

Scientific Revolution

A changing view of the world



Main Ideas and Details

Scientific Revolution

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graph BT; A["A new understanding of the world"] --> B["Scientific Revolution"]; C["Logical Thought"] --> B; D["Scientific Method"] --> B;
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A new
understanding
of the world

Logical
Thought

Scientific
Method

A New Understanding

- Discoveries lead to doubt
 - Columbus
- Scholars challenge traditional thought
 - Copernicus, Galileo, & Vesalius
- Inventions
 - Telescope, Microscope, & Navy

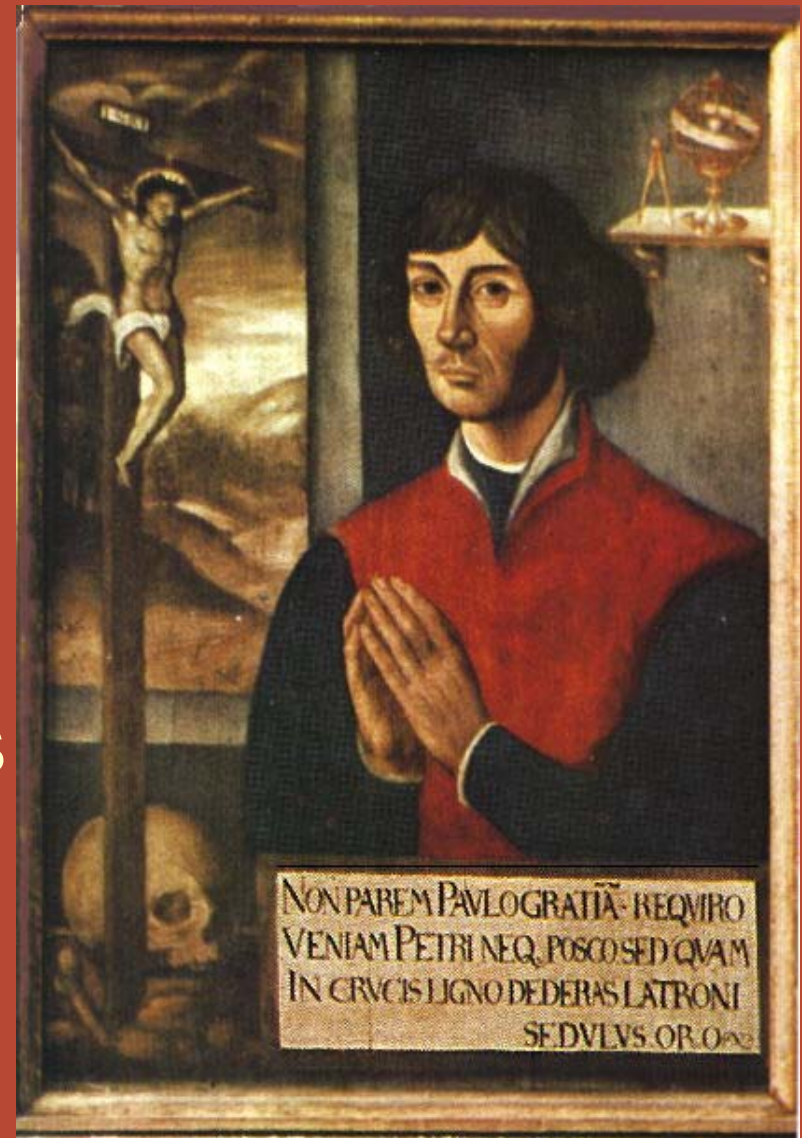


English Scientist
Robert Hooke
c. 1675

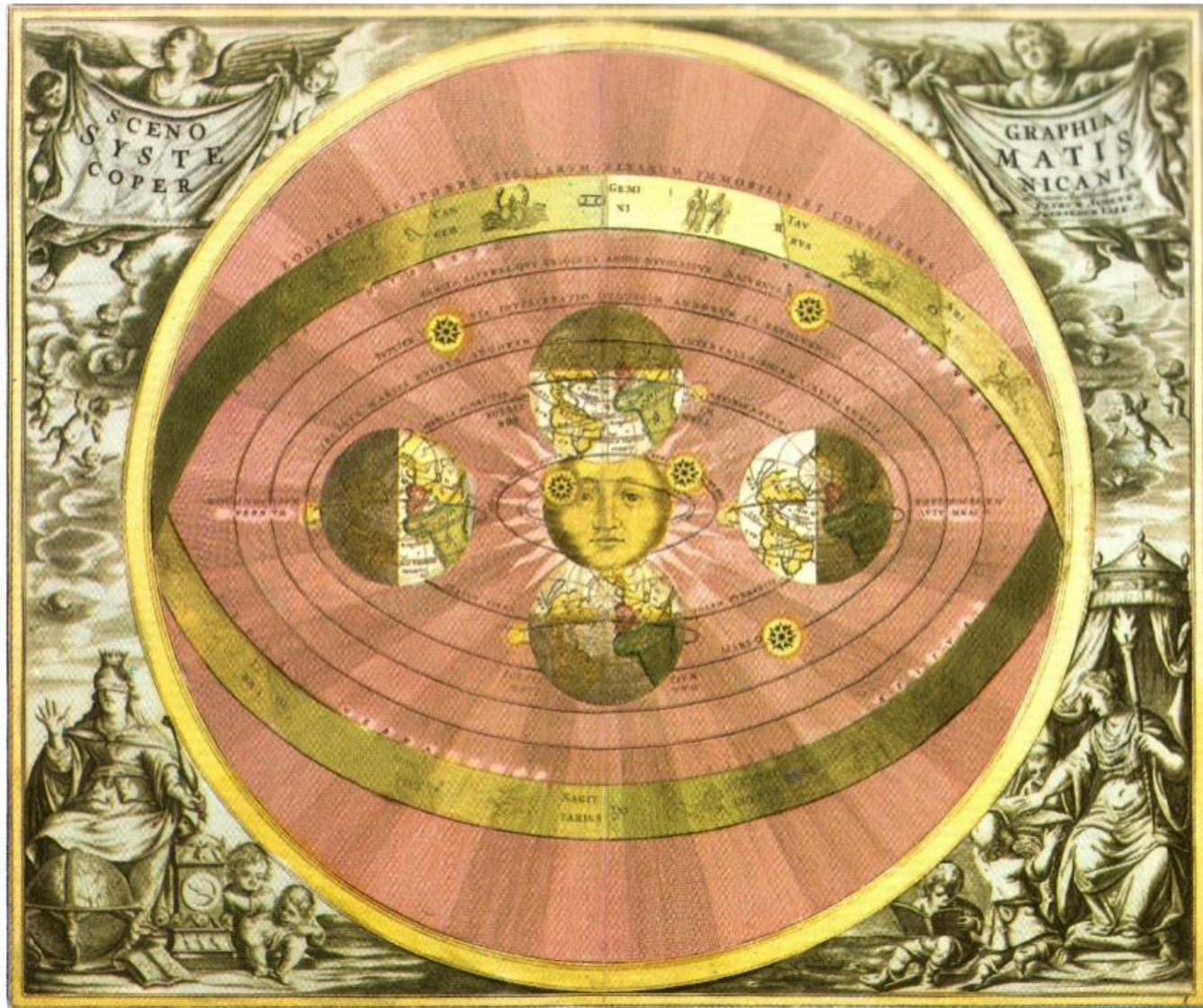
Nicolaus Copernicus

1473-1543

- Heliocentric
 - Sun is the center
- Afraid of the church
- Published book on deathbed
- Theory of “Copernicus System”



