

ter in the reservoirs, being only 16 ft. above the top of settling basin. Therefore it was absolutely necessary in order to secure the greatest flow to select a route as near to a straight line as possible and to avoid anything like a summit or high point on it. With this in view it was deemed advisable to bridge Sowashee Creek, which had to be crossed, on the way to the city. Upon opening bids for the work the prices named were almost prohibitive, and, besides, great danger was apprehended during flood seasons when the stream carries large quantities of driftwood. The writer was therefore directed by the Meridian Water Commission to devise a safe plan for crossing under the stream.

The route selected has only one turn, an angle of 56 deg. made by laying the pipe at a radius of 270 ft. At the creek there was a downward deflection of approximately 20 ft., the total length of the depressed section being 500 ft. Sowashee Creek carries quite a large amount of sand and has a tendency to fill and widen rather than to narrow and scour. At ordinary winter height it is 30 ft. wide and 9 ft. deep at the crossing.

The writer conceived the idea of using a beam trussed like a freight-car sill, upon which to lay the pipe in saddles, the beam to be 36 ft. in length and 3 ft. wide. The work was started by placing across the creek two house-moving truss beams, secured from a local contractor. The commission's beam was rolled across on top of them, and on it was assembled the pipe, consisting of four joints of ordinary 20-in. Class A cast-iron pipe, one blow-off tee, with a spigot end 6-in. blow-off valve attached. Everything was put together with regulation joints of yarn and lead, and the pipe was secured to the truss beam by U bolts bent to a 22-in. radius and cast-iron washers. The entire bridge was then lowered 4.5 ft. beneath the surface.

Before doing this, however, notches were cut in the banks of the creek of the required depth to allow the beam with its load to rest upon the solid earth on each side. In order to prevent the pipe from filling with sand a large barrel head was fastened in each end. The lowering of the load, an approximate weight of six tons, was successfully accomplished by the use of two gin-poles and two capstans. After clearing away the rigging and beams the water of the creek was dammed at each end of the pipe with sand bags and the two ends joined to the main pipe line.

In order to attain security six creosoted piles in three bents have since been driven, each bent being capped with an oak timber, well seasoned, and the original construction suspended from these bents with U bolts. The piles were driven in the bottom of the creek as far as they could be sunk, some 12 ft., the upper ends sawed off flush with the top of the pipe, the creek having in the meantime fallen several feet, and the capping attached by means of 100-d spikes, generally used in bridge construction. The method used allows the water to pass both above and beneath the pipe. It appears to be strong and is absolutely rigid in every direction. The banks have been secured by driving, in crescent shape, two rows of Wakefield piling into the earth as far as they could be driven, some 10 ft. or more.

WORK ON THE GRAND TRUNK PACIFIC.

The Board of Railway Commissioners has made an order allowing the Grand Trunk Pacific to operate the new Tofield-Calgary branch as far as Trochu, 121 miles south of Tofield. Grading on this branch has already reached Calgary, and steel is laid to mile 134 beyond Trochu.

Rapid progress in track laying is being made on the several branch lines of the Grand Trunk Pacific, over 11 miles of the heaviest steel having been laid in two days last week.

RAILWAY EARNINGS.

The following are the railroad earnings for the week ended July 21:—

	1911.	1912.	Increase or Decrease.
C. P. R.	\$2,120,000	\$2,593,000	+ \$473,000
G. T. R.	960,016	1,047,951	+ 87,933
C. N. R.	337,000	426,100	+ 89,100
T & N. O. R.	37,066	30,441	— 6,625
Halifax Electric	5,262	5,628	+ 366

The following are the railroad earnings for the week ended July 31:—

	1911.	1912.	Increase or Decrease.
C. P. R.	\$2,170,000	\$2,701,000	+ \$531,000
G. T. R.	1,339,472	1,544,003	+ 204,531
C. N. R.	427,700	575,000	+ 147,300
T. & N. O. R.	47,833	41,374	— 6,459
Halifax Electric	7,591	7,440	— 151

The official figures on the fiscal year of Canadian Pacific Railway ended June 30 show gross earnings of \$123,319,541, and net of \$43,298,243.

These compare as follows with last year:

	1912.	1911.	Inc.
Earnings	\$123,319,541	\$104,167,808	\$19,151,736
Expenses	80,021,298	67,467,977	12,553,321
Net profits	43,298,243	36,699,830	6,598,412

The heaviest monthly gross receipts were for April, May and June, when they exceeded \$11,300,000, the only other month approaching these figures being October, 1911, when they ran as high as \$11,200,000.

The smallest monthly gross was \$7,328,781 in January.

In four months of the fiscal year the net earnings exceeded \$4,000,000. These were August, October and December, 1911, and April this year.

The gains in gross over the preceding year ranged from \$733,872 in September to \$2,629,325 in April, and gains in net went from \$5,848 in September to \$1,239,150 in February.

The company's figures for June and the fiscal year are as follows:—

	June 1912.	July 1st to June 30, 1912.
Gross earnings	\$11,311,397.20	\$123,319,541.23
Working expenses	7,464,794.51	80,021,298.40
Net profits	3,846,602.69	43,298,242.83

In June, 1911, the net profits were \$3,024,671.05; and from June 1st to June 30th, 1911, there was a net profit of \$36,699,830.57. The gain in net profits over the same period last year is therefore, for June, \$821,931.64; and from July 1st to June 30th, \$6,598,412.26.

The Canadian Northern traffic earnings and expenses for the month of June, with comparisons, are as follows:—

	June, 1912.	June, 1911.	Inc.
Gross earnings	\$1,769,500	\$1,465,600	\$303,900
Expenses	1,347,800	1,147,400	200,400
Net earnings	421,700	318,200	103,500
Mileage in operation	4,297	3,698	599

For the year ended June, 1912, earnings and expenses compare as follows with the previous year:—

	June, 1912.	June, 1911.	Inc.
Gross earnings	\$19,538,600	\$15,199,500	\$4,339,100
Expenses	14,422,500	11,033,700	3,388,800
Net earnings	5,116,100	4,165,800	950,300
Mileage average	3,888	3,383	505