Lightning and Lightning Conductors

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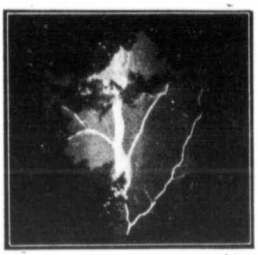
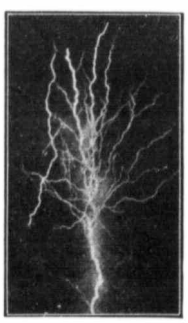
If the phenomenon of lightning were better understoond, perhaps the enormous toll it exacts in life and property would be less. Carefully complied statistics shows that in the United States between 700 and 800 persons are killed annually and twice that number injured by lightning. This great loss of life falls largely upon the people who live away from the great centres of population. So, too, the greater part of the annual



Forked Flash Taken in a Woodland During a Storm

loss of property is chargeable to farm buildings and their contents and live stock in the field. Light and power electrical transmission lines also suffer from the vargaries of lightning, but the great multiplication of these lines in recent times has stimulated the development of means of protection, so that at present the electric power plants and lines are better protected from lightning than are farm buildings.

In what follows an attempt will be made to outline in non-technical language a few of the most important laws of electric phenomena. It is obvious that even a rudimentary knowledge of matters concerning the behavior of electrically charged bodies under various conditions will be of great value to persons who spend the



A Tree-shaped Flash

greater portion of the day in the open.

Lightning, or more particularly a lightning flash, is a discharge of electricity between two electrified bodies, as between one cloud and another. Most of us are familiar with electricity and the varied economic purposes it serves. In all of these, however, it is under perfect control; it is chained, so to speak, by the wires which distribute it from the cell in which it is produced by chemical action, or from the generator which transforms the energy of the steam engine into electro-motive force.

In order that the difference between the electricity that flows from a mechanical generator or other artificial source and that which abides in the atmosphere and on the earth's surface may be understood, it is necessary that first principles be considered very briefly.

Origin of Electricity.

It has been stated that electricity may be produced by chemical action by mechanical means, but there are still other means by which a body may be given an electrical charge. Thus, if one rubs his feet over a woolen carpet several times and then touches his finger to the gas fixture, a slight spark will pass to the latter with an audible snap. In this experiment the body through friction with the woolen carpet, receives a very light electric charge. The latter is discharged,

A Storm at Sea

or dissipated, as soon as the finger touches the gas fixture. This experiment is intended to show the ease with which a body can receive an electric charge.

Conductors and Non-conductors.

Bodies do not all behave alike when an electric charge has been given them: thus some of them immediately conduct it away; in other words, the charges does not permanently reside on the body. To these bodies the name of conductor has been given, hence the term "lightning conductor" means a body that will conduct or lead away a lightning discharge. Other bodies have the quality of retaining an electrical charge for sometime or of permitting it to escape very slowly. These are caller non-conductors or insulators. A conductor, if supported by a non-conducting body, may also retain an electric charge, but the retention of the charge is due to the fact that the non-conducting support of the body prevents the escape of the charge. Telegraph lines, it will be remembered, are insulated from the poles by glass insulators. At one time it was thought