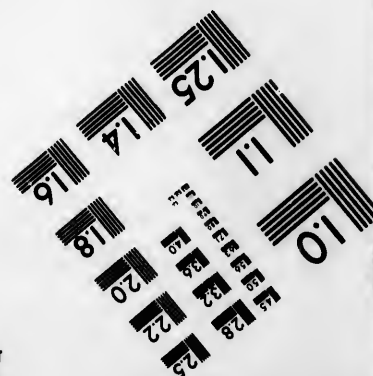
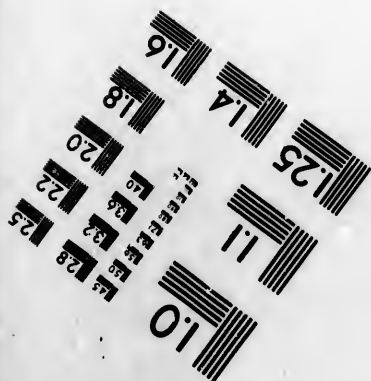
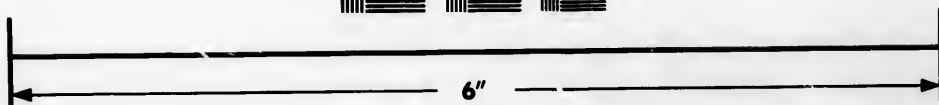
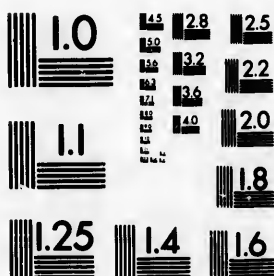


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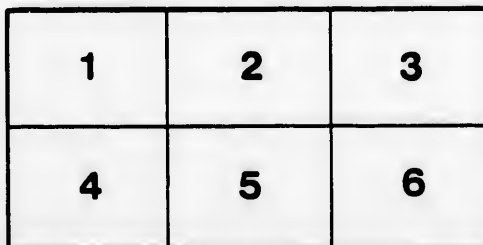
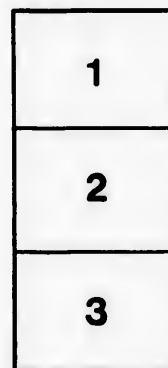
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J.W. Lawrence

THE
J.W. LAWRENCE COLLECTION
FIRST MORTGAGE SEVEN-THIRTY
GOLD BONDS

OF THE
Northern Pacific Railroad Co.

THE
ROUTE, RESOURCES, PROGRESS AND BUSINESS

J.W. LAWRENCE ^{OF} COLLECTION
THE ROAD.

The author of *Poor's Railroad Manual*, a standard United States authority, says:—"It is undoubtedly true that Railroad securities have proved to be the most productive investment for capital that we have had for twenty years.

ISSUED BY
C. W. WETMORE,
General Agent for the Sale of the Bonds in the Maritime Provinces.

SAINT JOHN, N. B.:
PRINTED AT H. CHUBB & CO.'S STEAM JOB PRINTING OFFICE,
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1872.

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1872.

Organization.

Trustees for the First Mortgage Bondholders:

JAY COOKE,
J. EDGAR THOMSON.

Officers of the Northern Pacific Railroad Company:

J. GREGORY SMITH, <i>President</i> ,	} 120 Broadway, NEW YORK.
R. D. RICE, <i>Vice-President</i> ,	
SAMUEL WILKESON, <i>Secretary</i> ,	
A. H. BARNEY, <i>Treasurer</i> ,	
W. MILNOR ROBERTS, <i>Engineer-in-Chief</i> ,	
EDWIN F. JOHNSTON, <i>Consulting Engineer</i> ,	

Board of Directors:

J. GREGORY SMITH,	ST. ALBANS, VT.
R. D. RICE,	AUGUSTA, MAINE.
THOMAS H. CANFIELD,	BURLINGTON, VT.
WM. B. OGDEN,	CHICAGO, ILL.
WM. G. MOORHEAD,	PHILADELPHIA, PENN.
WM. C. FARGO,	BUFFALO, N. Y.
B. P. CHENEY,	BOSTON, MASS.
GEO. W. CASS,	PITTSBURG, PENN.
FREDERICK BILLINGS,	WOODSTOCK, VT.
WILLIAM WINDOM,	WINONA, MINN.
JAMES STINSON,	CHICAGO, ILL.
SAMUEL M. FELTON,	PHILADELPHIA, PENN.
CHARLES B. WRIGHT,	PHILADELPHIA, PENN.

Secretary: SAMUEL WILKESON.

Executive Committee:

J. GREGORY SMITH	WILLIAM G. FARGO,
R. D. RICE,	WILLIAM WINDOM,
WILLIAM B. OGDEN,	S. M. FELTON,
GEORGE W. CASS,	CHARLES B. WRIGHT,
WILLIAM G. MOORHEAD.	

Financial Agents for the Railroad Company:

JAY COOKE & CO.,
PHILADELPHIA.

INDUCEMENTS TO CAPITALISTS.

Seven-thirty First Mortgage Gold Bonds

OF THE

Northern Pacific Railroad Company.

FIRST. Their security is perfect, being based not only on the road, its equipments and franchises, but also on the vast grant of land, estimated at about fifty millions of acres, or about three times the area of New Brunswick, and which is, at the most moderate calculation, worth more than the entire cost of building and equipping the road.

SECOND. The cost of the road (as stated by the most eminent and reliable engineering authority, after a careful examination of the route) "will be less per mile than the average cost of railroads in the United States; and the cost of working it, owing to the predominance of light grades over the greater portion of the route, and the facilities which it possesses, most of the way, in good supplies of water, wood and coal, will *fall below* the average."

THIRD. The Bonds are free from any U. S. Tax.

FOURTH. They are receivable at a premium of ten per cent. in payment for all lands of the Company, at their lowest cash prices.

FIFTH. The money derived from sales of First Mortgage Bonds is required, by the terms of the mortgage, to be devoted to the construction and equipment of the road, and the proceeds of land sales are to be applied exclusively to their purchase and cancellation, before maturity, provided they can be bought at a premium of not over ten per cent.

SIXTH. The effect of the operation of this policy will necessarily be to increase the value of the Bonds in the market, as fast as they are retired by such purchase.

SEVENTH. Principal and interest are payable in gold. The principal at the end of 30 years, from July 1870, and the interest half-yearly, first of January and July, at the rate of $7\frac{3}{4}\%$ per cent. per annum, or two cents in coin, per day, on each \$100 Bond. They are issued in the following denominations, Coupon and Registered always interchangeable: Coupons, \$100, \$500, \$1,000; Registered, \$100, \$500, \$1,000, \$5,000, \$10,000.

EIGHTH. The Bonds are offered, at present, at par and accrued interest in U. S. currency. The investor thus secures to himself the return of his capital, at maturity, in gold, and its semi-annual income in like form. They are submitted as a Real Estate Security, one, which in the judgment of the best financial minds of the United States, cannot be exceeded as a desirable and safe investment, by anything before the public.

NINTH. U. S. Government Bonds, and all others, readily marketable, will be received and accounted for, free of any charges for commission or express transportation, and the Northern Pacifics delivered free to the buyer.

TENTH. The issue is limited to \$50,000 per mile, secured on the completion of the road.

1. By a first and only mortgage on over two thousand miles of road, its rolling stock, buildings and all other equipments, property and rights.

2. By over twenty-two thousand acres of land to every mile of finished road.

ELEVENTH. It is intended that these Bonds shall possess the important feature of being well known and readily convertible in the leading cities of America and Europe. Principal and interest may be made payable at any of the principal financial centres of Europe, and in the coin of such of the various countries as may be preferred.

TWELFTH. The character of the men connected with the enterprise is a guarantee that all the provisions and requirements will be faithfully and honestly carried out. Before identifying their reputation and interests with the success of the road, or inviting subscriptions from those who might confide in their judgment, Messrs. Jay Cooke & Co. instituted the most searching inquiry into the whole matter, and had the opinion of their own engineers and explorers as to the resources of the line of country traversed, and its feasibility for the route as projected. Numerous and able reports have been published from time to time, emanating from men of the highest scientific and personal character, which set forth in detail the various merits which underlie the great enterprise. Into all these points the strictest scrutiny of investors is solicited.

THIRTEENTH. The rapid sale and occupation of the Company's lands is not to be left to chance, but is to be facilitated and rendered certain by the operations of the Department of Emigration, organized to foster and promote their immediate establishment of Colonies of the most desirable class of settlers. The system adopted is comprehensive, practical and on a scale hitherto unattempted by any corporation or government.

I am authorized to sell Northern Pacific 7-30's at par and accrued interest in U. S. Currency. At the present rate of gold (114). \$877, New Brunswick Currency, will purchase a \$1000 Northern Pacific Bond, paying \$73 in gold yearly, free from U. S. Tax, which is equivalent to $3\frac{1}{4}$ per cent. on the amount invested. \$877. loaned at 6 per cent. will yield \$53,63 a year. Here is a difference in annual income of more than *one-third*, beside an addition of nearly 14 per cent. to the principle, when the Northern Pacific Bond shall be paid.

The Land Grant, 50,000,000 acres, is the largest ever donated by the U. S. Government to a single Corporation, and must make the bond holders safe, almost beyond the possibilities of loss.

The attention of investors is particularly called to the testimonies in the following pages, regarding the character of the Company's land, which has been derived, mainly from sources unconnected with the road, and which will be found to corroborate the representations of the Fiscal Agents for the Company, in their pamphlets and advertisements.

After the most careful and thorough enquiry into the nature and extent of the security upon which the loan is based, and also into the general management of the Road, I do with the *utmost confidence recommend* the bonds, as in my opinion, a *perfectly safe and most desirable investment*.

C. W. WETMORE,
102 Prince Wm. Street,
ST. JOHN, N. B.

U. S. RAILROAD BONDS AS AN INVESTMENT.

The author of *Poor's Railroad Manual*, a standard U. S authority, says: "It is undoubtedly true that railroad securities have proved to be the most productive investment for capital that we have had for twenty years."

THE CHRONICLE, a leading New York financial Weekly says:—We have heretofore given a brief account of the principal railroad Bonds, upon which any default has been made in the payment of Interest, within a few years past, observing at the same time that the total amount of such Bonds was so small, in comparison with the whole amount of Railroad Securities outstanding, as to furnish an argument *in favor of*, rather than against Railroad Investments.

In reply to a correspondent who asked its opinion of railroad bonds in general, and of Northern Pacific seven-thirties in particular, the New York *Independent* recently published the following editorial:

I. Thus far the first mortgage bonds of American railways have proved to be among the very safest securities. In proportion to amount they have probably shown a smaller percentage of loss in interest and principal than any other investment, except United States bonds, that has been accessible to the people. Such has been the *history* of railway securities. Of course there have been exceptional cases of mismanagement and loss; but far oftener have imperfect titles, lapsed insurance policies, bankrupt Insurance Companies, and shrinkages of value rendered real estate mort-

gages a bad investment. There is a living principle underlying a railway bond, which applies to very few if any other securities. This :

1. Usually the solvency of a railroad depends upon its traffic ; and, as a rule, that traffic steadily increases as the road grows older and the population along its route becomes richer and denser. In a word, the income of a railroad (and hence its debt-paying ability) will ordinarily keep pace with the growth of population.

