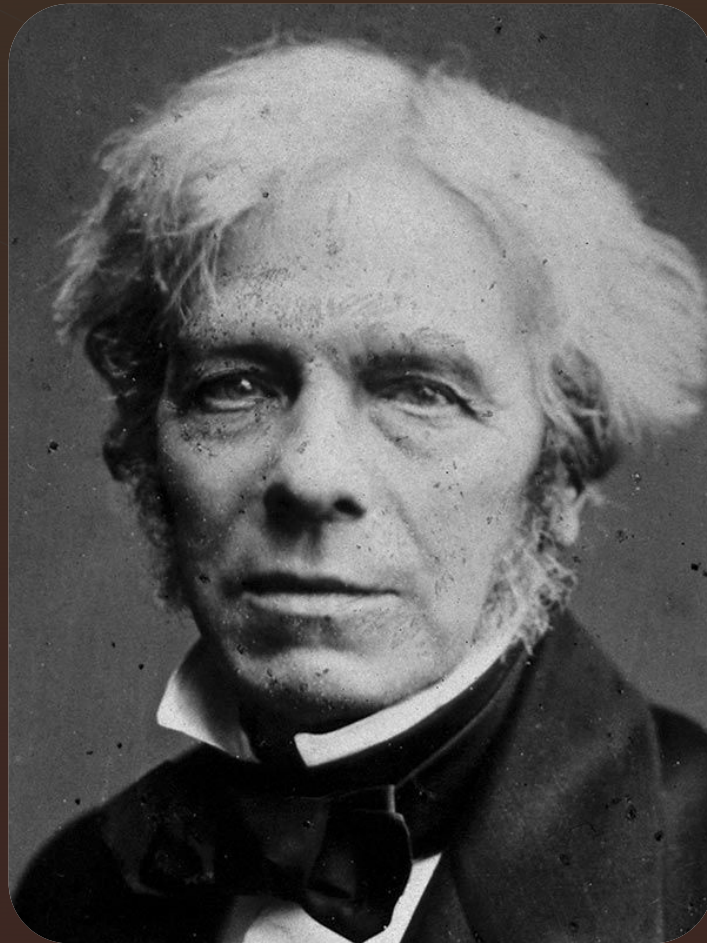


# Michael Faraday (1791-1867)



# Earlier year. Binder

Michael Faraday was born September 22, 1791 in the village of Newington Butts near London, in the family of a blacksmith. Family — father James (1761-1810), mother Margaret (1764-1838), brothers Robert and Michael, sister Elizabeth and Margaret — lived amicably, but in need, so already in 13 years Michael, leaving school, began work as a messenger in London bookstore, owned French-emigrant RIBO. After probation, he became a student of the bookbinder.

Faraday never managed to get a systematic education, but early showed curiosity and passion for reading. The store had a lot of scientific books; in later memories Faraday particularly noted books on electricity and chemistry, and in the course of reading, he immediately began to carry out simple independent experiments. Faraday and produced a galvanic battery ("voltaic pile").

An important stage in the life of Faraday were visits to the City philosophical society (1810-1811 years), where 19-year-old Michael in the evenings listening to popular science lectures on physics and astronomy.

# The way to science (1815-1821)

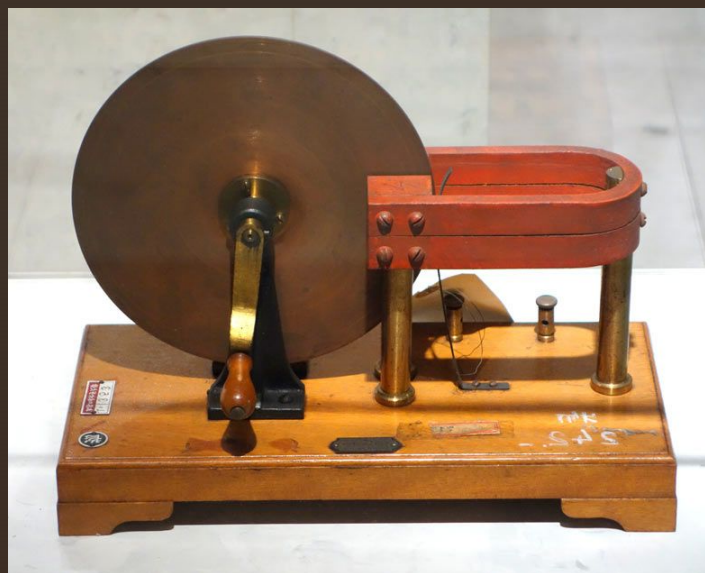
In May 1815, at the Royal Institute, Faraday began intensive work as an assistant. He continued independent research, which sat up late. In the first half of the XIX century, he earned fame as the "king of experimenters". All his life Faraday kept neat laboratory diaries of his experiments (published in 1931). The latest experiment on electromagnetism marked in appropriate diary number 16041, just Faraday spent for their lives about 30,000 experimentation.

