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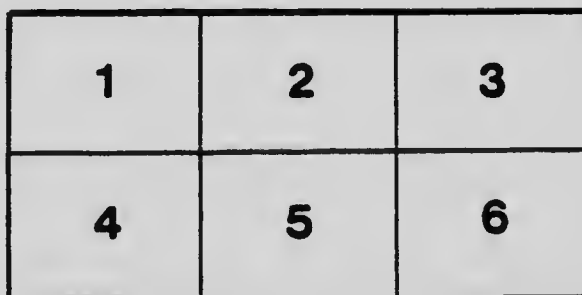
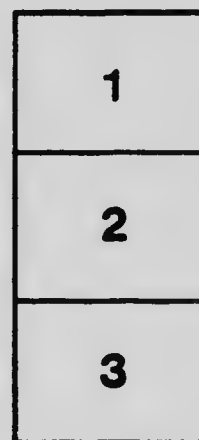
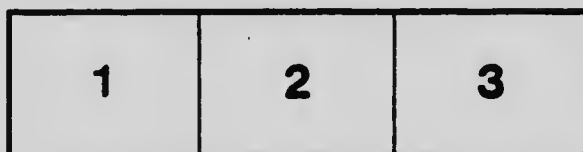
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THE HUDSON BAY ROUTE TO EUROPE

By

ROBERT BELL

I. S. O., M. D., LL. D., D. Sc. (Contab), F. R. S.

*Read before the Geographical Section of the British Association
for the Advancement of Science, Winnipeg,
August 25th, 1909.*



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By Robert Bell, I.S.O., M.D., J.L.D., D.Sc. (Cantab), F.R.S.

Read before the British Association, Winalsea, Aug 25, 1899.

The question of a feasible route to Europe, from the prairie provinces of Canada, by way of Hudson bay, is of the first importance to the Dominion, for several reasons. It is the shortest possible course from the centre of this group of provinces to Liverpool, as it follows approximately a segment of a great circle between these points. Not only is the total length the shortest, but this route affords a greater proportion of transportation by sea, with a shorter land haul than any other. More than 1,000 miles of its water transportation is within the British possessions. Hudson bay having only one opening to the ocean may be considered a mare clausum. The land portion is shorter than that by any existing line, and it passes through an even country with a very gentle slope towards the sea. The bay and strait are free from rocks and shoals and may be easily navigated by the largest ocean going vessels.

The advantages of utilizing this route have been discussed by public men and the press ever since Canada acquired the northwest territories from the Hudson's Bay company. On the other hand, a great deal of nonsense has been written and strong opinions have been given against the practicability of the route, mostly by people who had no personal or direct knowledge of the subject. The history of the question and the various circumstances connected therewith, all tended to prejudice the public against it. A constant effort was made to associate Hudson bay and strait with the Arctic regions. Although the bay stretches for a thousand miles from south to north and the distance is still greater from the Atlantic ocean at the entrance of the strait to the western shore of the bay, yet these waters do not anywhere reach the Arctic circle and the latitude of the southern extremity is south of that of London. The writer has devoted about twenty-five seasons to the exploration and survey of the shores of Hudson bay and the country lying to the south and west for long distances inland.

He has passed through Hudson strait nine different times and has surveyed a great part of its northern coast.

The Hudson's Bay company, which had successfully used the route in question for more than 200 years, regarded the bay and all the country extending thence to the Rocky mountains, as their own property and were jealous of anyone intruding on their preserves, who might some day dispute their monopoly of trade or their ownership of the country. Not only did their officers and men and their supplies enter the country every year by this route, but the first military force and the first permanent settlers, in what is now Manitoba, came in by the same route. Viewed from the British islands, it seemed by far the easiest and most direct way into the Canadian northwest.

Notwithstanding the fact that Hudson strait and bay have been navigated with success for 240 years by the company, there is no doubt that, in the old days of sailing ships, fogs often retarded the progress of their vessels, and much has been made of this fact by the opponents of the proposal to use these waters as a highway to Europe. But steam navigation has changed all that and has put a new aspect on the whole question. The writer was a passenger on one of the company's sailing ships in 1855, when a small scattered field of ice barely stopped our progress in the strait. Four years afterwards, when I was on board the steamship *Neptune*, in about the same part of the strait we met a much worse field of ice and steamed through it with little loss of time.