2. A railway, once built, rapidly *creates* a business which is to render it profitable. It *developes* a carrying trade which did not before exist, and which grows much faster than the tributary population increases in numbers.

3. A railroad usually has back of it a strong corporation of capitalists and shrewd, energetic business men, whose profits, financial standing, commercial reputation, and official positions depend upon the solvency and success of the road with which they are identified. This powerful combination of private interests constitutes a living power whose efforts tend constantly to increase the profitableness and soundness of the enterprise in whose interests they are enlisted.

4. Finally, after a railroad is built, every dollar expended in making improvements and extensions, adding new facilities for doing business, and in securing valuable alliances with connecting lines, adds to the security of its first mortgage bonds, by augmenting the productiveness and value of the property on which these are based. It is in this way that a *second* mortgage may increase the safety of the *first*. With mortgages which rest upon improved real estate in our midst the security steadily deteriorates with time, as the buildings become less valuable. *Railroads grow better and more prosperous with age, and furnish a constantly increasing security for the debt created in their construction.* It is for these reasons that *first* mortgage railroad bonds are among the very soundest securities that can be had.

II. The Northern Pacific Railroad has a three-fold solidity, which renders it financially impregnable. 1. It has for its broad and firm foundation a Real Estate endowment of more than

Twenty-three Thousand Acres of Land to each mile of track. *

2. It has awaiting it a business which we believe *is certain* to render it self-sustaining from the *first*, and to give it a large surplus at an early day. 3. It is in the hands of men of known and acknowledged integrity, whose financial standing, whose business sagacity and thorough experience, furnish a complete guaranty that economy, energy, and fidelity will characterize its management.

THE ROAD.

The route of the NORTHERN PACIFIC RAILROAD is as follows : [See map.] Starting from Duluth, Minnesota, at the head of Lake Superior, and from St. Paul on the Mississippi River, the two eastern arms unite in central Minnesota ; from the point of junction the trunk line extends westward through central Dakota and central Montana. At a convenient point in Montana the road will again branch [see map], one arm passing through central Washington to the main Ocean Terminus on Puget Sound ; the other following down the valley of the Columbia through Southern Washington and Northern Oregon to Portland at tide-water on the Columbia River. A shore line—now building—will unite the two western termini. Still another branch will leave the main line in Western Minnesota, and extend north through the Red River valley to Pembina, on the border of British America. Nature has leveled a pathway for the Northern Pacific Railroad from the Lakes to the Ocean. All through the Rocky Mountain region the elevation is some 3,300 feet less on the Northern line than on the Central route. The Cascade or Sierra range, which, on the Central is scaled at a height of 7,042 feet, is crossed by the Northern Pacific nearly at the sea level—through the channel cut by the Columbia River. On the Northern Pacific line no tunnels will be needed, and probably no grade to exceed 50 feet to the mile. The construction of the Northern Pacific Road shortens the distance by rail between the Lakes and the Pacific Ocean more than 600 miles. It shortens the distance by water and rail between New York (or Liverpool) and the ports of Asia some 1400 miles.

CONNECTIONS.—At Saint Paul and Minneapolis the Northern Pacific Railroad system connects with the navigation of the Mississippi River, and the various lines of railroad extending through Chicago to the Atlantic Coast ; at Duluth with the commerce of the Great Lakes and the St. Lawrence ; at Pembina with a thousand miles of river and lake navigation in British America ; at Puget Sound, when completed, with the commerce of the Pacific Ocean and the trade of Asia ; at Portland, Oregon, with the coast lines of road, the traffic of the Columbia, and the coastwise trade of the sea.

PROGRESS OF CONSTRUCTION.

The Trunk Line is now (June 1872,) completed across the State of Minnesota, 255, from Duluth to Fargo on the Red River of the North, and trains are running regularly. The Dakota division, extending 200 miles westward, from the crossing of the Red River to the crossing of the Missouri in central Dakota, is now under construction, and contracted to be finished July 1. In the meantime, a section of 65 miles is building between the Columbia river and Puget Sound, in Washington Territory, where track-laying is progressing.

It will be remembered that the Northern Pacific Company, in order to remove hurtful rivalry and secure early and direct connection with St. Paul, Chicago, and the East, recently purchased the Main Line and Branch of the St. Paul & Pacific Road. During the past year the Main Line has been completed, through an excellent country, to Breckenridge on the Red River. At the same time the Branch has been extended from its late terminus at St. Cloud, 65 miles northward, to Brainerd, where it joins, and becomes tributary to, the Trunk Line of the Northern Pacific. Finally, contracts have been let for the construction of a branch road (to be technically known as the St. Vincent Extension of the St. Paul & Pacific Railroad,) from St. Cloud 375 miles to Pembina, near the northwestern corner of Minnesota, and on the border of the British Province of Manitoba. This is to be completed before the close of the present year. It will drain the richest portion of the Red River Valley, open direct communication with the British settlements of Winnipeg and the productive valley of the Saskatchewan. It will also serve as the southeastern arm of the Northern Pacific Road, reaching to St. Paul and Minneapolis.

At this date, the Northern Pacific Company own, by construction and purchase, 640 miles of finished road. The completion of the above named contracts will give the Company, at the close of 1872, more than 900 miles of completed track in the prosperous State of Minnesota alone, and 1165 miles altogether ; it will carry the Trunk Line nearly *one-third of its distance across the continent*, and bring to it the large and profitable traffic of Montana and the Government transportation of the Upper Missouri. The Hudson's Bay Company have already leased wharves and warehouses at Duluth, preparatory to doing the whole of their business, which is very large, over the Northern Pacific line. Nearly Two Million Acres of the Company's lands in Minnesota are now ready for sale, and many thousand acres have already been sold to colonies and individual settlers who are moving to the line of the road in gratifying numbers.

Economical and honest management, together with the recent great reduction in price of material, reduces the cost of construction and equipment quite considerably below the original estimates. For example, locomotives which cost \$19,000 when the Union and Central Pacific Roads were built, now sell for \$10,200 ; best American rails have, during the same period, fallen

from \$100 to \$70 per ton. Then the right of way, and stone and timber material—usually large items in the cost of new roads—are furnished to the North Pacific gratuitously from the Government domain.

The money is being furnished for the early completion of the Northern Pacific Road by the now rapid sale (at par and accrued interest) of its First Mortgage 7-30 Bonds. These bonds have established their character as a first-class security, good evidence of which is the fact that they are being largely taken as an investment by savings banks and other conservative moneyed institutions of the country. Since the success of the United States Five Per Cent. Loan, very many holders of Five-Twenties are taking the advantage of the favorable opportunity to exchange their Government Bonds for Northern Pacific, at a large profit.

Steadily, and with even greater rapidity than was anticipated by its projectors, this great thoroughfare is advancing across the continent, opening as it progresses the finest belt of undeveloped country in America. Every phase of the enterprise is in the most satisfactory condition, its complete success was long since assured, and its early completion is now a certainty.

FUTURE BUSINESS OF THE ROAD.

THE Northern Pacific Railroad will centrally traverse and draw its traffic from a country 1,800 miles long and several hundred in width, which is now wholly unsupplied with railroads or other adequate means of transportation. For the carrying trade of this vast region the Northern Pacific Railroad will have no rival. The existing line to the Pacific has an ample field for a prosperous business of its own.

The States and Territories, dependent upon the Northern Pacific Railroad as their thoroughfare of travel and traffic are already populated to a very considerable extent, and enjoying fully organized local governments. The country directly tributary to the Northern Pacific Road contains quite as many people as did the States and Territories traversed by the first Pacific Road when it was built, while the producing capacity of the Northern belt is far greater than that of the Central.

It was predicted that years would elapse before the Union and Central Pacific Roads could reach a paying business. Look at the facts: Although built by the longest line between the Lakes and the Pacific ocean, through a belt of country much of which cannot be occupied, and over a mountain region presenting great elevations and most difficult grades, these two roads, which for commercial purposes may be regarded as one, earned enough in their *first full year of through business*, over and above running

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and timber materials furnished to the

the Northern Pacific of its First Mortgage as a first-class mortgage largely taken by moneyed institutions. Per Cent. Loan, one of the favorable terms offered by the Northern Pacific, at a

guaranteed by its promoters, opening as it does every phase of complete success and certainty.

AD.

reverse and draw out a hundred in roads or other branches of trade of this kind no rival. The result is a prosperous

the Northern Pacific and traffic are enjoying fully the tributary to the people as did the Road when the Northern belt is

the Union and its resources. Look at the Lakes and the Pacific, much of which is generating great wealth, which for the most part is enough in itself to be running

expenses, to pay six per cent. interest on a fair estimate of their cost. The official statement of the earnings and expenses of the Central Pacific Road during six years is as follows:—

Gross earnings,.....	\$18,629,813,39
Operating expenses,.....	8,550,548,15

Net earnings,.....	\$10,079,265,24
Interest on bonded debt,.....	4,184,221,00

Surplus of net earnings over interest,.....	\$5,895,044,24
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The financial representatives of the Road make this comment on the above figures:—

From the foregoing tables it will be seen that the Central Pacific Railroad has earned, in six years, more than \$10,000,000 *Net* over operating expenses, and nearly \$6,000,000 *over operating expenses and interest on its Bonds*; while, during *four years and a half* of that time, the Road was under construction, without through business, and, for the first three years, with less than 100 miles in operation.

It would have been difficult, before the construction of the present Pacific Road, to say of what would consist the enormous traffic it at once obtained and now enjoys, yet sagacious men knew the business was awaiting the Road. The builders of the Union and Central Pacific Roads deserve much credit as the pioneers of a great movement. They took the risk of a vast experiment, and their demonstration of the feasibility and profitableness of a trans-continental road by a most difficult route, has rendered comparatively easy and wholly safe the construction of a second road, on a short line, with easy grades, and through a country of singular mildness, fertility and variety of resources. The success of the first being already proved, the success of the second, under the circumstances, is doubly assured.

To enumerate some of the sources of that traffic which now awaits the completion of the Northern Pacific Railroad:—

1. The Road will command the vast interior trade that now supports nineteen steamers of the Oregon Steam Navigation Company, which navigate the lower Columbia, the upper Columbia, Clark's Fork, the Snake River, Lake Pend d'Oreille, and Puget Sound.

2. The shipments of Lumber, by vessel, from Puget Sound in 1870 equalled 18,000 car-loads, or 900 trains of 20 cars each.

The Railroad will create a proportionate trade eastward. And this traffic is yet in its infancy. What must it contribute to the business of the Northern Pacific Railroad?

