiavelli argue in The Prince?

Niccolo Machiavelli was born in Florence on 3 May 1469. He became Second Chancellor of the Florentine Republic in 1498. For about fourteen years he served on diplomatic missions. After the Medici family returned to power in 1512, he lost his post and was jailed and tortured in early 1513.

When did he write The Prince?

He wrote it around the end of 1513, after his fall from office. He did not publish it. It appeared only after his death, in 1532. It was first meant for Giuliano de' Medici. After Giuliano died, the dedication went to Lorenzo de' Medici.

What are virtu and fortuna?

Virtu is not ordinary moral goodness. It means the personal qualities a ruler needs to keep his state and achieve great things. Fortuna means fortune, or luck. Machiavelli saw fortune as a force that can ruin a ruler. But a well-prepared ruler can resist it in part.

Is it better to be loved or feared?

Machiavelli says a ruler should wish to be both. That is hard to manage. So when he must choose, it is much safer to be feared than loved. His reason is that men are, in general, ungrateful, fickle, false, cowardly and

greedy.

What is the fox and the lion?

A ruler must use two natures, the fox and the lion. The fox spots the traps. The lion scares the wolves. Those who rely only on the lion do not understand what they are about.

Did he say “the ends justify the means”?

No. That phrase is a later summary, not his own words. The Stanford entry says he advises a ruler to avoid wrongdoing if possible but to be ready to do wrong when needed. The word “Machiavellism” was apparently coined in the seventeenth century, long after his death.

Was The Prince his only major work?

No. He also wrote the Discourses on Livy, published in 1531. The Stanford entry presents it as the work that most honestly shows his support for republics. Scholars still argue whether The Prince is cynical advice, plain realism or even a hidden criticism of princes.

What is the memory hook?

The Prince means results over good manners. Fear over love, and a fox’s cunning with a lion’s strength.

> **Quick check 2.** The phrase "the ends justify the means" is a line from The Prince. *(True or False?)* See answer ↓

Sources: plato.stanford.edu; gutenberg.org

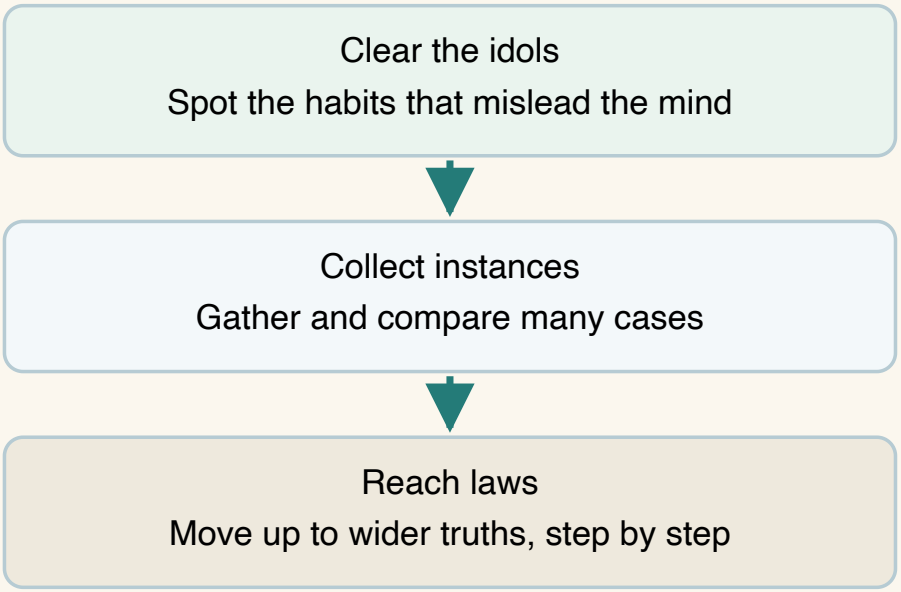
3 What did Francis Bacon contribute to science?

Francis Bacon was born in London on 22 January 1561. He became Lord Chancellor of England in January 1618. Parliament impeached him for taking bribes in 1621. He died on 9 April 1626.

