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 taming lightning, we have in view two objects,—the one the prevention of damage to buildings, and the other the reduction of loss of life. In order to accomplish the former, it is necessary that work should be done; that is, as physiologists express it, energy is required to go to work. Just before the lightning-discharge takes place, the energy capable of doing the damage which we seek to prevent exists in the column of air extending from the cloud to the earth. It is in some form that no one can observe it. It is capable of appearing as what we call electricity. We therefore call it electrical energy. What electrical energy there is in the air, it is not necessary for us to consider in this place; but that it exists there can be no doubt, as it manifests itself by the jerks that fall from the clouds. In order to prevent the conversion of this energy into some other form, and the accompanying disaster of this such a way as will result in the least injury to property and life.

Why have the Rods Failed?

When lightning-rods were first proposed, the science of electricity was entirely undeveloped; that is to say, in the middle of the last century scientists had not come to recognize the fact that the different forms of energy—heat, electricity, mechanical power,—were convertible one into the other. More than this, they had not even realized that the conservation and correlation 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 power of points for electric sparks, and the conducting property of metals. Lightning-rods were therefore introduced with the idea that the electric energy existing in the lightning-discharge could be conducted to the building where it was to be protected, and that the building would thus be saved.

The question as to dissipation of the energy involved was entirely ignored, naturally; and from that time to this, in spite of the best endeavors of those interested, lightning-rods constructed in accordance with Franklin’s principles have not furnished satisfactory protection. The reason for this is apparent. It has been considered that the electrical energy existing in the atmosphere before the discharge, or, more exactly, in the column of electric fluid from the cloud to the earth, above referred to, reaches its maximum value on the surface of the conductors that chance to be within the column of electric-fluid; that the greatest display of energy will be on the surface of the very lightning-rods that were meant to protect, and damage results, as often proves to be the case.

It will be understood, of course, that such display of energy on the surface of the building is aided by their being more or less insulated from the earth, but its very effectiveness on such a mass of metal as an old lightning-rod can only tend to produce a disastrous dissipation of electrical energy upon its surface,—"to draw the lightning," as it is so commonly put.

Is there a Better Means of Protection?

Having cleared our minds of all preconceived notions, and keeping clearly in view the fact that in providing protection against lightning we must furnish nothing by which the electrical energy may be rendered harmless,

Is this dissipation?
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