The delay in attempting to open this route for commerce has arisen from several causes, among which are the following: When it was first advocated as a modern commercial route, the population in the interior was so small that there would have been too little business to give employment to a railway and line of steamships. As soon as the Hudson's Bay company territories had been purchased and the Canadian Pacific railway had been constructed, both at the expense of the people of Canada, in order to secure the trade of the northwest for the older portions of the country, it was argued

that it would be unwise to open a shorter and more direct route to Britain, which would divert the very trade and travel we were so anxious to obtain for that railway, in order to secure these advantages for the Canadians themselves. It was therefore natural that the proposed route should be opposed by the Hudson's Bay company, the Canadian Pacific railway, the manufacturers of eastern Canada and all others, who thought their own particular interests were menaced. The Canadian government was also opposed to it, for the time being. In fact, the Hudson bay route had few friends or advocates. The people of the western prairies, who wanted the route opened up, were not sufficiently numerous and had not the necessary political influence to secure for the project the consideration it deserved. No class of people of the eastern parts of the Dominion felt themselves called upon to take any active interest in the matter. And so this great question has dragged itself along to the present time. In the natural course of events, the opening up of this channel for trade, could only become a living issue when the exports became sufficiently great to force their way to the sea by the cheapest and easiest route. When this shall have been accomplished, a large proportion of the imports will, of course, come the same way and there will also be a considerable passenger traffic. The people of Great Britain will soon learn that the increase in their own trade, which this route will afford, is a matter of much interest to them.

To an outsider, the virtual obstruction placed in the way of developing this route by such means as I have mentioned, will appear to have been short-sighted and unpatriotic; for, let us suppose that it, by any means besides those which have been referred to, a large population could be rapidly poured into that uninhabited region, would this not be the very best means of finishing the desired traffic for the Canadian Pacific railway and sale for the tariff-protected Canadian manufactures?

Small as was the population of Manitoba, there was always a clamour from that quarter for some consideration of the Hudson bay route by the government. This was appeased by sending out a Hudson bay expedition on several occasions and thus time was gained, to the evident satisfaction of the government of the day.

The writer accompanied three of these expeditions, as naturalist and geologist. On two of them he was also medical officer, but he was not asked to report anything as to the question of the suitability or otherwise of the strait and bay as part of a commercial route between our northwest territories and Europe. He had, however, previously written a number of papers on this subject for publication, includ-

ing one for the geographical section of the British Association for the Advancement of Science, York meeting, and accompanied it with a map.* But his most complete paper in this connection was one entitled "A New Route to Europe" (from the interior of British North America), published in Montreal, as a pamphlet, in 1880. Much of the general literature on the Hudson Bay route, which has since appeared, is based on the information contained in this pamphlet.

In connection with the expedition of 1884, by the steamship Neptune, the government arranged to send out six small parties to make meteorological and other observations, for one year each, at six stations, to be placed as three pairs on the opposite shores of Hudson strait. One pair was to be at the entrance from the Atlantic, one pair on the north and the south side, midway up, and the third pair on each side of the outlet into the bay. All the stations were successfully placed where intended, except the one which was to have been built on the north side of the entrance. The weather and other circumstances prevented a landing being effected in this vicinity, and the station was built at Nachvak inlet, on the Labrador coast, about fifty miles south of the strait. Small, but comfortable wooden houses, each containing three good rooms, besides an attic, and having from one to three outbuildings, were erected for each station. The dimension timber, the sawn lumber and the doors and windows were taken out in the ship, but all the cutting and fitting were done after the materials had been placed on the ground. Only from two to three days were required to land the building materials, the fuel and supplies of all kinds for a year and to erect the buildings.

The officers and men left at these stations, kept similar meteorological records in uniform sets of books. They were also instructed to ascend the highest hills near their stations, from time to time, in order to make telescopic observations on the condition of the strait during the winter months.

At the end of the first year, or in 1885, fresh officers and men were sent out on the steamship Alert to replace the first parties, who were then brought home. At the end of the next year the second parties also returned by the ship and all the stations were demolished, except that on Big Island, midway up the north shore.

It is to be regretted that, in neither year, were the officers in charge of these various stations asked to make reports on the results of their own observations during the two whole years and as to the information they obtained

*Published in the Proceedings of the Royal Geographical Society, New Monthly Series, vol. 111, 1881.

from the Eskimos. They were merely required to hand in their books of records, after which a general report, purporting to be based on all of them, was prepared by some one else for publication each year.

