THE HUDSON'S BAY RAILWAY THE BEGINNING, PART I.

J. G. Scott, General Manager of the Q. and L. St. J. Ry., will probably remain in the service in some other capacity.

Railway to Hudson Bay.

In the House of Commons Feb. 22, W. E. Knowles, M.P. for Assiniboia West, moved an amendment to the motion to go into supply, urging the Government to take all steps possible for the speedy construction of a railway to Hudson Bay. T. Greenway expressed his conviction that the water route via the Bay and Straits would be open for four months of the year. Sir Wilfrid Laurier, in discussing the congestion of railway traffic, said that additional rolling stock was not the only thing needed, an outlet to the sea on Hudson Bay was also required. There had been in the statutes for years a provision that the country would aid in the construction of a line to Hudson Bay, by a subsidy of 12,000 acres of land per mile, but no one had come forward prepared to build on those terms, and he thought the time had come to make a new effort and provide some other means of building it. The matter was engaging the Government's attention and he hoped that before the end of the session a policy in regard to the matter would be announced

C. P. R. Betterments, Construction, Etc.

23/1905-1907

and so wood had to be used. (Feb., pg. 87.)

Hudson Bay Railway.—Speaking in the House of Commons recently upon the Dominion Land Bill, the Minister of the Interior said the Government was fully convinced of the propriety of giving the Northwest an additional railway outlet by way of Hudson Bay at the earliest possible date. With the increase in the production of the West, such an additional outlet will be urgently needed as soon as a railway can be built, even if it were commenced at once. At the same time the Government realized that public opinion throughout Canada could scarcely be expected at the moment, in view of the great obligations incurred in connection with railway enterprises, to sanction the additional obligation that would be incurred by providing immediately for the construction of a railway to Hudson Bay, unless special provision were made to meet that obligation. It believed, however, there would be no objection from any quarter if the funds accruing from the disposal of pre-emptions in the three prairie provinces, under the terms of the proposed land bill, should be considered as a provision in place of the land grant stated in the act, to meet the burden upon the credit of the Dominion as a whole, that must be assumed at an early date—if not immediately—if a railway is to be in operation to Hudson Bay in time to meet the urgent need that is now in plain sight for an additional and shorter railway route from the prairies to tidewater. The land grant in the act referred to is contained in sec. 76 of the bill to amend the acts respecting public lands, which authorizes the Governor-in-Council to make a free grant of land, not exceeding 6,400 acres for each mile of railway within Manitoba, and not exceeding 12,800 acres for each mile outside Manitoba, in aid of the construction of a railway from some point on the C.P.R. to Hudson Bay.

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A Railway to Hudson Bay.

E. H. Drury, who had charge of one of the survey parties sent out by the Dominion Government into the Hudson Bay country, has returned to Montreal, and in an interview May 7, stated that when the railway was constructed the country between Pas Mission and Hudson Bay would undoubtedly prove to be a most productive one. He expressed an opinion, however, in favor of the line starting from a point further west, and suggested the possibility of using Saskatoon as a starting point, on the ground that all competitive lines would then have an even chance in freight matters. There were no engineering difficulties in the way of construction—few bridges would be required, and the gradients were easy. The records of snow showed that the maximum fall was only three feet in the year, therefore the cost of maintenance in winter would not be great.

The progress report of the Government surveyor for the projected railway to Hudson Bay, recently presented to the House of Commons, deals with the result of the preliminary survey in sections.

12-1908

... Much can be said both for ... the proposition that upon a ... ownership or control of a con- ... joint rates should be estab- ... which should not be higher than ... rates existing prior to the ... ownership or control. This ... however, may for the present ... for future consideration. The ... must be refused.

FOR BLANKETS TO WINNIPEG.