3. The Railroad will do most of the business now done by steam-boats on the upper Missouri and Yellowstone rivers. That business is of long standing and very considerable amount.

4. It will take the bulk of the large business now done all over the Northwest by pack-animals and wagon-trains. It will perform the most profitable part of the mail service of five States and Territories, and will ultimately carry the Chinese and Japanese mails.

5. It will take the place of the present wagon service in transporting supplies to the twenty-eight northern military posts—a service which now costs the Government between Six and Seven Million dollars yearly.

In 1870, Eighteen Million pounds of freight entered Montana by way of Corrinne station, Utah, being hauled in wagons 400 miles across a rugged country at a cost of *fifteen cents per pound*. (\$2,700,000.) This is some intimation of what a railroad will do for Montana, and Montana for a railroad.

6. Where the Road crosses the Red River of the North it taps 1500 miles of inland navigation, down the Red River, through Lake Winnipeg, and up the Saskatchewan to the foot hills of the Rocky Mountains.

The Hudson's Bay Company and Winnipeg settlers now ship their supplies over the Northern Pacific Road to Red River where three Steam Boats connect with the Road.

7. The tide of emigration, already pouring into the country now opening to settlement, with the needs of new communities, will contribute a large Revenue to the Road. For many years the transportation of settlers, their families, goods and supplies (though done at low rates) to all parts of the country adjacent to the Northern Pacific line, will form a constantly increasing source of income to the Company. As a route for tourists the Northern Pacific must always be popular. The summer pleasure travel over the line will be increasingly great.

8. The shipment of cattle over the Northern Pacific Road promises to equal that upon any line in America. Stock raising will continue to be, as it now is, one of the most lucrative branches

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of business in the Northwest, and with this great thoroughfare furnishing quick transportation to a ready market, this interest cannot but reach enormous proportions. The experience of the Kansas Pacific and Union Pacific Roads, in suddenly developing an extensive trade in cattle from the Southwestern plains furnishes a suggestion of what may be expected by the Northern Pacific Road.

9. The grain-producing capacity of Minnesota is well-known. The Northern Pacific Road and its branches will drain two-thirds of the wheat-lands of Minnesota, and the trunk line will traverse on its way to the Pacific, many million acres of equally good soil. Indeed, the Road may be said to traverse, and open to the world's markets, that region which, at a very early day, is to furnish the bulk of the surplus wheat crop of the United States. How much business must the grain product of the Northwest, present and future, furnish to the Northern Pacific Road? With one-fiftieth part of her lands under cultivation, Minnesota alone exported grain enough in 1870 to load 2,500 trains of 20 cars each.

10. The many navigable rivers crossed and recrossed at convenient intervals by the Northern Pacific Railroad, will contribute to it a large traffic by bringing in the trade of the country for many miles on both flanks. For example, on the Pacific slope, the waters of Puget Sound, the Cowlitz river, the Willamette, the lower and upper Columbia, the Snake, the Clark, and Lake Pend d'Oreille—all will serve as feeders and outlets for the concentration and distribution of freights and passengers upon and from the great central thoroughfare, the Railroad. From the head of navigation on the Columbia's branches it is only 230 miles across the mountain country to the navigable waters of the Missouri on the east. This stream and the Yellowstone drain large tracts of fertile country, and both will bring their tribute of trade to the Railroad where rail and river intersect in Dakota. Two hundred miles further east, the navigable Red River is crossed. At their eastern termini, the two arms of the Northern Pacific Railroad connect with the commerce of the Mississippi at St. Paul, and the commerce of the great Lakes and the St Lawrence at Duluth on Lake Superior.

This lake and river system of the Fertile Belt is obviously an important element in the assured success of the Road, giving it

the practical advantage of eight or ten side branch lines, without the expense of building them. But the Central and Union Pacific Road has proved a business success without having a single navigable stream tributary to it between Sacramento and Omaha—1,775 miles.

11. The Mining interest of Montana, Idaho, and Washington will at once furnish a large share of traffic to the Northern Pacific Road, and, with cheap transportation and the introduction of improved machinery, this branch of business will steadily increase. The product of the Montana, Idaho and Washington mines was over Twenty Million Dollars in 1870 indicating the richness of the deposits and the permanent nature of this industry. The shipment of supplies for the mining population, and the transportation of their products eastward, will in all probability render the mountain section of the route more profitable to the Road than any equal extent of agricultural country.

What the coal traffic is to many Eastern roads, the transportation of ores promises to be to the Northern Pacific. Already the Union and Central Pacific line derives a very considerable revenue from this trade—carrying the ores of the precious metals from the mines to the smelting works at San Francisco and on the Atlantic seaboard. Four thousand tons of ores, assaying from \$200 to \$1200 per ton, now pass over the Central and Union Pacific Roads monthly. The authorities of these roads estimate that when the smelting works are enlarged to the proper capacity, not less than 1000 tons of ore per day will be shipped over their line. The well-known richness and extent of the mines adjacent to the route of the Northern Pacific Road give assurance that it will derive as great a traffic as the Central from this source.

12. Too much importance is not attached to the matter of through business between the ports of Asia and our Atlantic Coast, experience having shown that Local Traffic must always be the main reliance of all great thoroughfares. But, whatever shall be the future volume of the Asiatic trade by rail across this continent—and it will unquestionably be large—the Northern Pacific Road is sure of its full share. Its advantages in this regard are as conspicuous as in others. It spans the continent from the great Lakes to the Pacific by a line 600 miles shorter than the

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present finished road; and, owing to the prevailing winds and currents of the Pacific Ocean, the sailing distance between Puget Sound and the ports of China is 600 to 800 miles less than between San Francisco and China. The Western terminus of the Central Road is many degrees South of the direct line between Liverpool, New York, and China. The Western termini of the Northern Pacific Road is directly on that line.

Such is a partial enumeration of the sources from which the bulk of the carrying trade of the Northern Pacific Railroad is expected to come. Many items, as important as some of those mentioned, have been omitted; the case is strong enough as it stands.

The *Chicago Journal*, in an intelligent review of the Pacific Railroads, says: The census returns of 1880 gave 469,112 as the sum total of the population of Nebraska, Wyoming, Utah, Nevada and California—the district now traversed by the Union and Central Pacific Railroads. Work was commenced on the road, at both ends, in the winter of 1868. Between the two dates mentioned, owing to the war, it is evident that the far West could not have received much of an addition to its population. Looking back now, it is easy to see why so many of its friends, even, prophesied that financially the road would be a failure. They regarded the enterprise as one of political necessity, but could see no money in it. Its route, for the most part, lay through a wilderness incapable of agricultural settlement. Of the whole number of inhabitants above given all but 90,118 were in the State of California.

The earnings of the Central and Union Pacific Railroad were Fourteen Millions in 1870—the net receipts over operating expenses being in excess of Six Millions. In other words, in the first year of its through business it earned enough over and above running expenses to pay six per cent. on a fair estimate of its cost. In six years the Central Pacific (forming one-half of the through line) has earned Ten Millions net, being nearly Six Millions more than the interest on its Bonds and all the cost of operating. Six-five per cent. of this came from local traffic, and one year only of through business is included in it. The authorities of the Central Pacific estimate the earnings of their road for 1871 at Ten Millions, and President Thomas A. Scott, of the Union Pacific, places the earnings of that road, this year, at Nine Millions, making \$19,000,000 for the through line from San Francisco to Omaha. Of this at least \$9,000,000 will be net above running expenses, or 9 per cent. on a reasonable estimate of the entire cost of the road. The first mortgage bonds of the Central Pacific, bearing six per cent. interest, and secured only on the road, are now selling at 103. So oppositely to all expectation has the operation of the road turned out.

Since the commencement of the Union and Central Pacific, San Francisco has grown from being a city of sixty thousand inhabitants to a city of a hundred and fifty thousand. But, including that, a total population of the belt of States and Territories through which the road runs is only 788,270. And this number of people, with aid from a portion of Colorado (population 39,481) furnish business to the Union and Central Pacific at the rate of Fourteen to Nineteen million dollars per year. This brings up the rather curious question, How many inhabitants are necessary in a given district to make a railway pay?

And now comes the Northern Pacific, certainly with greater probabilities of success than were before the Union Central Pacific. While it equals the other in mineral wealth, the country through which it runs is vastly more inviting to the farmer. Indeed, testimony shows it to be of special agricultural value. Leaving out California on the Union Central Pacific, and also excluding Minnesota on the Northern Pacific, and the latter road has 101,732 more people to contribute to its local business than awaited the opening of the Union and Central Pacific, and only 23,592 less than give support to the latter road now.

Including those two States, which would not be unfair, inasmuch as the Northern Pacific will have in Minnesota, with its main and branch lines, over eight hundred miles of road, draining two-thirds of the entire State—including these two States, the tributary population of the Northern road in all is 639,435, or 179,321 more than were at first reached by the Union Central Pacific, and only 148,387 less than give aid to it now.

But the figures given are suggestive. What, principally within the last five years, has added 100,000 to the population of San Francisco? Surely nothing so much as the summons of iron knocking at the Golden Gate. If a road can add 100,000 people in five years to an existing city, cannot another one in the same time build up a city of 100,000, especially if, by reason of its shorter oceanic distance, it is demonstrated that it will necessarily control foreign shipments?

Few doubt that if the land lying along the Union Pacific had been as available for agriculture as the lands of the Northern Pacific, the population along the route would have trebled as well as that of its terminal city. Here, then, the case will probably stand:—The Northern Pacific, on its completion, will find a flourishing city awaiting it on Puget Sound, inferior, of course, in size, to San Francisco, but still a thriving, well-grown city, as helpful to it as the other to its Southern compeer. It will, during its progress, on account of its fertile lands, more than quadruple the population west of Minnesota, and so bids more than fair to equal the first through business of the Union and Central Pacific, while for the succeeding years its returns will be vastly greater.

THE NEW NORTHWEST.

LAND GRANT

OF

THE NORTHERN PACIFIC RAILROAD COMPANY.

THE charter granted by the Congress of the United States to the Northern Pacific Railroad Company, with its amendments, confers the right to construct a line of Railroad and Telegraph across the continent, between some point on Lake Superior, in the State of Wisconsin or Minnesota, and some point on Puget Sound, *via* the valley of the Columbia river, by the most eligible route within the territory of the United States, on a line north of the 45th parallel of latitude, with a branch to Puget Sound across the Cascade mountains from some convenient point on the main trunk line.