In 1816, Faraday's first printed work (on the analysis of the chemical composition of Tuscan limestone) appeared. At the same time, Faraday began his first course of lectures in the Philosophical society, in which he had been a student six years earlier. Faraday's correspondence with large European chemists and physicists is tied. In 1820, Faraday conducted several experiments on the melting of steels with additions of Nickel. This work is considered to be the discovery of stainless steel, which at that time did not interest metallurgists.

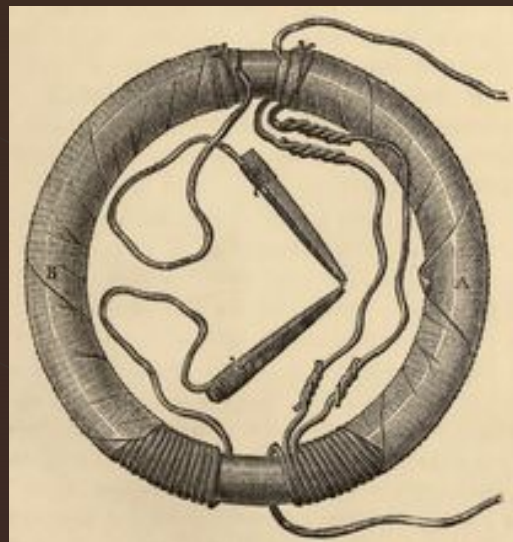
In 1821 in the life of Faraday have been several important events. In July he married 20-year-old Sarah Barnard (1800-1879), the sister of his friend. . The Faraday Institute has received a technical caretaker of the building and the laboratories of the Royal Institute (to Superintendent of the House). Finally, his experimental research began to move steadily into the field of physics. Several significant works on physics, published in 1821, showed that Faraday is quite developed as a prominent scientist. The main place among them was occupied by the article about the invention of the electric motor, which actually begins industrial electrical engineering.

# Openings

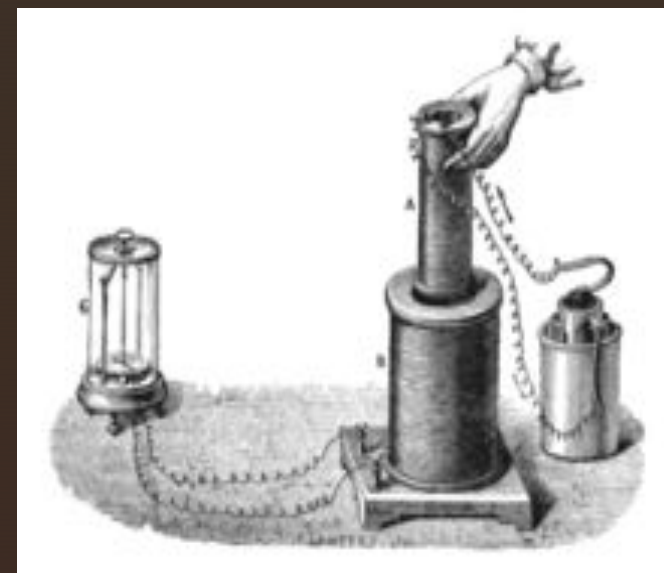
1. In August 1831, the scientist was able to detect the phenomenon of electromagnetic induction, which helped him to create the first electric generator on the planet.
2. The scientist created a visual device for the transformation of mechanical energy into electrical energy, called the Faraday disk.
3. In 1836 he proved that the charge of electricity can affect only the surface of a completely closed shell-conductor.
4. In 1845 he discovered a phenomenon called the Faraday effect. It belongs to an extensive class of magneto-optical phenomena.
5. In 1862, he put forward an assumption that claimed the presence of the influence of the magnetic field on the spectral lines.
6. In March 1862, in his laboratory journal, Michael made the last entry of the described experience, which received the number 16041.



Faraday Disc.



"Faraday transformer":  
when the current is  
turned on or off in one  
winding, the current is  
recorded in the other.



When the solenoid moves  
with a current inside the  
wire coil, a current arises in  
it.

## The last years of life

In 1848 Queen Victoria, admired Faraday, provided in perpetuity house, part of the Palace complex at HAMPTON Court. All house expenses and taxes the Queen took over. In 1858, Faraday resigned from most of his posts and settled in HAMPTON Court, where he spent the last 9 years of his life. From time to time, Faraday's health allowed him to return briefly to active work. In 1862 he put forward the hypothesis that the magnetic field can shift the spectral lines. However, the equipment of those years was not sensitive enough to detect this effect. Only in 1897 Peter Zeeman confirmed Faraday's hypothesis (referring to him as the author) and received the Nobel prize for this discovery in 1902. Michael Faraday died August 25, 1867 at his Desk, a little before the 76th anniversary. Queen Victoria offered to bury the scientist in Westminster Abbey, but the will of Faraday himself was fulfilled: a modest funeral and a simple tombstone in the usual place. The grave of the scientist is located at the Highgate cemetery, a site for persons of non-Anglican religion. However, the will of the Queen was also executed — in Westminster Abbey, next to Newton's grave, was installed a memorial plaque of Michael Faraday.

Thank you for listening