In 1897 the Canadian government sent out an expedition by the steamship *Diana* to test the length of the season of navigation in Hudson strait by making occasional voyages from end to end, beginning as soon as it could be entered and continuing till it might be closed by ice, as at that time it was supposed by many that such a thing sometimes occurred, although there was no proof that it had ever happened. But when the *Diana* reached the strait (on the 22nd of June) the entrance was already quite clear of ice in sight, but our ship soon afterwards got entangled in ice close to Big Island, about half way to the north shore, and it was not attained whether or not she might have passed on into the bay by keeping the centre or the southern side. The strait was found to be clear of ice until the *Diana* left for Halifax late in the autumn.

The writer was a member of the *Diana* expedition and, by means of a yacht, carried out to Big Island on the deck of the steamer, he surveyed a considerable portion of the north shore of the strait, which forms the south coast of Baffin Land.

Against the Hudson bay route, it is urged that the season of navigation is too short, because people erroneously suppose that the strait is frozen over during the winter and that Churchill harbor, on the west coast of the bay, the only natural port known to be available for large vessels, is not clear of ice for a sufficient length of time each season. The harbor is, however, open for about four and a half months during the summer and autumn and this period might be considerably lengthened by artificial means.

From the land side, this harbor may be difficult to approach by a railway on account of extensive bogs or "muskegs." The writer in 1879 surveyed the Churchill river, from a point a long distance inland, all the way to the mouth, and also the harbor itself. I have entered this port by sailing ships and I had the honor, in 1884, of piloting the first steamship that ever entered it.

By prolonging the railway northward up the coast a salt water harbor may perhaps be found which is open during a longer season than Churchill, while the total distance might be only slightly increased.

The name "Port Nelson" has been retained by map-makers for the mouth of Nelson river, perhaps because, on paper, it looks as if a port should still be there, but in reality no port for sea-going vessels exists at this locality at the present day. It is recorded that

some of the small vessels first sent out by the Hudson's Bay company, 240 years ago, went to Gilliam's island, which is now just above the tide water at the mouth of the river. This writer has ascertained that the land on the west side of Hudson bay is geologically speaking, rising very rapidly, apparently at the high rate of nearly five feet per century.

Thirty years ago, or in 1849, I examined carefully all the waters in the vicinity of Gilliam's island and took many soundings, especially around this island itself, and nowhere could I find a greater depth than ten feet. Although the island is now above the level of the highest tides, it is probable that at the time of Radisson, the water around it would be twelve feet deeper, making a total of twenty-two feet, which would be quite sufficient for the ships frequenting Hudson bay up to the time of the adventures of D'Iberville in these waters. The Nelson descends with a swift current to high tide level at the foot of Gilliam's island and form this outward, the principal single discharge of the river water into the bay, at low tide, consists of a narrow, shallow and very crooked stream, running for miles through the great mud flats which fill the estuary, and interrupted throughout by many large boulders.

The Inner Ship's Hole, a part of York Factory, in the mouth of Hayes river, is not deep enough for vessels drawing more than eight feet. In 1880 I sailed from this anchorage to London in the Hudson's Bay company's barque *Ocean Nymph*, which required only this depth of water, and it was by the most careful piloting, at the top of high tide, that we managed to get out to sea, a distance of twenty miles from the Factory.

A very short outline should here be given of the geography and the leading physical features of Hudson bay and strait. The former is fully 600 miles in width, the area being nearly half that of the Mediterranean of the old world. James bay, which constitutes its southern portion, measures 350 miles from north to south by 150 miles in breadth and has an area more than 50 per cent. greater than that of Lake Superior. Having these large dimensions and being situated in the heart of the continent, Hudson bay is the most striking feature in the geography of North America, and the writer, long ago, suggested that it might be more appropriately and correctly called Hudson sea, being, as it were, the Mediterranean of this continent. It is separated from the ocean by a very long strait and is really a mare clausum surrounded by British territory. Roughly speaking, Hudson strait measures 500 miles in length by 100 miles in width.