The charter grants the Company for each mile of track 20 alternate sections of public land (640 acres to the section) on each side of the line of the Road in the Territories, and 10 alternate sections on each side of the line in the States, through which it runs. This is equivalent to 25,600 acres per mile through the Territories, and 12,800 acres per mile through the States, or an average of nearly 23,000 acres per mile along the entire length of the Road. The grant is the same for the chartered branch of the Road as for the trunk line. It grants to the Company the right of way for their Road and Telegraph line through the public domain, to the extent of 400 feet in width, and all necessary ground for station-buildings, workshops, depots, machine-shops, switches, side-tracks, turn-tables, and water-stations. It grants to the Company the right to take from the public domain adjacent to the line of the Road, earth, stone, and timber for construction. If, owing to pre-emption, settlement under the Homestead Law, or other cause, the Company cannot get, within the above limits, the quantity of land per mile to which it is entitled by its charter, it may make up the deficiency anywhere within twenty miles

beyond either boundary of its land grant. This provision renders it absolutely certain that the Company will receive the full amount of land granted.

The amount of land granted to the Northern Pacific Railroad by its charter, original and as amended, is about Fifty Millions (50,000,000) of acres. The grant is nearly three times as large as the Province of New Brunswick.

COMPANY.

FIRST SECTION OF THE ROAD.

The first section of the Northern Pacific Road is in the State of Minnesota. It commences at Duluth, on the head of Lake Superior, and runs to Red River of the North, a distance of 255 miles. *To Duluth*
255

The following information relating to the State of Minnesota is taken from the Report of the Commissioner of Statistics for that State, for 1871:

The State of Minnesota occupies the exact center of the Continent of North America. It lies midway between the Arctic and Tropic circles—midway between the Atlantic and Pacific Oceans—and midway between Hudson's Bay and the Gulf of Mexico. It embraces the sources of the three vast water systems which reach their Ocean termini; Northward through Hudson's Bay, Eastward through the chain of great lakes, and Southward via the Mississippi River.

SOIL AND TIMBER.—Three-quarters of the State may be generally described as rolling prairie, interspersed with frequent groves, oak openings, and belts of hard-wood timber, watered by numberless lakes and streams, and covered with warm, dark soil of great fertility. The rest embracing the elevated district immediately West of Lake Superior, consists mainly of the rich mineral ranges on its shores, and of the pine forests which clothe the head waters of the Mississippi, affording inexhaustible supplies of lumber.

CLIMATE.

Its yearly mean temperature (44°), coincides with that of Central Wisconsin, Michigan, Central New York, Southern Vermont, New Hampshire and Maine, and has an annual range from the summer heat of Southern Ohio and Southern Pennsylvania, to the Winter cold of Montreal.

SNOW.—The average fall of snow is about six inches, per month. The snow falls in small quantities, at different times, and is rarely blown into drifts, so as to impede travelling. * * * Long, driving snow storms are almost unknown, and rain seldom falls during the Winter months.

SALUBRITY OF CLIMATE.—The dryness of the air, the character of the soil, which retains no stagnant pools to send forth poisonous exhalations, the univer-

sal purity of its water, the beauty of its scenery, and the almost total absence of fog or mist; the brilliancy of its sun-light, the pleasing succession of the seasons, all conspire to give Minnesota a climate of unrivalled salubrity.

POPULATION.

When the Territory was organized in 1849, the population was 4,057; at the close of 1869—20 years later—it was 430,000!

COMPARISON WITH OTHER STATES.—The following table illustrates the growth of Minnesota as compared with that of the adjoining States of Wisconsin and Iowa, during the past ten years:—

States.	Population in 1860.	Population in 1870.	Absolute increase.	Increase per cent.
Wisconsin,	775,881,	1,055,559,	279,678,	36.04.
Iowa,	674,913,	1,191,802,	516,889,	76.58.
Minnesota,	172,022,	440,000,	267,978,	155.78.

AGRICULTURE.—Perhaps no single fact exhibits with greater force the extraordinary developments of our State than the unprecedented enlargement of her cultivated area.

This in 1850 was 1,900 acres, in 1860 it was 433,267 acres; in 1870, 1,863,316 acres!

In 1869 the production of Wheat, Oats and Corn, officially reported, was as follows:

Product,	Acres cultivated,	Bushels produced.
Wheat,	1,006,007,	117,660,467,
Oats,	278,487,	10,510,969,
Corn,	147,587,	4,519,120.

A comparison of the products of Minnesota with those of Iowa and Ohio, as shown by the official returns of each for the year 1868, affords the following exhibit of averages:

Minnesota,	Wheat,	Oats,	Corn,	Barley,	Rye,	Buckwheat,	Potatoes.
Minnesota,	17.9,	36.9,	37.3,	28.5,	19.2,	16.4,	105.9,
Iowa,	9.95,	28.4,	37.12,	23.07,	13.28,	9.49,	81.01,
Ohio,	11.31,	27.86,	34.37,	20.38,	9.30,	10.97,	72.12.

In ten years ending in 1860, the Wheat crop of New England, New York, Pennsylvania and Ohio, decreased 6,500,000 bushels, while the surplus of Minnesota for the year 1869 alone was little less than 14,000,000.

HAY.—The statistics of the Hay crop of 1860, show a total product of 300,000 tons, with an average of over two tons per acre, being sixty per cent. more than the average of Ohio.

FRUIT.—Almost all kinds of "so all fruits" known to the temperate zone are found here in a wild state, while the cultivated varieties generally thrive well.

WATER POWER AND MANUFACTURES.

WATER POWER.—Mr. Wheelock, former Commissioner of Statistics, a gentleman thoroughly conversant with the subject, makes the following just statement of the extraordinary manufacturing facilities which nature has lavished upon this favored State:

"Minnesota possesses a more ample and effective water power than New England. The Falls and Rapids of St. Anthony alone, with a total descent of 64 feet, afford an available hydraulic capacity, (according to an experienced and competent Engineer), of 120,000 horse-power. This is considerably greater than the whole motive power—steam and water—employed in textile manufactures in England in 1850, and nearly seven times as great as the water-power so employed. * * * This diffusion of hydraulic power throughout the whole State, is a feature whose value as an element of development, can scarcely be over estimated, as it gives every neighborhood the means of manufacturing its own flour and lumber, and affords the basis of all those numerous local manufactures which enter into the industrial economy of every Northern community. * * *

A region six times as large as all New England, is yet undeveloped, but already starting on the swift career of the Western growth, and capable of supporting many millions of population, is directly dependent upon Minnesota for all the manufactured commodities it may consume.

Its position relative to these Northwestern valleys, invests its manufacturing capabilities with an importance greater than those of any other of the interior districts of the Continent. For the future manufacture of cotton and woolen fabrics, it has decided advantages of position over New England.

The Mississippi River brings it into intimate relations with the sources of the Cotton Supply, and it lies in the midst of the great Wool Zone of the Continent."

GROWTH OF MANUFACTURES.

The following comparative statement illustrates the growth of the State in manufacturing industry during the past decade:

[Year,]	No. of establishments,	Capital invested,	Value of annual product.
1860,	511,	\$2,320,380,	\$4,295,208,
1870,	2,037,	11,806,738,	23,301,147.

The relative progress of the State in agriculture, population and manufactures in ten years, is thus shown:

Increase of cultivated area,	290 per cent.
Increase of population,	155 " "
Increase in value of Manufactures,	443. " "

Minnesota has outstripped all the other States, both in agricultural developments and growth of population, and here is afforded the gratifying evidence that she has made a still more marvellous advance in manufacturing industry.

LOGS AND LUMBER.

The following shows the extent of lumbering operations in the two principal districts for the past two years:

	1869.	1870.
St. Croix District, feet of logs scaled,.....	158,382,454.	191,677,776.
Mississippi, " " "	92,700,030.	121,438,340.
	252,091,484.	313,116,116.

The value of the manufactured lumber for the year ending June 1, 1870, in this State was \$5,058,157.

COMMERCE AND NAVIGATION.

The Commercial position of Minnesota is perhaps the grandest among the States. Occupying the exact centre of this Continent and constituting the water shed of its eastern half, the Steam Navigation of three great internal Water Systems terminates here.

The head of Lake Superior, while practically as near the seaboard as Chicago, at the head of Lake Michigan, has the advantages of being nearly 300 miles nearer the heart of those Western areas, whose exhaustless resources feed the vast commerce of those lakes. By this short cut our trade may avoid the circuitous and expensive route via Milwaukee and Chicago. The necessity of employing which has heretofore stripped us of our great natural advantages and made our position as much worse than that of intervening States, as it is more remote than they.

The navigation of Lake Superior, which has heretofore been insignificant, will doubtless experience great expansion, since a direct connection has been achieved with the Railroad system of the State, while the immense commerce which will be promoted by the completion of the Northern Pacific Railroad, is sure to swell it to vast proportions. During the season of 1870, there were ten Steamboats trading with the port of Duluth, with an aggregate tonnage of 7,985.

RAILROADS.

After various hindrances arising from the financial crash of 1857, and other causes, the first mile was finally completed in 1862. To show at a glance the

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progress since achieved, it will suffice to say, there are now 1,170 miles completed and in operation, and 2,000 miles additional projected—in addition to the Northern Pacific Railroad.

The Lake Superior and Mississippi Railroad, running from St. Paul to the head of Lake Superior, connects the waters of the Mississippi with those of the great lakes. This road traverses a country rich in lumber and minerals. It is 154 miles in length and entirely completed, affording the shortest and best transit to the seaboard.

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DULUTH.

The Trunk Line of the Northern Pacific Road, as before stated, commences at Duluth. The first section of the road runs to Red River of the North, and crosses it at Fargo. The Mississippi is crossed at Brainerd.

Ex Lieut. Governor Bross of the *Chicago Tribune* in speaking of Duluth, says:—

Thursday afternoon (July 1871), our steamer reached the wharf of the new city of Duluth, the terminus of a railway from St. Paul, and also the lake terminus of the Northern Pacific Railway. When the location of Duluth was first pointed out to the writer, on the map, having seen it sixteen years ago, the cost of building adequate docks seemed an insuperable difficulty in the way of its becoming a great city. But the cutting of the canal through Minnesota Point, 250 feet wide, into the Bay of Superior, will give Duluth one of the best of harbors. By a southeast and east or northeast wind, the only direction to be feared, a vessel will run directly into the harbor, and of course be safe. The canal is open; steamers pass through it, and docks are being put down on either side.

Duluth is only some two years old: and yet its citizens now claim a population of 4,000. It has schools and churches, a very fine hotel, the Clark House, and several smaller ones; manufactories, and in a very short time will have gas and water works, and all the appurtenances of a city. It is finely situated on a beautiful slope, rising not too abruptly, affording perfect drainage and a magnificent view of the lake.

In another letter to the same paper, Governor Bross says of the country west of Duluth:—

For a hundred miles or more west of Lake Superior the country is mainly valuable, at first, for its timber. This timber will all be wanted in the middle and western parts of the State. It will be sure to find its way far into Dakota, and down the Valley of the Red River of the North.

