

material to all parts of the line. A road-bed 8 feet wide was constructed for the pipe, which was built as a flow line conduit. The construction of this road-bed necessitated the removal of about 270,000 cubic yards of material, over half of which was rock. This rock was hard trap except in the  $2\frac{1}{2}$ -mile section near Sooke Lake,

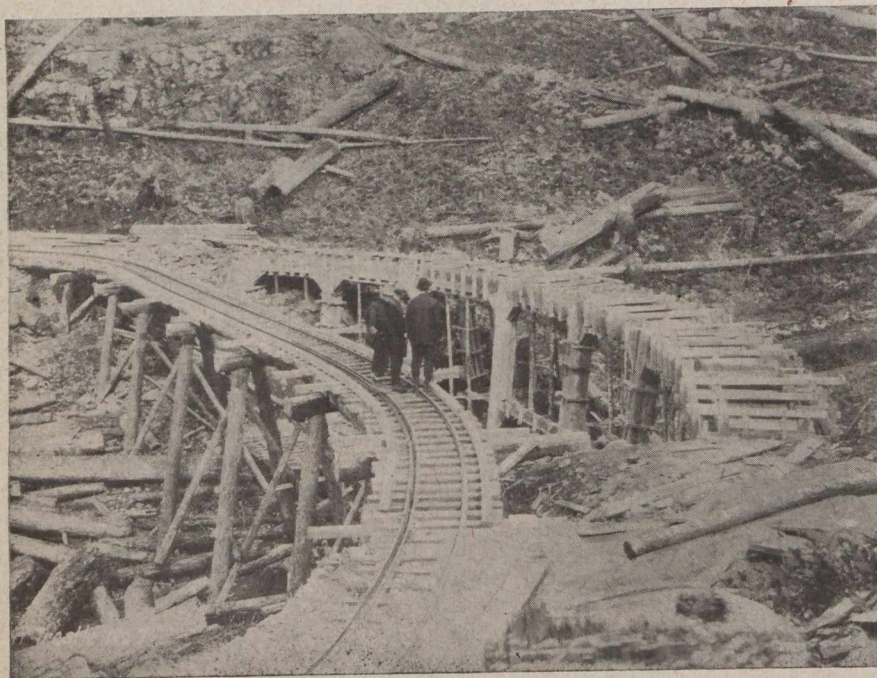


Fig. 4.—View Showing Timber Trestle of Construction Railway and Concrete Trestle for the Pipe Line.

which was schistose. This latter part of the pipe line was covered, as slides were feared. The remainder of the line was left uncovered.

In order to facilitate the work, a narrow-gauge construction railway was built paralleling for the most part the line of the concrete pipe. This was built to flow line grade, temporary log trestles being built over ravines which the pipe line syphoned across. The deepest syphon is 600 feet long and has a head of 90 feet operating. The general grade of the flow line is one in a thousand.

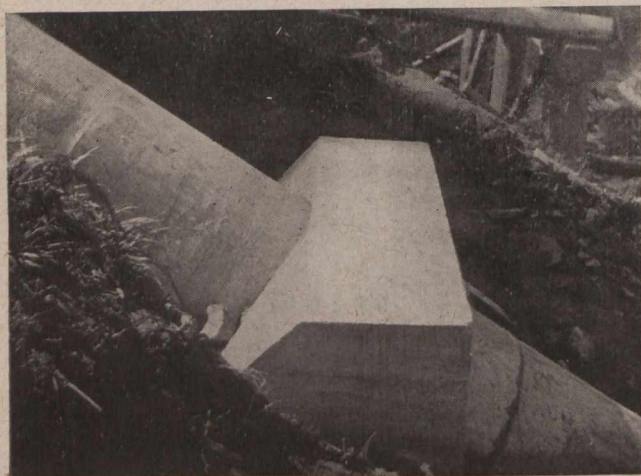


Fig. 5.—Concrete Anchor in a Syphon Section of the Pipe Line.

Particular attention was paid to this railway, the trestles of which were built of the available timber in the locality. Water barrels were installed on the trestles for

fire protection. The road-bed in all other places was rock ballasted. The rails used were 20 pounds and were laid on split ties of Douglas fir. Wherever it was deemed necessary for the expedition of the work, side tracks were cut in.

As fast as the railway was available for operation the concrete aggregate, reinforcing, timber, etc., were hauled out and permanent structures started. The concrete trestles, which were generally located on sharp curves, were the chief item.

The pipe, which was manufactured at Cooper's Cove, has been described in these columns before. It was delivered to all parts of the work by the railway. It was found that when pipe had been properly covered there was no danger of it being damaged in transit, and no precautions out of the ordinary were taken to protect the pipe. On the syphons large concrete anchors were cast around the pipe, as shown in the accompanying photograph. At the bottom of the valleys, which were syphoned over, the pipe was laid on concrete trestles and a clear waterway left for floods beneath the pipe. No particular difficulty was experienced in laying the pipe, which was done with a pipe tripod and chainblock, an overhead trolley system proving a failure owing to the crookedness of the lines.

The pipe has withstood the ravages of winter well; no very large leaks developing. It is noteworthy that the specifications for the pipe did not require that the pipe should be absolutely watertight. The specifications stated that "the pipe shall be considered tight, provided that the accumulated leakage at any place does not show greater than as continuous drops leaving the outside surfaces of the pipe at any point. The Pacific Lock Joint Pipe Company, who supplied the concrete pipe and guaranteed it for one year, are repairing the few small leaks which have developed during the winter.

### RAILROAD EARNINGS.

The following are the weekly railway earnings for March:—

Canadian Pacific Railway.				
	1916.	1915.		
March 7	\$2,198,000	\$1,667,000	+	\$531,000
March 14	2,258,000	1,731,000	+	527,000
March 21	2,281,000	1,738,000	+	543,000
March 31	3,491,000	2,564,000	+	927,000
Grand Trunk Railway.				
March 7	\$ 992,026	\$ 852,151	+	\$139,875
March 14	957,542	857,147	+	100,395
March 21	967,233	857,937	+	109,296
March 31	1,592,442	1,346,969	+	145,473
Canadian Northern Railway.				
March 7	\$ 540,200	\$ 428,700	+	\$111,500
March 14	538,000	412,000	+	126,000
March 21	549,000	421,700	+	127,300
March 31	979,800	637,000	+	342,800

The following are the railroad earnings for the first week of April:—

Canadian Pacific Railway.				
	1916.	1915.		
April 7	\$2,482,000	\$1,766,000	+	\$716,000
Grand Trunk Railway.				
April 7	\$1,155,486	\$1,008,320	+	\$147,166
Canadian Northern Railway.				
April 7	\$ 677,000	\$ 457,000	+	\$220,000