



No. 2-Canadian Pacific Territory. -By Courtesy of the New York Evangelist.

JUST BEYOND OUR NORTHERN BORDER

From Ocean to Ocean Through the Queen's Dominion.

AN AMERICAN'S VIEW OF CANADA

Origin, History, Cost and Advantages of the Canadian Pacific Railway, One of the Greatest Systems on Earth--The Sprightly Young City of Vancouver.

Written for The Tribune.

A railway from the Atlantic to the Pacific, all the way on British soil, was long the dream of a few of the earliest settlers of Canada. The dream of the many, and in 1827 the government of the Dominion of Canada set about the building of a trans-continental railway, which was the most important single factor in forming the confederation of the British North American provinces. It was afterwards found to be a military as well as a political necessity, and is now a growing commercial necessity. It was an undertaking of such vast proportions that the richest empire of Europe might well hesitate to enter upon it. Three thousand miles of railway surveys were made, largely through a country unexplored, but owing to political jealousies, party strife and change of government the work was so blocked that in 1850, by common consent, it was decided to surrender the outlay, machinery, etc., to a private company on condition that the remaining 1,200 miles of railway should be completed within ten years. For this the railway company was to receive from the government \$25,000,000 in gold and 25,000,000 acres of agricultural land. The two sections commenced by the government (425 miles between Winnipeg and Lake Superior and another 215 miles eastward from Pacific coast into British Columbia, together with a branch line of sixty-five miles in operation from Winnipeg southward to the boundary line of the United States) should be finished by the government and given to the new company in addition to its subsidies in money and lands, and the entire railway when completed was to become the property of the new company.

THE WORK COMPLETED. Consequently in 1881 the Canadian Pacific Railway company was organized and, accepting the conditions of the government, set about its task vigorously from both ends of the line toward each other and met at Craig Ella, in Eagle Pass in the gold range of mountains on November 7, 1885, when the last rail was laid on the main line and the present company, though not yet five years old, came into possession of 4,315 miles of railway, one of the longest, if not the largest continuous line in the world. Extending from Quebec across the continent to the Pacific Ocean.

This road was really constructed in four sections, two by the company, and two by the government. The Lake Superior section was one of the hardest to build, rivaling in obstructions and requirement of skillful engineering that

portion lying through the mountains of British Columbia. It is said while this section was under construction an army of 10,000 to 12,000 men were employed with work with from 1,500 to 2,000 teams of horses and in the winter, this force of animals was augmented by about 300 teams of dogs. More than 300 miles of the main line were cut through solid rock. No less than fourteen streams were diverted from these natural beds, in some cases by tunneling through the solid rock. The mountains were pierced by scores of tunnels and innumerable bridges, crossed by iron or wooden bridges. Some 1,000 feet long, and one bridge 297 feet above the mountain stream it spans. Upwards of \$100,000,000 was expended on the main line up to January 1, 1885, independent of \$35,000,000 disbursed by the government.

The late able prime minister of Canada, Sir John Macdonald, was a strong friend of the railway project from the first, and together with his co-workers, Sir Donald Smith, Sir V. C. Van Horne, president, and Lord Stephens, and other eminent Canadians, the great work was brought to an early completion, and this national highway of Canada, the latest American trans-continental railway, is one of the marvels of the world, which every Canadian points with pride.

AN HEROIC WORK.

There is something heroic in the temper of these men who planned and pushed to completion this gigantic enterprise. From their resolutions, this long line has outlay of treasure in breaking down all natural obstacles, overcoming mountain ranges, impetuous canyons and formidable rivers, to join by hands of steel Vancouver, its Western (Pacific) terminus, with Quebec and Halifax, its Eastern (Atlantic) terminus, forming a broad commercial route from ocean to ocean. These railway magnates more than to all other agencies combined does the Dominion of Canada owe a debt of gratitude for her subsequent and prospective development. I repeat that the road, a single line of five thousand miles, including the branches, has given a magnetic impulse to the fields, the mines and the manufactures of this once modest plodding colony of Great Britain, transforming it into an energetic nation with great plans and hopes and aspirations.