What is the Novum Organum?

It is Bacon's best-known book on method, published in 1620. Its title means "New Instrument". It was meant to replace Aristotle's logic, which was called the "Organon". Bacon wanted a new tool for finding truths about nature.

How should we learn about nature, according to him?



Induction in three steps. Original explanatory diagram.

Bacon proposed a careful kind of induction. Induction means moving from many observed cases to a general rule.

He rejected induction by "simple enumeration", where you only count the cases that agree. A careful thinker must also look for cases that disagree, and rule out false causes. He used three tables for this: presence, absence and degrees.

What are the four idols?

Idols are habits of mind that mislead us. Bacon lists four:

- **Idols of the Tribe** come from human nature itself.
- **Idols of the Cave** come from one person's own upbringing and background.
- **Idols of the Market** come from language and words.
- **Idols of the Theatre** come from fixed philosophical systems and faulty proofs.

His point is simple. Know your own biases before you study nature.

What did he mean by "knowledge is power"?

In the Novum Organum he writes that human knowledge and human power are one. You cannot control a cause you do not understand. Nature is won over only by first submitting to it. The short slogan "knowledge is power" is a popular summary of this idea.

Did he influence later science?

Yes. His call for planned experiments inspired experimental thinkers in the late seventeenth century. The Royal Society was founded in 1660, and the Stanford entry calls this the peak of his reputation. His utopia New Atlantis, published in 1626, imagined a research institution called Salomon's House.

What is the memory hook?

Bacon means test, do not trust. Watch for the four idols, and let experiments decide.

> **Quick check 3.** Bacon argued that induction by simple enumeration is enough to find truth. *(True or False?)* See answer ↓

Sources: plato.stanford.edu; gutenberg.org

4 What did Hobbes mean by the state of nature?

Thomas Hobbes was born on 5 April 1588 in Malmesbury, England. He died on 4 December 1679. His major political book, Leviathan, was published in 1651. He had spent years in exile in France, linked to the civil wars of the time.

What is the state of nature?

It is a thought experiment. Imagine people living with no government, no police and no courts. Hobbes asks what life would be like then. It is a way of showing what government is for.

Are people equal in that state?

Hobbes says nature has made people very nearly equal in body and mind. The weakest person can kill the strongest, by secret plotting or by joining with others. So no one is safe.

Why would people fight?

Hobbes names three main causes of quarrel:

- **Competition** makes people attack for gain.
- **Diffidence**, meaning fear or distrust, makes them attack for safety.

- **Glory** makes them attack for reputation, even over small insults.

What is the war of every man against every man?

With no common power to keep them in awe, people live in a condition of war. Hobbes says this is not always open fighting. It is a constant readiness to fight.

In such a war, right and wrong have no place. Where there is no common power, there is no law, and where there is no law, there is no injustice.

What is the famous line?

Hobbes says such a life has no industry, no arts, no letters and no society. Worst of all, there is constant fear and danger of violent death. So human life is “solitary, poore, nasty, brutish, and short”.

What is the memory hook?

Hobbes’s state of nature means no ruler, so fear. Three causes of quarrel: competition, diffidence and glory.

> **Quick check 4.** Hobbes said life in the state of nature is "solitary, poor, nasty, brutish, and short". *(True or False?)* See answer ↓

Sources: gutenberg.org; plato.stanford.edu

5 How does Hobbes get from the state of nature to a government?

Hobbes does not leave people in fear. He argues that reason itself shows a way out.