... Feb. 1.—In the matter of the ... of the Winnipeg Jobbers and ... Association for an order direct- ... railway companies to provide ... rating on blankets from points ... Canada to Winnipeg. Upon ... the application in the presence ... for the C.P.R. and the C.N.R. ... the applicants being repre- ... the hearing, and what was al- ... it is ordered that the application modity rates to Montreal and Ottawa as maximum, viz., 18½c per 100 lbs. from Hamilton and 22c per 100 lbs. from Windsor and Walkerville; and to substitute class tariff rates for remainder of existing commodity rates on wire fencing and netting from Hamilton, Welland, Stratford, Owen Sound, Windsor and Walkerville; Upon hearing application, and what was alleged by counsel for C.P.R. and representatives of Canadian Freight Association and Canadian Manufacturers' Association; and upon report and recommendation of Board's Chief Traffic Officer, it is ordered that the application be granted, except that carload commodity rates from Hamilton, Windsor and Walkerville to points east of Toronto, be scaled as follows:

Windsor. Walkerville. Hamilton.

lished and filed (if any be made), d... not exceed 1c per 100 lbs., the furt... additional tolls collectible by the co... pany on whose tracks the industry ... warehouse is situated, for switching ... said grain from the point of intercha... at Winnipeg or St. Boniface to the p... per unloading tracks, and for reswit... ing the said grain, or the product the... of, back to the said point of intercha... shall not exceed $5 per carload, rega... less of weight, in each direction; ... said tolls to become effective at Wi... peg not later than May 17 next, and ... be shown in the grain tariffs which p... vide for "stoppage in transitu" at Wi... peg for the purposes herein indica... well as in the tariffs of interswitch... tolls.

A Railway to Hudson Bay

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A Railway to Hudson Bay

Among the votes on capital account passed by the Dominion Parliament is one of $65,000 to provide for survey and location of a line from the Saskatchewan River to Hudson Bay. The Minister of Railways explained that all the information as to the progress of surveys already made had been laid before the House. The main question raised by this information was as to whether Fort Nelson was not a more favorable harbor than Fort Churchill. The Government desired that the best possible harbor should be utilized, and the present vote of $65,000 was to have further surveys made at Fort Nelson and Fort Churchill. The preliminary report of the survey showed that the route to Fort Nelson was 60 miles shorter than that to Fort Churchill, while the country through which the lines would pass were about equal in point of quality. If the harbor at Fort Nelson was as good or better than that at Fort Churchill, it would be foolish to construct the additional 60 miles of line. The Government had no idea of abandoning the project, and would proceed with construction at the earliest possible moment that the conditions would warrant.

In connection with the suggestion to

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warrant.

In connection with the suggestion to develop Fort Nelson as a possible terminus of the railway to Hudson bay, an Order-in-Council has been passed reserving a strip of land two miles deep along the northwest side of Nelson River, and its estuary, between Seal Island and Black Creek, a distance of about 15 miles.

In reply to questions as to the money available for construction, which is to be provided out of a fund created by the sale of pre-emptions the Minister of the Interior said the payments on these did not become due for three years, so that no money had been received. There had been about 2,000,000 acres taken as pre-emptions. Whatever had been paid in on account of purchased homesteads, upon which the first payments are made with the entry, will be in the Treasury, and could not be considered as available for construction purposes, but what the amount was he could not say. (Ayr., pg. 251.)

The G.T.R. on April 1 placed a third-

ade for another spur track of a mile be constructed during 1910. (Dec., 09, pg. 889).

A Railway to Hudson Bay.

A resolution was adopted unanimously by the Saskatchewan Legislature Dec. 4, and will be forwarded to the Governor-General in council, urging the necessity and importance of the immediate construction of a railway to Hudson Bay, and requesting the Government to make provision at the present session of Parliament for its actual construction.

