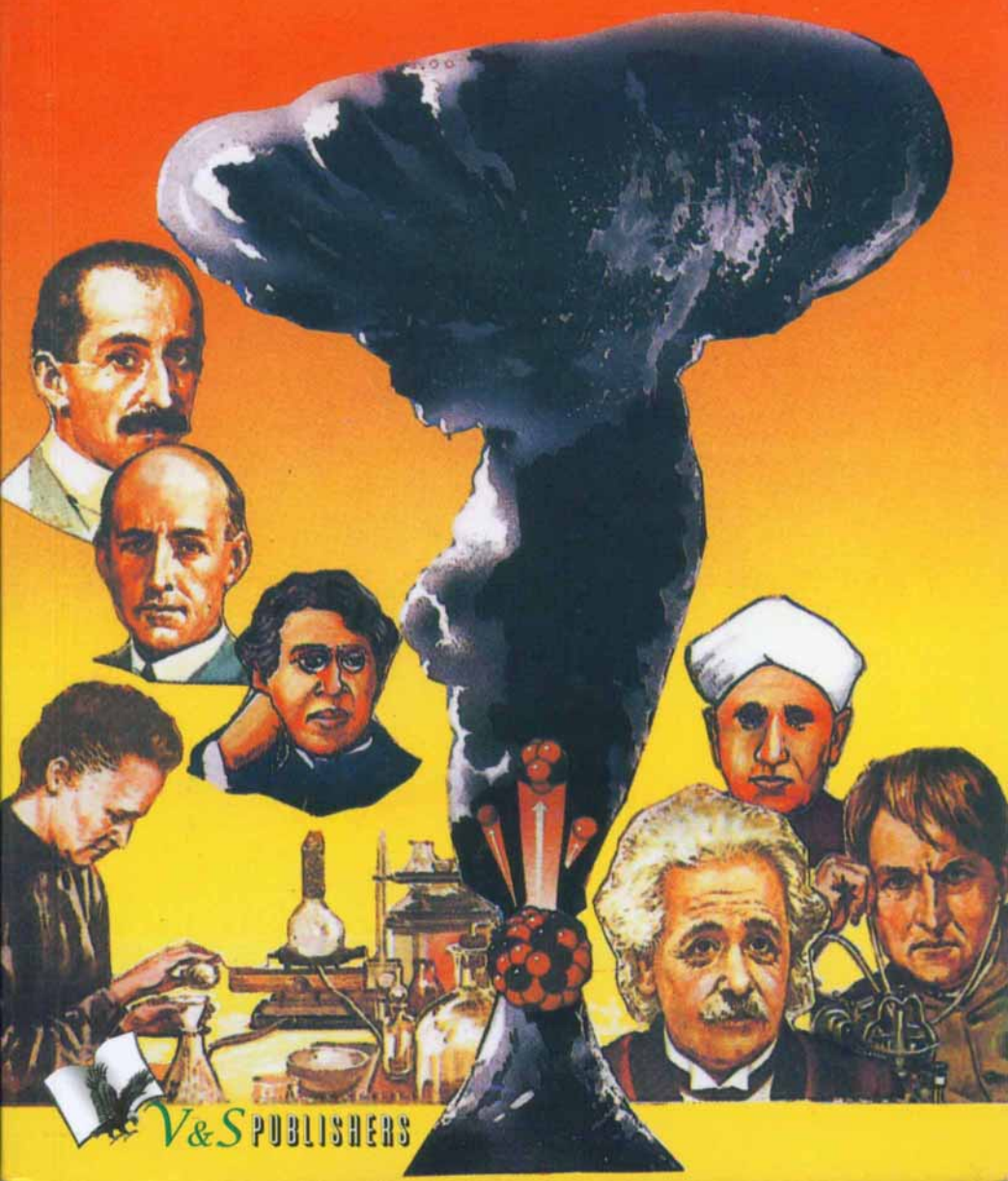




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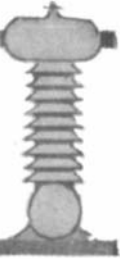
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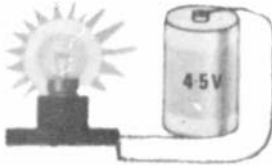


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This book contains invaluable information about the scientists and their achievements in various fields. They have contributed much in the field of Mathematics, Physics, Chemistry, Mechanical and Civil Engg., Ornithology, Civil Aviation, Wireless Communication, etc. Had it not been for their efforts, life would have been a difficult struggle in the present world.