C. W. Bryan, of the *Springfield Republican*, in a letter to that Journal under date of August 7th, 1871, says:—

The idea has been a popular one with the public generally, and with many

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who are more or less interested in the success of the road, that the land between Duluth and the Mississippi river would never become valuable for cultivation; but it turns out that the heavy clay of that region, upon being broken and thrown up and exposed to the sun and air, becomes friable and warm and easy of cultivation. Wherever the cabins of the road-builders were made, and the horses and cattle were fed, and seed from the feed became scattered, a luxuriant growth of timothy and oats is seen this season, and the belief now largely obtains with those who have seen these results, that all that section of country, when once cleared up and put under cultivation, will become very valuable as a grazing locality.

The Commissioner of Statistics in his report before quoted, in speaking of this District, says:—

It is crossed by views of good land, and has large bodies of hardwood timber, but it is chiefly esteemed for its inexhaustible supplies of pine which clothe the head waters of its streams, and also for its deposits of minerals in the north-east portion, among which Slate is found of excellent quality and in immense quantities.

SLATE.—Mr. Thomas Arnold, who recently explored the Slate lands at St. Louis River, reported as follows:—

Taking this section all through, I think it is the largest and most immense body of Slate that I have ever heard of; Mr. Humphrey, who is a Welchman, and has worked in the largest quarries in Wales, coincides with me in this opinion.

Speaking of the country north of, and tributary to the Northern Pacific Road, the same authority says:—

It is valuable principally for its supplies of timber and exhaustless mineral resources, which have been shown by scientific exploration and analysis to embrace numerous varieties of great value, which will one day richly reward the capital and labor employed in their development.

COPPER.—Copper abounds in the mineral belt stretching along the northern shore of Lake Superior; and large masses of the pure metal have been taken from Kuife and Stuart rivers.

IRON.—Iron ore is found in considerable quantity around Portage and Pigeon rivers. The metal wrought from this ore has been put to the severest test, and found fully equal in tenacity and malleability to the best Swedish and Russian iron. The growing importance of this mineral resource may be inferred from the table of shipments of iron ore from the Superior district, which shows a rapid increase.

WATER-POWER.—The numerous falls and rapids of the St. Louis River, in its descent to Lake Superior, afford an incalculable amount of water power which the vast mineral deposits in near proximity must speedily bring into requisition.

Western Division of Section No. One.

Of this part of the road, Mr. Bryan in the letter referred to above, says:—

Once across the Mississippi, and the road soon strikes the rolling prairies of this beautiful lake region. The lakes are numberless, and of all sizes, and have the most beautiful surroundings of oak-timbered, rolling prairies that the eye of man ever rested upon. Detroit lakes and Pelican lake are among the largest of the nest, and the emigrants have already located in some of the most charming spots on their borders, while more are on the way, and the closing of the present season will find a large increase of population in the region of the lake country. The whole section of country hereabout is extremely fertile, has wonderfully uniform climate for such a high latitude, is, for a prairie country, quite well wooded, and good water is easily obtained from springs and wells, and from the lakes by those who choose to use lake water.

General, then Captain, Pope was commissioned in 1849 to make a topographical survey of northwestern Minnesota. In his official report to Congress he says:—

I have traversed this territory from north to south, a distance of 500 miles, and with the exception of a few swamps, I have not seen one acre of unproductive land.

I know of no country on earth where so many advantages are presented to the farmer and manufacturer.

In this whole extent it presents an almost unbroken level of rich prairies, intersected at right angles by all the heavily-timbered tributaries of the Red River, from the east and west, the Red River itself running nearly due north through its center, and heavily timbered on both banks with elm, oak, ash, maple, &c. This Valley, from its vast extent, perfect uniformity of surface, richness of soil, and unlimited supply of wood and water, is among the finest wheat countries in the world."

Otter Tail Lake is on the line of the Northern Pacific Road, 70 or 80 miles east of the crossing at Red River. General Pope says of the region surrounding this lake:—

The whole region of country for fifty miles in all directions around this lake, is among the most beautiful and fertile in the world. The fine scenery of lakes and open groves of oak timber, of winding streams connecting them, and beautifully rolling country on all sides, renders this portion of Minnesota the garden spot of the northwest.

The rapidity with which the Company's lands are being taken up in this section tends to confirm the above statements regarding their character.

The Right Reverend, The Lord Bishop of Rupert's Land, in the March number of the *Mission Life*, a London Monthly, says in referring to emigration to the northwest:—

The land for 100 miles north of Breckinridge, along the Red River and its tributaries, has been entirely taken up last summer, and has been largely settled upon. We read of 20,000 settlers in Red River Valley at the close of the summer, where at the beginning there were but 100 straggling residents. We read of teams of emigrants pouring daily by different roads into the country along the Northern Pacific Railway—sometimes as many as 200 in one day.

Bayard Taylor, the renowned traveller, under date of July 1871, writes as follows to the *New York Tribune*:—

I am positively assured that 20,000 emigrants are already settled between the Red River and Brainard. There the Northern Pacific crosses the Mississippi.

A gentleman extensively engaged in the manufacture of Lumber in this Province, visited Minnesota in the autumn of 1871, and selected and purchased a tract of pine land on the Crow Wing, near the Trunk line of the Northern Pacific road, in the central part of that State. He represents the lumber as being superior to that of the Arestook District in its prime days.

The Northern Pacific Railroad Company has many thousand acres of timber land, such as is here referred to, on the eastern end of their road.

The average prices taken from official sources, at which, the twenty-five leading U. S. Land Grant Railroads have thus far sold their lands is \$7.04,—the highest average of any Grant being \$13.98, and the lowest \$3.07.

The average prices per acre obtained by five Minnesota Railroad Companies, is as follows :

Southern Minnesota.	-	-	-	-	-	\$7.04
Winona and St. Peter,	-	-	-	-	-	7.08
St. Paul and Pacific,	-	-	-	-	-	6.50
St. Paul and Sioux City,	-	-	-	-	-	5.67
Lake Superior and Mississippi,	-	-	-	-	-	4.88.

The Minnesota School Lands have averaged \$6.55. Unimproved Private lands in this State, accessibly situated among settlements, are sold at from \$4 to \$15, per acre. Lands of fair quality, are offered at \$5 to \$20 per acre, within ten miles of St. Paul.

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A late report on the St. Paul and Pacific Railroad Land Grants, says:—That from the sale of Town Lots, the Company expects to raise the average per acre to \$8.

The Northern Pacific Company will, doubtless, largely increase their receipts in the same way.

"J. L." a New Brunswick, and a correspondent of the *St. John Evening Globe*, in a letter dated at Seattle, Washington Territory, and published in that paper 2nd June, 1871, says in referring to the Northern Pacific Railroad:

The agents of the company quietly bought the present site of Kalama, for a trifle, and have realized, from sales of city lots, an amount sufficient to complete the first twenty-five miles.

When the site of the main terminus is decided, a city rivaling any on this coast will spring into existence. The company will realize an enormous amount, estimated as high as twenty millions of dollars, for sale of lots in what is to be the chief city of the Pacific.

Owing to the fact that Puget Sound is an inland sea, with numerous inlets and harbors, having a coast line of nearly 1800 miles, the company will not be obliged to locate any particular town, but can secure a site to suit themselves.

The European and North American Railroad running westward from St. John to the U. S. Boundary, receives from our Provincial Government, a subsidy of \$10,000 per mile, this was supplimented by \$300,000 stock which increased the Government aid to about \$13,386.

Minnesota being a State, the Northern Pacific Railroad Company has under its Charter 12,800 acres per mile of Trunk Road in this section, the value of this land at a moderate estimate, based upon actual sales of other Corporations in this State, as given above, would be six dollars an acre; this would make the subsidy per mile, in this State \$76,800. The remainder of the road being through Territories, the Company will be entitled to 25,600 acres per mile from the Red River.

SECOND SECTION.

The Second Section of the Road is from Red River across the Territory of Dakota, to the Yellowstone River, a distance of about 400 miles. The first division of this Section, 200 miles to

the Missouri, is under contract, to be completed the first of next month (July 1872). The opening of the Road to the Missouri, will give the Company 455 miles of completed Trunk Line, from Lake Superior, which will connect with steamers running 700 miles further West, to Fort Benton.

H. C. D. in a letter to the *Chicago Tribune*, dated Fargo, Dakota, march 12th., says in referring to the country along the line of the Northern Pacific, between Red River and the second crossing of the Shyenne, a distance of 60 miles: "Thus far the soil is the best in quality and boundless in depth. The grass that grows wild on these prairies is equal to any in the world."

He then continues:

AN IMPORTANT TOWN.

The James River, at the crossing, has a valley about 2 miles in width; soil good, and well timbered with a superior quality of white oak, elm and box-elder. For many reasons, I believe this is bound to be one of the most important places on the entire line, because it is situated midway between the Red and Missouri Rivers; is surrounded by a splendid agricultural country: will undoubtedly be the Capital of the proposed Territory of Pembina, and the point at which the main line of the St. Paul and Pacific, or Wagon and St. Peter Branch of the Chicago and Northwestern, will form a junction with this, the main line of the Northern Pacific.

THE COTEAUX.—CLIMATE.

Leaving James River we came upon the range or hills from which this territory takes its name-- the "Coteaux." Although they are, as a general thing, very rough and the building of railroads over them would be very expensive, engineers have succeeded in finding an excellent line, and that, too, with a grade of only 40 feet to the mile.

From the James to the Missouri, a distance of 110 miles, is one great rolling prairie, no timber being seen, save where the country has been protected from fire; it is always found there. The descent to the Missouri is made down the Valley of Apple Creek. This stream empties into the Missouri nearly opposite the mouth of Heart River. As an index to the climate on the prairies between the Red and Missouri Rivers, I would say that engineer parties have been working through this section *all winter*, and living in tents, without discomfort. Transportation has been carried on almost entirely on wheels; and Washington's (22nd February), Birthday was celebrated by a dinner in the open air, and a game of base ball on the top of the Coteaux.

Governor Bross in writing of the Red River Valley says:—

We were told it is some forty to sixty miles to what may be called the high lands on the east, and to the west the valley stretches a hundred miles or more, and scarcely any really hilly country can be found east of the Rocky Mountains. *The soil of the valley fully equalled expectations.* It is a dark, rich

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loam, and, as we saw for ourselves, will produce fine crops of wheat, oats, barley and potatoes. The grasses that cover it are very nutritious, as the fat cattle we saw abundantly testify.

The Land Commissioner of the United States, in his report in 1870 has the following :

Dakota has as great a variety of surface and as rich a soil as almost any State or Territory of the United States. The general surface may be described as a smoothly undulating prairie ; the soil a rich, deep sandy loam, principally an accumulation of decayed vegetable matter, rendering it warm and dry for seeding in the early spring.

