## HYDRO-ELECTRIC ENTERPRISE IN CANADA "THE DEVELOPMENT OF THE ONTARIO POWER COMPANY" AT NIAGARA FALLS.

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Designer-in conjunction with his brother L. L. Nunn-of the Ontario Power Company's magnificent installation at the "Falls," which was inspected by the Canadian Society of Civil Engineers, Wednesday, January 31, 1906.

The development of electrical power at Niagara Falls has long attracted widespread attention and interest. Since the first installation upon the American side, descriptions and discussions of its works and methods have been granted a conspicuous place in technical records and scientific press. It is not so well known, however, that four other developments, each larger than the pioneer, are now drawing or preparing to draw power from Niagara river. These differ so widely and so apparently as to type and character, and express such differences of conception and method, that it seems fitting at this time, when the largest is about to enter the active field, to present to the technical world, manding position, is by far the most prominent landmark of the Canadian side. This is the distributing station of the same company, from which the power generated below is controlled, measured and transmitted. Away to the left, around the bend of the river, and hidden by the trees of Goat Island, are the walls, abutments and buildings of the intake and head-gates through which the water from Niagara river is diverted for use below. In the park between these extremes, seen just beyond Horse Shoe Falls, stands the power-house of the Canadian Niagara Power Company, while to the left another power plant, that of the Electrical Development Company, is rapidly building.



Map of Niagara Falls, showing Location of Power Developments.

a brief description of a few features peculiar to this plant and a statement of the considerations which have led to so fundamental a departure from the type of construction hitherto characteristic of Niagara Falls.

Standing upon the upper steel-arch bridge and facing the Canadian falls, one may observe at the foot of the cliff forming the right-hand wall of the gorge a long but unobtrusive building, its farther end obscured by spray from the great cataract. It is of modest though massive design, and its colors almost blend with those of the overhanging cliff. This is the power-house or generating station of the Ontario Power Company. To the right, high above and behind the power-house, upon the bluff overlooking both gorge and cataract, may be seen another great structure, less massive but more ornate, which, on account of its comFrom the head-gates of the Ontario company three great steel-and-concrete tunnels or conduits beneath the surface of the park will convey nearly 12,000 cubic feet of water per second to the top of the cliff above the powerhouse. Thence it will pass through twenty-two steel penstocks in shafts and tunnels down and out through the cliff to an equal number of horizontal turbines in the powerhouse below. From the generators the electrical cables turn back through tunnels to the twenty-two banks of switches, transformers and instruments of the distributing station above and to the transmission lines beyond, completing an equipment for more than 200,000 h.p.

The intake works for the entire 200,000 h.p. are now finished. One of the three main conduits is completed, while for the second and third, portals and head-works have been installed and a portion of the excavation made. Six