PROTECTION FROM LIGHTNING.

IS it not true that, in a vague way, the usual conception of the cause of damage by lightning is that something (in past ages a "thunderbolt") comes down from the thunder cloud to do the damage? Is it not true that since damage is done by lightning we should seek the mass of matter in which this energy must exist just before the flash? Is it not equally true that since Faraday's time we have known that this energy exists in the column of dielectric (mainly air) extending from the cloud to the earth? Do we not know since Lord Kelvin's experiments that this energy exists in the air on account of a state of electrical stress, which stress cannot exceed 500,000 volts per square inch, and that consequently the amount of energy in each cubic foot of air cannot exceed about one foot-pound?

Knowing that the energy just before the flash exists in the column of air between the cloud and the earth, which column is indicated in the figure by the dotted lines, and that when the air "breaks down" and the flash comes this energy manifests itself mainly as heat along the central core of this column in what we call a flash of lightning, is it not evident that the energy must be transmitted in lines perpendicular to the lines of electrical stress, i.e., in the main horizontally, indicated in the figure by the arrows?

From all this, which is a part of our current knowledge, it appears that the problem of protection from lightning is a problem in the dissipation of energy; that the energy to be dissipated, while we know it to be considerable, as broken masonry testifies, is but a small part of that involved in a flash of lightning, by far the larger part being dissipated as heat above the roofs of our houses. If the conditions can be so arranged, by the use of considerables masses of metal suitably placed, that there shall be no state of stress below the roof of the house, then there will be no energy to be dissipated below that level, and all will go well. But it is surely time that the problem of protecting buildings from lightning should be looked upon in one in energetics and that it should be appreciated that the energy present cannot be hocus-pocused out of the way but must be dissipated in some harmless manner.

The depilation of a pound or two of this copper ribbon dissipates a large amount of energy, how much we do not know, but experience shows it is so large that too little is left to do other damage when a house is struck by lightning. This lightning protector, manufactured under patents of N. D. C. Holmes, Editor of Science, is sent prepaid to any address on receipt of $6.00 per 100 feet. The amount ordered should be sufficient to run lines of the protector from the highest to the lowest points of the building, at intervals of about forty feet. Any carpenter can put it on.

AMERICAN LIGHTNING PROTECTION COMPANY.

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Editor's Summary