Copernicus System



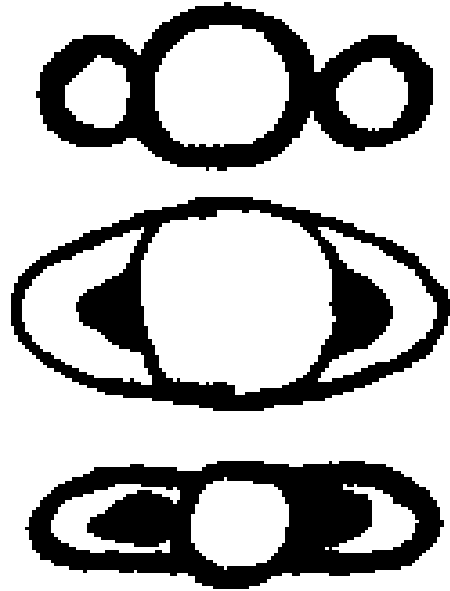
Galileo Galilei

1564-1642

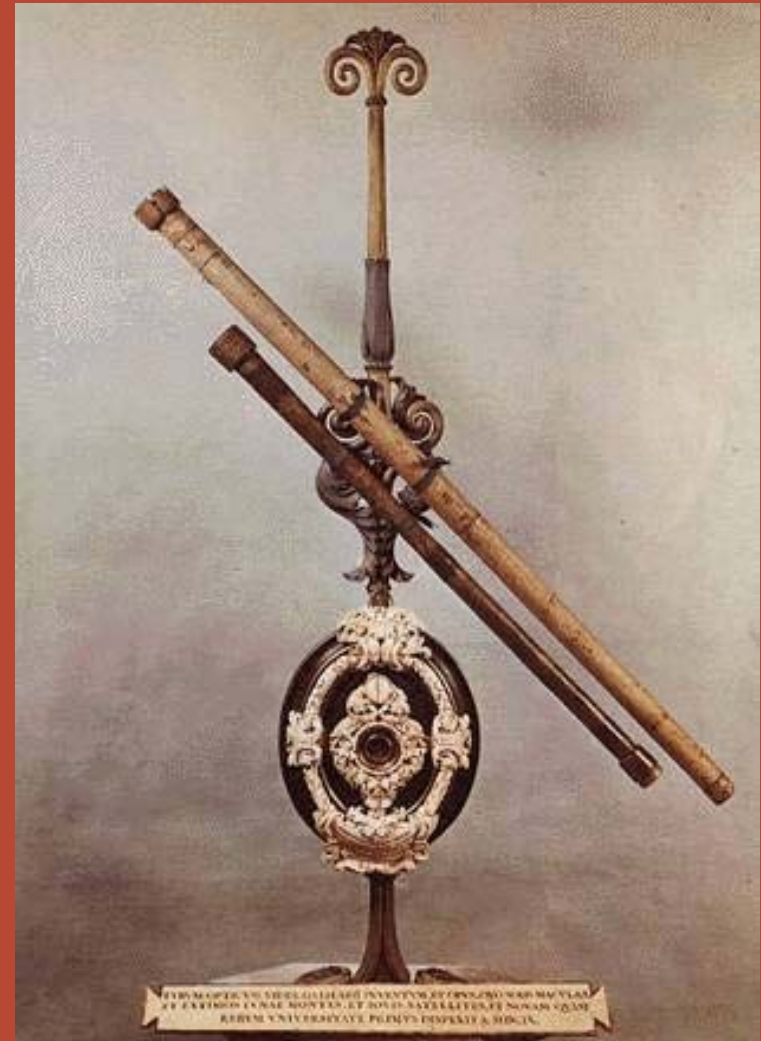
- Italian scientist
- Improved the telescope
- Made observations that proved the Copernican view of the universe
 - Moon
 - Planets
 - Stars
 - Sunspots
- 1633 – Church forced Galileo to recant; placed under house arrest



Galileo's Telescope



These are sketches of three drawings Galileo made of Saturn through his primitive telescope. ("New Worlds," Couper & Henbest, p.86.)



