



north of the main line, near Michel Creek, about 10 miles west of the summit. From Morrissey Creek, about 41 miles west of the summit, it is intended to build a branch eastward up the creek about 4 or 5 miles to the coal deposit, the vein extending through the spur of the mountain from 5 miles up the creek from Fernie to Morrissey Creek, appearing again on Morrissey Creek. A branch from Cranbrook to Fort Steele is also talked of.

Mixed trains have been running between Lethbridge & Cranbrook for some time, & the service has now been extended to Kootenay Lake. A train runs from Lethbridge to Cranbrook, the division point, returning the next day, & there is a similar service between Cranbrook & Kootenay Lake. Not much passenger traffic is anticipated for the winter months, but there will be a very heavy freight traffic, principally in coal, timber & ore. On Nov. 15, Manager Whyte of the Western Lines took over the Crow's Nest line from the Manager of Construction, & as there is a good deal of work yet to be done west of the Rockies, especially west of the loop, he appointed as Superintendent M. H. Macleod, who since H. D. Lumsden, C. E., came east to make the Toronto-Sudbury survey, has been Chief Engineer of Construction. G. Erickson, heretofore Roadmaster of the Mountain Section at Field, B.C., has been appointed Trainmaster. The line has been attached to the Western Division. The portion between Macleod & Cranbrook has been designated the Elk River Section, & that between Cranbrook & Macleod as the Goat River Section. Mr. Whyte says the ballasting of the road will be pushed forward as rapidly as possible, in order that passenger traffic may be well accommodated in the spring. He expects that next season trains will be able to make as good time on the new road as on any other part of the system. There will be little snow to contend with, & it will not be necessary, therefore, to erect any snow sheds in either of the two mountain ranges.

Early in December, at the invitation of the C.P.R., a number of West Kootenay business men made a trip from Nelson to Kootenay Landing by boat, & thence over the Crow's Nest line to Fernie, the centre of the coal fields.

Rossland papers have been continually asserting that the Crow's Nest line would not be extended from Kuskanook up the west side of Kootenay Lake to Nelson, but that it would be built almost directly west via Salmo, Sayward & Trail. When Sir Wm. Van Horne was at Nelson recently he emphatically denied this, saying: "We don't want to go over

the tops of the mountains. It is too ridiculous to talk about; of course we are coming through Nelson."

The question of building a line into the Ymir & Salmo districts is another matter. It is said the C.P.R. has had a survey made & that the route is practical. Speaking of the matter, at Nelson, Sir Wm. said: "We are here for business, & wherever it is to be got we are after it. Ymir I have not visited, but if it be as great a camp as you say the C.P.R. will get into it. We are looking for trade & will do all we can to secure it."

Hydraulic Filling on the C.P.R.

E. J. Duschenay, C.E., Superintendent of the Selkirk & Shuswap sections of the Pacific Division of the C.P.R., has, in response to a request, kindly furnished us with the following particulars of the hydraulic filling of trestles:

The C.P.R. Co., anxious to replace all its wooden structures, built during first construction, by permanent works, such as steel bridges, masonry arch culverts and solid embankments, has had a large force of men,

with the latest improved plant, at work for the last 12 years over the whole system. The new embankments were mostly made up with steam shovels loading gravel on cars, hauled sometimes long distances. In 1892 the Co. was engaged in doing a very large amount of filling of trestles in British Columbia, especially along the canyons of the Fraser River. At various points mountain streams intersect the railway line, & one may even to-day see where the pioneer miners utilized these streams to wash the gravel benches along the river in their mining pursuits. The management, always on the alert to improve & cheapen its manner of works, struck on the idea of using this water power which nature was offering, & decided to discard the use of its excellent steam shovels, with improved ballast unloaders, even the most ingenious air dump-cars, for hydraulicing wherever it could be done. The expectation was that the ultimate cost of filling these bridges by this method would be about half that of doing the same work as formerly. The results have fully proved this & have been most satisfactory.

Two large structures were replaced in this manner along the Fraser River, & the Co. is now completing a large embankment, across the wide ravine of Mountain Creek, near the summit of the Selkirk Range. This bridge has a total length of 1,071 ft., & is 155 ft. in depth, & is fully described & illustrated in the "Treatise on Wooden Trestle Bridges," by W. C. Foster. The cost of installation of this hydraulic plant has been very great. A flume 2 miles long had to be built along a very broken side hill, steep & rocky, & across the path of many snow slides. The stream of Mountain Creek is rapid, & in this distance of 2 miles from the railway track it rises over 380 ft. A dam was built across, so as to divert part of the stream into the flume at its head. The water is thus brought down in this flume, built 4 ft. wide, & on a gradient of 20 ft. per mile, so the flow of water is of uniform volume & speed throughout. It empties into a reservoir, or box, called "Penstock," which stands at a height of 180 ft. above the railway track. A line of steel pipes 14 inches in diameter is connected with this reservoir, & leads to the present pit on the east side, a distance of 2,200 ft. Although the cost of building the flume, laying the pressure pipe line, & all other installation expenses amounted to a very large sum, the ultimate cost of the