The Canadian Pacific is the only road in Canada using the block system, and giving a direct route to the East and branch lines connecting with the railway system of the United States, thus becoming a powerful competitor with American roads. It is the strongest road, being heavily subsidized formerly by both the Canadian and imperial governments and now claims the proud distinction as the only trans-continental line on the American continent with no mortgages or indebtedness. It is purely a national enterprise, its ownership being almost wholly in Canadian and British hands.

It is said no country in the world is better served by railways than is this great dominion which comprises over 15,000 miles. Every place of importance has its railway station or two. The three principal systems are the Canadian Pacific, with its 5,767 miles; Grand Trunk, 3,156 miles; and Intercolonial, (including the Prince

Edward Island railway), 1,233 miles. The rest of the mileage is made up of smaller lines in the various provinces. The total "paid in" capital amounted in 1892 to \$845,000,000, of which the Dominion and local governments and municipalities have contributed \$185,000,000. The Canadian Pacific system embraces much more than its main line, its eastern extensions reaching to St. John, N. B.; Halifax, N. S.; Cape Breton, etc., while numerous branches connect the trunk road with the chief American cities.

This great highway from ocean to ocean, serves the noble purpose of political union, business intercourse and the imperial government, as a military road. With British fleets commanding both the Atlantic and Pacific ends of the line, Halifax the North Atlantic station and Esquimaux, the Pacific, both troops and stores of war could be transported (in the event of difficulties in her eastern dominions) to China, Japan and India, in less time and with much less risk than by any other route. There are large coal fields near each of these ports, and graving docks capable of holding the largest vessels, giving value to the railway and adding strength to the empire. Another object lesson for our American government.

Vancouver is the Pacific terminus of this Canadian Pacific railway, and also the point of embarkation for their steamship lines between Vancouver, China and Japan, San Francisco, Australia, Honolulu and also Alaska and Puget Sound ports. The city owes its rapid prosperity to these important projects, and is destined to be one of the largest cities on the Pacific coast for as its great advantages are entirely beyond the realm of speculation and doubt. It is beautifully located on a peninsula (Burrard Inlet on the east and English Bay on the west), and has every advantage a fine harbor affords. It is surrounded by a country of rare beauty and the climate is milder than that of Delaware, being backed by the cascade range of mountains near at hand at the north, the mountains of Vancouver Island at the Gulf of Georgia at the west, the Olympics at the southwest, with the eternal snow capped Mount Baker looming up to a height of over two miles at the southeast. In fact it is protected on every side while enjoying the sea breezes from the Strait of Georgia.

The situation is most perfect as regards picturesqueness, harbor facilities, commercial advantages and natural drainage. The land slopes gradually to the sea, rendering drainage easy, and in two directions the city permits indefinite expansion. It has an inexhaustible fresh water supply, brought across the bay from a fine harbor at one of the neighboring heights. The city which had no population in 1881, has today 20,000 inhabitants. Its wonderful growth is a matter of history and has almost no parallel.

THE CITY'S GROWTH.

A great conflagration in June, 1886, from a surrounding forest swept away the young wooden city every house but one, but before the embers died, materials for rebuilding were on their way, and in place of wooden structures there arose rapidly grand edifices of granite and brick. The city is now laid out on a magnificent scale, its residences, business blocks, hotels, churches and public buildings of all classes would be creditable to any city in the east,

