files carefully, if they will not find in at least two places a grade where there is no attempt at a velocity or compensating grade, if it is not a straight run from the level at the grade, I am not prepared to say at what mile it is.

At mile 101, station 2,226 to 2,233, there is 700 feet of level, then 1,300 feet of .84 grade against westbound traffic instead of six-tenths, which merges into 3,300 feet of six-tenths. On the 700 foot level, a full train will be expected to get up sufficient speed, not only to climb 1,300 feet of .84 grade, but added to this without any easement of grade at all, a stretch of 3,300 feet of 6/10.

And I say now that a loaded train of empty cars, perhaps being taken back in a rush to Winnipeg and the West to receive grain will stall on this grade under the best conditions.

Again, before the 6/10 grade begins there is a continuation of .84 grade for 1,300 feet, so that the original intention that the train would only have to climb the 6/10 grade is altogether obviated, and the reasoning that there will be a great reduction of speed will apply to this grade as well as to the other.

Then, on contract 14, at mile 65, there is 1,400 feet of 4/10 against westbound traffic and then a stretch of 2,200 feet rise of from 6/10 to .73 running into a long stretch of 6/10. The same argument as to the necessary speed of a train when striking the 7/10 grade in order to assist it up that 2,200 feet, and also the additional distance of the 6/10, is applicable.

At mile 175, from station 1,784 to 1,817 there is 2,700 feet of .45 against the eastbound traffic instead of 4/10. Then follows 1,000 feet of level and immediately 1,300 feet of .65 against westbound traffic, an increase here in the grades both ways.

At mile 177, station 1,875 to 1,889 there is 1,400 feet of 3/10 against eastbound traffic, followed by 1,000 feet of 8/10 against westbound traffic, another distinct increase in the grade.

At station 1,928 to 1,936, there is 800 feet where the four-tenth grade against eastbound traffic has been raised to .76, an increase of practically 100 per cent, followed by 1,600 feet of six-tenth grade against westbound. At mile 179 there is a siding. Some slight changes have been made at this point, but they are trifling.

At mile 180, station 2,024 to 2,039, there is a stretch of 1,500 feet where the grade has been raised from 4/10 to .48 against eastbound traffic. At mile 181, station 2,104 to 2,115, the 6/10 grade against westbound traffic has been raised a trifle to .63. At mile 182, station 2,154 to 2,169, after 1,400 feet of level track, it is immediately raised to .75, which runs for 1,800 feet against westbound traffic. Possibly that would not be a momentum grade. There is no momentum, as I gather from the profiles, to compensate for the rise in the grade from 6/10 to .75. At mile 183, there have been several slight changes from the original, introducing what the engineers call 'sags.' At mile 184, from station 2,261 to 2,265, after 400 feet of level there are 1,000 feet raised from 6/10 to 8/10 against westbound traffic. At mile 185, following 1,300 feet of .31 against westbound traffic, 800 feet were raised to 8/10. At mile 187, station 2,385 to 2,401, a grade of 4/10 against eastbound traffic was raised to .42 for 1,600 feet. At mile 188, station 2,471 to 2,475, there is something over 500 feet of level, followed by 1,475 feet, and the grade was raised from 6/10 to 8/10 against westbound traffic. At miles 190 and 191, station 2,594 to 2,616, there is 2,200 feet of 4/10 raised to 7/10 against eastbound traffic. At mile 193, station 2,720 to 2,741, there is 2,100 feet of 4/10 raised to ,62 against eastbound traffic, and at station 2,751 there is 1,000 feet of 6/10 raised to 8/10 against westbound traffic. At mile 194, station 2,760 to 2,770, the grade has been raised against eastbound traffic to 6/10. At mile 196, station 2,884 to 2,900, after 1,600 feet of practically level track comes 1,500 feet where the grade has been raised from 6/10 to 8/10 against westbound traffic. At miles 197 and 199, sags again have been introduced, as stated before, apparently to save a few loads of fill, without having any regard to the appearance of the road. At mile 200, station 3,090 to 3,110 after 2,000 feet of 4/10 grade against westbound traffic, the grade suddenly rises to 8/10 against westbound traffic for 2,000 feet. At mile 202, station 3,225 to 3,240, there is 1,500 feet where the grade of 4/10 against eastbound traffic has been raised to .51.

I find that the following grades were changed east of Cochrane, in district 'C,' contract 14:

At mile 115, station 2,996 to 3,000, there is 400 feet of a level and 3,000 feet of six-tenths against westbound traffic, and 1,300 feet of .49 against westbound traffic. At mile 125, station 3,476 to 3,495, there is another change, making six-tenths grade, which, while being only the standard grade in the agreement, still is an increase over what was intended originally, and a violation of the chief engineer's instructions. At mile 141, station 4,360 to 4,370, there is 1,000 feet of seven-tenths grade against westbound traffic, an increase over the standard. Then from 4,370 to 4,390 there is 2,000 feet of six-tenths grade, followed by 1,150 feet where it drops to four-tenths, which is increased again from station 4,405 to 4,417 for 1,200 feet to six-tenths. This shows that the train will not only have to climb the increase of one-tenth of one per cent over the standard, for the 1,000 feet, but it must keep up this momentum for 2,000 feet on a six-tenths grade. In fact, for 5,350 feet it is here continually climbing. At mile 157, station 5,206, there is 1,200 feet of practically level stretch, then 2,100 feet of four-tenths against eastbound traffic, and 1,600 feet of a grade of a little over five-tenths against eastbound traffic, this being another increase in grade. At mile 167, the four-tenths grade is changed into 1,200 feet of five-tenths and 1,200 feet of three-tenths, both against eastbound traffic. At mile 181, there is another change from six-tenths to nearly eight-tenths against westbound traffic. At mile 189, there is 3,000 feet raised from four-tenths to five-tenths against eastbound traffic. At mile 191, station 1,121 to 1,137, there is 1,600 feet of level, but at station 1,145 there is 800 feet of 1 per cent grade against eastbound traffic which must depend for its safe and successful operation in momentum or a reduced train load proportionately.

I put these figures again on 'Hansard' to show these changes in grade divided into east and west of Cochrane. They were taken from the profiles by a competent engineer. I did not locate them last year as east and west of Cochrane. I want to