The report of the Department of Railways for the year ended March 31, 1909, recently presented to Parliament, contains the full progress report of the special survey of the route, ordered last session of Parliament. On Dec. 13, there was laid before Parliament a further report from J. Armstrong, Chief Engineer in charge of the surveys. The Deputy Minister in introducing this report says he has amended Mr. Armstrong's estimates as to the cost of construction by substituting 80 lb. steel for 60 lb. steel, and by adding estimates for roundhouses, shops, buildings, elevators and yard facilities at terminals, and harbour work of which Mr. Armstrong did not take cognizance. The estimated cost of the Nelson line is placed at $4,085,800; of station buildings, two 4,000,000 bush. elevators, yards at terminals, etc., at $7,440,540, and of harbour works at $5,000,000, a total of $16,426,340. The cost of the Churchill line is placed at $4,676,520; of station buildings, elevators, etc., $7,757,152, and harbor works, $6,675,000, a total of $19,108,672. These estimates provide for facilities on a scale

1909

The crux of the matter is, says the Deputy Minister, what business can be handled by such a railway and of what value is it likely to be to the country tributary to it. He estimates that with the exception of the southeasterly corner of Saskatchewan, the other portions of the province and the whole area of Alberta are tributary to The Pas. Assuming that the line is to be worked for all that is possible to be done. The grades are 0.4 or 21 ft. to the mile. All trains are fully loaded and composed of 40 ton pay load cars; and locomotives of the Mallet articulated compound type are to be used with a hauling power of at least 4,000 tons of pay load. Thirty-two trains per day is about the capacity of a single track—better than this has been done, but it is enough. Sixteen trains loaded equals 64,000 tons per day—making allowance for accidents and delays—say for 30 working days would give 1,930,000 tons, or 64,000,000 bushels of wheat. It is apparent that at least nine per day would need to be loaded, or say 135 to 140, to do the business—allowing two trips to each ship. Any additional business taken to the bay would have to be stored until the following August—nine months.

1909 Hudson's Bay

Other sources of traffic possible to the line are: the exportation of cattle; the usual package freight to and from Europe; and the possibility of developing a reasonably large import coal trade. It is practicable to lay down coal at Port Nelson from Nova Scotia at a cost not exceeding $3.75 a ton. The rail haul say to Saskatoon—as an average point of distribution—need not exceed $4 per ton, making the cost of the coal $7.75. Equipment for 32 trains per day of the character outlined will cost about $9,000,000; and means the providing of 108 train crews, 150 telegraph operators, 54 gangs of section men, shopmen, round house men, superintendents, train and yard masters—the greater number of whom are not likely to be required once the rush of the season is over. It appears, therefore, to be a difficult proposition for independent operation, and would seem to require to be worked by one of the large corporations, so that the men and rolling stock could be utilized the whole year. There is in Canada only one locomotive of the type described, and by using the largest freight engines now operated on western roads the train load would be reduced one-half—and the capacity of the road in like measure. It is apparent, however, that under any circumstances grain may be placed at the Hudson Bay on

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Hudson's Bay

the Churchill route may be applied in a general way to the whole of the Nelson route. It is not expected that the rock work will amount to very much, the major portion of the grading being in clay loam with smaller percentages of sand, gravel and swamp. The tundra is not encountered on this route, the whole line being through timber not appreciably different from that described on the first 200 miles of the Churchill route. It may be mentioned that sand and gravel has been found sufficiently often to justify the belief that ballast may be had without unduly long hauls, except on the northern 70 or 80 miles of the Churchill route. It may be found there, but as yet it has not been noticed. The curvature has been estimated to average about 5° 30' per mile over this route. A grade of 0.4 both ways may be had on this route. The adoption of 0.6 against southbound traffic would not help alignment nor save grading. There are three important bridges on the Nelson route, viz. the Saskatchewan, the crossing of the Nelson at Manitou rapids, and the second or lower crossing of the Nelson. The Manitou crossing of the Nelson is a particularly favorable crossing, the river here being confined in [illegible] channel of less than 350 ft. wide.

