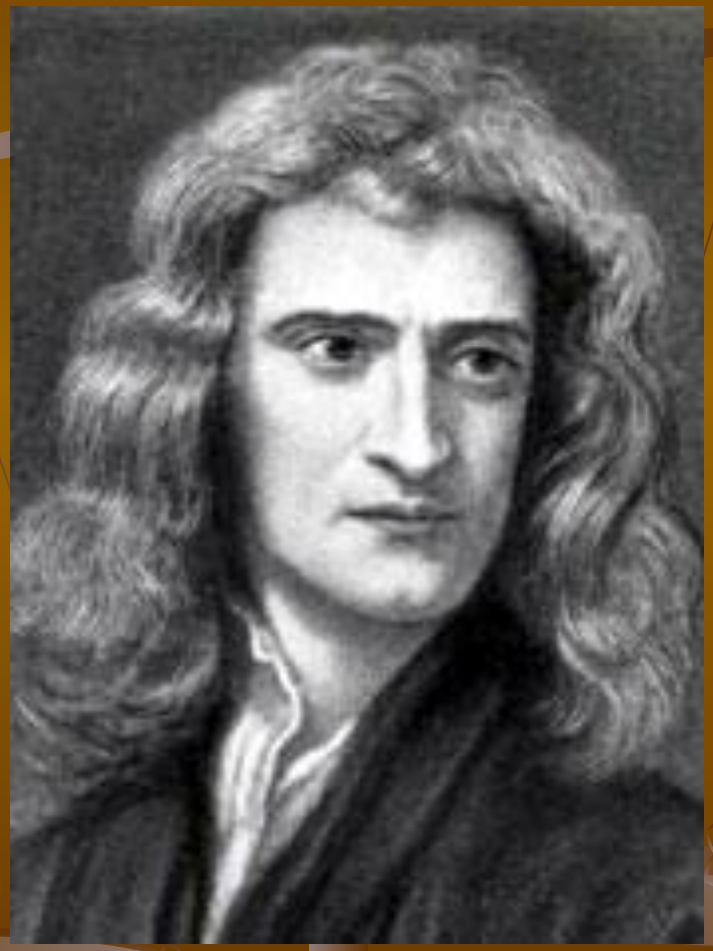
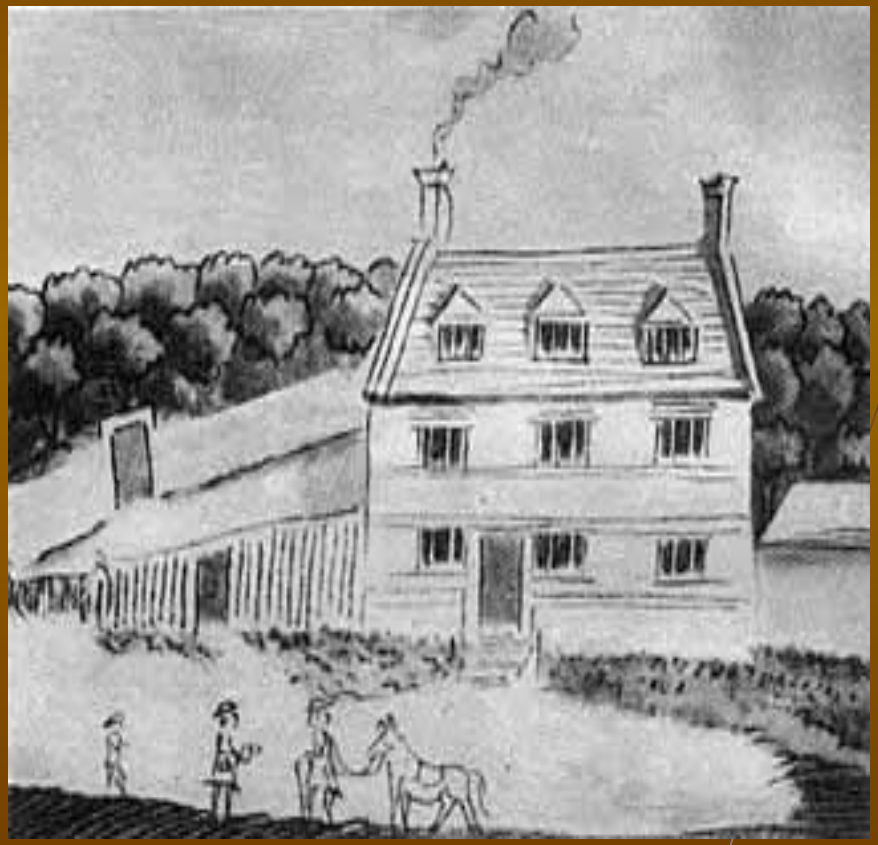
ISAAC NEWTON
1643-1727

Childhood

- Newton was born on December 25 (old style) in 1642 in the most difficult conditions, shortly after his father's death. Births occurred prematurely and the child was unusually frail and small, did not expect that he will survive.
- Small farm in which Newton was born, about a hundred years remained the property of Newton and only after the death of Isaac in 1732 passed into the possession of another family.