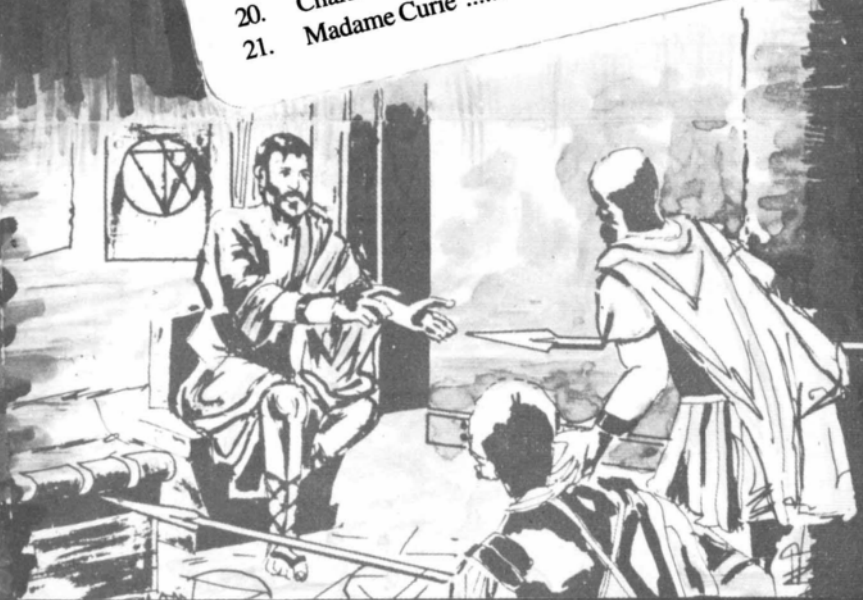
It is not possible to bring out a book of such wide dimensions encompassing events from all over the world without recourse to authentic reference books. We gratefully acknowledge our debt to authors and publishers of those books which have been of invaluable help in the preparation of this book.



We would, of course, welcome your valuable views about this book.

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Michael Faraday

(The Inventor of Electromagnetic Induction)

Today, thousands of power stations all over the world are producing electricity with the help of generators. Without the invention of the generator electric power could not have been a reality.

And moreover it is difficult to visualise our life today without electricity. The credit of inventing this machine goes to Michael Faraday. When he made the first generator he was not aware that his invention would turn out to be one of the most important boons of the scientific age.



*Born: Sept. 22, 1791, Newington, London
Died: August 25, 1867, Hampton Court*

Michael Faraday, the father of Electromagnetic Induction, was born in 1791 at Newington, England. He was the son of a blacksmith and worked as an apprentice in book-binding during his early years. He developed interest in science after he attended some lectures given by Sir Humphry Davy in 1812. He sent his study notes to Davy with a request for a job. In 1813, he began to work as Davy's assistant at the Royal Institution. One year later, he accompanied Davy on a European tour. This turned out to be a highly rewarding experience for the modestly educated young scientist.

After his return to the Royal Institution, Faraday had to work hard, since he was the main source of income for the Institution which was then facing financial problems. During this period, Faraday worked in the field of glass and steel. He performed many chemical analyses and investigated the chlorides of carbon for Davy. His work resulted in the discovery of benzene in 1825.

Davy left the Royal Institution, but Faraday was immensely influenced by Davy and carried out many experiments for him. When Faraday discovered in 1823 that gases could be liquified by pressure.

Davy got the credit. After this, serious differences crept in between the two, so much so that Davy opposed the election of Faraday as a Fellow of the Royal Institution.

