a very large reduction from its original cost, and a contract made with that company for supplying the street lighting and pumping service required by the city at rates which are usual in cities of this size and character.

The company, in order to lessen the cost of such service, decided to employ water power, which is quite plentiful in this portion of the province of Quebec. The most available powers were at considerable distances from the city, and the cost of transmission was at first thought to be too great, but a careful investigation went to show that by utilizing the Grande Chute of the Batiscan river the cost of the transmission line would be comparatively small, and that the necessary investment for the hydraulic and electrical plant would pay a very good return.

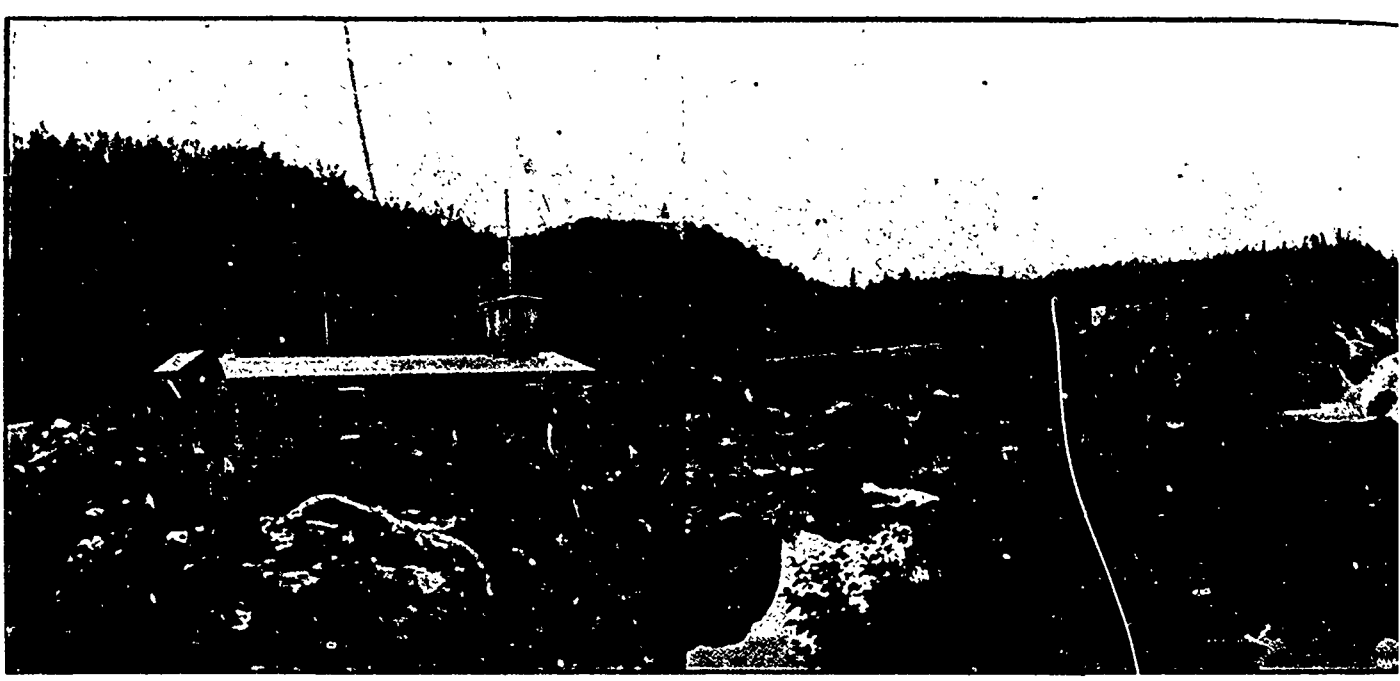
THE WATER POWER.

This beautiful water fall, a view of which is shown in cut No. 1, was almost ideal for a development of this character; the waters of the Batiscan at this point tumble over rocky ledges, giving a total fall of sixty feet within a distance of 100 yards. The Batiscan river always has a large and regular flow of water in all seasons of the year, being fed by large lakes a long distance back in the Laurentian Mountains. The power of the whole fall is estimated at over 3,000 horse power, but only a portion of this is utilized for the present requirements of the plant. In addition to this large and constant flow of water, this fall has the particular advantage of being free from a bug-bear of all water power plants in cold climates frazil. This is a peculiar ice formation differing both from anchor ice and slush ice, and which is much more dangerous to water wheels and racks than either, for it does not usually float on the surface of the water, especially if the current is swift. It forms only in open water, and in still water will rise to the top, so that the only reliable method of avoiding its dangers is to have a large still body of water above the dam. Immediately above the Grande Chute the water is dead and covered with ice in winter for a mile and a half up stream, so that there is no fear from this source.

This magnificent power seems to have been designed by nature for the purpose to which it is now being put, nearly all the dam work for its utilization had already been done by some volcanic upheaval, so that it only required the expenditure of a little over $1,000 on masonry work to render the large natural force of this power available in a very convenient form.

A general view of the premises is shown in illustration No. 2. It will be seen that only a short length of stone masonry work was necessary to form the dam and head gate construction. The stone for this work was procured on the spot by blasting away portions of the ledge, and the dam was built directly on the granite rock which formed the crest of the fall. The artificial dam only extends half way across the stream, the other part being a natural spillway over which the waters fall, as shown in view No. 1.

From the head gates the water is conducted in a steel flume down through a natural gulley directly underneath the power house, a distance of 400 feet. The flume is 6' 6" in diameter, and is built up in 6' lengths of one-quarter inch boiler plate, supporting foundations being built underneath it every 15 feet. It is the intention to cover the flume before cold weather sets in with spruce boughs, over which the snow covering will make a protective blanket against the intense cold of winter.



No. 2.—General View of the Property and Power House.

THE POWER HOUSE.

The power house, shown in cut No. 2, is a substantial stone structure, and has for its foundation a flat ledge of granite. It is 62' in length by 36' in width, and is designed in such a way as to allow an increase of the present equipment as the demand for power grows beyond the present wheel installation of 800 horse power.

The lower end of the steel flume is terminated by a large head sheet, which is provided with a gate valve for draining when the water is shut out; a few feet from the lower end, and directly beneath the wheel cases, the water for supplying the turbine is taken from the feeder or flume by means of two branch pipes, these branch pipes leading vertically upward and connecting with the wheel cases, and being supplied with shut-off gates to clear the turbines of water when required.

The wheel cases stand directly on the floor of the power house on iron girders supported by heavy stone