

gineering world to learn that easy gradients are possible in the construction of this farthest north line. The makers of the Grand Trunk Pacific carry their road from Winnipeg to their Pacific portal at Prince Rupert over the Rockies with a maximum gradient of 21 feet to the mile going west and 26 to the mile going east, a record which would be creditable on the English Midland or the Pennsylvania Line. What do these figures mean? Well, they mean that a *single* engine will draw a heavy train across this new spine of Canada: 2,000 tons can be taken from Winnipeg to Prince Rupert behind one engine.

Comparisons are odious but illuminating. The gross capacity of an engine in tons on the Santa Fe is 376, on the Union Pacific it is 572, on the Grand Trunk Pacific it is 2,041. This means for the great new line immense economy in hauling freight, and it also means the maximum of passenger-safety. Running at high gear on up grades kills dividends, and on down grades kills people.

"But is it not a wilderness away up there?" asks the man who in his little red schoolhouse when he was in the Second Reader and learning "juggrafy" out of the slab-sided book with the yel-

low cover was told, "*Canada is a frozen land to the north of us where Indians hunt fur and trappers travel in dog-sleds; it is a barren land and England owns it.*"

The general conception of Canada a scant generation ago was that of a white waste clinging coldly to sub-Arctic latitudes. General Sherman in a fit of pique characterized Canada as "The Sleeping Empire Beyond," and the writer recently dug out from the archives in the Chicago Public Library the minutes of a Board of Trade convention which solemnly stated that "Minnesota and the Dakotas are too far north to successfully grow wheat." To these commercial gentlemen the Arctic Circle hovered close above their own northern tier of states.

That phantom of the Arctic Circle has within the last two decades steadily been receding northward. For years Winnipeg was considered the northern limit of wheat growth, then Edmonton-on-the-Saskatchewan was quoted as the farthest agricultural north, but Edmonton is no farther north than Liverpool and Manchester.

It is to be supposed that in North America there is a northern limit of wheat growth, but daring the man who should put his finger on any one spot



Grading G. T. P. Railway near Portage la Prairie.