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THE CANADIAN ENGINEER

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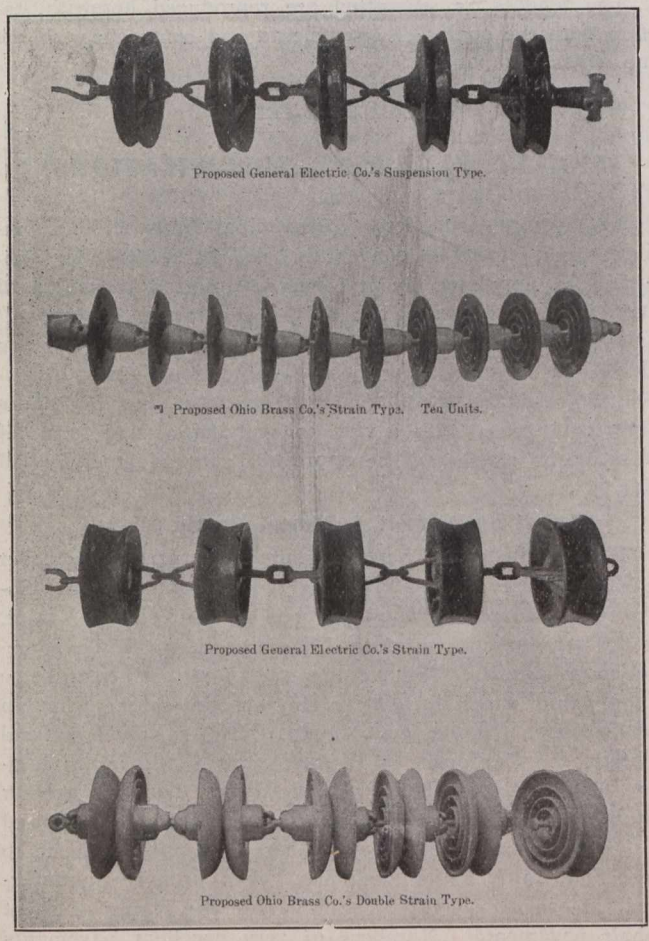
HYDRO-ELECTRIC COMMISSION, TEST ON INSULATORS.

When the Hydro-Electric Power Commission decided to transmit power at 110,000 volts, it was also decided to adopt the suspension form of insulator in preference to the pin type, which had been the standard for all lines up to 60,000 volts. Before specifications were prepared, all insulator factories were visited, in order to collect data regarding the insulators themselves, to become acquainted with the method of their manufacture, and also to inspect the factories and determine their respective facilities, size, organization, etc. Tests performed at these factories showed such different results and performances that it was decided to have our own engineers make comparative tests on all insulators submitted under exactly the same conditions. With this object in view, the specifications called for the submitting of three complete sample insulators with each tender.



Proposed General Electric Co.'s Suspension Type.

Proposed Ohio Brass Co.'s Strain Type. Ten Units.

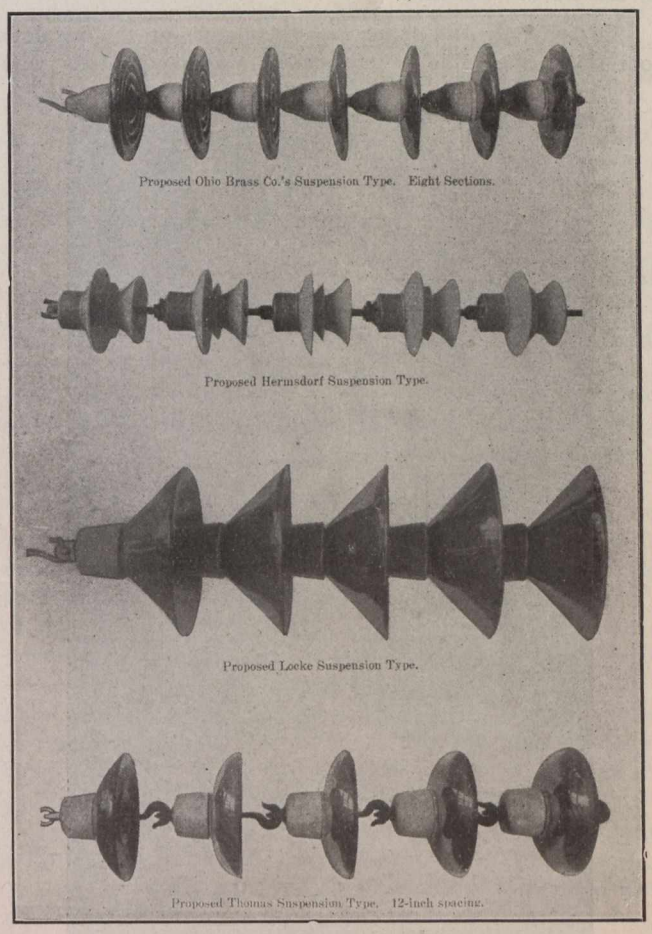
Proposed General Electric Co.'s Strain Type.

Proposed Ohio Brass Co.'s Double Strain Type.

The Ontario Power Company, of Niagara Falls, in a very amiable manner placed all apparatus and machinery used in these tests at the disposal of the Commission, furnished all the power gratuitously, and assisted the Commission's Engineers in their work in a most willing and disinterested way.

After the samples of insulators accompanying tenders were received, they were submitted to very exhaustive tests, occupying the greater part of the time from February 8th, 1909, to May 18th, 1909, with the object in view of comparing the performance of the different makes, when subjected to exactly the same conditions. The most important condition was the application of artificial rain. The apparatus for this test was so arranged that all insulators were affected alike. The precipitation and direction of flow of water representing rain could be controlled as could also the voltage to which the insulators were subjected.

As a means of comparison of the different results, characterized by a more or less vivid luminous display, a large number of photographic records were taken, the test being performed in absolute darkness.



Proposed Ohio Brass Co.'s Suspension Type. Eight Sections.

Proposed Hermsdorf Suspension Type.

Proposed Locke Suspension Type.

Proposed Thomas Suspension Type. 12-inch spacing.

In addition to the electrical tests, the mechanical features of the different insulators were thoroughly investigated. A great number of breaking tests were performed to ascertain the strength and rigidity of the insulators and their connections.

This investigation did not take the prices of the insulators into consideration. It was only after arriving at a definite conclusion as to the best-suited insulator that prices were taken into consideration and final selection of type was made.

The specifications for high tension insulators called substantially for an insulator to withstand electrically a potential of 330,000 (three times normal) volts, dry, and of 220,000 (twice