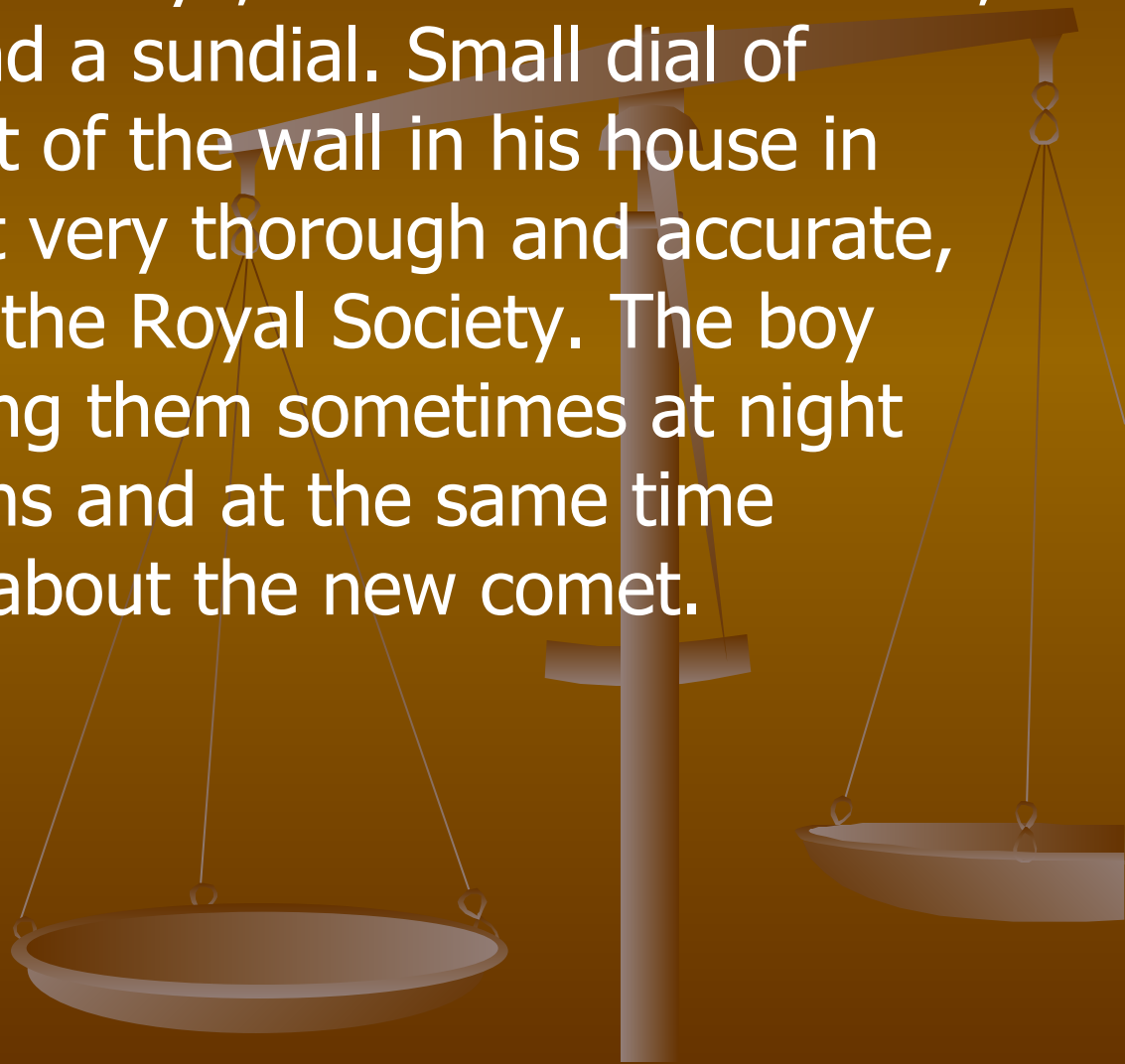


House,in which Newton was born



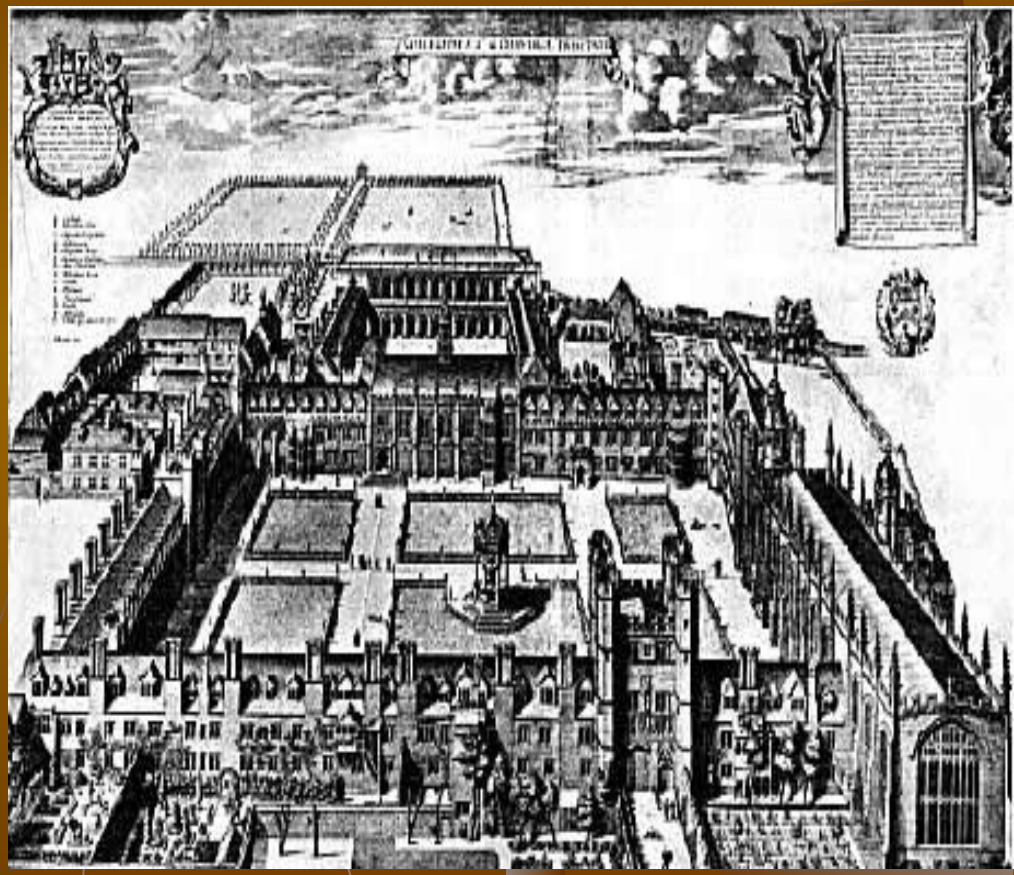
- Three years after the son's birth mother has entered into a second marriage with a priest Barnabas Smith, and little Isaac stayed in Woolsthorpe with grandmother; here, in nearby schools, he learned to read, write and count. his family was not satisfied with this and twelve years old Isaac was sent to study in Grantham to the Royal School, settled at the city’s pharmacist. Such attention to the education of Isaac shows that his family was not interested in farming only. Relatives and friends of Newton - the priests, the family doctor, the pharmacist, the farmers. In such an environment natural for the boy was planned spiritual or medical profession. Another possibility was just farming.

- There are stories that the boy liked building complex mechanical toys, models of water mills, bicycles, water and a sundial. Small dial of sundial carved out of the wall in his house in Woolsthorpe , not very thorough and accurate, stored in 1844 at the Royal Society. The boy loved kites, running them sometimes at night with paper lanterns and at the same time spreading a joke about the new comet.



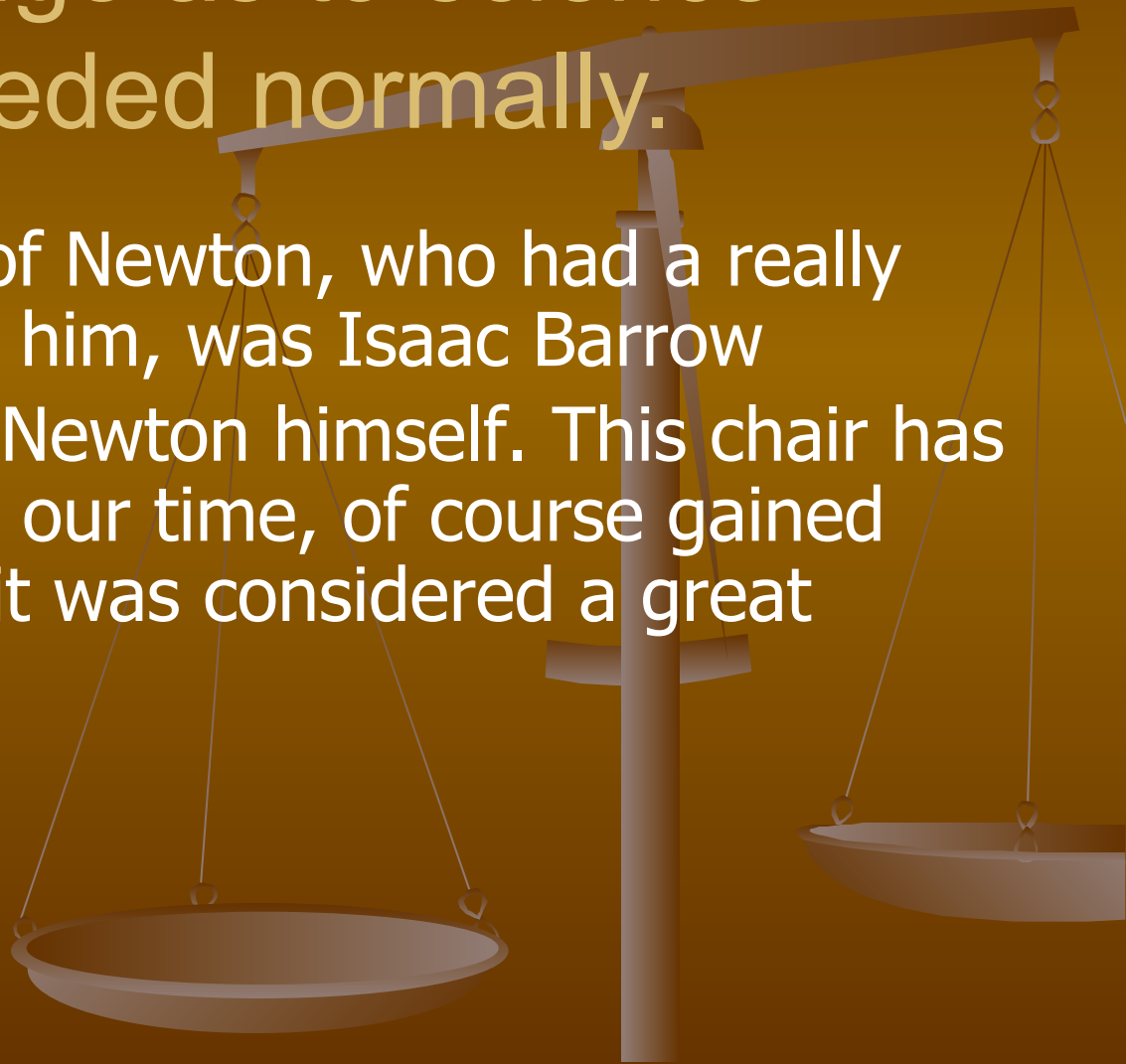
Trinity College (1661-1669)