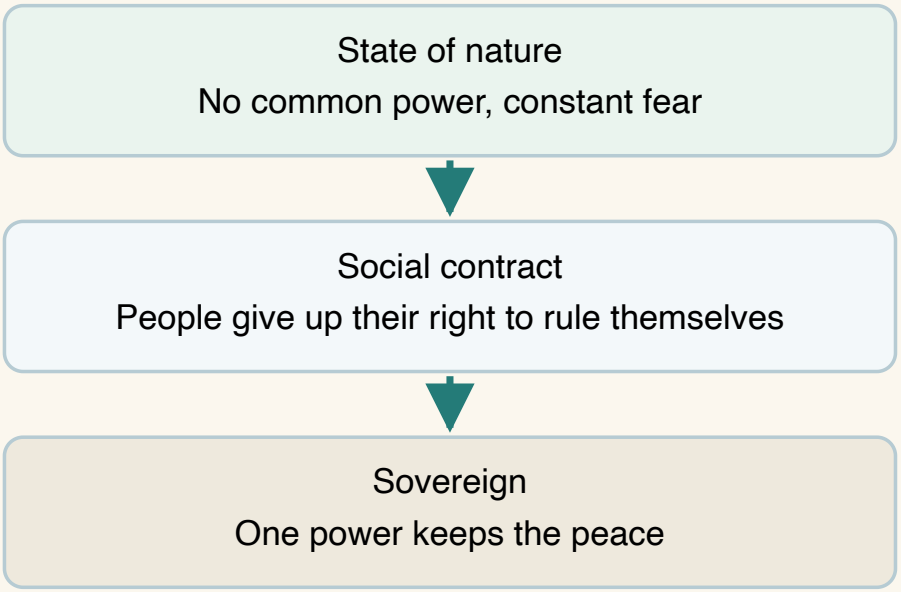
What are the laws of nature?

They are rules found by reason, not laws passed by a ruler.

The first says every person should work for peace as far as there is hope of getting it. The second says a person should be ready to give up his right to all things, if others do the same.

Why is an agreement alone not enough?

Hobbes says covenants without the sword are but words. A promise means little if no power can force people to keep it. So a common power is needed.



Why people accept a ruler. Original explanatory diagram.

What is the social contract?

People agree with one another to give up their right of self-rule to one person or one assembly. That person or assembly is the sovereign. Each person agrees to authorise all the sovereign's acts as his own. The united people become a commonwealth.

Why is it called Leviathan?

Hobbes calls the commonwealth that great Leviathan, or rather a Mortall God. It owes its authority to the people's consent. In return it gives them peace and defence. The Leviathan is an artificial man, made by people to protect themselves.

Is the sovereign's power limited?

Hobbes defended absolute sovereignty. His book ties the sovereign's power to the peace and defence it gives. Without such a power, people fall back into the war of every man against every man.

What is the memory hook?

Hobbes means fear, then contract, then sovereign. Covenants without the sword are but words.

> **Quick check 5.** Hobbes said covenants without the sword are but words. *(True or False?)* See answer ↓

Sources: gutenberg.org; plato.stanford.edu

6 How do the three compare, and what are the common traps?

How do their questions differ?

Machiavelli asks how a ruler can keep power. Bacon asks how people can learn about nature. Hobbes asks why people need a ruler at all. Each answer stays close to real evidence.

Which ideas pair with which thinker?

Thinker	Key work	Key idea
Machiavelli	The Prince (written 1513, published 1532)	Virtu and fortuna; fear over love
Bacon	Novum Organum (1620)	Induction and the four idols
Hobbes	Leviathan (1651)	State of nature and a strong sovereign

What are the common traps?

- “The ends justify the means” is a later summary, not a line from The Prince.
- The Prince was published after Machiavelli’s death, not in his lifetime.
- Bacon’s idols are four: Tribe, Cave, Market and Theatre.
- Bacon argued for induction, not for pure observation without thought.
- Hobbes’s “solitary, poor, nasty, brutish and short” describes life in the state of nature, not life under a sovereign.

- Hobbes defended absolute sovereignty. The state of nature is his starting point, not his goal.

What is the memory hook?

Machiavelli asks how to rule, Bacon asks how to know, Hobbes asks why to obey.

