APPENDIX

THUNDER BAY SYSTEM.

Nipigon River Development.—This development is under construction by the Hydro-Electric Power Commission on the Nipigon River at Cameron Falls, and situated about 15 miles north of Nipigon Village, the latter being on the Canadian Pacific Railway. The Nipigon River, flowing out of Lake Nipigon, which has an area of 1,530 square miles, has a drainage area above the development of 9,100 square miles. The development will include a gravity dam having five sluiceways, a headrace 365 feet long, leading directly from the river to the power house, and a tailrace about 1,000 feet long. The latter will parallel the river at its lower end and will be separated therefrom by a rock-filled crib. The headworks and power house substructure will form a single concrete structure, reinforced with steel where necessary. The headgates will be arranged in groups of three per unit, the centre gate being of the rolling type and the outer gates of the sliding type. In their operation the rolling gate will be raised first, thus relieving the sliding gates of water pressure. Each group of gates will control the openings of a three-way penstock culminating in a one-way entrance to the turbine scroll cases. The penstocks, scroll cases and draft tubes will be moulded in concrete. The power house superstructure will also be of concrete. The ultimate development will comprise six units. The turbines will be of the vertical shaft, single runner type, developing 12,500 h.p. each, under a head of 72 feet, and will be regulated by hydraulic governors. They will be direct connected to 10,600 K.V.A., 3 phase, 60 cycle, generators, each having an individual exciter. Two units will be installed initially and the remaining four in line with future power demands. The ultimate capacity will be 75,000 h.p. Energy will be transmitted to the Port Arthur System at 110,000 volts.