NEW METHOD OF PROTECTING BUILDINGS FROM LIGHTNING.
SPARE THE ROD AND SPOIL THE HOUSE!

Lightning Destroys. Shall it be Your House or a Pound of Copper?

PROTECTION FROM LIGHTNING.

What is the Problem?

In seeking a means of protection from lightning, we have to view two objects—the one the prevention of damage to buildings, and the other the protection of those who come in contact with such buildings. In order to bring these two objects into proper co-ordination, it is necessary that the lightning should strike the building in whole or in part, it is necessary that work should be done; that is, as physicists express it, the lightning discharge, when it strikes a building, should discharge its energy through the walls of the building; and it is necessary that the energy be absorbed. The problem of how to protect the building, in this sense, is the problem of the conservation of energy. The completion of this work, as such, results in the least injury to property and life.

Why have the Old Rods Failed?

When lightning-ropes were first proposed, the science of energetics was entirely undeveloped; that is to say, in the middle of the last century scientific men had not come to recognize the fact that the different forms of energy—heat, electricity, mechanical power, etc.—were convertible into one another, and that each could produce just so much of each of the other forms, and no more. The doctrine of the conservation of energy was first clearly worked out in the early part of this century. There were, however, some facts known in regard to electricity a hundred and forty years ago, and among these were the attracting powers of points for an electric sheet, and the conducting powers of metals. Lightning-ropes were therefore introduced with the idea that the electricity exiting in the lightning-discharge could be conveyed to the building in which it was proposed to protect, and that the building would thus be saved.

The question as to the destruction of the energy involved was entirely ignored. According to the law of conservation of energy, the energy liberated in the discharge is not destroyed; it is merely converted into another form. The old lightning-rod system, however, do not satisfy the law of conservation of energy, for this is approximate in the case of the old lightning-rod system, and when it is considered that the electrical energy existing in the atmosphere is made up of electric charges—positive and negative—on the surface of the earth, charged from the clouds; and when it is considered that the greatest distance of energy will be upon the surface of the lightning-rod that is nearest the earth, and that the greatest density of energy will be upon the surface of the lightning-rod that is nearest the earth, it is seen how effective this system is.

In the case of the old lightning-rod system, the energy of the old lightning-rod is equal to the energy of the old lightning-rod that is nearest the earth, and that the greatest density of energy will be upon the surface of the lightning-rod that is nearest the earth, and that the greatest density of energy will be upon the surface of the lightning-rod that is nearest the earth, it is seen how effective this system is.

Is there a Better Means of Protection?

Having cleared our minds of the false notion that we must furnish some mechanism by which the electrical energy may be harmlessly dissipated, the question arises, Can improved forms be given to the rod so that it shall a, 'in this disposition'?

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