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Hudson's Bay

appeared. He does not anticipate any serious difficulty or danger in construction, the chief drawback being from the fact that although the material is such as would usually be classified as common excavation, so much frost will be encountered that probably a considerably greater price will have to be paid for its handling than for common excavation. The timber over sections 3 and 4 is not of very much value. A few ties and some timber for temporary work may be obtained but only in small quantities. The bridging on the whole will average light, the only two bridges of great importance being the Saskatchewan crossing and the Deer river crossing about mile 359. The curvature as estimated from the projected location averages 9° 50' per mile. The grades adopted, viz. 0.4 northbound and 0.6 southbound, have been obtained without great effort, and although some development was required on section 3, the ease with which they were obtained on the remaining sections seems to justify their use all through for the sake of uniform grades

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Hudsons Bay

A Railway to Hudson Bay.

A party of engineers started from Mission, Sask., Oct. 18, for the purpose of locating a line from that point to some point on Hudson Bay. The party in charge of W. J. Clifford, and is working on behalf of the Dominion Government. It is expected that other parties will be sent out later. The work will be prosecuted throughout the winter, this season being more favorable for survey work in that region than the summer.

The question of the location of the terminals on Hudson Bay is still under consideration by the engineering staff. A statement was made by one of the staff in Winnipeg, Oct. 8, that Fort Nelson and not Fort Churchill would be chosen as the terminus. The distance is 100 miles less than to Fort Churchill, while the cost is estimated at $3,000,000 less. The C.N.R. has a branch connecting with The Pas, and this place is also the objective of other projected lines, notably the G.T.P.R. and G.N.R.

A press report states that the Dominion Government will authorize the starting of work on the construction of the line from The Pas at an early date, and that it will be started this fall. This is hardly likely as the full report of the preliminary surveys has not yet been considered. This report is ready for presentation to Parliament. The Minister of Railways, speaking at Athens, Ont., recently, stated that while it had not yet been decided that the railway would be constructed by the Government, it would certainly be constructed. Before deciding

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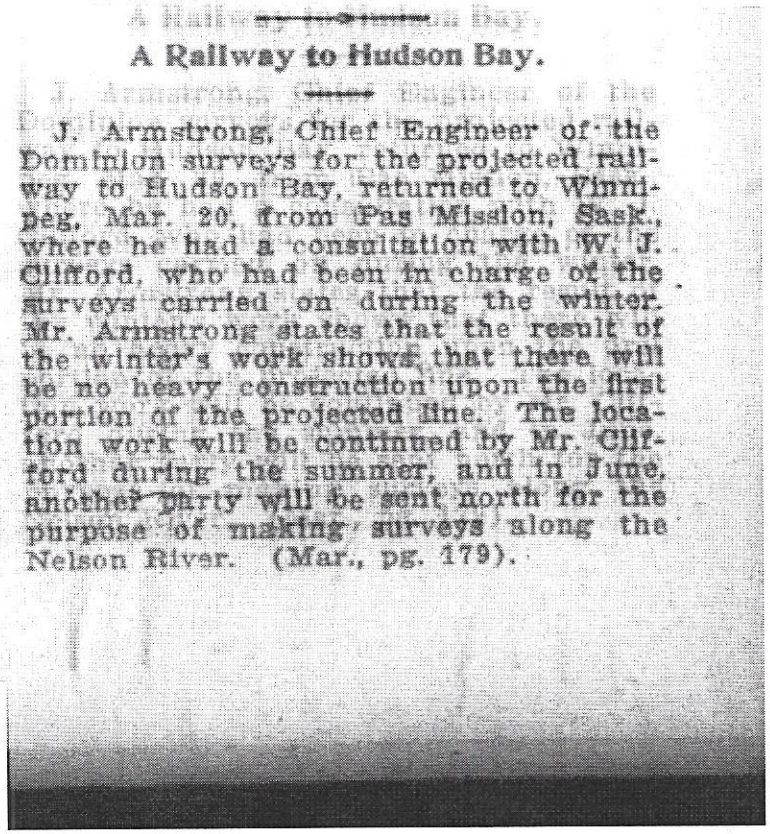
G.T.R. service.

