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

PROTECTION FROM LIGHTNING.

What is the Problem?
In seeking a means of protection from lightning-discharges, we have to view two objects,—the one the prevention of damage to buildings, and the other the prevention of the injury to persons and property from the discharge running along a building to whole or part, it is necessary that work should be done; that is, as physiologically speaking, for the survival of the species. The energy capable of doing the damage which we seek to prevent exists in the cloud. It is impelled by some force to the earth, and we in some manner to make it incapable of appearing as we call electricity. It will therefore call over our bodies, and not be dissipated by them, but it is necessary for us to look to the circuit to prevent this; but that it exists there can be no doubt, as it manifests itself in every case. In the lightning-system, there is the same thing, that is, the conversion of energy into some other form, and the accomplishment of the protection.

Why have the Old Rods Failed?
When lightning-rods 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 one into the other, and that each could produce just so much of each of the other forms, and no more. The doctrine of the conservation and correspondence 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 an electric spark, and the conducting power of metals. Lightning-rods were therefore introduced with the idea that the electricity existing in the lightning-discharge could be conveyed away from the building which it was proposed to protect. But there is a difference. The question is as to the production of the energy involved in the whole phenomenon. It is evident that since the time of Newton, in the development of the laws of nature, there has been a phenomenon of electric phenomena in the air which is not observed in the atmosphere of the earth. And the question is, therefore, as to the conversion of this energy into some other form, and the accomplishment of the protection.

As the electrical energy involved manifests itself on the surface of conductors, the improved rod should be metallic; but, instead of making a large rod, with the idea that we make it in a comparatively small area of metal running from the top of the house to some point a little below the foundations, shall not encumber our house. We start again, that we introduce the improved rod, which produces no dissipation of electrical energy when disintegrated on the surface of a large conductor and when disintegrated on the surface of a small conductor, a conductor so strong as to resist the explosive effects, as a conductor so strong as to completely dissipate the energy in the air, and to the house.

A Typical Case of the Action of a Small Conductor.
Franklin, in a letter to Collinson read before the London Royal Society, Dec., 1728, in describing the partial disarrangement of lighting by a church-tower at Newbury, Mass., wrote, "Near the bell was fixed an iron hammer to strike the house, and from the tail of the hammer a wire went down through a small glass-hole in the floor that the ball stood upon, and through a second floor in like manner; then horizontally under and near the plastered ceiling of that second floor, till it came near a plastered wall; then down by the side of, and to a clock, which stood about twenty feet below the bell. The wire was not thicker than a common knitting needle. The spirit was split all to piece by the lightning, and the barn flung in all directions over the square in which the church stood, so that nothing remained above the bell. The lightning went through the wire without harm to either of the floors, or having any effect upon them. The clock was completely disintegrated, through which the wire passed, a little bigger, and without hurting the plastered wall, or any part of the building, as far as the wire went. The body of the clock was not harmed, and the hanging stone of the clock remained in its place. The wire was about 14 feet length, and the hammer 24 inches, and the head of the hammer 3 inches, and the wire was about the thickness of a goose-quill. From the end of the ponderous weight it was about 12 feet to the head of the hammer. So the wire was divided into two parts, it went up the wall, and then down again to the church. No part of the aforementioned long, small wires, between the clock and the hammer, could be found, except in one hole near to the tail of the hammer, and about as much that was fastened to the clock; the rest being exploded, and the parts exploded and blown to pieces; as, gun-powder is by common fire, and had only left a black smoking track on the plates, three or four boxes broad, darkest in the middle, and the edges, all along the ceiling, under which it passed, and done the wall."

Correspondence solicited. Agents wanted.

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Editor's Summary

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