Andreas Vesalius

1514-1564

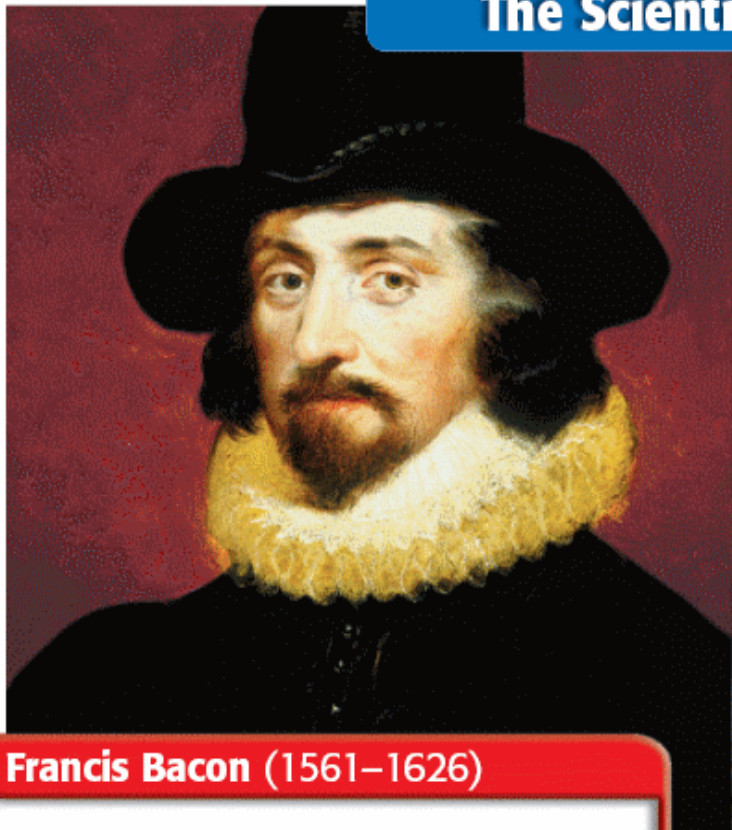
- *De Humani Corporis Fabrica* (1543)
- Advanced medical understanding
- Accurate drawings through dissection & observation



november — december, 1955

Andreas Vesalius

The Scientific Method



Francis Bacon (1561–1626)

- Scientists should observe the world and gather data, or information, about it.
- Scientists can conduct experiments to gather data.
- Scientists can develop theories to explain their data and then test them through more experiments.



René Descartes (1596–1650)

- Doubt everything until it can be proven with reason.
- The natural world operates like a machine and follows basic physical laws.
- Individual existence is the one acceptable truth. "I think, therefore I am."

The Scientific Method

The ideas of Bacon and Descartes led to the scientific method—a method for gathering and testing ideas about the world.

Scientific Method

What is the
Problem?

1

Research
Information

2

Hypothesis

3

Test
Hypothesis

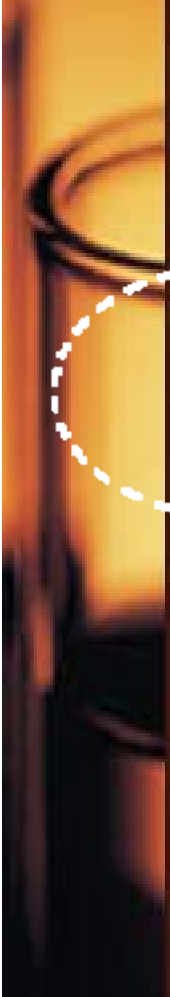
4

Record &
Analyze data

5

Draw
Conclusions

6



Logical Thought

- Scientific thought applied to people
- Like science, people were governed by laws
- Influenced equality among people & Democratic ideas

Rationalism and Democracy

Scientists believed that the world operated according to a set of natural laws that people could study and understand.



Political thinkers believed that natural laws could also explain the behavior of people. They wanted to use their understanding of human behavior to improve society.

These beliefs led people to call for personal freedom, individual rights, and equality—basic ideas of democracy.