A Railway to Hudson Bay.

J. Armstrong, Chief Engineer of the Dominion surveys for the projected railway to Hudson Bay, returned to Winnipeg, Mar. 20, from Pas Mission, Sask., where he had a consultation with W. J. Clifford, who had been in charge of the surveys carried on during the winter. Mr. Armstrong states that the result of the winter's work shows that there will be no heavy construction upon the first portion of the projected line. The location work will be continued by Mr. Clifford during the summer, and in June, another party will be sent north for the purpose of making surveys along the Nelson River. (Mar., pg. 179).



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THE ESTIMATES are based on right of ay 150 ft. wide with the necessary al-wances added for sidings and termin-ls. A few miles of heavy clearing will e encountered, but the average over the hole line will be comparatively light. he first 200 miles will be through pruce and jack pine with a small pro-ortion of poplar and tamarack. The orthern 100 miles of the Churchill route ill have practically no clearing. The orthern 200 miles of the Nelson route ill be through spruce with a small pro-ortion of jack pine and tamarack and ill probably have from 12 to 15 acres er mile to clear. A large portion of he clearing on both routes could proba-ly be done for $25 or $30 an acre, but owing to the heavier clearing encounter-d at intervals an average price of $40 an acre has been decided upon. It is omewhat difficult to estimate the cost of grubbing without an actual location profile. One and a half acres per mile has been used for 400 miles of both lines, using the price $100 an acre which seems to be the price bid by contractors almost universally. The work will class as light, a large proportion of it being

January 1910

to justify the belief that ... had without unduly long hauls, except on the northern 70 or 80 miles of the Churchill route. It may be found there, but as yet it has not been noticed. The curvature has been estimated to average about 5° 30′ per mile over this route. A grade of 0.4 both ways may be had on this route. The adoption of 0.6 against southbound traffic would not help alignment nor save grading. There are three important bridges on the Nelson route, viz. the Saskatchewan, the crossing of the Nelson at Manitou rapids, and the second or lower crossing of the Nelson. The Manitou crossing of the Nelson is a particularly favorable crossing, the river here being confined in one channel of less than 350 ft. wide, the banks being of merely perpendicular granite rock and so situated as to make it possible to choose almost any desired elevation between 50 and 100 ft. above the water, which here is of course very deep, and has a current of from six to eight miles per hour, making it necessary to cross with either a single span or an arch. The lower crossing will be much longer, probably 3,000 ft., from grade to grade, with a waterway of 1,500 ft. with the grade line approximately 80 ft. above the water. The balance of the bridging will be light, trestles being sufficient in all cases with the exception of Frog River.

The waterways susceptible of development in connection with the railway system are indicated on a general map, prepared by the engineers. The waterways have all been recently navigated by ves- ... considerable size. Trips have

Hudson's Bay

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the Red River. These river routes are open to the navigation system touched by the proposed railway. The Nelson River has a discharge of approximately 150,000 cubic feet per second, at Lake Winnipeg, and as it is fed by a number of other rivers, the discharge at Port construction of the railway by substi- Nelson is estimated at about 200,000 cubic ft. per second. The discharge of the Churchill River at Fort Churchill is estimated at 40,000 cubic ft. per second at low water, and there is no possibility of improving it so as to give inland communication by water. The only available site for docks is out near Cape Merry, with the railway terminals from two to three miles up stream. At Port Nelson, not only is there open a great stretch of improvable waterways inland, but there is a good site for docks and terminals adjoining an easily accessible supply of stone, etc., for construction, and the defence of the port would be comparatively easy.

Hudson's Bay

January 1910

A Railway to Hudson's Bay.