> **Quick check 6.** Hobbes defended weak government as the best way to keep peace. *(True or False?)* See answer ↓

Sources: gutenberg.org

Practice MCQs

1. When was The Prince first published?

A. In 1513, in Machiavelli's lifetime

B. In 1532, after Machiavelli's death

C. In 1620, alongside the Novum Organum

D. In 1651, alongside Leviathan

See answer ↓

2. What does virtu mean in Machiavelli's writing?

A. Ordinary moral goodness as taught by the Church

B. Loyalty owed by subjects to their ruler

C. The personal qualities a ruler needs to keep his state and achieve great things

D. Good luck in war and in politics

See answer ↓

3. Which of these is NOT one of Bacon's four idols?

A. Idols of the Cave

B. Idols of the Tribe

C. Idols of the Market

D. Idols of the Throne

See answer ↓

4. What did Bacon mean by saying that human knowledge and human power are the same thing?

A. Power is what produces true knowledge

B. Rulers who own many books are always strong

C. Knowing scripture gives a person authority

D. You cannot control an effect without knowing its cause

See answer ↓

5. Hobbes names three main causes of quarrel in the state of nature.

Which set is correct?

A. Tradition, duty and fear

B. Competition, diffidence and glory

C. Hunger, anger and law

D. Religion, wealth and honour

See answer ↓

6. To which situation does the line "solitary, poor, nasty, brutish, and short" refer?

A. Life in a medieval monastery

B. Life in the state of nature with no common power

C. Life under a strong sovereign

D. Life in a rich commonwealth

See answer ↓

7. Why does Hobbes say that covenants without the sword are but words?

A. Written agreements are always forged

B. Only soldiers can make covenants

C. A promise means little unless a power can force people to keep it

D. Swords were used to sign treaties

See answer ↓

8. Which pairing of thinker and book is correct?

A. Machiavelli and the Novum Organum

B. Bacon and Leviathan

C. Hobbes and Leviathan

D. Bacon and The Prince

See answer ↓

Answer Key

1. **B.** In 1532, after Machiavelli's death. He wrote it around the end of 1513 but never published it. The 1513 date marks when it was written, not published. The year 1620 is the Novum Organum. The year 1651 is Leviathan. Memory hook: written 1513, published 1532. ↑ Q1
2. **C.** The personal qualities a ruler needs to keep his state and achieve great things. It is not ordinary moral goodness. Luck is closer to fortuna, which a prepared ruler can partly resist. Loyalty of subjects is a different idea. Memory hook: virtu is skill in ruling, not goodness. ↑ Q2
3. **D.** Idols of the Throne. Bacon's four are Tribe, Cave, Market and Theatre. The Tribe comes from human nature. The Cave comes from one person's background. The Market comes from language. Memory hook: Tribe, Cave, Market, Theatre. ↑ Q3
4. **D.** You cannot control an effect without knowing its cause. In the Novum Organum he writes that ignorance of the cause frustrates the effect. Owning books does not give strength. Power does not produce knowledge. Scripture is not his point. Memory hook: know the cause to command the effect. ↑ Q4
5. **B.** Competition, diffidence and glory. These make people attack for gain, for safety and for reputation. Religion, wealth and honour is not his list. Hunger, anger and law is not his list. Tradition, duty and fear is not his list. Memory hook: gain, safety, reputation. ↑ Q5
6. **B.** Life in the state of nature with no common power. Hobbes says such a life is full of fear and danger of violent death. Life under a sovereign is what he offers instead. He does not describe a monastery here. A rich commonwealth is the opposite picture. Memory hook: no ruler, so fear. ↑ Q6
7. **C.** A promise means little unless a power can force people to keep it. That is why he wants a sovereign. Forgery is not his point. Signing treaties with swords is not his point. Soldiers are not the only ones who can make covenants. Memory hook: no sword, no security. ↑ Q7
8. **C.** Hobbes and Leviathan, published in 1651. The Novum Organum is Bacon's book from 1620. The Prince is Machiavelli's. Memory hook: Prince for Machiavelli, Organum for Bacon, Leviathan for Hobbes. ↑ Q8

Quick-check answers

1. **True.** Each started from real behaviour or real evidence. ↑ 1
2. **False.** It is a later summary, not Machiavelli's own wording. ↑ 2
3. **False.** He called it a childish thing and asked for a careful search for contrary cases too. ↑ 3
4. **True.** He said this about life with no common power. ↑ 4
5. **True.** A promise needs a power that can enforce it. ↑ 5
6. **False.** He defended absolute sovereignty. ↑ 6

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