

# ROBERT HOOKE

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(1) Some historians call me the “Leonardo da Vinci of England” because I made discoveries in numerous fields of study, even though many of you know little about me. This is partially my fault. In the later stages of my life, despite my significant contributions to astronomy, physics, chemistry and biology, I became involved in many jealous fights over who was the real inventor or discoverer of this or that idea and theory. Unfortunately one of scientists I had the most conflict with was Isaac Newton. I am sure you have heard of him and his famous apple! We argued over who should get the credit for discoveries in gravity, the planets and light. If these fights were happening today, we would be having a huge fight on Twitter over this! Since few people know my name, you can guess who won these battles. It is even rumored that Newton had the only known portrait of me destroyed after my death. No one knows what I really look like; they can only guess.



**Robert Hooke**  
Physicist, Inventor (1635-1703)

(2) I was born on July 28<sup>th</sup>, 1635 in the town of Freshwater, on the Isle of Wight, England. I was the youngest of four children. My father was a minister for the Church of England and both of my brothers followed in his footsteps. It was expected that I would do the same, but I showed other interests as a child. Though I was very frail and sickly for most of my childhood, and stayed at home almost as much as I went to school because of my frailty, I had a very curious mind. I was interested in how machines worked, especially clocks. I would take them apart and put them back together. This would begin my long career in and fascination for scientific instruments and mechanical devices. I also became a fairly expert draftsman and loved to sketch various things I observed in nature as well as those I devised in my head. I seemed more destined to study science, math and engineering than become a part of the Church.

(3) In 1653, at the age of 18, I began to attend the University of Oxford’s Christ Church College. I became interested in experimentation and focused on creating proper methods as well as instrumentation for scientific investigations. I became the assistant of Robert Boyle, with whom I worked for seven years, during which time Boyle came up with his famous Boyle’s law. He did this using devices and instruments that I had designed and built for his experiments.

(4) My time spent with Boyle earned me a reputation as an expert in experimentation and in 1662, at the age of 27, the members of the Royal Society (a London-based organization formed to promote excellence and public awareness in science) unanimously offered me a position as the Royal Society’s curator. In this role, I was supposed to demonstrate experiments from my own research as well as the research of other members of the Royal Society. It was a role I was well suited for. I loved devising and conducting experiments! If a member had a hypothesis, I was there to help them prove or disprove it through experimentation. The Royal Society’s motto was *Nullus In Verba* meaning “Take nobody’s word for it”. I was their curator until I died.

(5) My contributions to science were constant, and I barely had time to fully chase down one idea before another scientific inspiration took hold. By 1660, I had already invented the balance spring which allowed watches to keep accurate time. Before this, clocks and watches were not reliable. That same year I developed Hooke’s Law stating *the tension force in a spring increases in direct proportion to the length it is stretched*. In 1665, I wrote the first scientific book that would become a best seller. It was called *Micrographia* (*micro* = “small”, *graphia* = “description of”). This book contained observations and drawings of various objects and specimens as seen through



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a microscope I had made for this purpose. This was before cameras and photographs were invented so my expert drawing skills were essential for the book's instant success. The world had never seen objects and organisms drawn with such detail. Some people refused to believe my drawings were real and called me a fraud because they couldn't believe in drawings that looked so alien to them. For example, the close up sketch of the compound eyes of a fly seemed to greatly disturb as well as fascinate many of those who read my book.

(6) *Micrographia* was only made possible because I made improvements on the primitive microscopes available at the time. I increased the resolution of the microscope as well as its functionality. I used my improved microscope to examine many specimens including plants. I

coined the term "cell" when I looked close up at the bark of a cork tree and noticed small repeated units that reminded me of the individual rooms in a monastery. These rooms were called cells, so I called what I saw under the microscope cells as well. Of course, at the time, I had no idea about the biological significance of cells. In *Micrographia*, I also examined fossilized wood which also revealed cells. These fossils came from trees that no longer existed on Earth, so I also concluded that organisms could go extinct. This idea was extremely controversial at the time.

(7) I was almost forgotten by history, but now more scientists are giving me credit for being a polymath (someone who has expertise over many diverse fields of knowledge) who has made great contributions to science.