(Prof. Franklin then exhibited and briefly described the model.)

The meeting then adjourned.

A NOTE ON LINE INSULATION FOR HIGH VOLTAGE.

[COMMUNICATED BY M. H. GERRY, JR.]

The maximum practicable limit of pressure on transmission lines has been frequently stated as fixed at a certain voltage, but this limit has as frequently been extended, with good results. At the present time, no considerable difficulty should be experienced with 100,000 volts, and there is no good reason to fix the limit at that figure.

The problems of insulation are becoming better understood, but there is still much to learn. The capacity and the surface effects of line insulators have received but little attention from engineers and many of the failures are due to this fact. The form of the insulator and the material have not, in general, received the proper treatment. A desirable insulator for high-tension is not merely a piece of glass or porcelain arranged to shed rain, and of sufficient thickness to resist puncture.

The materials for construction of insulators are not so limited as assumed in the past. Glass and porcelain have been used almost exclusively, but from the experiments of the writer the material of greatest promise for high-tension insulators is prepared paper. Organic material, such as paper, has great advantage and is well suited for this purpose. Compound insulators in which the petticoats and water-sheds are made of metal, and the core of glass, porcelain, paper or other insulating material, are also feasible.

For moderate tensions, up to perhaps 30,000 volts, insulators having metal tops and outer petticoats are not only perfectly feasible, but are very desirable, and can be made very strong and practically indestructible, and much superior to the common glass or porcelain types now in use. For high voltages, the entire insulator can be made of prepared paper, or of a combination of paper with glass, porcelain or other insulating materials. Insulators on these lines may be designed for almost any desired pressure obtainable with commercial transformers, provided that all the conditions are properly understood in advance.

The writer has tested and experimented with nearly every type of insulator manufactured and with many special forms and constructions, and his conclusions, as stated above, are based on this experience, coupled with that gained from the practical operation of the highest voltage transmission in commercial service to-day.

[COMMUNICATION AFTER ADJOURNMENT BY W. N. SMITH.]

An important matter that has not been touched upon in this discussion is the design of the pole-top pin, which, on a single three-phase transmission line, is of equal importance with the cross-arm pins. As in other details of line construction a variety