

Faraday, an electrifying biography



Michael Faraday

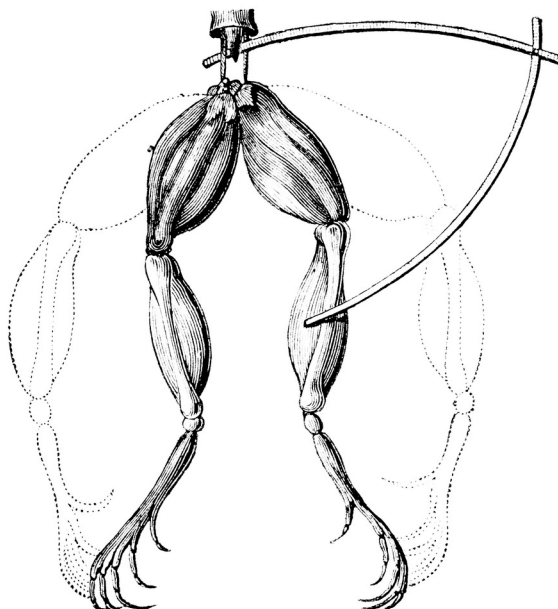
"The important thing is to know how to take all things quietly". This is one of the most famous quotes of Michael Faraday, a scientist who succeeded admirably with simplicity. Born in 1791 to a family of humble origins — his father was a blacksmith — in a suburb in south London, the young Michael grew up in contact with the Sandemanian Church, a Christian minority whose precepts certainly had a role in the formation of the young chemist-physicist, who saw in the study of nature a way to "discover the manifestations of God". Based on a literal interpretation of the Bible and close to the first origins of Christianity, Robert Sandeman's sect was characterised by the lack of interest for material goods, a strong spirit of brotherhood and an unwavering faith in the afterlife.



The tools of the bookbinder

The youngest of three brothers, Faraday had a rather rudimentary education and was forced to deal with hunger and survival at an early age. The poor health of his father, if possible, worsened the conditions of the family and Michael, just thirteen years old, began working for George Riebau, a bookseller and newsagent that gave him the opportunity not only to learn the trade of a bookbinder, but also to handle an enormous amount of texts and to meet many personalities of the time. These types of shops were at the time very different from what they are today; they were not only workshops where the books were bound and sold, but also meeting places for intellectuals of the time. And it was precisely in these years that Faraday became interested in science. Among the many books that the future scientist handled - and read - the Encyclopaedia Britannica played a central role, in particular under the heading "Electricity".

We are in the century immediately following that of the first great discoveries related to electricity, from Franklin's experiments with lightning to those of Galvani with frogs, in times when science had a certain theatrical vein, and in which the great scientists held public lectures in which they showed their experiments almost as in a performance. And so it was that, with the help of a customer of the shop, in 1812 Faraday was able to attend the public lectures of one of the most famous scientists of the day, the chemist Humphry Davy, director of the Royal Society. For our Michael it was a veritable godsend, and perhaps precisely for this reason, also thanks to his curiosity and his initiative, he was able to exploit this opportunity more than anyone else. In fact, he did not limit himself to attending the lectures, but furiously jotted down every single stimulus, reproduced certain experiments in a part of the shop made available by Riebau, produced a volume of approx. 300 pages and gave it to Davy himself. The illustrious scientist was so impressed by the work of Faraday that he decided to hire him as his assistant. Since fortune favours the brave, a little later, one of the assistants of the Royal Institution was fired and Davy hired Faraday to replace him. From here on the career of the former bookbinder was a series of successes, which the young scientist achieved overcoming a series of obstacles including, not least, those related to the prejudice determined by his social background. In nineteenth century England, strongly class based, science was in fact the preserve of the privileged classes and the success of a boy of humble origins was frowned upon. Nevertheless, despite the humiliations suffered, such as those enacted by the wife of Davy during a trip to Europe in which Faraday had the opportunity to meet the scientific elite of the time, the now almost twenty year old Michael managed to stand firm and in 1816 published his first scientific paper.



Galvani, frogs and electricity

His career started from the field of chemistry, described the laws of electrolysis, discovered benzene and obtained the liquefaction of various gases. He then dedicated himself mainly to physics and in particular electromagnetism until when, in 1831, after an intense laboratory activity, to which he was particularly prone, he came to formulate the fundamental law of electromagnetic induction, inventing the electrical transformer, the dynamo and introducing the concept of lines of force. In 1833 he was appointed professor of chemistry at the Royal Institution and step by step he became famous worldwide. He also distinguished himself for his oratory, communication and outreach skills, but never lost his Sandemanian soul: he refused honours and recognition, including that of President of the Royal Society, he did not accept to study the use of toxic gases in the Crimean War, convinced that science was at the service of mankind and several times renounced a knighthood for scientific merits to remain "simply Mr. Faraday".

By Anna Pellizzone

To find out more:

- http://people.sissa.it/~mussardo/Professional_web/History_of_science_files/Faraday-Pages.pdf
- [http://www.treccani.it/enciclopedia/michael-faraday_\(Enciclopedia-dei-ragazzi\)/](http://www.treccani.it/enciclopedia/michael-faraday_(Enciclopedia-dei-ragazzi)/)
- <http://www.theiet.org/resources/library/archives/biographies/faraday.cfm>