- June 5, 1661, Newton was admitted to Trinity College as subsizer (so-called poor students, to perform the duties of servants in college to earn money. They waited on Bachelor, Master and so on.).

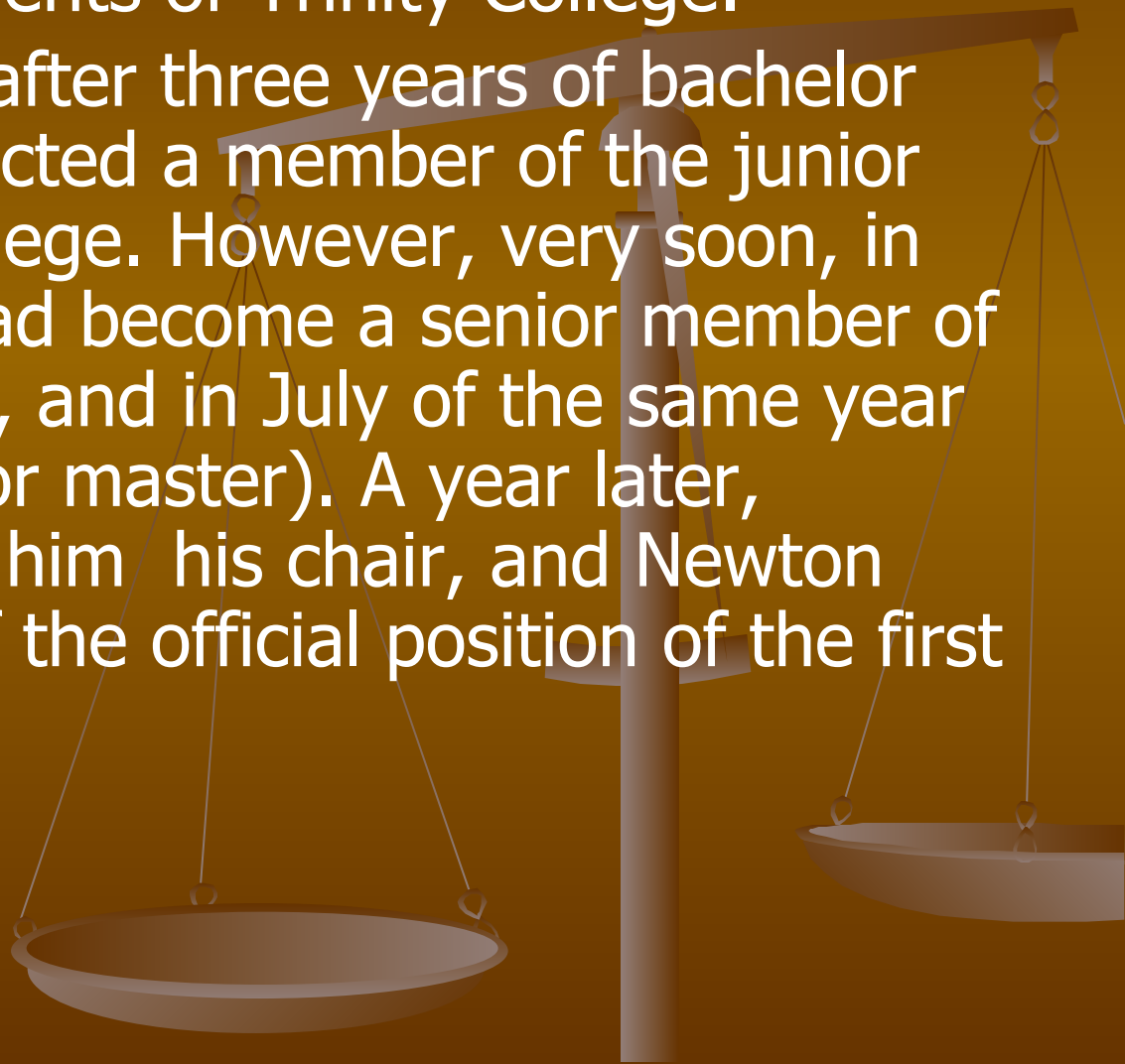


According to notes of Newton we can conclude that the first years in Cambridge as to science proceeded normally.