The surveys for the proposed railway to Hudson Bay have been made under the charge of Jno. Armstrong, C.E., and the instructions for the preliminary surveys were conveyed to him in a letter from the Deputy Minister of Railways dated July 10, 1908. Four parties were organized at Winnipeg, the first two being despatched to Pas Mission, Aug. 30, and the other two Sept. 19. A small additional party was organized to undertake the exploratory work, and for the collection of general information as to the country through which the proposed line will run. The first party completed its field work, Mar. 11, 1909; the second 13 days later; the third April 6, while the two other parties completed their work on the railway route, April 1, and were engaged until July on survey work on the harbors at Port Nelson and Fort Churchill. The chiefs of the staffs worked out the plans and estimates after the withdrawal of the parties from field work.

THE CHURCHILL ROUTE.—The first section of approximately 120 miles is through a comparatively level country, affording easy grades and cheap construction. The territory is underlaid with limestone in horizontal or flat beds, rarely rising above the general level to any extent, and when it does so it is in such a way as to be easily avoided by the railway line. Owing to this condition the rock cutting on this section will be practically nil. The balance of the grading on this section will largely be in clay loam material, probably 70%, the remainder being of sand, gravel and swamp or muskeg. What is called muskeg in this country is not a true muskeg, but would be more properly defined as swamp. Good bottom is usually obtained at a depth of 3 or 4 ft., and very seldom exceeds 7 or 8 ft. The stream crossings will be light, with the exception of the Saskatchewan river crossing. Frog River, the connection between Moose Lake and Cormorant Lake, is a navigable stream for small boats, and as crossing is low down it will probably be necessary to provide a swing span of some kind. As a 50 or 60 ft. opening [illegible] will not be appeared. He does not anticipate any serious difficulty or danger in construction, the chief drawback being from the fact that although the material is such as would usually be classified as common excavation, so much frost will be encountered that probably a considerably greater price will have to be paid for its handling than for common excavation. The timber over sections 3 and 4 is not of very much value. A few ties and some timber for temporary work may be obtained but only in small quantities. The bridging on the whole will average light, the only two bridges of great importance being the Saskatchewan crossing and the Deer river crossing about mile 350. The curvature as estimated from the projected location averages 9° 55' per mile. The grades adopted, viz.: 0.4 northbound and 0.6 southbound, have been obtained without great effort, and although some development was required on section 3, the ease with which they were obtained on the remaining sections seems to justify their use all through for the sake of uniform grades on all engine divisions.

THE NELSON ROUTE.—The route selected towards Port Nelson follows the Churchill route for some 150 miles or thereabouts. Unlike the Churchill route, the Nelson route does not resolve itself into natural divisions each presenting different characteristics peculiar to itself, but throughout maintains a generally uniform appearance so that the description given for the first division of the Churchill route may be applied in a general way to the whole of the Nelson route. It is not expected that the rock work will amount to very much, the major portion of the grading being in clay loam with smaller percentages of sand, gravel and swamp. The tundra is not encountered on this route, the whole line being through timber not appreciably different from that described on the first 200 miles of the Churchill route. It may be mentioned that sand and gravel has been found sufficiently often to justify the belief that ballast may be had without unduly long hauls, except on the northern 70 or 80 miles of the Churchill route. It may be found there, but as yet it has not been noticed. The curvature has been estimated to average about 5° 30' per mile over this route. [illegible] may be had the Red River. These river routes are open to the navigation system touched by the proposed railway. The Nelson River has a discharge of approximately 150,000 cubic feet per second, at Lake Winnipeg, and as it is fed by a number of other rivers, the discharge at Port Nelson is estimated at about 200,000 cubic ft. per second. The discharge of the Churchill River at Fort Churchill is estimated at 40,000 cubic ft. per second at low water, and there is no possibility of improving it so as to give inland communication by water. The only available site for docks is out near Cape Merry, with the railway terminals from two to three miles up stream. At Port Nelson, not only is there open a great stretch of improvable waterways inland, but there is a good site for docks and terminals adjoining an easily accessible supply of stone, etc., for construction, and the defence of the port would be comparatively easy.

