

sharply. If the galvanizing does not crack, it is good. This cable is made up of seven strands of solid galvanized wire about .11 of an inch thick. Be careful not to use the iron elevator cable which is composed of strands of ungalvanized wire, which are in turn made up of a number of still smaller iron wires. This cable is intended for inside work and will not weather. The 5-16 inch cable recommended costs from 1½ to 2 cents per running foot and weighs in the neighborhood of one-fifth of a pound per foot. It can be gotten from almost all the wholesale hardware or builders' supply houses in Winnipeg and the price given should include the profits of the local hardware.

Some authorities advise a slightly smaller cable, but the above size given does not cost but a trifle more than the ¼-inch strand cable, and therefore one might better get the additional protection, if any is to be had, for the same expense. In this connection, the Weather Bureau at Washington, D.C., recommended No. 3 or No. 4 double galvanized telegraph wire, which sizes are about a quarter of an inch in diameter, No. 3 being a little larger than No. 4. This is also recommended by the writer if the wire is available. The German authorities recommend iron cable 8mm. in diameter, which is about five-sixteenths of an inch in our system of measurements, and copper cable one-half the cross sectional area of the iron cable.

In Hungary, as in other parts of Europe, the common barbed wire is used, and is said to afford satisfactory protection from lightning. The wire is strung and stapled over the chimney and outlines of the buildings, forming a cage-like covering which has proved to be an ample protection if properly grounded. While this system has not been used in this country, the recommendations coming from where it has been used leave no reason for doubt as to its value.

It is readily seen from the above discussion that even the most conservative cannot doubt but that the iron conductor is as good as, if not better than, copper for protection purposes except for durability. Even if any special value were attached to the fact that copper has six or seven times the conductivity of iron, it would be a small argument in favor of copper, since the length of the cable running over the barn is comparatively short. The resistance offered by copper to a discharge of lightning over such short lengths is almost nothing, and six or seven times that amount is too small to be worthy of consideration.

It might be inferred from the discussion as to the relative merits of copper and iron cable that copper is not effective as a protection from lightning. To clear up this point, it should be said that copper conductors have been used for years and have effectively protected buildings. The chief objection against copper is its high cost.