The Secretary of Dakota, in a pamphlet on the history and progress of that Territory, says :—

The general surface of the country east and north of the Missouri is a beautiful, rich, undulating prairie, free from marsh, swamp or slough, traversed by many streams and dotted over with innumerable lakes of various sizes, whose woody margins, rocky shores and gravel bottoms, afford the settler the purest of water and gives to the scenery of the Territory much of interest and fascination. * * * The upland soil of east Dakota cannot be surpassed for fertility and the variety of luxuriance of its vegetation. The Missouri Valley of Dakota, between the 42nd and 47th degrees of north latitude, is one of the finest agricultural regions of the Northwestern Territories. The bottom lands bordering on the great rivers and its tributaries passes most singular natural meadows of luxurious grasses, while the adjoining prairies clothed with nutritious herbage, are high and rolling and free from malaria.

The history of the expedition, to the Pacific and back, of Captains Lewis and Clarke, during the years 1804, 1805, and 1806 (nearly half a century before the Northern Pacific Railroad was, thought of), by order of the United States Government, should be reliable testimony as to the character of the country traversed by, and tributary to this road.

In speaking of the country from about where the Northern Pacific Road will cross the Missouri, to the mouth of the Yellowstone, much of which will be embraced in the Land Grant of this road, their Journal says :—

April 9, 1805.—The bluffs we passed to-day, are upwards of one hundred feet high, composed of a mixture of yellow clay and sand, with many horizontal strata of carbonated wood, resembling pit coal, from one to five feet in depth, and scattered through the bluff at different elevations, some as high as eighty feet above the water. April 15.—The low grounds on both sides of the river, are extensive, rich, and level. April 16.—The country presents the same appearance of low plains and meadows on the river, bounded a few miles back, by broken hills, which call in *high level fertile lands* : the quantity of timber is,

however, increasing. * * * There is, indeed, reason to believe that the strata of Coal in the hills cause the fire, and the appearance which they exhibit of being burned. April 18.—The country presented the usual variety of highlands interspersed with rich plains. April 19.—In walking through the neighbouring plains we found a fertile soil. April 21.—The country was the same description as within the few last days: we saw immense quantities of buffalo, elk, deer, antelope, geese, and some swan and ducks. April 22.—The usual appearances of Coal or carbonated wood, and pumice-stone, still continue, the Coal being of a better quality, and when burned, affording a *hot and lasting fire, emitting very little smoke or flame*. There are large herds of deer, elk, buffalo and antelope, in view of us. April 27.—We left the mouth of the Yellowstone. * * * "On the South a beautiful plain separates the two rivers. April 29.—We are surrounded with deer, elk, buffalo, antelope, and their companions the wolves. * * * There are greater appearances of Coal than we have hitherto seen, the strata of it being in some places, six feet thick, and there are also a strata of burned earth, which are always on the same level with those of the coal. May 4.—There are, as usual; vast quantities of game which are extremely gentle. May 5.—The country like that of yesterday, is beautiful in the extreme. May 6.—The country continues level, rich and beautiful; the low grounds wide, and comparatively with the other parts of the Missouri, well supplied with wood.

Mr. Paul Allen, who prepared the *Journal* for the press, and to some extent abridged it, says after date May 6: The party proceeded up the river at the rate of about twenty miles a day, through beautiful and fertile plains, which rose gradually from the low grounds bordering its banks to the height of fifty feet, and extends a perfect level, at that elevation, as far in places as the eye could reach. May 11.—The highlands are broken, continues the *Journal*, and approach nearer the river than they do below. The soil, however, of *both hills* and low grounds appears as fertile as that farther down the river: it consists of a black looking loam, with a small portion of sand, which covers the *hills* and *bluffs* to the depth of twenty or thirty feet, and, when thrown into the water, dissolves as readily as loaf-sugar and effervesces like marl.

Lippincot's Gazetter, says of Dakota :

The greater portion of this Territory is Prairie.

Of a Town that is likely to be built on the Missouri River, on the line of the Northern Pacific, C. W. Bryan of the *Springfield Republican*, thus speaks:

The next push after leaving the Red River, will be to the bank of the Missouri River, where, it is claimed, the largest town on the line of road will be built rapidly, as soon as the crossing-place of the Missouri shall be designated and made public.

The Western Division of Section number two, runs from the Missouri river, along the valley of the Heart, to the Yellowstone

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River ; a little more than 200 miles. From a map before me, the Heart River appears to be about 125 miles long.

H. C. D. in the letter above quoted from, in referring to this division of the Road, continues :—

HEART RIVER VALLEY.

It has been decided, I believe, to take the Heart River route. The section of country drained by that stream is one about which there has hitherto been little known,—our whole stock of information having come from persons who were with General Sully during his campaign against the Indians. Last fall, an expedition, under General T. L. Rosser, Chief Engineer of the Dakota Division of the Northern Pacific Railroad, made a careful exploration from the mouth of Heart River through to the Yellowstone River, in Montana ; and, being a member of his party, I feel safe in saying that there never was a country more thoroughly misrepresented than the Valley of Heart River. It is a stream that, at its mouth, is something like 300 feet in width, and runs through a valley not unlike that of the Mississippi above La Crosse, though not as extensive. The valley is defined by bluffs that, for the first fifty miles, will average 300 feet in height, and are from $1\frac{1}{2}$ miles to twice that distance apart. From one side of the valley so formed to the other, the river winds in a fearfully crooked course. The valley is well timbered with oak, elm, ash, cottonwood, and box-elder. The soil is rich, and in depth without limit. We find some trace of alkali, but good fresh water is abundant. There are many branches—some so large that it is almost impossible to distinguish the tributary from the main stream.

COAL, ETC.

Fifty miles from the mouth, we found traces of coal in the shape of lignite ; farther west it assumed the nature of semi-bituminous ; and, before we leave the valley of this stream, we find good bituminous coal, that is equal to any I have ever seen from Illinois. We also found kaolin (which is used in the manufacture of china-ware), and gypsum sufficient to fertilize the whole continent. Leaving the Valley of Heart River, we strike into that of the Little Missouri—the descent to that stream being gradually made down Davis' Creek, a distance of 18 miles. Running down the river 4 miles, an excellent line is found up Andrews' Creek, on the West side. In the Valley of the Little Missouri is to be found the best coal on the entire route. I there saw one vein showing itself in a canyon for nearly a thousand feet, and estimated to be 14 feet thick, well protected by a layer of rock, and, in its very appearance, inviting to the quarryman—not miner—for it would be unnecessary to sink shafts. The Little Missouri is very heavily timbered—much heavier than any other stream tributary to the Missouri above the mouth of Platte River. Leaving the valley of the main stream, we cross Inman's Fork, and thence go down to the Yellowstone through the Valley of Glendive's Creek. The descent is distributed over a distance of about 30 miles, and is consequently, gradual. We struck the Yellowstone at a point about 100 miles from its mouth ; found it well timbered, running through a valley averaging 3 miles in width. It is a lovely stream of pure mountain water flowing on a bed of pebbles—neither sand or mud being seen in its bottom. Its valley is abundantly watered by

smaller streams, and the whole country for miles back is first-class for agricultural purposes.

GAME, BAD LANDS, ETC.

If I had attempted a description of personal adventure, I might tell of the myriads of game which we found for the whole distance from the time we left the mouth of Heart River till our return. Our tables were constantly loaded with buffalo, elk, deer, antelope, sage-hen and prairie-chickens. If I were equal to the task of describing the picturesque scenery we encountered, I might well speak of what is, without a doubt, the most brilliant feature presented in Nature on this continent,—*Mauvaises Terres* of the Valley of the Little Missouri. This is the much-talked of "Bad Lands," and consists of innumerable buttes, formed by the washing away of the soil, which eventually finds its way to the Delta of the Mississippi. The buttes are left in a conical form, averaging something like 300 feet in height and 400 in diameter at the base. The different strata of earth are left exposed. They vary in color from fire red to yellow-ochre. We see all shades of blue clay and pure white (this white clay being Kaolin), which I spoke of seeing in abundance in the Heart River Valley. Next, and directly under, comes a thin layer of coal. The whole is arranged with wonderful contrast,—having a dazzling appearance from the dusting of gypsum, which rattles down from one of the upper strata. Of course, this land is worthless for agricultural purposes, although bunch-grass grows around these buttes heavier even than I have ever seen elsewhere.

IN SUMMING UP

I would give, as an opinion based on personal experience that has extended for most of the distance, through every season of the year, that there is no stretch of country of the same extent on this continent that is more capable of sustaining itself independently than that to be traversed by the Northern Pacific from Duluth to the Yellowstone River. Here are slate and building material of every description, and without limit; grazing that is unequalled, and wheat-land that is unexcelled. More than all, we find coal in such quantities that its only value will be that which transportation will give it. As for climate, that is settled beyond a doubt.

H. C. D.

The following is from Lippincot's Gazetteer:

A portion of Dakota is, traversed by a branch of the Rocky Mountains called the Black Hills. The highest point of this extensive range is Lamar's Peak, which rises about 8,000 feet above the level of the sea, and is situated about 42° 10' n. lat., and 105° w. lon. From this point the range extends northward nearly 300 miles.

This range appears to lie between the head of the Heart River and the Yellowstone. The Northern Pacific Road crosses it at favorable grades. Professor Hayden, Geologist to the U. S. Government, thus speaks of this part of the country:—

The numerous wood valleys in the Black Hills possess a very fertile soil and abound in springs of pure water, and the time cannot be far distant when they will be settled by a thriving population and the vast forests of pine rendered serviceable to man.

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The Northern Pacific Road will run for about 600 miles through the Territory of Montana, a large portion of its Land Grant will, consequently, lie in this Territory.

The following general description of Montana, is from a report to Congress, on the States and Territories west of the Rocky Mountains, by J. Ross Browne, in 1869, page 487:

Montana, the most recently organized of the Territories of the United States, is second only to California in the production of Gold. Embracing within its limits the range of the Rocky Mountains, and the heads of two of the greatest rivers that wind their long and devious courses through the lower countries to the Pacific and Atlantic oceans, this Territory may justly claim the appellation of the "Golden Summit." Extending from the 45th to the 49th parallel of North latitude, and from the 27th to the 39th meridian west from Washington; it contains an area, according to the report of the Commissioner of the General Land Office, of 143,776 square miles, (92,016,640 acres), bounded by meridians and parallels of latitude, except a portion of the Southwestern corner, where, for the distance of nearly 400 miles, the boundary follows the crest of the Bitter Root Mountains. The population is about 32,000.

MOUNTAINS.—In this Territory the most striking geographical feature is the great range of the Rocky Mountains, extending 350 miles from its Southern to its northern boundary, and in width over 200 miles.

This range, with its spurs, occupies fully half the Territory. The main chain of mountains is split up into a number of different ranges, as the Bitter Root, which is the highest, and the most westerly, and the Rocky, Wind River, Big Horn, and Belt ranges.

All of these have a trend northwest and southeast, and all contain mines of gold and silver. Their height has not been determined, but it is probably from 10,000 to 14,000 feet, the highest peak being covered with perpetual snow.

This great extent of mountain ranges causes the condensation of a large amount of moisture from the atmosphere, which falls principally in the form of snow. Gradually melting during the warm season, it thoroughly saturates the earth, inducing a fine growth of grass and timber throughout the mountain regions.

