the concrete. The pipe in the trench was protected by a covering from 1 to 4 ft. deep, thus completing the work in about 4½ months with an average force of 50 men. Mr. George Janin is the city engineer, Mr. Thomas G. Lesage is the superintendent of waterworks and Laurin & Leitch, Montreal, were the contractors.

POWER SITUATION IN QUEBEC CITY

The large undertakings now under way, or in contemplation for Quebec city and surrounding district, have served to draw particular attention to the power situation at the ancient capital. At present, the Quebec Railway, Light, Heat and Power Company is obtaining about 5,000 horse-power at Montmorency and 1,500 horse-power from the Chaudiere. It had also been obtaining from 2,000 to 2,500 horse-power from the Jacques Cartier, but a short time ago the power plant of the Jacques Cartier Company was destroyed by fire and as yet the company has not proceeded with the reconstruction of the plant owing, undoubtedly, to arrangements that have been made for securing power elsewhere. This gives the Quebec Railway a combination of between 8,500 and 9,500 horse-power.

Recently, two new companies have come into the field, the Dorchester Electric, a small concern which, when connected, will have an output of about 1,500 horse-power, and the Stadacona Hydraulic Company, which will at the outset develop 10,000 horse-power from its powers at Seven Falls, and have so laid out their development that the output will be increased to 15,000 horse-power.

Owing to the large contract which the Stadacona Hydraulic has with the Quebec Railway, it was at first thought that there was some connection between the two companies. There is, however, no connection whatsoever, and while the Stadacona will sell a portion of its power to the Quebec Railway, it may indeed be a competitor against the Quebec Company for a portion of the balance of this power.

The development carried out by this new company brings about an entirely new condition in the city of Quebec and surroundings, as it will have an output in excess of all other companies combined and, in a measure, will be able to meet the requirements of a number of larger enterprises which will be established during the next few years. The Stadacona Hydraulic Company already has its output of 10,000 horse-power disposed of, 4,000 horse-power being under contract to the Quebec Railway, Light, Heat and Power, and 6,000 horse-power to the Bayliss Pulp and Paper Company. The Stadacona also has the right to enter the field in the city of Quebec, but the intention of the company at the present time is to be a wholesale concern only, turning over its output to large concerns, or to some of the existing power companies for distribution, thus occupying the same position as regards Quebec City as the Shawinigan Water and Power does in Montreal.

In view of the number of large undertakings now being provided for, it would seem as though the interests identified with the Stadacona Hydraulic had not carried out their plans for the new installation a moment too soon, and the new Harbor Commission of the city of Quebec is calling for tenders for the erection of a 2,000,000 bushel elevator which will take 3,000 horse-power to operate it. The Hon. Mr. Cochrane, Minister of Railways, has stated that the Grand Trunk Pacific intends to start in the spring of 1913 on the construction of a 5,000,000 bushel elevator which will require 8,000 horse-power. The Quebec Railway, Light, Heat and Power has closed a contract which comes into force in June, 1913, for 1,300 horse-power for the Quebec bridge, while the Transcontinental Railway shops now being erected are in the market at the present time for 3,000 horse-power.

The Stadacona Hydraulic Company will be supplying power about the middle of 1913. The large dam at Seven Falls, which is 70 feet high, has been completed, while the work has also been finished on the construction of the 8 feet penstock which extends a length of 3,200 feet. This leaves only the power-house to be constructed early next spring. The entire machinery for this plant has all been contracted for, assuring its delivery well within the time required. The power of the Stadacona Hydraulic has the greatest head of any in the world, amounting to 410 feet. The next in point of height is said to be located on the White River in California, which has a total head of 400 feet.

IRON ORE SUPPLY OF EMPIRE.

Some interesting evidence concerning the demand for and supply of iron ore was given before a meeting of the Dominion Royal Commission held on November 13th, by Mr. Wallace Thorneycroft.

It was stated that most of the ore imported into Great Britain was made into Bessemer hermatite pig-iron, which was used for steel making by the acid process. For that purpose the ore must contain very little phosphorus. Great Britain imported in the year 1909, 6,326,000 tons of iron ore, of which nearly 6,000,000 tons was Bessemer ore.

Nearly 5,000,000 tons of this Bessemer ore came from Spain, and the balance from Sweden, Norway, Greece, France, Algeria and Tunis. Except 62,000 tons from Newfoundland, no ore was imported during that period from the Dominions. Cumberland and North Lancashire supplied 1,558,000 tons of Bessemer ore. Therefore the Bessemer pig-iron industry depended upon foreign ore supplies.

The Wabana deposit in Newfoundland, from which the bulk of Canada's production of pig-iron was made, was said to contain over 3,000 million tons of ore. But as it contained .75 of phosphorus it was unsuitable for the manufacture of steel by the acid process. It was largely exported to Germany and Belgium, where steel was manufactured by the basic process, by which the phosphorus was extracted from the steel. Basic steel, it was stated, was not as reliable as steel manufactured by the acid process from Bessemer ore containing less than 0.5 of phosphorus. If the basic principle were adopted in this country there would be a greater demand for Newfoundland ore. The more rapid growth of the pig-iron industry in Germany and the United States was, it was said, entirely due to the invention of the basic process.

Except in Canada there was, so far as is known, no production of pig iron on a large scale in the Dominions. The governments of the Dominions, it was stated, might, with advantage, provide more money for the geological survey of the territory under their control. There could be no more profitable investment. They should publish the results of the surveys made as rapidly as possible, and communicate advance copies to the iron and steel associations of this country, or abstracts and references to such publications.

It was not suggested that the governments should undertake detailed prospecting work. The Geological Department of Canada was already very good, but with the vast area it had to cover, progress was necessarily slow.

The indication of large deposits, especially Bessemer ore, accessible for shipment anywhere in Eastern Canada or Newfoundland would promptly be investigated in detail by British makers of iron and steel and ample capital would soon be found if the deposits warranted development.

It would be right for the Dominion governments to encourage the report of iron ore. If the economic condition around the deposits were favorable, production of pig-iron and steel would naturally follow.