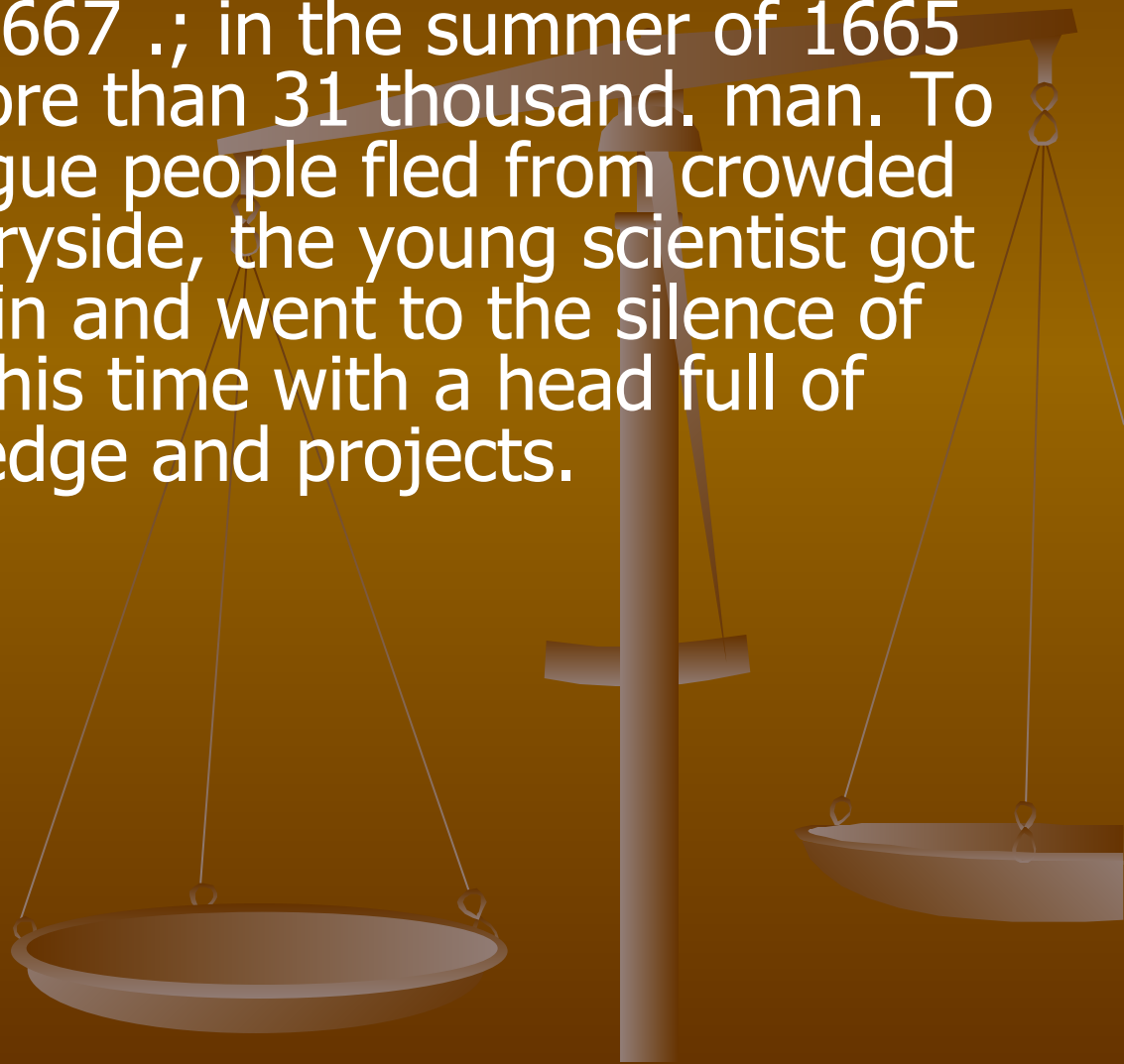
- The only teacher of Newton, who had a really great influence on him, was Isaac Barrow
- The second was Newton himself. This chair has been preserved to our time, of course gained fame and getting it was considered a great honor.



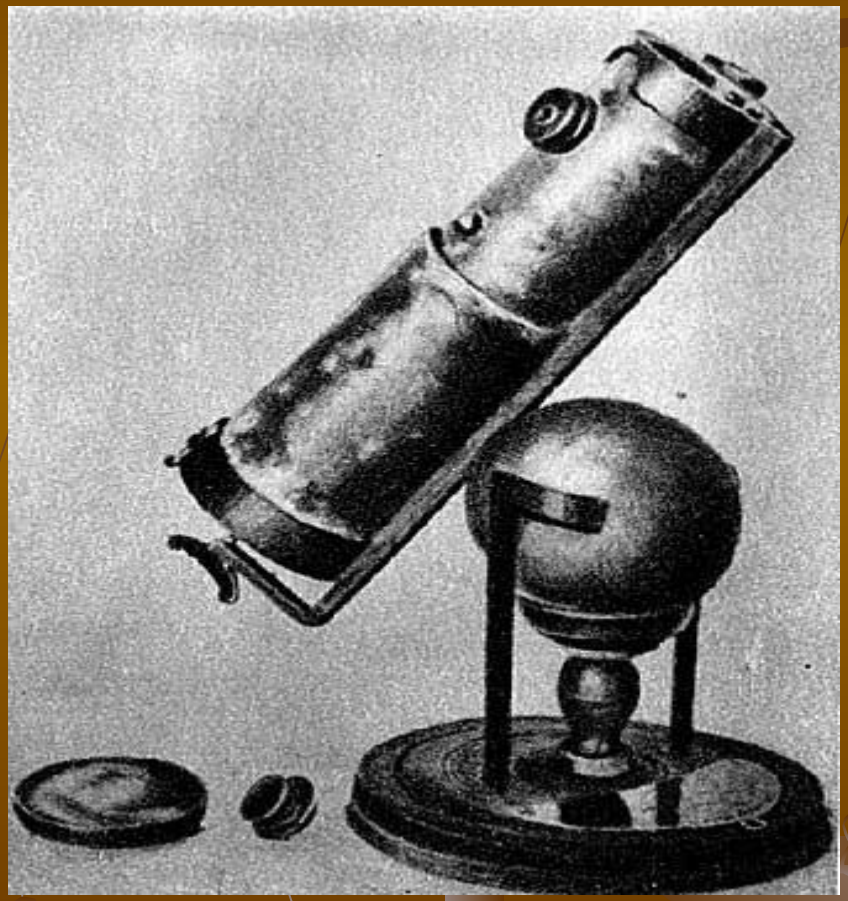
- In 1664, he became "a real student" (scholar), in early 1665 received a bachelor degree along with other 25 students of Trinity College.
- In October 1667, after three years of bachelor degree he was elected a member of the junior (minor fellow) College. However, very soon, in March 1668, he had become a senior member of the (major fellow), and in July of the same year "master of arts" (or master). A year later, Barrow concedes him his chair, and Newton reaches the top of the official position of the first half of his life.



- The great importance in the life of Newton, and at the same time in the history of science in general had a long “rest", which, Newton was «granted» during a terrible plague raged in England in 1664-1667 .; in the summer of 1665 in London died more than 31 thousand. man. To save from the plague people fled from crowded cities to the countryside, the young scientist got out of college again and went to the silence of Woolsthorpe,but this time with a head full of new ideas, knowledge and projects.



- As a result of hard work and experiments on the production of alloys and polishing metal surfaces Newton in 1668 managed to build the first model reflecting telescope length of only 15 cm and with a mirror of 25 mm in diameter.