In 1820, Hans Oersted discovered that when electric current passes through a conductor it could produce magnetic field. Faraday heard about this and thought that it would also work the other way round, that is, magnetic field can generate electricity. He carried out experiments, he invented the process of electromagnetic induction and formulated the laws of electromagnetic induction. He demonstrated that if a magnet is moved inside a wire loop, electricity is generated. He also demonstrated that if a current carrying wire is suspended near a magnet it revolves around the magnet. These experiments made him famous throughout Europe. In 1831, he made the first dynamo. Joseph Henry also made a generator at the same time. All modern dynamos, generators and transformers are based on the work of Faraday and Henry.

One famous incident of Faraday's life is worth mentioning. When he invented electromagnetic induction, he presented an experiment to demonstrate it before many people who came from all over the world. Among the spectators was a lady with her young baby. Faraday took a coil of copper wire and connected its ends to a galvanometer. He inserted a bar magnet into the coil. With the insertion of the magnet the needle of galvanometer moved, indicating generation of electricity. When he removed the magnet, the needle moved back. Faraday explained to the audience that this was the basis of generating electricity.

When the demonstration was over, the lady became angry. "Is it an experiment? Have you called the people to befool them?" she asked Faraday. Faraday replied politely, "Madam, just as your child is quite young, so is the case with my experiment. So far it is like a baby. In future, it may be of utmost importance."

Faraday's statements have come true today. There is no electric generator and transformer which does not work on the principle of electromagnetic induction. If Faraday would have not invented electromagnetic induction, perhaps we would have not got electricity.

In the next few years, Faraday demonstrated by passing currents through solutions that all kinds of electricity, however generated, was

the same. In this way, he developed the laws of electrolysis in 1834 which are taught to the students of physics even today.

In 1839, Faraday suffered a mental breakdown. His convalescence took four years. His breakdown left him with a poor memory which grew worse with time. However, he returned to his work and started investigating the effect of a magnetic field on non-metallic substances. He discovered paramagnetism and diamagnetism. Although Faraday was very fond of giving lectures on science subjects, in the late 1850s he had given it up because of his failing memory.

In 1861, Faraday, then 70, retired from the Royal Institution and moved to a house in Hampton Court that Queen Victoria has offered him. By now his condition was so bad that he required permanent assistance. On 25 August 1867, he breathed his last. He was given a private funeral at Highgate Cemetery.

Faraday was a scientist noted for blending theory and experiment in his researches. He had little money to spend on apparatus and knew no mathematics. Many of his inventions were not put to use until decades after his death. Two electrical units are named after Faraday. One is the Faraday Unit used in measuring quantities of electricity, and the other is the Faraday Unit used in measuring the capacity of a capacitor.

Galielei Galileo

(Who wonderstruck people from the Leaning Tower of Pisa)



Born: February 15, 1564, Pisa (Italy)
Died: January 8, 1642, Arcetri (Italy)

The story of Galileo and Leaning Tower of Pisa is well-known in the history of science. At the age of 23, when he was working as a lecturer in Mathematics in Pisa University, he read in a religious book that if two bodies of different weights are allowed to fall simultaneously from the same height, the heavy body will hit the ground first. In fact, this was a statement made by Aristotle. Galileo was the first man who proved this statement wrong.

For this he selected the 180 feet high Leaning Tower of Pisa.

On the demonstration day, Galileo went up to the seventh floor of Pisa Tower with two metal balls weighing 100 pounds and 1 pound respectively. Thousands of people had turned up to witness his experiment. Among the crowd were many professors and students of Pisa University. Many superstitious spectators had blind faith in Aristotle's statement given thousands of years earlier. They were freely abusing Galileo.

Galileo put both the balls on one edge of the roof very carefully. Some people among the crowd became curious, but most spectators were whispering with each other that this man would prove to be a fool very soon by his own experiment. Galileo dropped both the balls simultaneously. The people were wonderstruck when the two balls hit the ground at the same time. In this way, many years old superstition was proved wrong scientifically. People may differ about the truth of this story. However, it is true that Galileo could understand many facts about gravitation and that is why he could prove the truth by his experiment.

Galileo, even after 350 years of his death, is still considered as