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will have practically no clearing. The northern 200 miles of the Nelson route will be through spruce with a small proportion of jack pine and tamarack and will probably have from 12 to 15 acres per mile to clear. A large portion of the clearing on both routes could probably be done for $25 or $30 an acre, but owing to the heavier clearing encountered at intervals an average price of $40 an acre has been decided upon. It is somewhat difficult to estimate the cost of grubbing without an actual location profile. One and a half acres per mile has been used for 400 miles of both lines, using the price $100 an acre which seems to be the price bid by contractors almost universally. The work will class as light, a large proportion of it being such as can be done with heavy grading or breaking ploughs. Grading being the chief item in the estimate, considerable care has been taken with it. The quantities submitted are taken from the projected profiles, and the greater portion of these being very close to the preliminary lines, should be as accurate as is possible without cross sections. Engineers in the field were instructed to take out these quantities liberally, and the estimates submitted by them are probably at least 10% in excess of what the profile actually shows. In addition to this, 25% has been added to all quantities to cover drainage, settlement, &c.,

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be practically nil. The balance of the grading on this section will largely be in clay loam material, probably 70%, the remainder being of sand, gravel and swamp or muskeg. What is called muskeg in this country is not a true muskeg, but would be more properly defined as swamp. Good bottom is usually obtained at a depth of 3 or 4 ft., and very seldom exceeds 7 or 8 ft. The stream crossings will be light, with the exception of the Saskatchewan river crossing. Frog River, the connection between Moose Lake and Cormorant Lake, is a navigable stream for small boats, and as crossing is low down it will probably be necessary to provide a swing span of some kind. As a 50 or 60 ft. opening will do, the sum required will not be large. The second section of 120 miles is through granite country, and although the same general characteristics are preserved the granite ridges are more abrupt, and will necessitate some rock cuttings, although fortunately most of them will be small. All the streams and lakes throughout these two sections possess more or less valuable timber. From mile 240 to 360 is the roughest country encountered, and considerable exploratory and extra preliminary work has failed to find any better route than that adopted. In this territory is included the rise between the basin of the Nelson [illegible] of the Churchill. The

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from the information available there is no room for doubt that it is much the better harbor. The line is also 67 miles shorter; the country through which it runs is better, and the possibility of local business is altogether with the Nelson route. There is also a probability that a fair proportion of the route is available for settlement, whereas on the Fort Churchill route there is no such probability beyond Split Lake, where the lines separate. It is of the utmost importance that a hydrographic survey should be made of Hudson Strait and Bay, so that the position and cost of the necessary lighthouses may be ascertained. The course from Mansfield Island to Port Nelson requires to be accurately charted; it would be well also to secure information as to the harbors on the Labrador coast, and the special feature of Davis Strait. A good seagoing steamship is required at Nelson for a year or two to study the bay itself, its tides, currents, etc. The sea route from Port Nelson will pass to the north of Ireland, the distance to Liverpool being 3,200 miles, against 3,007 from Montreal to Liverpool.

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ncountered, and requires the develop-
ment of a considerable length of line,
nd the introduction of much curvature
o secure the grades adopted, at a
easonable cost. On the Nelson River
ope of this ridge a considerable amount
f heavy work will be necessary, but on
the Churchill slope although the yardage
o be moved will be heavy it is not anti-
pated that much rock will be encoun-
tered. The fourth section, extending
rom mile 36 to Port Churchill will re

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is freight rates are equal at Montreal and
the Port Nelson. Capt. Bernier is of the
lles opinion that it is unsafe to be caught in
it the vicinity of the Fox channel with a
of steamship of ordinary construction, any
lel- later than Oct. 15.
lity

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Hudsons Bay.