

number of smaller rivers flowing into the large tributaries of the Moose, already mentioned, from the east, which also furnish splendid water-powers.

In this connection it may be mentioned that the Ontario Bureau of Mines is sending an expedition to make a geological examination of the area south-west of Abitibi, where the Department of Crown Lands is to survey forty townships of agricultural lands in the clay belt. G. F. Kay, B.A., is in charge of the party, and Prof. Lockhead, of the Ontario Agricultural College, goes to examine soils and flora.



Charles M. Hays, General Manager Grand Trunk Pacific Railway.

#### WORKED ON THE GREAT EASTERN,

Editor Canadian Engineer:—

Sir,—Enclosed please find an express money order for the Engineer. I have been delighted from time to time to see the Engineer come to hand, and I feel proud to see such a paper published in Canada. I have come to a time of life when I will soon have to lay down my tools for some younger man to take them up. I was sent from the New Swindon works to Southampton to work on the Great Eastern Steamship, after she first went from London to Southampton. I was the youngest of eight men brought up from the engine room and in the presence of thousands we were thanked for our ability as workmen, and for our sobriety, pluck, and perseverance, in getting the changes made in so little time, by the late Sir Daniel Gooch, Bart., the civil engineer for the Great Eastern Steamship Company, so that you see that it is near time for me to take a rest. I was one of four men that put the new 65-ft. paddle wheels on her, and a third time I was sent to work on her to help to change the stern post boxing. We had to take the wheel off and swing it in chains while we took the shaft 24 inches in diameter, and 45 feet long, into the tunnel set in the boxing, turned the shaft, and shrunk on brass bushes one after the other, till we had a larger boxing for about 10 feet long, and I was the only man that was sent to her three times, and on this occasion I was given a £5 Bank of England note over and above my wages.

R. G. TROTT,

Engineer, Reformatory for Boys, Penetanguishene.

#### SLAG CEMENT.

Blast-furnace slag, which formerly was merely regarded as a waste product incidental to the manufacture of iron and steel, has become largely utilized in the preparation of cement. This cement has great tensile strength, is durable, and excepting for the fact that it sets slowly, might be employed for all the purposes which have created an enormous demand for Portland cement. It is satisfactory to add that the slag cement industry has become very profitable, in the United States, at least.

From an obscure position less than seven years ago, the manufacture of slag cement in this country has advanced so rapidly that it is to-day regarded as an important branch of the iron and steel industry. To emphasize this fact it need only be said that the United States Steel Corporation expended \$70,843 last year for additions to the large cement plant of the Illinois Steel Company, at South Chicago, Ill. In 1902 this company produced 486,357 bbls. (86,849 long tons) of puzzuolana and Portland cement. There are five or six other manufacturers engaged in the industry, but the Illinois Steel Company furnishes by far the larger part of this country's supply. In 1897, when the industry was started here, there were three slag cement works that reported a production of 40,000 bbls. (7,143 long tons), which compared with the 1902 capacity of only one company, shows what gratifying progress has been made in the past six years. With the growth of the industry manufacturers have succeeded in making a superior cement at less cost than was at first thought possible. To-day slag cement can be purchased at makers' works at \$1.20 to \$1.25 per bbl. of 400 lbs., and if the contract is large enough these figures might be shaded. Some months ago the Illinois Steel Company accepted an order for 65,000 bbls. of slag cement to be delivered in sacks at the Duluth-Superior harbor at a price equivalent to \$1.77 per barrel. This rate, of course, included the cost of the sacks and transportation, besides incidental charges. It should be mentioned also that Americans are not the only ones supplying the demand, for importers of German, British and other makes of slag cement are also extending their trade. Importers, however, are obliged to pay a duty of 20 per cent. ad valorem, but, nevertheless, they can still sell at \$1.65 or less, f.o.b. New York. An advantageous feature of the slag cement industry is the simple method of manufacture. The treatment most in use is to granulate the hot slag by diverting its course from the furnace into a trough of running water; subsequently drying it and then mixing it with slaked lime. As regards the slag cement industry abroad, it is interesting to note that at latest accounts there were ten factories in France; five in Belgium; two in Luxembourg; one in Switzerland; twelve in Germany; two in Austria, and a number in Great Britain. In Germany eight plants are producing between 145,000 and 150,000 tons annually, and in Austria, the output is not far from 110,000 tons.—Charles C. Schnatterbeck, in *Engineering and Mining Journal*.

#### INDEPENDENT TELEPHONY IN THE NORTHWEST.

J. B. Donald of Calgary, Alberta, Canada, has spent some time in Chicago and other American cities in inspecting the different makes of Independent telephone apparatus and the systems in successful operation in the cities and small towns in order to become familiar with the latest product of Independent manufacturing plants and decide on suitable apparatus for the equipment of the entire system to be installed by the Western Telephone Company, Limited, with headquarters at Calgary, Alberta, Canada. Mr. Donald is also completing the financing of the company, it being his intention to build lines and exchanges covering the most populous section of Western Canada.

Mr. Donald is a Canadian by birth, and has built a number of Independent telephone systems. He constructed a hundred and fifty miles of toll lines for the Columbia (Washington), Telephone Company, and acquired the lines, as well as the Columbia Company and the Spokane and British Columbia Telephone Company, operating eleven exchanges and nearly six hundred miles of toll lines in Washington and British Columbia. The proposed system will be modern in every particular. In speaking of the plans of his company, Mr. Donald says:

It is proposed to establish a system of communication by telephone throughout Alberta, and a company has been organized for that purpose. Every town of importance in Alberta is represented by having the most prominent business man as a stockholder in each town throughout which the proposed lines will run. In the towns where the business men have not taken stock, they either represent and control an Independent telephone system in the town or have