The Territory is divided by these ranges into a number of basins, and their spurs sub-divide each basin into a number of valleys, which contain nearly all the towns and settlements, and the greater part of its agricultural as well as nearly all its mineral resources.

* * * All the mountains appear to be old and weather-worn, and almost at the very summits of the highest ranges beds of gravel containing placer gold have been formed from the disintegration of the neighboring peaks. Thus placer mines are found on the mountain tops, differing in this respect from the Sierra Nevadas, where placer gold is almost invariably found in the foot hills. In the northern part of the Territory the mountain regions have been prospected only sufficiently to prove the existence of Gold.

The hostility of the Indians has prevented a thorough exploration, or any permanent working of the mineral deposits.

VEGETABLE PRODUCTS.—In the fertile soil of the valleys, wheat, barley, and oats grow well, and good crops are produced. Rye and buckwheat would also flourish, but indian corn would probably fail. Potatoes grow in the greatest perfection, and their flavor if not superior, is equal to that of any in America.

The residents of Montana believe that their potatoes are superior in dryness and meanness to any in the world, Ireland and California not excepted.

CLIMATE.—The climate of Montana in the mountainous parts is as cold as that of the New England States. * * * In the Valleys, where the altitude is less, the climate is milder. In Deer Lodge and the Gallatin and Madison Valleys, stock continues in good condition throughout the year, without hay or grain, the grass being abundant nearly all the time. Montana is a remarkably healthy country. There seems to be no peculiar diseases incident to the climate. In the towns the great majority of deaths are either accidental or the result of violence.

THIRD SECTION.

The third Section of the Road is along the Yellowstone River, in the Territory of Montana. The length of this Section will depend upon the point at which the river will be crossed. It will probably be something less than 400 miles.

The following reference to this river is found in the *Journal* of Captains Lewis and Clarke, under date 26th April, 1805:

The Yellowstone rises, according to Indian information, in the Rocky Mountains. Its sources are near those of the Missouri and the Platte, and it may be navigated in canoes almost to its head. It runs first through a mountainous country, but which, in many parts is fertile and well timbered; it then waters a rich, delightful land, broken into valleys and meadows, and well supplied with wood and water, till it reaches near the Missouri, open meadows and low grounds, which are sufficiently timbered on its borders.

General Reynolds wintered in 1860 in the valley of Deer Creek, through which the Northern Pacific Road will run. In his report to the U. S. Government, on his explorations of the Yellowstone, he says:

Throughout the whole of the season's march the subsistence of our animals had been obtained by grazing after we had reached camp in the afternoon, and for an hour or two between the dawn of day and our time of starting. The consequence was that when we reached our winter quarters there were but few animals in the train that were in condition to have continued the march without a generous grain diet. Poorer and more broken down creatures it would be difficult to find. In the spring all were in as fine a condition for commencing another season's work as could be desired. A greater change in their appearance could not have been produced, even if they had been grain-fed and stable-housed all winter. Only one was lost, the furious storm of December

coming on before it had gained sufficient strength to endure it. This fact, that seventy exhausted animals turned out to winter on the plains on the first of November, came out in the spring in the best condition, and with the loss of but one, is the most forcible commentary I can make on the quality of the grass and the character of the winter.

Professor Hayden, who explored the entire region, with General Reynolds, in his report to the United States War Department (p. 59) says:—

From the mouth of the Big Horn to the head of the Yellowstone, the lignite beds occupy the whole country. The beds are well developed, and at least 20 to 30 seams are shown varying in thickness from a few inches to 7 feet."

Lippincot's *Gazetter*, refers as follows, to the Yellowstone Valley:

The long Valley of the Yellowstone River, in the eastern part of Montana, is reported to be fertile, and to be bordered on one or two sides by grand walls of mountain. The valleys of the extensive region between the Yellowstone and the Missouri, are said to be liberally supplied, with running water and forest trees.

In reply to inquiries made by his former neighbors and friends in Ohio, Governor Potts of Montana wrote the following private letter addressed to Dr. J. Armstrong of Alliance:

EXECUTIVE DEPARTMENT, MONTANA TERRITORY,
Virginia City, February 17, 1871.

SIR:—I have the honor to acknowledge the receipt of your letter of the 6th inst., inquiring about the character and climate of Montana, through which the Northern Pacific Railroad will run. * * * *

The Yellowstone valley (along nearly the entire length of which the Northern Pacific Railroad will pass) is about 400 miles long by 150 miles wide. It contains eight principal valleys, entering the great parent valley of the Yellowstone, situated midway between the mountains and prairies. Its climate is soft and genial. Its soil is exceedingly fertile, and contains extensive coal fields and numbers of oil springs. The Yellowstone is navigable for light draft boats for 300 miles from its mouth. I am satisfied that this valley is one of the most healthy and productive on this continent, and will furnish homes for at least a million of people.

The valleys of the Gallatin, Deer Lodge, Jefferson, Bitter Root, and Jocko are equally as productive as the Yellowstone. The average yield of wheat in these valleys is from fifty to sixty bushels per acre, and all other cereals in proportion.

I have never seen any place that equals this Territory for the production of vegetables. The common yield of potatoes per acre is 400 bushels. The most valuable land in Montana for agriculture is yet unoccupied. That now under cultivation is generally close to some mining camp, and was taken up and occupied solely because it was near a settlement.

Gold and silver mining is very profitable in this Territory. More than Twelve Million of dollars gold dust was mined here during the past season, and the coming year promises to be the most profitable mining season ever known in the history of Montana. Labor here is very scarce, and consequently very high. Common day laborers readily command from \$5 to \$6 a day, and mechanics from \$6 to \$10 per day.

From the best information that I can obtain the Northern Pacific Railroad will open up the richest country in agricultural and mineral resources on the American continent, and if the people East and in Europe could see the rich land grant that the road has its bonds would not remain in the market ninety days. The coming year is certainly a propitious time to settle in Montana, and I shall take great pleasure in welcoming a soldier colony from old Molly Stark.

I almost forgot to speak of the climate. This winter is said to be colder than usual, but I can assure you that it is not so cold or disagreeable as Ohio winters. The atmosphere is dry and pure, making this mountain country the healthiest on the continent. On the high mountains snow falls to a greater depth, but the *valleys are scarcely ever covered with snow*. The cattle run at large during the entire year, and no grain or hay is fed them, yet they come out in the spring as fat as the best stall-fed cattle in Ohio. Our meat market here is supplied with beef driven in from the herd, and I can assure you the meat is better than I ever saw in Ohio.

In my haste I may have omitted to state many things you and your friends may want to know. If so, I shall be glad to answer any questions you propound.

Very truly yours,

B. F. POTTS.

The Land Commissioner of the United States, in his report for 1870, on page 131, says of Eastern Montana :

The climate is much milder than the latitude, and elevation would seem to indicate, and the soil is unsurpassed for productiveness. A large extent of country in this region is under cultivation. Wheat is reported to yield 50 bushels to the acre, oats 75 to 100 bushels, and potatoes from 300 to 400 bushels to the acre, while garden vegetables have a mammoth growth.

In the *Helena Daily Herald*, Montana, of March 21st, 1872, is the following item :

Mr. Sparks, just returned from the Muscle Shell Valley, where he has been during the winter, says the snow is very light there, and the cattle have had no difficulty in getting plenty of grass the entire winter.

Quincy A. Scott, describing the Yellowstone Valley, says :

Some of the other valleys are beautiful. This is grand. It abounds in magnificent scenery, most excellent farm-sites, and water-powers. The soil is very rich and fertile, timber very convenient, coal and iron cropping out in abundance at different points, and at others evidence of rich deposits of copper, while the surrounding mountains are full of gold and silver-bearing quartz.

Important testimony relating to the Yellowstone valley, from a New Brunswicker, who returned from Montana, in 1868, and who is now engaged in a commercial house in this City, he says :—

Our party consisted of sixty-eight, with about twenty wagons. We started from Omaha, in May 1866, and struck the Powder River, west of the Black Hills, about 100 miles from where it enters the Yellowstone, or say 80 miles in a direct line from that river. We then went west for Bozeman Pass, which was distant about 300 miles, but to avoid the Indians we travelled double that distance, sometimes north toward the Yellowstone, at others, southward to the mountains.

The country traversed by us was almost an *uninterrupted natural meadow*, the soil for nearly the whole way was dark, rich, and very fertile, averaging three to four feet, and sometimes reaching six or seven feet in thickness. Prospecting for minerals as we journeyed, and crossing on an average half-a-dozen streams a day, we had good opportunities for observing the character and depth of soil. A number of our party including myself, having been brought up on farms, we were continually discussing the agricultural capabilities of the country, we estimated that the grass, which was up to the bodies of our cattle, would yield two tons per acre, and so nutritious was it, we concluded that an animal would do as well on it alone, as it would on New Brunswick Timothy, with four quarts of oats per day additional. We found gold and other minerals all along our route. Gold was in paying quantities in many localities, but the unfriendliness of the Indians prevented our permanently mining it. Experienced miners, of whom we had several in our party, were of opinion that the entire country abounds in minerals, especially in gold.

We were constantly in view of timber to the southward, while northward, toward the Yellowstone, as far as the eye could reach, the country resembled that we passed over.

We were but twice slightly inconvenienced from scarcity of water, the numerous mountain streams furnished abundant supplies of the purest description.

In passing a stream west of Powder River, we saw three distinct beds of coal, which were about two, three, and six feet each, respectively. We passed through countless numbers of buffalo and antelope, they were never out of our sight during the day time.

We ended our journey in August, our cattle then being in better order than when we started. In November we sold them for beef, they were at that time in splendid condition.

THE INDIANS.—The following is from the *New York Tribune* of a recent date:—The Hbl. Wm. Welsh and other members of the Indian Commission, left St. Paul on Monday, the 26th May, for an extended trip among the Indians of Dakota and Montana, adjacent to the line of the Northern Pacific Railroad. The Commissioners have received a letter from the officers of the Road, in which they use the following language :

"Whatever the company can do, it will do to aid the General Government and the various co-operating societies in the human and sensible work of civilizing and elevating the Indian tribes of the Northwest, protecting them from fraud and abuse, and giving them both opportunity and inducement to adopt habits of industry and fixed abodes." "You are authorized to give these utterances to the tribes you visit, and to say that the Northern Pacific Railroad Company, in prosecuting its great and necessary work, is the Indians friend."

Governor Bross in referring to freights of Montana, writes :

The business of Montana, present and prospective, would almost warrant the building of this road. Last year forty-one steamers were required to do it, and it is stated that \$4,000,000 were paid by the people of Montana for freights alone. Her mines of the precious metals are unsurpassed in number and richness, and in her valleys their immense herds graze and grow fat the year round.

