

now applied to any one small branch of a great science, but covers a vast field of facts which are supposed to be based on the same underlying causes.

#### THE NATURE OF ELECTRICITY.

The action of electricity led many experimenters who lived long after Gilbert to the belief that it was a fluid which was not perceptible to their senses. Benjamin Franklin assumed it to be a fluid, and bodies which exhibited electrical manifestations were thought by him to contain either more or less of the normal amount of the fluid. A Frenchman named Dufay and an Englishman named Symmer considered electricity to be composed of two fluids which were contained in neutral bodies in equal amounts. When by any means this electricity was disturbed in a body, electrical manifestations occurred.

These theories, and a large number similar to them that were promulgated, are now discarded in the light of later scientific knowledge. But the conception of the fluid theory is very useful in giving a clear understanding of some of the *phenomena* of electricity. It is now generally admitted that the *phenomenon* to which we give the name "electricity" results from a state of strain or other manifestation in the ether. The ether is a kind of fluid medium that is supposed by scientists to be present everywhere. It must even be supposed to pass through or be contained in solid bodies, as though they were ether sieves, as well as in empty space. Heat and light are supposed to be carried by it from one body to another, as from the sun to the earth, by means of vibrations or waves, much as the energy exerted by a pebble thrown into a pond is carried to the shores by the waves of the water. In like manner electricity is supposed to be waves in the ether or a strain imposed on it. The question of what the ether may really be need not be considered in dealing with the fundamental laws of electricity.

When one comes to lay down on paper a few thoughts concerning the production of electric energy and the many wonderful feats it performs, we may well pause to reflect, and, say, can it be possible that we are living in such an age. Our ships are guided by its wonderful influence, we may flash messages around the world in the twinkling of an eye, it drives our carriages, hauls our freight, gives us transportation, furnishes light, heats our homes, cooks our food, furnishes a medium by which we may look through ourselves and see as others see us, and enables us to converse with friends hundreds of miles away as though they were beside us.

Lucrez (born 95 B.C.) mentions the fact that loadstone had the power of attracting and repelling iron. The magnetic needle was discovered by the Chinese as early as the year