

have had a charter for some years and are entitled to a very large land grant under a charter granted before confederation. The company have recently floated their bonds in England and have let a contract to a large English contracting corporation for the construction of the railway from Montreal to Midland. An offer has been made to the Dominion Government to grant running rights to the Intercolonial Railway from Montreal to Midland, thus giving the government road a much needed outlet to the lakes and providing them with the means of securing western freight.

Vancouver, B.C.—Mr. E. H. Heaps and Mr. H. Schaaque, of the Heaps Engineering Co., successors to the Schaaque Machine Works, met the finance committee of the city council of Vancouver and discussed the details of the agreement, whereby the engineering company will lease from the city 697 feet of land on Lulu Island at a yearly rental of \$1,742.25, provision being made so that the company can purchase the land at the end of five years for \$69,700, or \$104,550 if purchased within seven and a half years, and the price to increase to \$139,400 if purchased after that time and up to ten years. The company agrees to employ not less than 100 employees and during the term of the lease shall employ white men only. A by-law will be submitted to the ratepayers to ratify the agreement.

Toronto, Ont.—Commissioner of Works Harris states that in his opinion it will not be possible to secure the requisite equipment in sufficient time to operate the civic car lines this winter. To do so, he states, it will be necessary to erect transformer houses, design and build machinery, and erect feed wires, as well as to secure snow sweepers, etc. A gasoline motor or storage battery car might be operated, but sufficient experience has not been gained with these types of unit to justify him in recommending their use. Again, the line has been built with the overhead structure required for trolley operation. Respecting this, the Board of Control recommend that the Commissioner of Works be given full authority to establish an electric service on the above branch of the civic car line system.

Cretna, Man.—The Savoie-Guay Company, of Plessville, P.Q., have been experimenting in this province with a new auto plow of their own manufacture. The machine is of 45 horse-power, and it is claimed to be an entirely new idea in auto plows, as the engine is all in front of the plow, and the weight is all carried on the two main wheels, on which the motor chains are attached, which drive the machine. The machine is steered by a wheel in front of the driver, similar to an auto, and the steering is controlled by a small wheel at the rear. This auto plow plows an acre and a half an hour. Another feature about the machine is that it can be used for other purposes, such as drawing grain to the elevator, and can also be used to draw a binder, in fact anything that a tractor can be used for, for driving all classes of machinery on the farm, an outstanding feature being the fact that its total weight is only 5,000 lbs.

The Canadian Pacific Railway.—The ratio of the working expenses to the traffic receipts of the Canadian Pacific Railway was as follows during the years ending with 1911-12 inclusive:—

Year.	Ratio. Per Cent.	Year.	Ratio. Per Cent.
1902-3	63.97	1907-8	69.47
1903-4	69.42	1908-9	69.72
1904-5	69.35	1909-10	64.38
1905-6	62.75	1910-11	64.87
1906-7	64.96	1911-12	65.06

The ratio was thus at its lowest in 1905-6, while it attained its maximum in 1908-9. The Canadian Pacific Railway is made up of a great number of new lines, most of which have

not yet fully developed the local traffic which they are capable of carrying. The length of line in operation upon the system in 1902-3 was 7,748 miles; in 1911-12 the corresponding total was 10,990 miles. The receipts in 1902-3 were \$43,957,000; in 1911-12 they had expanded to \$123,319,000. But while the Canadian Pacific Railway has yet to develop its full carrying powers and productibility as regards local traffic, one important reason for the high ratio of its working expenses is the high cost of labor. The growth of population will probably moderate this difficulty, and it will certainly add year by year to the local business of the system.

Regina, Sask.—We are informed through Mr. A. J. McPherson, chairman of the Board of Highway Commissioners of Saskatchewan, that Dr. W. W. Andrews, of the Highway Board, has been engaged for some time past in investigating the practicability of treating the gumbo clays, which are spread so extensively over the Province of Saskatchewan, so as to make them more suitable for road purposes. Quite a large section of the Province lying from Weyburn north-west to the Elbow, on the South Saskatchewan River and north of the South Saskatchewan to the Alberta line, consists of a gumbo clay which does not lend itself to making satisfactory roads. Even an application of gravel or broken stone is not a success, as the clay is of such a nature that when dry it is exceedingly hard, and it is almost impossible to prevent hummocks or lumps forming on the road, and when wet it will turn into a liquid, and in a very short time any porous material that is put on the road will be impregnated with this liquid and lost. Dr. Andrews made experiments with tannic acid, which when applied to this clay will take away some of these qualities, the tannic acid being obtained from ordinary straw or hay by means of a certain process. This method has not proved itself up to the present to have a likelihood of success. He has also devised a method of calcining clay by means of burning lignite or straw in a form of kiln on the road. The result from this seems to show that there is some hope of success. When the clay is calcined in this way it does not form a mud, as it will in its natural state, and an experimental piece of road is now being tried on a practical scale with the object of seeing how the objects from the calcination process will stand the traffic; also to find out what it will cost to do a unit length of road by this method.

Toronto, Ont.—The local Board of Health states that during the month of September, water samples have been taken all over the city, including all the pumping stations, the reservoir, and the various districts of the city, in order to detect any other possible source of contamination. The taste which developed in the water at Exhibition time began at the same time that the filters were put in operation, and was undoubtedly due to a combination of the tar from the sand boxes in the filters, the hypochlorite, and probably to an organic material from growth in the underdrains of the filters while standing idle for two months. The same amount of chlorine was being used as has been in use for several weeks before, and the taste was not due to free chlorine, but to a combination that could not have been foreseen. Experiments carried on in the laboratory proved the correctness of this fact, though the filtered water itself had no taste of creosote or tar. The reason why the taste always developed in the early morning hours was only detected by two of us spending two nights at the main pumping station, when we found that the water pumped dropped from approximately 45-48 million gallons down to 40 millions or lower. This simply meant that in the early morning it was practically only filtered water which was being pumped and the taste would then develop with the filtered water and chlorine where it would not develop when 8-10 million gallons of unfiltered water was mixed with the filtered water. We had, therefore, to reduce the amount of free chlorine from over .3 parts per million