It has many miles of well laid streets, macadamized with bituminous rock. They are generously lighted with gas and electricity. Electric cars run in the principal thoroughfares and the service extends to New Westminster, twelve miles distant on the Fraser river. Lining the harbor are extensive wharves and numerous warehouses. There are several fine churches, opera house and hotels. The principal one is Hotel Vancouver, one of the hosteries owned by the Canadian Pacific, and it is only just to say that in comfort luxury and refinement of service this hotel equals any on the continent. Our five days' stay here was luxury in the extreme. Every tourist may profitably and comfortably spend a week at Vancouver. Opportunities for sport are unnumbered here. Mountain hunting and deer are found in the hills along the inlet; trout fishing in the mountain streams, and sea fishing in endless variety. Its streets combine frontier and sea-faring, back woods, European, American and Oriental conditions and people. For instance, one can shop shells basket work, silver and slate carvings, brought in canoes by the coast Indians, and at the next door all the Orient is set before you by Chinese and Japanese traders, who add to their stock by each arriving steamer. A mountain of tea chests is unloaded from each steamer, and a mountain of sacked flour and cotton in bales takes their place. Stanley Park comprises nine miles of carriage road through the forest primeval--some as dense as a tropical jungle, some a street of trim villas with beautiful lawns and gardens, and some where the Douglas spruce grows to 200 feet high.

MODEL STEAMSHIPS.

Special mention should be made of the regular Canadian Pacific Trans-Pacific Royal Mail steamship service to China and Japan. The three magnificent steamships employed are called the "Empress of India," "Empress of China," and "Empress of Japan." The latter being in port during our visit to Vancouver, we visited it with much interest and courtesy shown through it. They are all uniformly built, of 6,000 tons burden, staunch, speedy and capacious, and are under contract with the Imperial government to carry the royal mail. They are 485 feet long, 51 feet breadth of beam, and the only twin screw steamships on the Pacific. They are of 16,000 horse power, have triple expansion engines, carry steam nineteen knots, or nearly twenty-two miles an hour. The cabins are large and roomy and contain all the modern improvements and no expense has been spared in their luxurious fittings. The promenades are extensive and free from obstructions. The saloons, smoking rooms, social hall, and all passenger accommodations are amid ships, and surpasses most anything we have ever seen afloat. These vessels are lighted throughout by electricity. In a word modern marine architecture has in these galleons exceeded itself.

THESE SHIPS ARE HEAVILY SUBSIDIZED.

These steamships are heavily subsidized, costing \$1,000 each trip. They are ostensibly merchant vessels and passenger ships, but so heavily built as to be easily utilized or converted into war ships at short notice. Another instance of British foresight in these galleons is that they are thought that our American government may well emulate. In our next, we resume our travels eastward over this great national highway.

ALMOST READY TO HARNESS NIAGARA

Contract Let to Furnish Buffaloians with Motive Power.

NICOLA TESLA'S WONDERFUL WORK

Progress Making in the Effort to Utilize the Enormous Power Going to Waste Over the Falls--Electricity Already Being Provided.

W. E. Curtis, in Chicago Record.

Niagara Falls, N. Y., Aug. 2.—The world has been watching with interest the development of the great scheme of which Nicola Tesla is the scientific apostle, and Francis Lynde Stearns, I. S. the law partner of the president, and a group of New York millionaires, who are interested in the advancement of applied science, the financial promoters, to utilize the vast power that is carried over the falls of Niagara for industrial enterprises. An insignificant portion of that power has been used for years by local manufacturers to run flour and paper mills, and there has sprung up around the falls a few large establishments to which the water has been diverted. But the great problem that has engaged the attention of electrical and hydraulic engineers is to concentrate and grasp that mighty force in such a manner as to transmit it to the neighboring cities, and ultimately to New York by some method that will be economical. Electricians find no difficulty in seizing the power, but until recently the economic side of the question has presented obstacles that human ingenuity has not been able to surmount. Last week, however, the first contract was made to furnish motive force to the people of Buffalo.

Several millions of dollars have been expended in the construction of a tunnel, one mile and a half long, which takes the water from Niagara river, about a mile above the town, and releases it just below the falls, and in the erection of a plant which is capable of generating 15,000 horse power from its force.

