October 17, 1912.

## HARBOR IMPROVEMENTS AT ST. JOHN'S, N.B.

St. John's activity during the last year is due chiefly to the enormous expenditures being made on harbor works, but there is also an increase in the number of factories. The Norton Griffiths Dredging Company are bringing in a fleet of powerful dredges to work in Courtenay Bay, and there are already five dredges and a stone lifter at work in the western harbor and the channel. The Norton Griffiths Company are steadily enlarging their mammoth plant at the site of the breakwater and dry dock in Courtenay Bay, and work will be continued throughout the winter. At West St. John work has been begun on the foundation of the Canadian Pacific Railway grain elevator, and this work will be steadily continued throughout the winter, as well as also the work of constructing new wharves at that point.

The Canadian Pacific Railway finds it necessary to erect a large addition to its office building at West St. John. It has also asked the city for a considerable strip of land at Fairville for an extension of its railway yards. The Intercolonial Railway is adding to its yard capacity storage room for 300 additional cars. The street railway company will extend its line in the direction of East St. John and its electric light system the whole way

Interesting developments are taking place at Coldbrook, three miles out on the line of the Intercolonial Railway. Formerly there were extensive rolling mills at this point, and it was quite an industrial centre, but of late years industry there had ceased. The Maritime Motor Car Company is building an automobile factory to be ready by February 1st, and has discovered on its property a deposit of fine brick clay and a brick-making establishment will be added. The Coldbrook Realty and Development Company, which has planned a garden suburb there, will erect before spring several cottages for workpeople.

## USE OF PEAT IN GAS PRODUCERS.

On account of the lack of suitable coal deposits in the central Provinces of Canada and the rapidly decreasing supply of wood, the Canadian Government has taken an active interest in the exploitation of peat bogs with the view of developing from these deposits a fuel supply independent of outside sources.

Not only has the use of peat as fuel been considered, but the question of its utilization for producer gas has also received attention. A producer has been installed at the Fuel-testing Station, Ottawa, and exhaustive investigations have been conducted to determine the suitability of peat for this purpose. It is stated that very gratifying results have been obtained.

Mr. B. F. Haanel, chief engineer of the Division of Fuels and Fuel-testing of the Department of Mines, Canada, who discussed these results in a paper presented before the Eighth International Congress of Applied Chemistry, explains that the process used in manufacturing peat fuel mechanically treats the raw peat and utilizes the sun's heat for drying.

The raw peat is fed into a pulping mill consisting of a series of revolving knives rotating against fixed knives. By this treatment a homogeneous mass is secured, and by breaking the cell walls the contained moisture evaporates more easily. After thorough pulping the peat is taken to the drying field, spread out, cut into blocks of suitable size and thoroughly dried. The moisture content is reduced by this process to 25 or 30 per cent., below which it is not considered economical to proceed.

On account of the hand labor involved the estimated cost of one ton of peat fuel is about \$2, including interest on capital invested and a profit of 15 cents per ton. To put the industry on a paying basis it is recommended that the excavation and spreading should be performed automatically and on a large scale. A plant is now being installed to meet these requirements.

On account of the low heating value of peat fuel it is not considered suitable for steam raising, though well adapted for producer gas production.

The high percentage of nitrogen in Canadian peat thus far examined peculiarly adapts it for plants designed for ammonia recovery. The nitrogen in the peat is recovered as ammonia sulphate, for which there is a large demand in the fertilizer industry.

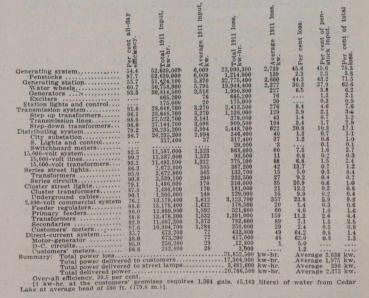
However, the common type of producer employed for peat is not constructed for the recovery of by-products, but rather to burn the fuel with the highest possible thermal efficiency. The Körting producer erected at the Fuel-testing Station, Ottawa, is of this type, and is designed not only to obtain the complete gasification of all the combustible components in the peat, but to destroy rather than recover any of the by-products.

It was found necessary to modify the type of producer in some details before economic results were obtained but without going into details the investigation, in the opinion of Mr. Haanel, has proved that the peats tested are an economic source of power.

## THE EFFICIENCIES OF A HYDRO-ELECTRIC SYSTEM.

The accompanying table gives an outline of the losses and efficiencies, for 1911, of the Seattle Municipal Light and Power Plant. This matter was presented by J. D. Ross in a recent paper before the Pacific Coast section of the American Institute of Electrical Engineers. The figures

Outline of Losses and Efficiencies for 1911, Seattle Municipal Light and Power Plant.



given are believed to approximate closely the true values, since great care was taken in the measurements made by frequently calibrated instruments. All results have been checked in as many ways as possible.

The Seattle plant is a hydro-electric system delivering water to two 1,500 kw. Pelton units and two 5,000 kw. turbine units under 600 ft. head through two pipes approximately 3½ miles long, one of which is 67¾ and the other 49 ins. inside diameter. The current is transmitted at 60,000 volts through two lines to Seattle, a distance of 38.7 miles, and is there distributed at 15,000 and 2,400 volts for use by approximately 20,000 customers and for the city street lighting.