

At present the Alberta grain is shipped during the period of navigation from Fort William and Port Arthur, but the Lake Superior ports are frozen up from the end of November until the beginning of May, and during these months export shipments from Western Canada must travel by rail all the way up to the Atlantic seaboard.

In cases of shipment from, say, the Calgary district this is a haul of nearly 3,000 miles; this haul from Calgary to Vancouver is about 600 miles, and even considering the mountain grades this should be much cheaper than hauling five times as far as to the eastern coast.

Apart, however, from traffic during the winter months, the haul from Calgary to Vancouver is about 600 miles as against 1,400 miles from Calgary to Fort William alone, after which the grain has to be carried by lake and canal or by lake and rail to Montreal.

Distance, comparatively speaking, is a minor point in connection with ocean freight; that is, the rate does not increase in proportion to the increased length of haul. Therefore, when the Panama canal is opened the rate from Vancouver to Liverpool will presumably be cheaper than the rate from Fort William to Liverpool; in addition to which, the rate from Calgary to Vancouver should be cheaper than the rate from Calgary to Fort William.

Grain from the Pacific Coast States in the United States is at the present time being sent to Liverpool by water. The quantity being raised in California, Washington, and Oregon is not only large, but increasing, and undoubtedly will still further increase when the Panama canal is opened; and in order to compete successfully with United States grain, Alberta grain will have to go westward and get the long haul by water.

The Grand Trunk Pacific Railway intends building grain elevators at Prince Rupert, and recently publicly announced that by the time the Panama canal was opened, they expected to ship practically all their Alberta grain and about one-half of their Saskatchewan grain via Prince Rupert instead of eastward. Admittedly the grades to Prince Rupert are not as bad as those to Vancouver, but Vancouver cannot afford to let this stand in her way. Owing to the rather delicate question of the ownership of the foreshore, I refrain for the moment from suggesting herein a particular site for a grain elevator; suffice it to say that there are numerous most excellent sites for the purpose and it is most important that no further valuable time should be lost before the construction of a grain elevator is commenced.

*Types of Construction.*—When the initial development of transportation facilities first commence in a new country, cheapness and rapidity of construction are usually the principal elements considered, and so far the harbour works at Vancouver have been carried out on these lines, almost all of the structures being of timber which owing to the presence of the teredo, which eats into the timber, has to be renewed, in some instances in a few months, but on the average in about three years.

*New Works Should be of a More Permanent Nature.*—The time has now arrived when works of a more permanent nature should be constructed, and I would strongly advocate that concrete and reinforced concrete should be adopted. Not only would such structures be impregnable to the teredo, but the sheds would be absolutely fireproof.

Practically all the new wharf sheds recently constructed or in the course of construction at the European ports I have recently visited are of reinforced concrete.

*Type Drawings.*—A type of probable construction for concrete piers and sheds is shown on plan No. 5, but is merely a suggestion and must not be looked upon as a design for working drawings.

*Borings.*—In considering the various proposals I have made use of all the borings previously taken of which I could get particulars from the Public Works Department, and where no information was available, I have had several bores sunk to test the nature of the ground.