

New Discoveries

The 17th century saw great advances in all branches of science in England. Men such as William Harvey, Robert Hooke and Isaac Newton made discoveries that have laid the foundations for modern science.

These advances were part of an intellectual movement across Europe which saw new ideas and discoveries being exchanged across frontiers. For example, William Harvey (1578–1657) studied at the university medical school at Padua in Italy. With an expert grounding in anatomy, Harvey dissected every kind of living thing. From his observations he demonstrated how the blood circulates around the body, pumped by the heart. His findings made him famous throughout Europe.

Isaac Newton (1642–1727) was also influenced by European thinkers, such as the Italian scientist Galileo Galilei (1564–1642), and drew on the work of other English scientists, such as the chemist Robert Boyle (1627–91) who built the first air pump. Newton applied his brilliant mind to many different problems. His discoveries about light, his laws of force, motion and gravity, and his formulation of calculus in mathematics provide the basis for our modern-day understanding of the world. Newton's new ideas were frequently challenged – one of his main rivals being Robert Hooke (1635–1703). Hooke was also interested in optics and gravity, and his ideas brought him into frequent conflict with Newton. However, Newton's genius was recognized in his own lifetime, and he was the first scientist to be knighted for his work.

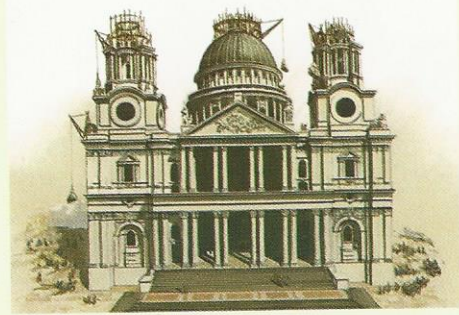
In 1703, Newton was made president of the Royal Society. This society was set up in 1660 by a group of English scientists including Robert Boyle and Christopher Wren to discuss scientific subjects. In 1662, Charles II granted a royal charter to the society, calling it the 'Royal Society of London for the Promotion of Natural Knowledge'.



The first Eddystone lighthouse was designed by Henry Winstanley. It was one of the first lighthouses to be exposed to the open sea. Constructed from timber, it was anchored by 12 iron cables and stood 136 metres tall. The lighthouse stood from 1699 to 1703 when it was swept away by a ferocious storm. Its designer, Winstanley, was in the lighthouse at the time and drowned in the storm.

ARCHITECTURE

In the 1660s, Christopher Wren visited Paris to see its architectural glories. On his return, he began designing a dome for the old St Paul's Cathedral. After the Great Fire of London, Wren's plans for a new, grand cathedral were accepted in 1675 and the building was completed in 1711.



- 1628 William Harvey (1578–1657) explains circulation of the blood.
- 1660 Royal Society established.
- 1665 Robert Hooke (1635–1703) publishes *Micrographia* (Small Drawings).
- 1666 Isaac Newton (1642–1727) discovers the nature of white light by passing light through a prism.
- 1668 Newton builds first reflecting telescope.
- 1669 Newton invents calculus.
- 1687 Publication of Newton's *Mathematical Principles of Natural Philosophy*.
- 1704 Publication of Newton's *Opticks*.

Robert Hooke used a microscope to study the structures of natural objects such as snowflakes. The first powerful lens microscope was built by the Dutch scientist Antonie van Leeuwenhoek in 1674.