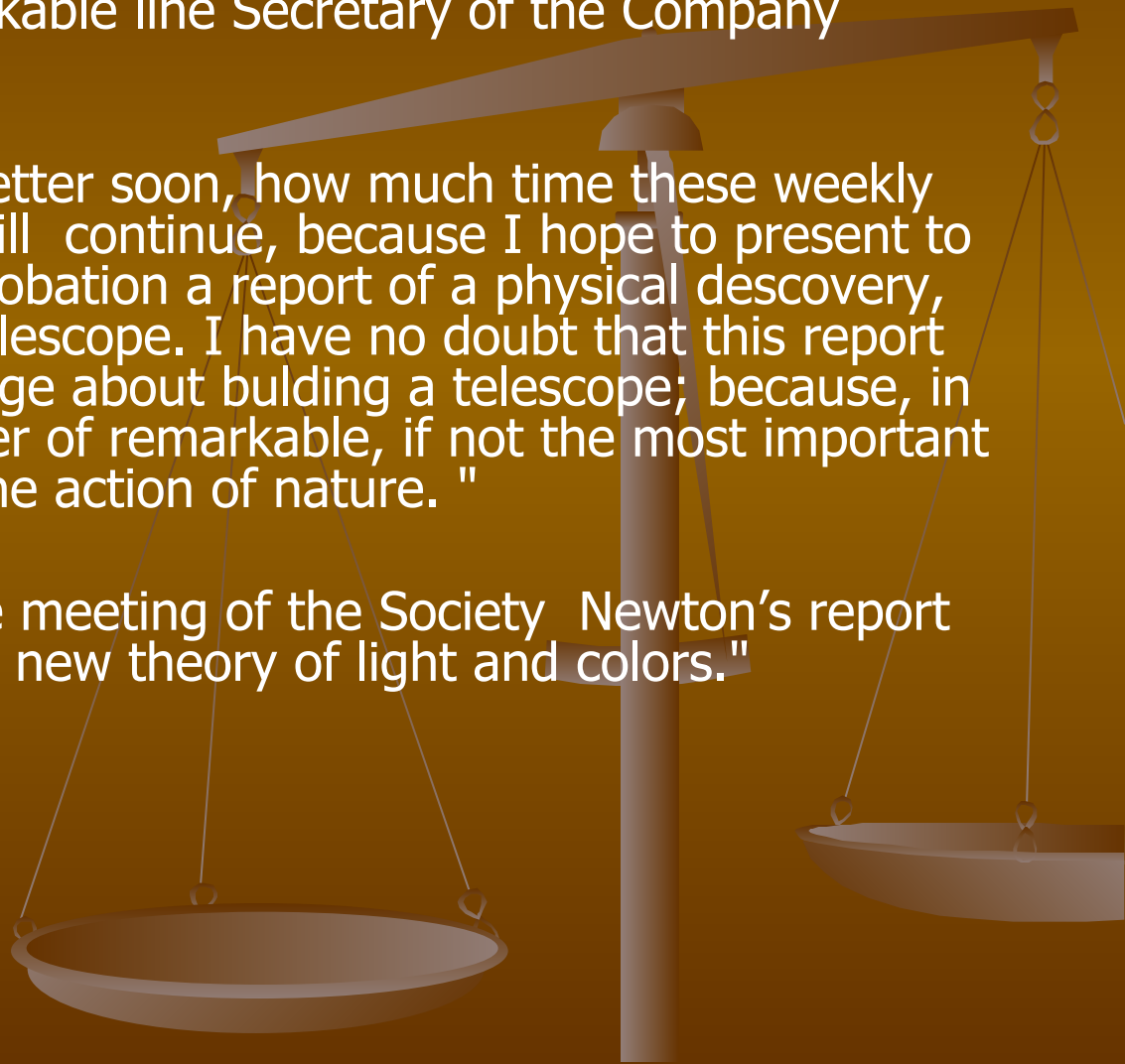


Royal Society

- In those years, telescopes were fashionable not less than "philosopher's stone", they were interesting in the widest circles of population. News that in Cambridge some inventor built a telescope of a completely new design, has reached London and may be the King. Sent small telescope was examined by Charles II and members of the recently approved (in 1662) Royal Society - Hooke, Wren, a mathematician and a famous builder of the Cathedral of St.. Paul's in London, and others. The tool has received full approval, and 11 January, Newton was elected a member of the Company.

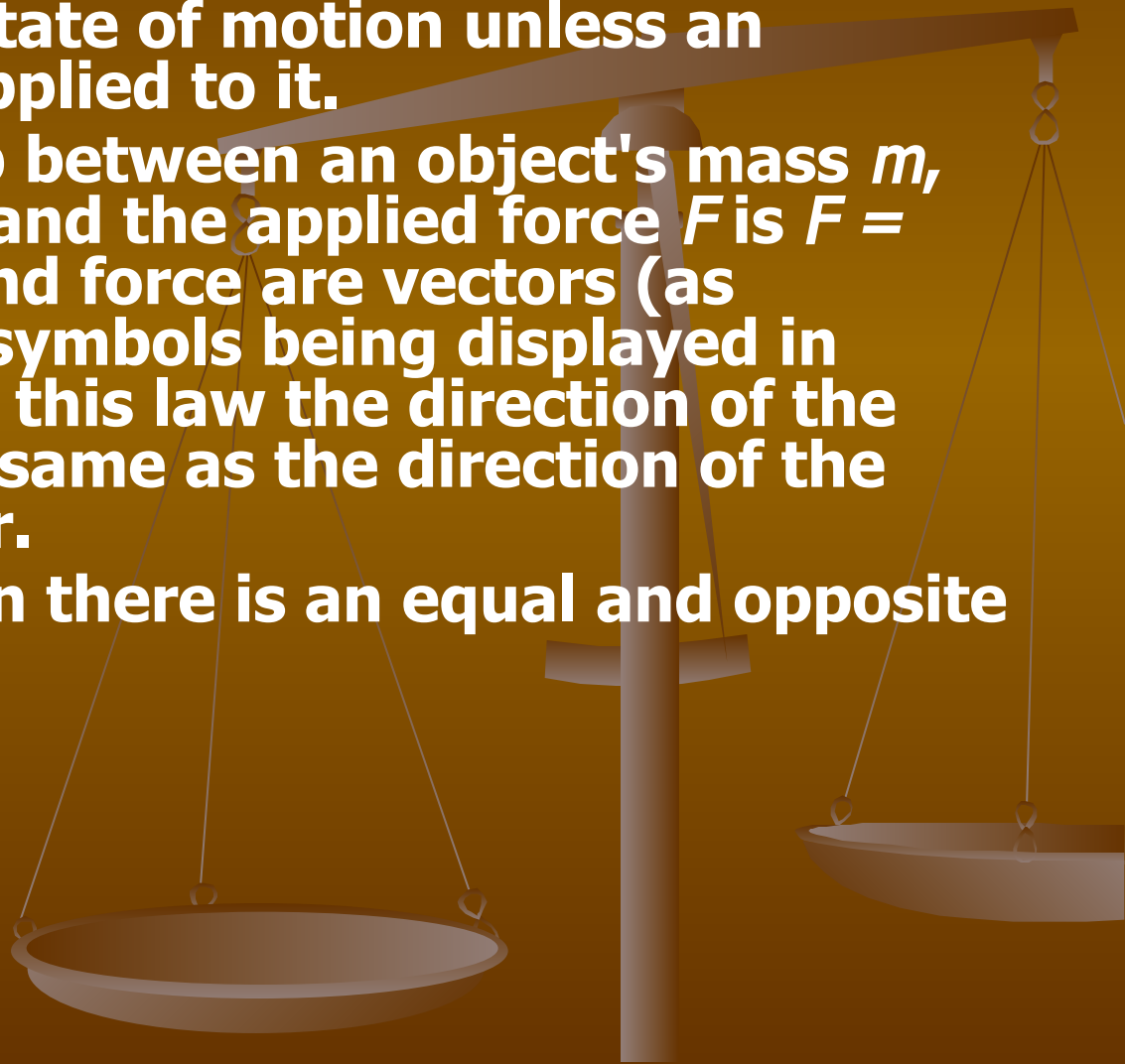
Following this sequentially most important phase of scientific life of Newton began to open

- A week after making it to the members of the Royal Society, Newton wrote the following remarkable line Secretary of the Company Oldenburg:
- "Can you tell me in your letter soon, how much time these weekly meetings of the Society will continue, because I hope to present to the Royal Society for approbation a report of a physical descovery, which led me to build a telescope. I have no doubt that this report will be nicer than a message about bulding a telescope; because, in my judgment, it is a matter of remarkable, if not the most important discovery ever made on the action of nature. "
- February 6th, 1672 on the meeting of the Society Newton's report has been read ,entitled "A new theory of light and colors."



