Please read and send in as full a discussion as possible at earliest date.

The Canadian Society of Civil Engineers.

INCORPORATED 1887.

ADVANCE PROOF—*(Subject to revision).*

THE CALCULATION OF COPPER CONDUCTORS FOR ALTERNATING CURRENT THREE-PHASE TRANSMISSION LINES.

By F. B. Brown, M.Sc., S. Can. Soc. C.E.

(To be read before the Electrical Section on 7th November, 1907.)

Three-phase transmission for alternating current is now conceded to be the only practical and economical means of transmitting large quantities of electrical energy over great distances.

With the increasing use of electricity for lighting, railway, and general power purposes, and the consequently larger number of generating stations required, the question of transmission line design is becoming more and more important, as the distances from source of supply to load increase, and with the consequent rise in voltage necessary to keep the line within commercial bounds.

One of the foremost problems which the engineer is called upon to solve, is the proper designing of the conducting system, including size, spacing of wires, etc., to meet the load conditions with specific losses or drop of voltage.

The present paper is intended to offer an easy method of solving such problems.

Several very able articles have appeared from time to time on the subject of "Drop in Alternating Current Lines," and the writer is indebted especially to Mr. R. D. Mershon's now classic article, originally published in the *American Electrician* for June, 1897, and rewritten for the March, 1907, number of the *Electric Journal*, and