

we come to the first stage of the year 1880. I will next take up the Engineer's General Report of April 1880. After stating his views as to cheap transportation and the importance of low grades and good curves, he says:

"Low gradients are not considered of equal importance on other sections of the line. It is not proposed to adhere to the principles in British Columbia. The grades and curves will be then determined by the physical obstructions which present themselves. The limitation observed will take a much wider range, in order to avoid expenditure, and it is proposed, as far as practicable, to lighten the work by accommodating the alignment and gradients, as far as this can be done, to the features of the ground."

He is invited by the Minister on the 15th of April to give estimates for the construction of the Pacific Railway. The letter of the hon. Minister states:

"The Pacific Railway debate will begin this afternoon, and I must ask you to furnish me with an estimate of cost. In doing this, take the following data: the four contracts recently let in British Columbia, making full allowances for the reductions to be made and referred to in your report on those contracts."

So that the Chief Engineer was called upon to take the four contracts let and also to make allowances for the reductions referred to in the report on the contracts of the 22nd November, which I have read. The reductions were to be made first of all by calculating upon an excess of quantities, and, secondly, by further degrading the character of the work in the various particulars mentioned in that report. Then the Minister goes on to say:

"With regard to the location and the character of the railway, I am aware that your own preference has been for a line with light, easy gradients. The Government recognizes the advantage of this feature between Lake Superior and Manitoba, but west of Red River we attach less importance to it than the rapid settlement of the country, and the immediate accommodation of settlers. The policy of the Government is to construct a cheap railway, following, or rather, in advance of settlement, with any workable gradients that can be had, incurring no expenditure beyond that absolutely necessary to effect the rapid colonization of the country."

The Chief Engineer answers this, so far as British Columbia is concerned:

"I understand the policy of the Government, with respect to the railway to be: to proceed with the construction of 125 miles in British Columbia, under the 60th, 61st, 62nd, and 63rd contracts. The expenditure on the 125 miles to be limited in accordance with the provisions of the contract, and the views set forth in my report of the 22nd of November last."

The engineer refers to this report in a footnote, to the effect that further reductions could be made by further reducing the character of the work. The engineer proceeds in his letter to estimate that, from Jasper to Port Moody, the road would cost with light equipment \$29,000,000, to which he added one million, making altogether \$30,000,000. Then he is asked to make a further estimate, particularly directed to the Nipissing line, and also to estimate the whole cost, and he writes a further letter on the 16th of April, in which he says:

"I have in previous reports laid before Parliament advocated a location for the railway with generally light gradients and other favorable engineering features. The policy of the Government, as stated in your letter, likewise the change of line by the abandonment of the old location west of Red River, render it necessary on my part to modify the views I had previously held."

He proceeds to state what his total estimate would be. Now we had reached, then, for the whole line from Jasper House to Port Moody, in April, 1880, a reduced estimate of \$30,000,000 upon the altered policy of the Government—a policy to make the railway as cheap as it could be made the road to be adjusted as nearly as its being workable at all would allow, to the sinuosities of the ground, the grades to be as steep, the curvatures to be as sharp, and the works to be as cheap as they could be, and making these possible reductions, according to the view of the Chief Engineer in April, 1880, the whole line between those points could be made for a sum of \$30,000,000. The estimates which have been brought down as of December, 1880, a few short months later, was a very large further reduction on two portions of that part of the line to which my remarks have been addressed. From Kamloops to Yale, there is a further reduc-

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tion—I do not put in the reduction on rolling stock at all—but a reduction by modification of design made in the location from Kamloops to Yale of \$1,663,200. The Chief Engineer's estimate was \$10,000,000, and if you apply to-day to that section a proportion of the \$1,000,000 which is given moreover to British Columbia, you get somewhere about one-third of a million more, say ten and one-third million that the Chief Engineer had estimated on the lowest scale. But there is yet a lower deep, and the hon. Minister found it in December when he took off from the lowest possible estimate of April, that is ten and one-third million, no less than one and two-thirds million. Then from Yale to Port Moody, which had been estimated in all at about \$3,620,000 that estimate is reduced by \$133,700 by modification of design and improvement of location. I leave out, as I said, the reduction in respect to rolling stock. I have endeavored to ascertain what the general effect upon the section estimated for in 1877 and 1878, by Mr. Fleming and Mr. Smith, respectively, that is to say, from the Yellow Head Pass to Port Moody, would be, applying to these sections upon which they do not give us special information the reductions which are given on the sections about which we are informed. The distance from Yellow Head to Port Moody is 493 miles. The engineer's report for April, 1880, estimates, at the reduced rates from Jasper to Kamloops, \$15,500,000; add the proportion of the million dollars, \$540,000, which gives you a total cost, by that estimate, from Jasper to Kamloops, of \$16,040,000. The distance from Jasper to Yellow Head Pass is 57 miles. Allowing the same proportionate cost for that mileage as for the mileage from Jasper to Kamloops you get \$2,736,000, leaving the estimate of April, 1880, from Yellow Head to Kamloops at \$13,260,000. You get, then, from the report of April, 1880, the following:—Estimated cost from Kamloops to Yale, \$10,340,000; estimated cost from Yale to Port Moody, \$3,620,000; making together \$13,960,000, to which add the estimated cost from Yellow Head to Kamloops, \$13,260,000, and you get a total cost, from Yellow Head to Moody, by the estimate of April 1880, of \$27,220,000, while the estimate of 1878 for the same distance from Yellow Head to Moody was \$36,500,000, showing a difference of no less than \$9,280,000, or a saving of 25½ per cent. And it is to be remembered that the estimate of 1878 was based upon the Intercolonial prices of labor, admittedly too low, while the estimate of 1880 is based upon what the engineer believed would be the cost of labor in British Columbia itself, conducting the work slowly, so as not to raise the price of the labor by increasing the demand beyond any reasonable supply. Assuming that the saving was proportionate over the whole line from Yellow Head to Moody, the cost, by the estimate of April, 1880, of the Government section from Kamloops to Moody, would be  $\frac{4}{5}$ ths of the whole.  $\frac{4}{5}$ ths of the estimate of 1878 would be \$18,700,000, which was reduced in April, 1880, to \$13,960,000, or a reduction of \$4,740,000. That reduced amount was further reduced in December, 1880, to \$12,160,000, a further reduction of \$1,800,000, making a total reduction between 1878 and December, 1880, in the Government part of the work, of not less than \$6,540,000 on the total estimate of \$18,700,000, or thirty-five per cent., making no allowance in either case for rolling stock. And even if you look at the last estimate alone, you will see a handsome reduction of within a fraction of fourteen per cent. The Syndicate's part, which is from the Yellow Head Pass to Kamloops, would be  $\frac{3}{5}$ ths of the whole cost from Yellow Head to Moody. That would give you, according to the estimate of 1878, \$17,810,000; the estimate of 1880 is \$13,260,000, a reduction of \$4,550,000. Assuming a further proportionate saving by the estimate of December, 1880, you will get \$1,590,000 more saved, making the cost only \$11,690,000, or a total reduction in the Syndicate's section of \$6,120,000. Then the totals from Yellow Head Pass to