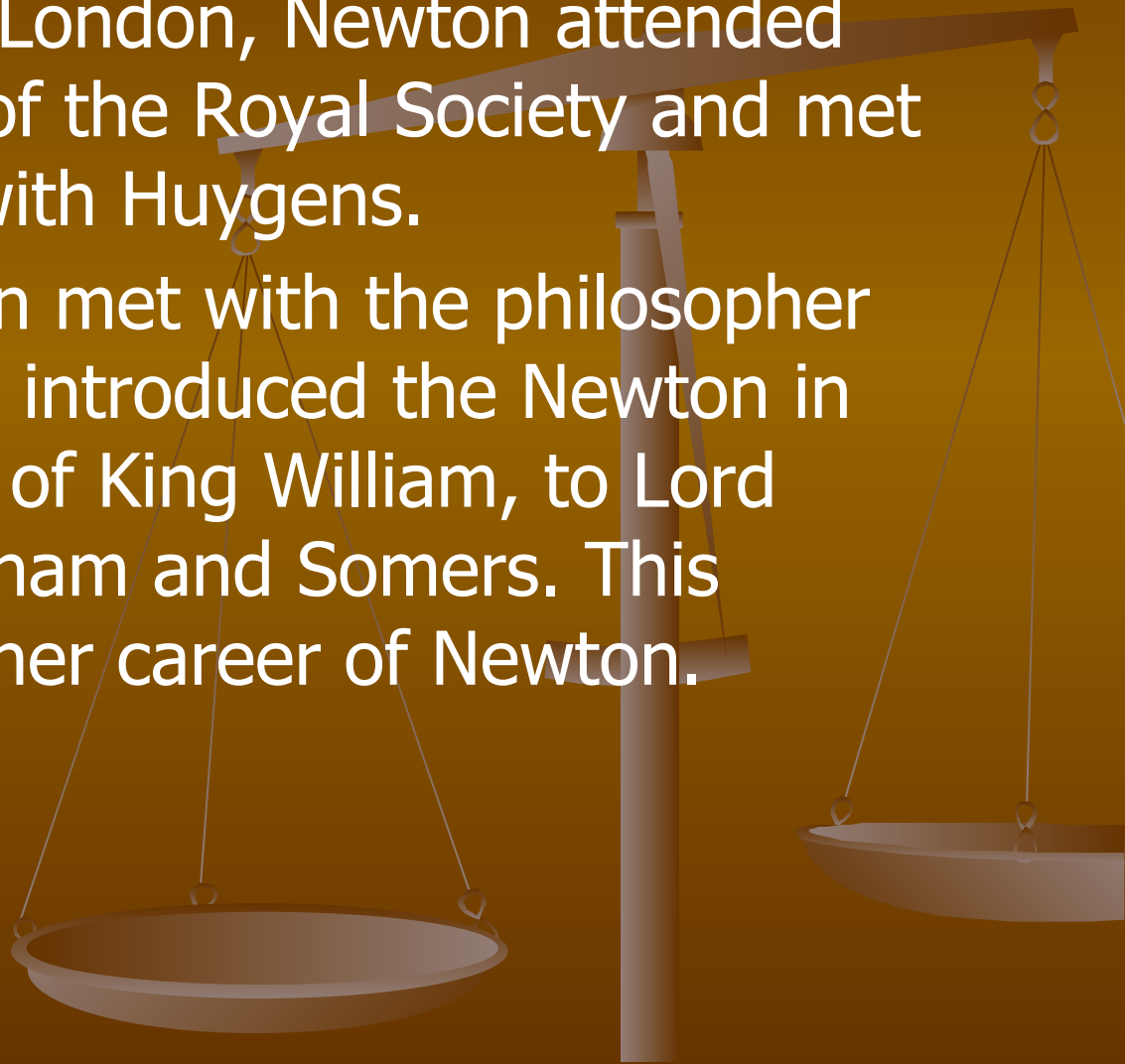
- Based on the definitions Newton establishes three famous axioms of motion

- *"I*. **Every object in a state of uniform motion tends to remain in that state of motion unless an external force is applied to it.**
- *II.* **The relationship between an object's mass *m*, its acceleration a, and the applied force *F* is *F* = *ma*. Acceleration and force are vectors (as indicated by their symbols being displayed in slant bold font); in this law the direction of the force vector is the same as the direction of the acceleration vector.**
- *III.* **For every action there is an equal and opposite reaction.***".*

