



9

Some Pioneers of Modern Science

We all know that the world today is not what it was two hundred and fifty years ago. Two hundred and fifty years ago the fastest means of travelling was on horse-backs. Today men travel by cars or trains, which are several times faster than the fastest horse. Men can even fly, and they have reached the moon. In olden days people could not talk to each other if they were not within the shouting range. But modern men and women talk to their friends on the other side of the world with the help of the telephone or a wireless set. These changes in our life have been brought about by the great inventions and discoveries of scientists. It is not easy to calculate the benefits that science and scientists have bestowed upon mankind. The history of the progress of the human race may, in many ways, be regarded as the history of great scientists whose discoveries and inventions have immeasurably contributed to the comfort and the safety of man's life.

One of the most wonderful things that modern men use, and on which modern civilization virtually depends, is electricity. It is not for common men without deep scientific knowledge to understand what exactly electricity is and where it comes from. But we all can understand what electricity can do and how its use benefits mankind.

Two Englishmen, Sir Humphrey Davy and Michael Faraday, used to take deep interest in the working of electricity. Sir Humphrey Davy was at first a laboratory assistant at a hospital, but later he became a professor of Chemistry and a Fellow of the Royal Society. He found that electric current would separate many things in the solution into their constituent parts. From this discovery, men today make low-cost aluminum, pure copper, chlorine, various acids, fertilizers and steel. One important discovery



that Davy made was that a coil of wire through which electric current passes acts like a bar of magnet. Davy's greatest invention was the Safety Lamp which men working in the underground coal mines can safely use. This lamp is called the Davy Lamp in memory of its great inventor, who was one of the pioneers working tirelessly to make electricity practically useful to mankind.

Michael Faraday, who was an assistant to Sir Humphrey Davy, discovered the electro-magnet. In 1831, he made the first dynamo to produce electricity. His discovery made it possible to produce electricity more quickly and more

power-fully than before. It is because of Faraday's discovery of the electro-magnet that electric power can be used for telegraph, sending wireless message, driving machines, etc. As a result of his invention, thousands of power stations are producing electricity all over the world.



Again, when you pick up a telephone and talk to a person at the other end, you realize the importance of the telephone. But you do not remember the person who invented it. His name is Alexander Graham Bell, a Scotsman. Graham Bell became interested in electricity and began to wonder if it would not be possible to convey the human voice along a wire. Slowly his experiments took shape, and at last he was able to speak along a wire to a friend in another room. In the beginning he had great difficulty in persuading people to take up and use the invention. Finally, the Bell Telephone Company was formed. Today the telephone helps us in our offices and in conducting business. And in every house we know that this wonderful gift received from Alexander Bell had been of great help to us in our daily life.



Now, you must have seen what a gramophone record is. It is a forerunner of the modern day cassettes and discs on which the voices of people, particularly, of famous singers are recorded. We can listen to the songs of the great singers and the music of great musicians with the help of these gramophone records or cassettes or discs whenever we wish to listen to them. The person who invented this wonderful machine called gramophone was Thomas Alva Edison, an American scientist. As a little boy he used to sell newspapers on the American railway platforms. Between the arrival and departure of trains he was always found in the telegraph office at the railway station watching the operators at work. One day he saw the station-master's little boy in danger of being run over. Jumping forward, he saved the child and the station-master was so grateful that he taught Edison all about telegraphy.

Thomas Alva Edison was a tireless worker and he used to spend hours, days and months in scientific research. To him we owe some of the greatest means of comfort of modern life. When he invented the gramophone he was only twenty-one. Next his interest focused on photography, which was all done on glass plates in those days. Soon he showed that photographs could be taken on celluloid ribbons. This brought about a revolution in photography, which led to the development of film industry. Another very useful invention of this great inventor is the electric bulb with which we illumine our houses and streets.

Again, news and songs that we receive on the radio set at our homes reach us through the empty space without the help of any wire. The great scientist who invented this magic device was Marconi, a great Italian scientist. In fact, several people before Marconi were trying to transmit voices from one place to another without the help of wire, but



success did not come to them. Then, Marconi discovered that human voices could be turned into electric signals with the help of electricity and that those electric signals could be turned into the original voices again. He tirelessly worked with his research and finally in 1901, he succeeded in transmitting a signal across the Atlantic Ocean. As a result of Marconi's wonderful invention we can send messages from one place to another in an instant. And now, wireless has become an important part of contemporary life.

GLOSSARY

immeasurably	: without measure, to a great degree
constituent parts	: different parts that make a thing
persuading	: making people do something by giving good reason for doing so
conducting	: carrying out, doing
forerunner	: a thing that came before
research	: careful study of a subject
focused	: was directed
celluloid	: a thin plastic material used for making photo-graphic films
revolution	: great change
device	: equipment that is made to do a thing
transmit	: to send electronic signal, radio signal, etc.
contemporary	: one's own time

COMPREHENSION

I. *Answer the following questions:*

1. What was the fastest means of travelling two-hundred fifty years ago?
2. What was Sir Humphrey Davy before he became a professor of Chemistry?
3. Write how useful telephone is to us today.
4. How can we listen to the songs of the great singers and the music of great musicians whenever we want to listen to them?
5. What brought a revolution in photography?
6. How is the invention of electric bulb useful to us?
7. How is the discovery of the electro-magnet important?
8. Why did the station-master teach Thomas Alva Edison telegraphy?
9. Write about Thomas Alva Edison's discoveries.
10. Write how Marconi's discovery is useful to man.

II. *Read the following passage:*

Bembem - Miss, please tell us something about the resources of Manipur.

Teacher - As I have told you, the most valuable resource is knowledge. We have to enrich our knowledge. For this, we need to educate each and everyone in our society. Manipuris are highly talented, skilled and intelligent people. We have lots of potentials. Education is important for developing our potentials.

Now, answer the following questions in one sentence each :

(i) What is the most valuable resource ?

Ans.

(ii) To enrich our knowledge, what do we need ?

Ans.

(iii) What kind of people are the Manipuris ?

Ans.