This is experimental, but the results thus far have been so successful as to justify the company in proceeding to an enlargement of its plant to the full capacity proposed, which is 120,000 horse power. The cost was found to be an establishment where they ran a compound-condensing Corliss engine of 2,000 horse power, an average of eleven hours a day. It is one of the most economically managed institutions in Buffalo, and we found that it cost them at the rate of \$30 a horse power annually. The next test was in a flour-mill, where there is a similar compound-condensing Corliss engine, which runs twenty-four hours a day for six days in the week, and that cost at the rate of \$48 a horse power. The third test was in a department store, where there is an engine that furnishes power for the elevators, the electric light and other purposes, and runs an average of ten hours in the summer and twelve hours in the winter, say six days in the week. That costs \$76 a horse power. Then we went into four newspaper and printing establishments that are run day and night, and there the cost ranged from \$100 to \$140 a horse power per year. We can afford to furnish any of these establishments transmitted power from Niagara for not more than \$40 a horse power for twenty-four hours a day, seven days in the week, but we have not yet taken up the question of rates for special supplies.

I learned that a recent test had been made at a municipal water works in a small town near Buffalo, where the steam power cost over \$200 a horse power, but this is evidently in a measure due to bad management and extravagance. At the same time, every experience has demonstrated that steam power and electricity are not much more expensive in small plants than in large ones, and it is going to be a measure of great economy for the small manufacturers of Buffalo if they can get their power from the Niagara company at the rate of \$40 a horse power.

The people here will not venture any predictions concerning the time when or the method by which electricity is to be transmitted to New York for mechanical purposes. A great deal has been printed on the subject in the magazines and newspapers, and I think the popular imagination is being kindled. The Niagara company intends to transmit power for sale in New York very soon. That was the idea I had when I came here, but the promoters of the enterprise do not contemplate any such thing for the immediate future. The plant does not encourage any such expectations. It is capable of 20,000 horse power as a maximum, of which at least 10 per cent. must be held in reserve for accidents, leaving 180,000 horse power for sale when the limit is reached, which may not be for several years. That amount can easily be absorbed by the city of Buffalo and local enterprises.

It is a serious question, too, whether power can be transmitted to New York city at a cost within the limit of steam and electricity generated on the spot. If a twenty miles, how much will be lost in 200 miles? Still a number of variable and ingenious brains are studying this problem and it may be successfully worked out.

An atom of the power of Niagara was transmitted over a wire to New York during the recent electrical exposition in that city and was used to send a message from Chauncey Depew around the world. This was conveyed over an ordinary telegraph line, but was what the operators call a freak. It added a great deal to the sentiment interest of the event, but was in no sense a practical test.

It may therefore be assumed that while the plan of "harnessing" the falls of Niagara is successful so far as it has been attempted, there is no immediate prospect of utilizing the 7,000,000 horse power which is estimated to be going to waste every second of time "to turn the wheels of industry" any farther away than the city of Buffalo. It may be expected, however, that the beautiful and elaborate plant that has been erected here under Mr. Tesla's direction will attract many manufacturing enterprises.

HOW ABOUT SALARIES?

Wilkes-Barre Times.—The moment the Wilkes-Barre and Wyoming Valley Traction company is compelled to accept silver coin worth just one-half its face the fares will necessarily be doubled, they would be hiked in six months unless they did. Do the workmen and clerks who patronize the different branches by thousands every day anticipate their own salaries would be "Buffalo from the falls in an alternate

ing current form, with twenty-five cycles or alterations to the second. Up to this time that form has been found to be the most successful when transmitted at a very high pressure, say 10,000 or 11,000 volts. Arriving in Buffalo it enters the power house of the local company, when this voltage will be dropped to 400 through a "stepdown" transformer. Then it will pass into a rotary transformer, also of the alternating type, whence it will be conveyed in a continuous current for the use of the street railway and other customers.

"What will be the wastage?" "We expect the wastage between the power house at the falls and Buffalo, a distance of about twenty-two miles, will be from 10 to 20 per cent., but that problem can only be solved by actual experience. Electricians are at work endeavoring to substitute some method for the present process that will reduce this wastage, and we hope that sooner or later they may lower the maximum."

"Is electricity carried such a distance anywhere else?" "Yes, at Portland, Ore., and at Seattle, it is carried quite as far with no greater wastage, and at Rome, Italy, correspondingly raised? Hardly.

