



Hans Christian Ørsted

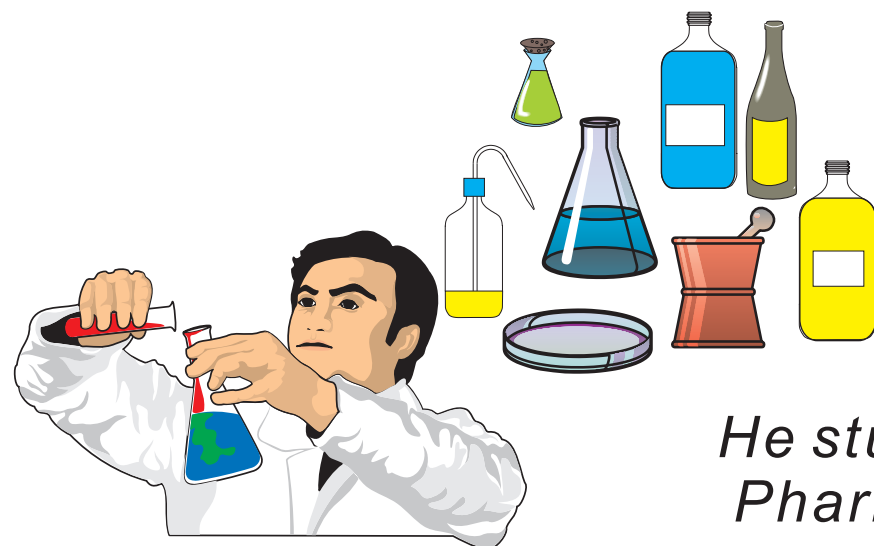
1777-1851

Hans Christian Ørsted was a Danish physicist who discovered that an electric current produces a magnetic field.

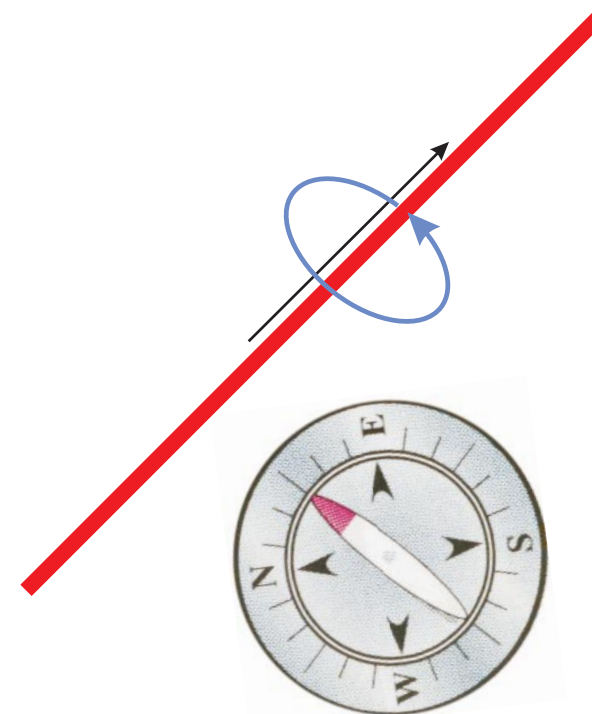
Ørsted was born at Rudkøbing, on a small island, Langeland, on 14 August, 1777. He was the elder son of an apothecary, Søren Christian Ørsted. Since the demands of the pharmacy were high, the parents placed Hans Christian and his younger brother Andres Sandøe with a local German wigmaker and his wife for their early education. The brothers quickly learned German by translating a German bible. Their intellectual ability was soon clear and neighbours did their best to educate them. At the aged of 11, Ørsted began to help in his father's pharmacy. **Although, the two brothers had little formal education, they entered Copenhagen University with honours**, in 1794. Andres went on to become a jurist, and Hans pursued a career in natural philosophy. At the University, Ørsted studied astronomy/physics, mathematics, chemistry, and pharmacy.

At that time, Ørsted was influenced by the philosophy of Immanuel Kant, who believed that all the forces of nature were the consequence of two underlying fundamental forces of attraction and repulsion. Most probably this idea led Ørsted to his important discovery of the unity of electricity and magnetism - *electromagnetism*.

In 1797, Ørsted received his degree in pharmacy and, in 1799, he wrote his PhD thesis on Kant's scientific ideas. To complete his scientific training he then traveled to Germany and France, visiting numerous places where physicists and chemists were working with electricity. In 1806 he was offered a professorship in Copenhagen.



*He studied
Pharmacy*



*He showed
that a current
in a nearby
wire affected
a compass
needle*

At that time electrical and magnetic forces were thought of as quite distinct. Although their laws of action had many similarities, their nature was thought to be quite different. In 1813, Ørsted suggested that there should be a connection between electric and magnetic phenomena, but he did not discover this connection experimentally until 1820.

While lecturing to his students at the University, he noticed that a nearby magnetized compass needle was disturbed when an electric current passed through a very thin platinum wire. In his own words, the experiment made no strong impression on his audience. He was also not sure that the effect was the one he had anticipated. He therefore continued his experiments during the summer of 1820 and published his results in a short paper written in Latin. **The importance of Ørsted's discovery was recognized at once**, and quickly led Ampère to his description of the way in which an electrical current produces a magnetic field.

Later, Ørsted participated in the development of the galvanometer and succeeded in isolating aluminum. He was a gifted and popular lecturer and spent much effort in popularizing science also by writing in popular journals. He also devoted considerable time to his philosophical ideas. In his last paper 'The Soul in Nature' he proposed a harmony between Spirit and Nature. The publication was left unfinished when he died on 9th of March, 1851.

The unit, Ø (ørsted), for the strength of a magnetic field is named after him. The earth's magnetic field is about 2Ø .

S.E.