A very large extent of country immediately around Hudson sea, on the east, the south and the west, drains

directly into it, by upwards of 30 good-sized rivers and innumerable smaller ones. The great drainage system tributary to the Manitoba lakes forms a supplementary basin, which derives its waters from all sides and sends them to the sea by a single trunk stream. The Nelson, one of the great rivers of the world. The Saskatchewan, which falls into Lake Winnipeg, originates west of the Rocky Mountains, and has a course of more than a thousand miles. The Winnipeg river, one of the largest tributaries, rises near Lake Superior, and flows westward into the southeastern bay of Lake Winnipeg. The Red river, the most southern affluent of Lake Winnipeg, has its source south of latitude 45 degrees. This, with the tributaries from the north, or opposite direction, gives a total north and south drainage of 1,500 miles. The limits of the basin of Hudson sea, therefore, extend from the centre of the Labrador peninsula west to the Rocky mountains, a distance of 2,100 miles, and from the source of Red river and the height of land near Lake Superior, northward to Repulse bay, the distance being equally great.

Hudson sea and strait are both easy to navigate. The former has an average depth of seventy fathoms, deepening to one hundred, towards its outlet. The west end of the strait has a depth of 150 fathoms and increases regularly to 300 as it enters the Atlantic. There are many good harbors on both sides. The bottom in all cases is stiff boulder clay, affording good holding ground. The land on the southern side rises to heights of from 1,000 to 2,500 feet, and is more precipitous than on the northern side, the western half of which is not so high as the eastern. A few light and signal stations might be erected on elevated points, which could inform passing ships as to the position of any ice that might be in the strait. Both sides could be easily and effectively lighted at a very small expense.

The country on the eastern side of Hudson sea is much higher than that on the west. From Cape Jones, on the east shore, where James bay widens into Hudson sea, to the north, all the way to Cape Dufferin, the east coast rises to a height of about 2,000 feet, and in parts is quite precipitous. The west side is everywhere low, with shallow water, from the southern extremity of James bay nearly to Chesterfield inlet.

None of the rivers of the east shore are navigable except for light canoes between the portages, but some of those coming from the west, might be navigated during high water by steamers with powerful machinery. By such craft the Moose and its west branch, the Missinabi, might be ascended for 130 miles from the sea, the Albeny and the Attawapiskat, to the north of it, each for 250 miles, the

Kapuskow, between these, for 50 miles, the Ekwan, Wenusk, Severn and the Hayes, together with both its branches, the Shamattawa and Steel rivers, for about 130 miles each, and the Nelson for 70 miles above tide. There is a rapid at the head of the tidal lagoon of the Churchill, but a strong steamer might ascend this at high water, in which case, the river might be navigated for about 100 miles, or to the mouth of the Little Churchill. The Harricanaw river, which enters the southern extremity of James bay, might be utilized for 80 miles up from its mouth during high water, but it is extremely shallow during the summer. In the central sections of this river and also of the Nelson, some stretches are navigable for steamers for many miles. In the event of steamships running into Hudson sea, the rivers I have indicated may be used for bringing the produce of the country to the coast for shipment to Europe or elsewhere. The small harbors at the mouths of these streams have an average depth of only about ten feet at high tide.

The mean rise of the spring tides on the west side of Hudson sea is eleven or twelve feet, and is pretty uniform, but it diminishes somewhat as we go south. At the south end of James bay, when a northerly wind blows at the time of spring tide, the water sometimes rises to nearly double the ordinary height. The greatest spring tides are at the mouth of Nelson river, where they rise fifteen feet. The tides are low all along the east coast. In the eastern half of Hudson strait the tides are very high, but towards the west end they have diminished very much. At Ungava bay, just within the entrance and on the south side, some tides may rise to a height of fifty feet. At Fort Chimo, twenty miles up the Ungava river, Commander Bolton, R. N., found a tide of 33½ feet. At Ashe inlet, on Big island, the average spring tide was accurately ascertained to be 31 feet.

The resources of Hudson sea and of the adjacent regions, from which exports may be expected in the future, include timber, minerals, agricultural produce, fish, fur and oil. These may some day furnish considerable business in addition to the great traffic passing through the sea from the regions west of Lake Winnipeg.

It is probable that nothing but experience gained after the opening of the Hudson bay route will dispel the bugaboo as to the ice and the supposed impossible climate. Not only has it been supposed that the strait is closed during the winter, but that the sea itself freezes across. A little reflection would convince anyone that this is quite impossible with a body of salt water 600 miles wide and a thousand miles long, within the latitudes of the British islands. It is equally impossible for this to happen

to a deep channel like the strait, connecting this great sea and the Atlantic ocean, and having a high tide swinging rapidly through it twice every twenty-four hours. The presence of so much open water and the lower altitude, give Hudson sea and strait a milder winter climate than that of Manitoba or Minnesota.