"One great point in economy which must be taken into consideration," continued Mr. Urban, is the saving in space, which is getting to be an important matter in large cities, where land is valuable and rents are high. With this transmitted electricity manufacturers will not require more than 3 or 4 per cent. of the room that is necessary to place a plant that will generate the same amount of steam or electricity, and the economy in pay rolls will be very great."

"Can you heat your cars by the same current?" "Yes; the electric cars running between Buffalo and Niagara Falls are now heated as well as propelled from the new power house, and the system is very successful."

"What amount of power is used in the city of Buffalo, and what does it cost under the present system?"

"All the manufacturing establishments in that city, including the street railway, consume about 100,000 horse power when in full operation. Before we went into this enterprise we attempted to ascertain its cost, but found that nobody knew; so we set about to secure the information by actual experiment. We made several tests that were carefully watched. The lowest cost we found was in an establishment where they ran a compound-condensing Corliss engine of 2,000 horse power, an average of eleven hours a day. It is one of the most economically managed institutions in Buffalo, and we found that it cost them at the rate of \$30 a horse power annually. The next test was in a flour-mill, where there is a similar compound-condensing Corliss engine, which runs twenty-four hours a day for six days in the week, and that cost at the rate of \$48 a horse power. The third test was in a department store, where there is an engine that furnishes power for the elevators, the electric light and other purposes, and runs an average of ten hours in the summer and twelve hours in the winter, say six days in the week. That costs \$76 a horse power. Then we went into four newspaper and printing establishments that are run day and night, and there the cost ranged from \$100 to \$140 a horse power per year. We can afford to furnish any of these establishments transmitted power from Niagara for not more than \$40 a horse power for twenty-four hours a day, seven days in the week, but we have not yet taken up the question of rates for special supplies."

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CAR RUNS ONCE A MONTH.

Warrensburg, Mo., Has a Novel Street Railway System.
From the Kansas City World.
Warrensburg, Mo., has a street railway system and nearly three miles of track, over which a street car makes a trip once each month and not oftener. The road was built five years ago by M. Fairchild Dowd and Frank Wood, boom-time promoters, and was part of their scheme to make a great summer resort at Electric Springs. They built a big hotel at the springs and a street car line to and through the principal streets of Warrensburg. Then the collapse came.
The franchise granted to the street railway by the town council required that cars run over the line each month. So to hold the franchise an old and rickety hot-tail car is run out of the barn once a month, and mules are attached to it to draw it over the line, and, then it is put up in the barn to rest another month.
The road bed of the line has been so disturbed by the frosts and rains that the rails are twisted and bent, and the car jumps the track in going short distances a great many times. Sometimes it takes two days to make the round trip. Last February the car got off the track and stuck in the mud for several days. When the car makes its regular monthly round, the people turn out to see it and banter each other about it. It is considered a rich joke to induce a traveling salesman or any other stranger to board the car.

DR. MACLEOD'S WIT.

He Introduced it at a Time When It Produced Desired Beverage.
The late Dr. Norman Macleod was a most facetious man, and was noted for his love for a good joke. The following story is told in corroboration of the latter remark: Shortly after he had returned from his first visit to Belmont, it happened that he was invited to a dinner party in Glasgow. When he arrived circumstances in connection with his pastoral duties occurred to prevent him being present at the appointed time.
Accordingly, on reaching the house, dinner had been served, but was not very far advanced. Having apologized for his want of punctuality, the lady of the house said those at the table would wait a few minutes, and he would soon overtake them. While waiting, the conversation turned on the doctor's visit to the queen, and he was asked several questions as to how her majesty conducted herself at table, etc. The doctor told them he would satisfy them all with his answers, if, in the meantime, they allowed him to proceed. Soup was first served, then fish, and the doctor partook of both.
When his own course had been finished, the doctor was removed, the doctor casting his eyes over the table, said: "It was just at this stage of the dinner the queen said to me, 'No, Norman, I think you'd be the better of a dram.'" The brandy, which was on the sideboard, was quickly produced, and the doctor partook of his own ample shouts of laughter from all the guests.

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