

Demonstrating Electrical Induction

Electricity All Around Us Backgrounder



The principle of **electrical induction** was discovered by Michael Faraday in England in 1831. Based on an earlier discovery of electromagnetism by Christian Oersted 10 years earlier, Faraday learned that a permanent magnet could be used to produce a current if passed through a coil of wire. This discovery enabled the development of the electrical generator, the single most important invention leading to the commercialization of electricity.

Electrical induction occurs when electrons within a conductor such as copper, are “induced” to move by passing a magnetic field near the conductor. This effect can be intensified by wrapping the conductor into tight coils, so that the magnetic field is exposed to more of the conductor. The stronger the magnetic field and the greater the length of conductor exposed to the field, the stronger the electrical current.

Today, most electricity is generated by the use of this principle. Commercial generators use both electromagnets either permanent magnets or electromagnets in their moving parts, which pass near heavy coils containing many hundreds of kilometres of wire. The energy needed to turn these generators is provided by wind, falling water, or high-pressure steam.