**The Concept of Electrical Current**

In the beginning of the 17th century Sir William Gilbert discovered that many substances could be electrified by friction. Gilbert named this effect «electric» after the world «electron» - the Greek name for amber. In 1756 the great Russian scientist M. V. Lomonosov was the first to make theoretical analysis of electrical phenomena.

At present the nature of electrification is explanted by the electron theory. According to the modern theory all matter is composed of atoms or tiny particles. There are many kinds of atoms. Each atom consists of a nucleus, a small positively charged mass and a number of lighter negatively charged particles called electrons, which revolve around the nucleus. Normally each atom of a substance is electrically neutral, or it has equal amounts of negative and positive charges, i.e. produces no electrical effects. If the number of negative charges is not equal to the number of positive charges, the matter will produce electrical effects.

When an electric charge is at rest it is spoken of as static electricity, but when it is in motion it is referred to as an electric current. In most cases, an electric current is described as a flow of electric charges along a conductor.

Not all substances are good conductors of electricity, as a general rule metals are good conductors of electricity, whereas nonmetals are poor conductors. The poorest of conductors are commonly called insulators or nonconductors. There are a large number of substances that are neither good conductors of electricity nor good insulators. These substances are called semi-conductors. An electric current which flows in the same direction through a conductor or a current which does not change its polarity is called a direct current or a continuous current. Its abbreviation is D. C. An alternating current (A. C.) flows first in one direction and then in the other.

An electric circuit is a path through which an electric current flows. This is a complete path along which electrons can transmit their charges. An electric circuit includes a battery, generator, or magnetic means for producting current flow. Some portion of the circuit is made to do useful work.

The circuit is said to be open when no charges can move due to a break in the path. The circuit is said to be closed when no break exists-when switches are closed and all connections are properly made.

Special symbols are used to show electrical systems. There is a wide range of these symbols. There are some of them which are used when we draw circuits. And now look at the diagram of series and parallel arrangements.

**Words to the text**

1) insulator-изолятор

2) substance-вещество, материя

3) friction-трение, сцепление

4) nucleus-ядро, ячейка

5) amount-сумма, количество

6) charge-заряд, загрузка

7) rest-покой, отдых

8) motion-движение

9) flow-поток, течение

10) circuit-цепь, кругооборот

11) current-течение, ток

12) path-путь, дорожка, линия

13) break-прорыв, интервал, перелом

14) To discover-открывать

15) To make-делать

16) To explain-объяснять

17) To consist-состоять из

18) To revolve-вращаться

19) To produce-производить

20) To transmit-передавать

21) To include-включать

22) To exist-существовать

23) To use-использовать

24) Tiny-маленький, крошечный

25) Light-легкий, светлый

26) Equal-равный

27) Poor-бедный, слабый

28) Continuous-непрерывный, постоянный

29) Wide-широкий

30) Alternating-переменный

**1. Найдите в тексте**

а) интернационализмы б) ложные друзья переводчика

**2. Дайте краткие определения следующих понятий:**

Static electricity

Electric current

Direct current

Alternating current

Electric circuit

An open circuit

A closed circuit

An electrical phenomenon

An electron theory

Positive charges

Negative charges

Conductors of electricity

Special symbols

**3.Переведите на русский язык. Обратите внимание на инфинитивные конструкции.**

1. The capacity to absorb heat varies between substances.
2. Each object in nature has a particular temperature which can be compared with the temperature of other objects.
3. To make this comparison accurate thermometer is used.
4. Each atom is known to have a name and symbol.
5. To know the melting point of the metal in use is necessary.
6. I consider him to be the best qualified person in the laboratory.
7. Whenever the speed or velocity of a body changes, the body is said to have acceleration.
8. Laws and theories are formulated from the results of the experiments and then used to predict the results of new experiments.