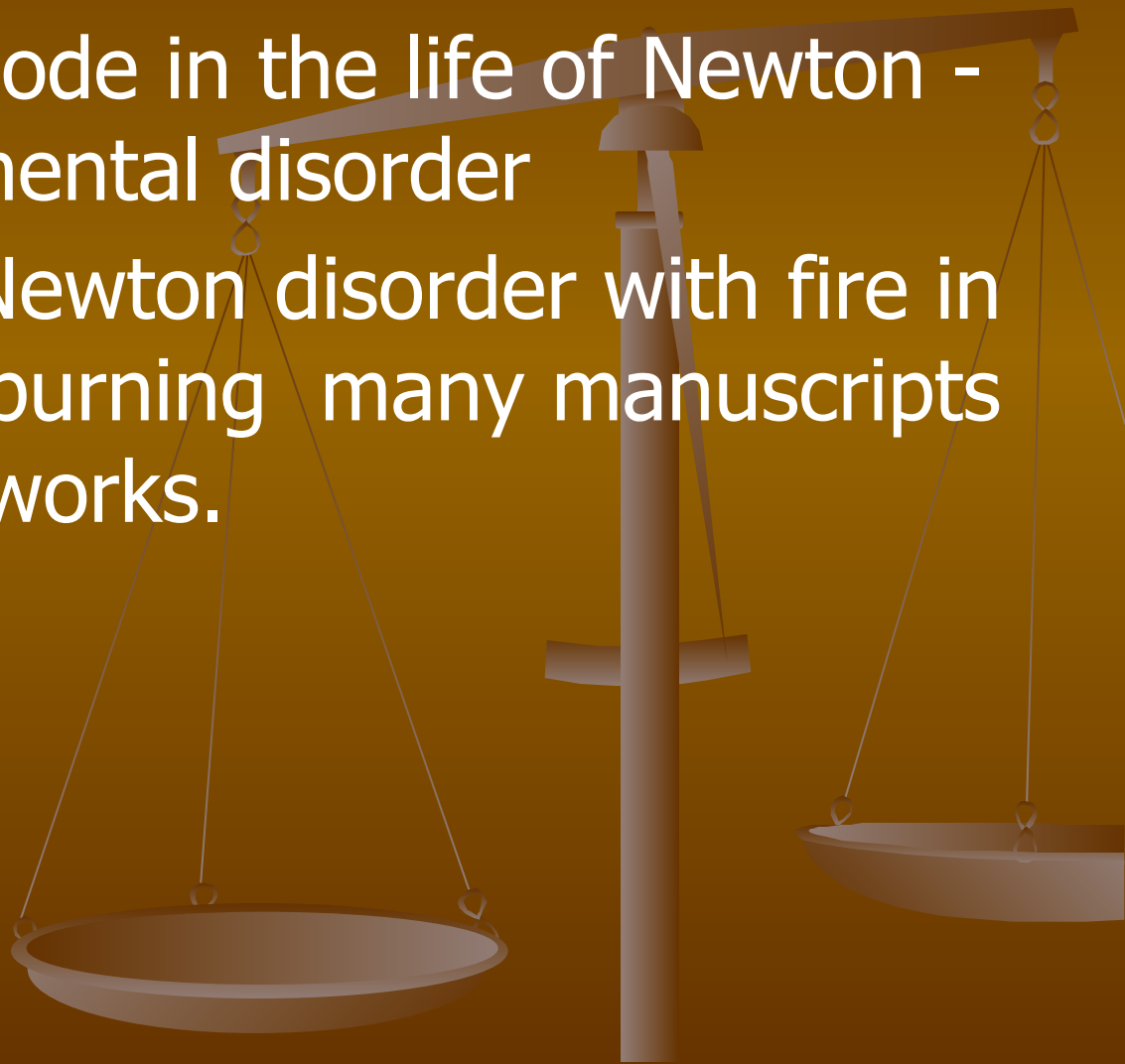


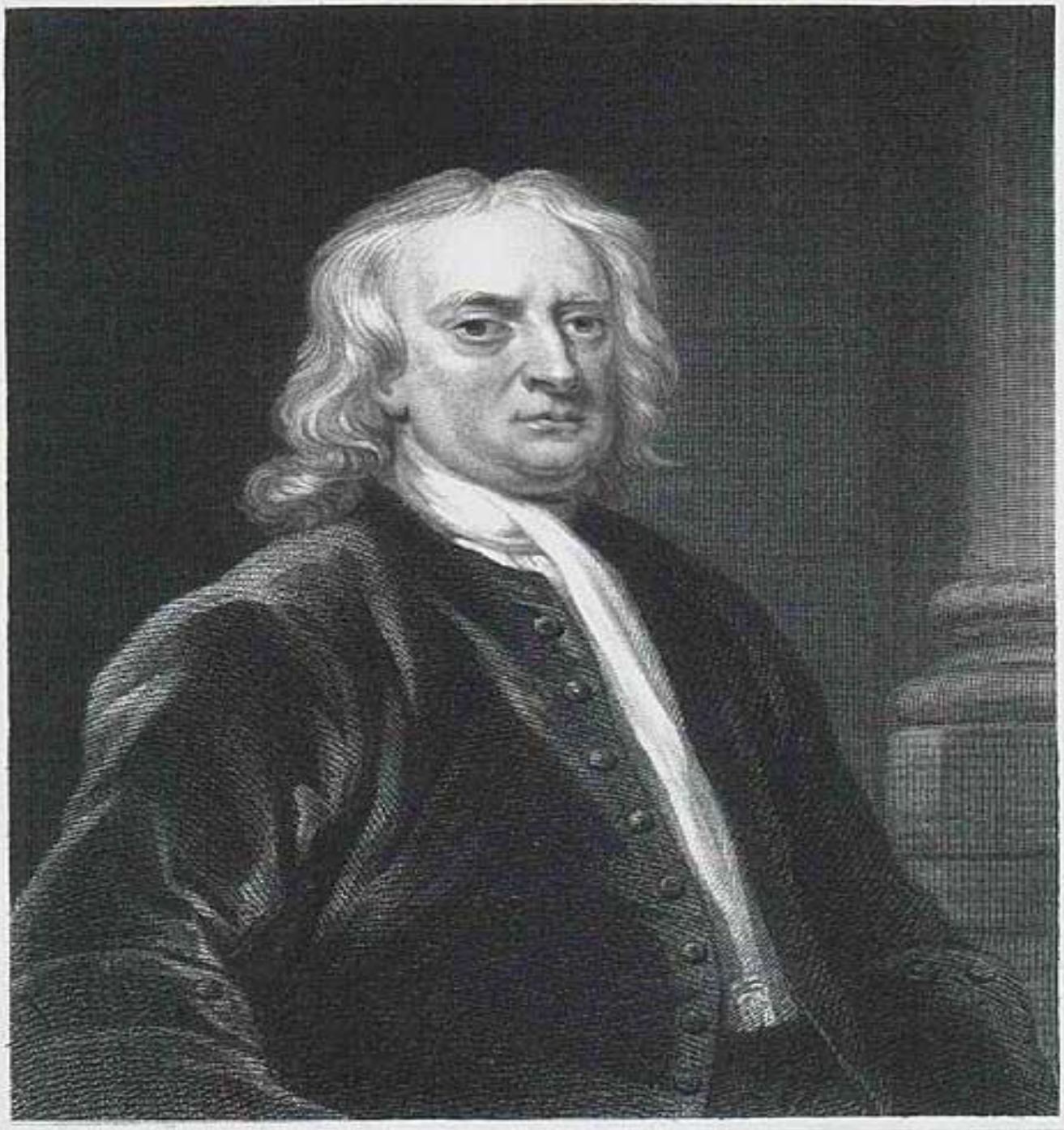
In 1688 and 1689. most of the time, Newton stayed in London.

- During his stay in London, Newton attended several meetings of the Royal Society and met for the first time with Huygens.
- In London, Newton met with the philosopher John Locke. Locke introduced the Newton in London to princes of King William, to Lord Monmoutom, Masham and Somers. This facilitated the further career of Newton.