The writer has in his possession a record of the climate, including seasonal and periodic events, for nearly a hundred years at an inland post on the Albany river. This gives an average of six months of open water each year. Another record kept at York Factory for fifty years shows an average of fully six months of open water in the year. The difference in latitude between York Factory and Churchill harbor is only about one hundred miles. As neither Hudson strait or sea is frozen over at any time, they might be navigated for six months or more in the year, but the season of navigation should only be reckoned as the period during which vessels could enter a suitable harbor.

Much has been ascertained in the last thirty years, and a great deal had been previously recorded since the Danish captain, John Monck, wintered at Churchill in 1619-1620, to show that this harbor has an open sea on averaging four and a half months in the year, or from about the middle of June to the end of October, and there is no doubt that a powerful ice-breaking steamer, such as some of those used in Russia, could materially extend the time of open water, both in spring and autumn, and the clear open sea being just outside could always be utilized. We need not, therefore, despair of navigating these waters on account of the shortness of the season.

The fact that the strait and this great inland sea have been navigated by sailing ships with scarcely any loss for 240 years, for the sake of the small business available, shows what might be done when a great carrying trade is in sight. If railways were built from the prairie provinces to Hudson sea, the farmers of these regions would be in as good a position in regard to a seaport as those of the interior peninsula of Ontario are in relation to the St. Lawrence. If the average price of wheat throughout the northwest were increased by ten cents a bushel, owing to such improved facilities for marketing it in Europe, and if only one-fourth of our 200,000,000 acres of good wheat land in the northwest, or, say, 50,000,000 acres, were producing this grain at the rate of twenty bushels an acre, the annual value of this crop alone would be increased by \$100,000,000 or enough (at a moderate price) to build a new transcontinental railway every year. The combined value of all other products would double this

amount, and the value of the land itself would be correspondingly enhanced. These advantages, together with the many others which would result from the greatly reduced rates for freight, would seem to justify the Canadian government and people for at least making every effort to establish this line of transportation.

The city of Winnipeg is near the southeastern corner of the whole area of the prairie provinces, and yet the distance from it to Liverpool by the Hudson bay route is 800 miles less than by the St. Lawrence, while the saving of distance in favor of all other points is greater as we advance northwestward into the interior. This may be illustrated by supposing that two travellers start for Liverpool from some point in that direction, one going by Lake Superior and Montreal, the other via Churchill, the latter arrives at Churchill as soon as the other reaches Winnipeg. From Winnipeg this traveller has yet to go 1,291 miles by Lake Superior to reach Montreal, where he will still be no nearer to Liverpool than the other is when he reaches Churchill. In other words, the traveller by Churchill saves the whole distance between Winnipeg and Montreal. By way of New York the distance is, of course, still greater.

It will probably be found that some of the products of the northwest can be profitably exported by the Hudson bay route, which would not pay at all to send by the St. Lawrence.

For more than thirty years, the writer has advocated the consideration of this route. In 1878 a paper which he had prepared on the subject was published in the report of the minister of the interior for that year. During the session of 1878-79, the Hon. Thomas Ryan called the attention of the senate to the importance of this subject and stated his belief that a railway might be advantageously constructed from Manitoba to Hudson bay. In 1880, parliament granted charters to two companies for building such railways, and in the following year, one of them, the Nelson Valley Railway and Transportation company (of Montreal) appointed Mr. George Bayne as its chief engineer and caused a survey to be made from Playgreen lake to Churchill. The company also opened a right-of-way along its line for many miles.

The region between Lake Winnipeg and Churchill, which a railway would require to traverse, has been supposed to be hilly and rocky, but this is a mistake. In the wide valley of the Nelson river, there is much good soil, consisting of a soft clay loam.

The railway might be originally constructed so as to be operated by hydro

electric power, which can be furnished on a great scale by the falls and chutes of both the Churchill and Nelson rivers and also from those along the travelled boat route, via Hill, Steel and Hayes rivers.

Once the sea route through Hudson strait has been proved feasible, railways will carry to the coast of Hudson sea, not only the grain, cattle and other products of our prairie provinces, but also of some of the northwestern

states, such as Dakota and Minnesota. Some kinds of farm produce, which will not bear the cost of transportation to Europe by the longer routes, may be sent by the shorter and cheaper one through Hudson strait. Mr. Isaac Cowie suggests that by establishing this British route from the vast interior of North America, Canada will be virtually giving a preferential trade to Great Britain as compared with other countries.