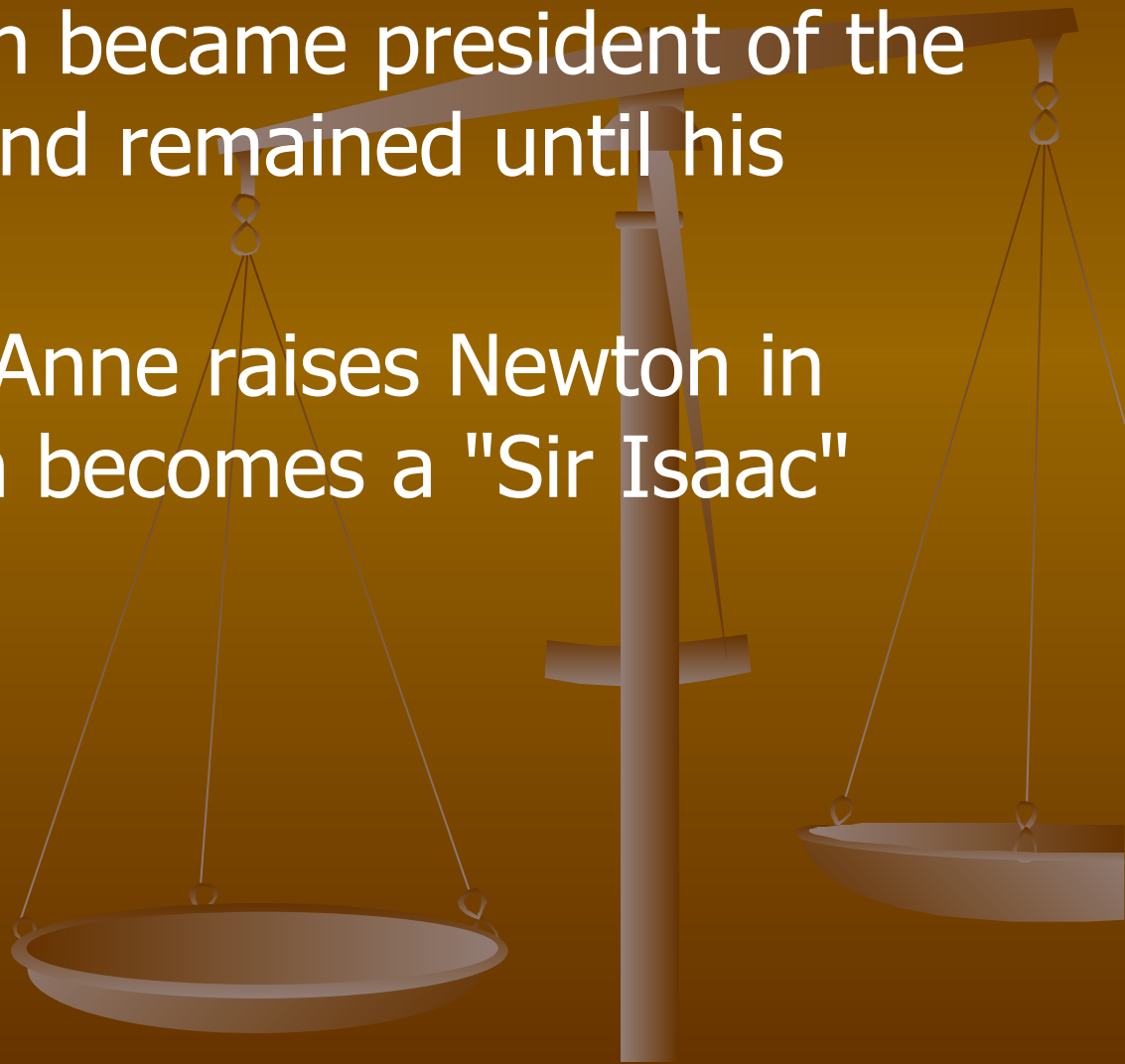


- When he finished his duties in Parliament, in February 1690 he returned to Cambridge. The time of 1690-1693 was the darkest episode in the life of Newton - his temporary mental disorder
- Rumors linked Newton disorder with fire in his office, and burning many manuscripts and unfinished works.



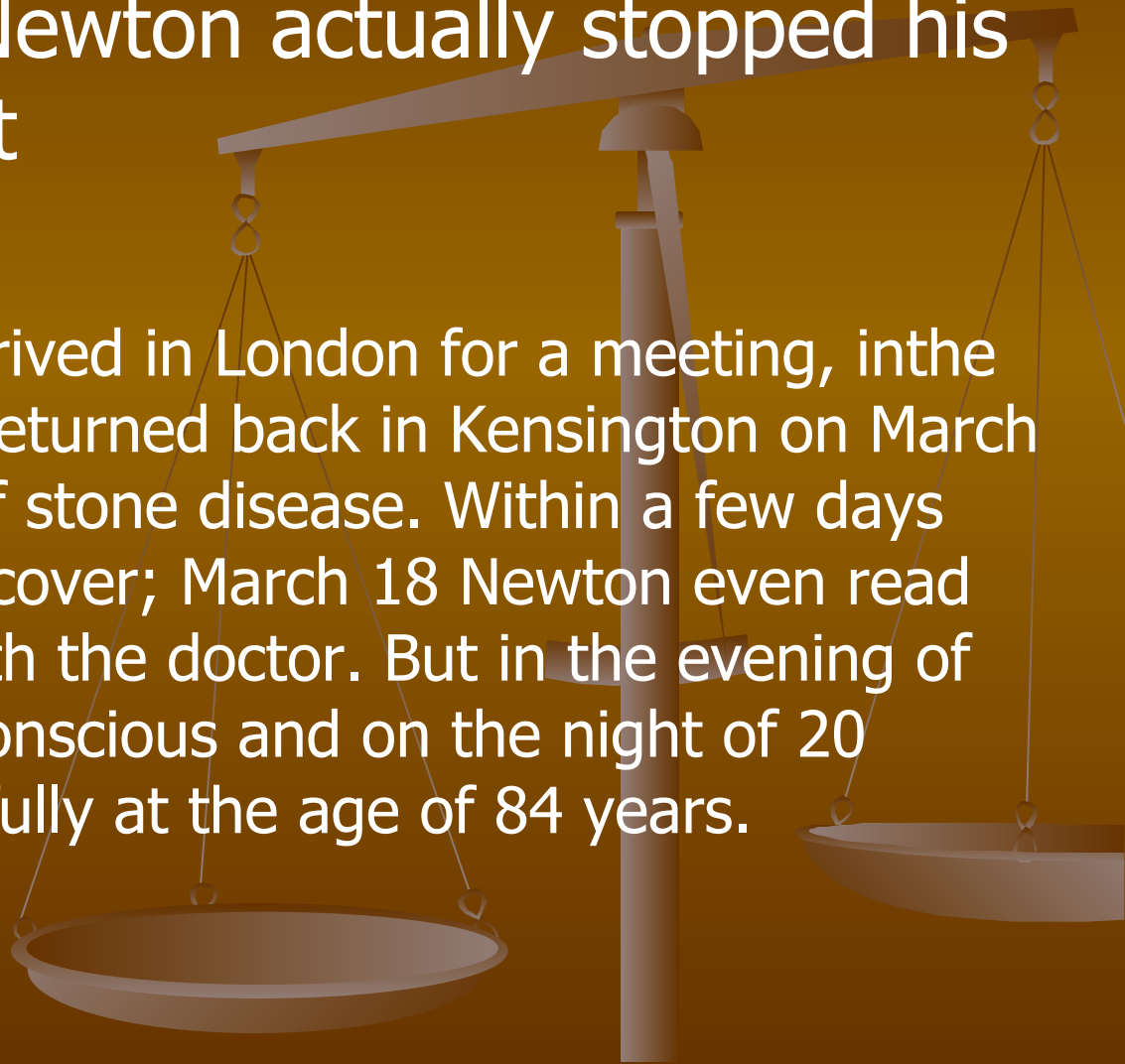


- In 1699 he was elected member of the Paris Academy of Sciences.
- In 1703, Newton became president of the Royal Society, and remained until his death.
- In 1705 Queen Anne raises Newton in nobility, Newton becomes a "Sir Isaac"



Newton's health deteriorated markedly in 1725

- With the 1725 Newton actually stopped his work at the Mint



February 28, 1727, he arrived in London for a meeting, inthe Royal Society. When he returned back in Kensington on March 4, he felt acute attacks of stone disease. Within a few days there was still hope to recover; March 18 Newton even read the papers and talked with the doctor. But in the evening of the same day he fell unconscious and on the night of 20 March 21, he died peacefully at the age of 84 years.

- Newton was mostly a physicist. Astronomical areas were his giant laboratory, mathematical techniques - a brilliant tool. Newton was not only into astronomy, or purely mathematical side of the work, while remaining a physicist in most part. In that is extraordinary restraint Newton's way of thinking. Before Newton, and after him, till this moment, mankind has not seen the manifestation of the scientific genius of that great strength and durability. But surely there were creations that are equivalent in importance like Newton's "Beginnings" (theory of electromagnetic field, theory of atoms and electrons, the theory of relativity, quantum mechanics, etc.). Newton first awared this.