The value which Railroad communication will impart to the rich agricultural and mineral lands of Montana, may be estimated by the following extract from *Poor's Railroad Manual* for 1870-71 :

The cost, for example, of transporting indian corn and wheat over ordinary highways, will equal 20 cents per ton, per mile. At such a rate, as already shown, the former will bear transportation only 125 miles to market, where its value is equal to 75 cents per bushel; the latter only 250 miles, where its value is \$1.50 per bushel. With such highways only, our most valuable cereals will have no commercial value outside of circles having *radii* of 125 and 250 miles, respectively. Upon a railroad the cost of transportation equals one and a quarter cents per ton, per mile. With such a work, consequently, the circle within which corn and wheat, at the prices named will have a marketable value, will be drawn upon *radii* of 1,600 and 3,200 miles, respectively. The area of a circle with a radius of 125 miles is 49,087 square miles; that of a circle drawn upon a radius of 1,600 miles is about 160 times greater, or 8,042,406 square miles. Such a difference, enormous as it is, only measures the value of the new agencies employed in transportation, and the results achieved, compared with the old.

The Rocky Mountain Section of the Road, commencing at the head of the Yellowstone Valley is 300 miles long, and in the Journal of Captains Lewis and Clarke 17th May, 1806, is described as follows :—

The country along the Rocky Mountains, for several hundred miles in length and about fifty in width, is a high level plain; in all its parts extremely fertile, and in many places covered with a growth of tall, long-leaved pine. This plain is chiefly interrupted near the streams of water, where the hills are steep and lofty; but the soil on them is good, being unencumbered by much stone, and possessing more timber than the level country. Under shelter of these hills,

the bottom lands skirt the margins of the rivers, and though narrow and confined, are fertile and rarely inundated. Nearly the whole of this widespread tract is covered with a profusion of grass and plants which were at this time as high as the knee. Among these are a variety of esculent plants and roots, gathered without much difficulty, and yielding not only a nutritious, but a very agreeable food. The air is pure and dry, the climate quite as mild, if not milder, than in the same parallels of latitude in the Atlantic States, and must be equally healthy; for all the disorders which we had witnessed might be imputed more to the nature of the diet of the inhabitants than to any peculiarity of climate.

Professor Swallow says:—

The results already obtained from herding and the cultivation of our own rich valleys are such as to remove every reasonable doubt of the entire success of agricultural pursuits in the Territory. It certainly is one of the finest stock countries on the continent. All the more important domestic animals and fowls do remarkably well. Horses and mules and neat cattle are more hardy and kept in better condition on the native grasses than on hay and grain.

As a general rule they winter well in the valleys and on the surrounding foot hills without hay or grain. The valleys furnish a large area of natural meadows, whose products are equal in quantity and quality to those of the cultivated meadows of the middle States. Beef, fattened on the native pastures, is certainly not inferior to the best produced in the country. The small grains, wheat, rye, barley, and oats, produce as large an average yield as in the most favored grain producing States. * * * * *

All the more important root crops, and the most valuable garden vegetables, are cultivated with great success. Timber is abundant on the mountain slopes and in some of the valleys.

The Land Commissioner in his report of 1870, in speaking of this part of Montana, says:—

Cattle usually winter well in this section without hay or grain, and without housing. A large extent of the Western slope is one of the most admirable stock countries on the continent. The valleys and foot hills furnish a large surface of natural meadows, whose products of different varieties of grasses are equal in quantity and quality to those of the cultivated meadows of the United States.

Lippincott's Gazetteer contains the following:—

"The country bordering on the Jefferson Fork, the Gallatin Fork and the Madison Fork of the Missouri," says Captain Mullan, "is among the most beautiful to be found west of the Mississippi. The country is a gently and undulating prairie, dotted here and there with clumps of timber. All the streams are beautifully fringed with forest growth, the soil is rich, climate* mild and invigorating, and all the elements for happy homes are here to be found."

***THE WINTER OF 1871-2 IN THE NORTHWEST.**

The following table, taken from the *Philadelphia Enquirer*, of April 6th, gives the average temperature during the past winter (1871-2) at the points named. Except in two instances the figures are furnished by the U. S. Signal Office at Washington, and represent three daily quotations of the thermometer at each place—morning, noon and evening:

OBJECTS OF INTEREST TO TOURISTS.

In the W. central part of Montana are the Great Falls of the Missouri, which are regarded as the grandest in North America, except the falls of Niagara. At this place, which is 500 miles from its source, the river has a perpendicular fall of 87 feet, and descends by a succession of cataracts and rapids 357 feet in 16½ miles.

MINERALS.

The following brief extracts are taken from the report for 1867, of Professor A. K. Eaton, to Governor G. C. Smith:—

Lead ores occur in profusion, both as galenas and carbonate of lead, in nearly all districts of the Territory. * * * * *

Copper lodes are abundant, showing at the surface ores ranging from 15 to 60 per cent. of metallic copper. These when located near the Missouri river may be immediately made profitable. Copper ores in the eastern market probably command to-day about \$5 for every per cent of copper contained; 15 per ore would be worth \$75 per ton, and 60 per cent. ore \$300. Thus, long before we shall be extensively engaged in smelting these ores, our copper lodes may prove largely remunerative.

The silver lodes of the Territory, which at present attract much attention, are, in part, silver-bearing galenas. These range by practicable working from

	Dec. 1871.	Jan. 1872.	Feb. 1872.	March, 1872.	Mean.
Louisville, Ky.	35°	33°	33°	35°	34
St. Louis, Mo.	31	28	32	36	31½
Chicago	32	27	36	29	29
Baltimore	30	35	38	33	33½
Philadelphia	30	29	32	29	30
Washington	33	33	34	33	33
New York	30	30	30	29	29½
Helena, Montana	18	24	36	42	30
Kalama, W. T.	31	32	41		36

The temperature at Helena, Montana, may properly be taken as a fair average for the Territory, and hence for the mountain section of the Northern Pacific Railroad, where climatic difficulties should be encountered if anywhere. Helena is on the general route of Road, directly in the mountains, and but a few hundred feet below the highest point on the line. Notwithstanding the past winter has been the coldest ever known in Montana, and a surprise to the people, it will be observed:

1. That the average temperature at Helena (latitude 46½°) for the four months was the same as that of Philadelphia, although the latter city is 4203 feet lower, and 450 miles further south.

2. It was four degrees warmer at Helena than at Chicago, and only three degrees colder than at Washington.

3. During February and March it was much warmer at Helena than at Philadelphia, Louisville, St. Louis, or Washington. During March it was 9 degrees warmer at Helena than at Washington and Baltimore.

4. The average winter temperature at Kalama, Washington Territory, on the finished portion of the Northern Pacific road, (in latitude 46°) was several degrees warmer than at Louisville, Washington, or Baltimore, in latitude 39°. The greatest cold of the past winter at Kalama was 14° above zero.

Letters from members of the Montana territorial government, dated March 6th, state that for three weeks previous to that time (beginning about the middle of February) the weather had been so mild that all signs of winter had disappeared; farmers had put in nearly all their spring grain crops, and new grass was three inches high in the valleys. The significance of this can be appreciated when it is remembered that in the Atlantic States, as late as March 6th, intensely cold weather and heavy snows prevailed; trains were blockaded on many Eastern roads, and up to the 2nd of April frost had not left the ground in Pennsylvania, and the grass had not shown the slightest tinge of green.

These simple facts, mainly derived from official sources and easily verified, are the strongest possible corroboration of the statements hitherto made by the promoters of the Northern Pacific Railroad as to the climatic advantages of the Valley route across the continent.

\$20 to \$300 per ton. The present cost of labor and fuel precludes the working of the poorer of these ores, but eventually all will be worked profitably. Another class of silver lodes is found in the country which carry no lead or other base metal to interfere with the successful working of the ores by amalgamation. It is from this class of ores probably that the first remunerative results will be obtained, owing to the simplicity of the machinery required. Mills are now being erected for working ores of this character. The great abundance of veins of this nature, of the most promising appearance, justifies the expectation that a short time will show large returns of bullion from this source. It is the fourth year of my residence in the Territory, and I can assure you that my confidence in its great mineral wealth is stronger than ever, and notwithstanding the discouragements that we have been compelled to meet, we may say with pride that no new Territory has made such rapid advances in so short time as this.

The working of many thousands of tons of gold ore in different parts of the Territory, varying from \$15 to \$75 per ton by active working, is a sufficient indication of the probable average of our gold bearing rock. * * *

With agricultural resources unexcelled, with a climate most inviting, with mineral wealth inexhaustible, we may, with reason feel assured that Montana will take the highest rank among the gold and silver producing States.

The Surveyor General in his report for 1867, says:

When provision and labor become cheaper, many gulches will be worked which are at present untouched. Large amounts of money have been expended this season in the construction of ditches, and in preparations for gulch mining next year. The result of these preparations will be that, during 1868, fully 50 per cent more gold will be taken out than there has been this season. The production of gold this season has been estimated at \$20,000,000, and still not a tenth part of the Territory has yet been prospected.

Iron has been found on Jackass Creek. Copper abounds principally in the vicinity of the Muscleshell river. The width of the veins is from three to four feet. Placer copper has been found on Beaver Creek, near Jefferson City, which shows some splendid specimens.

The leads of Montana are generally better defined than in any other mining country in the world, and the singular freaks sometimes taken by them in other regions are less frequent here.

In the report of the United States Commissioners on Mines and Mining for 1870, occurs the following statement in regard to coal in Montana:

Coal has been found in all parts of the territory; among the principal points are Boreman, Gallatin county; near the Dearborn in Greenhorn Gulch; at Argenta Bannot Summit, Birch Creek, and there is every reason to suppose that coal bearing strata will be discovered in nearly all the valleys. The coal belongs to the lignite group. It is already used to a considerable extent in the cities as fuel, for blacksmithing purposes, and for the manufacture of gas. It occurs in beds of from 2 to 6 feet in thickness, and can be easily mined.

The small portion of the northern part of the territory of Idaho, crossed by the Northern Pacific Road, is similar in agricultural and mineral resources and climate to western Montana. J. Ross Browne in his report to Congress estimated the gold and silver product of this Territory for 1867 at \$6,500,000. Its population in the 1869 he considered was about 20,000. He says of a mine in the neighborhood of the Northern Pacific Line:—

The Oro Fino is one of the most productive mines in Idaho. The vein is large and well defined, and the gold generally diffused throughout the vein-stone.

Of the climate he says:—

The portion of the Territory drained by Clark's Fork of the Columbia has a milder climate than is found further south, and corresponds to the Yocco and Bitter Root valleys in Montana.

W. Milnor Roberts, U. S. Civil Engineer, in his special report to Messrs. Cooke & Co., on the Northern Pacific Road, at page 22 says:—

Around Lake Pend d'Orielle, and for some miles westward, and along Clark's river, above the lake, as far as we traversed it, there is a magnificent region of pine, cyprus, hemlock, tamarack and cedar timber, many of the trees of prodigious size. I measured one which was thirty feet in circumference, and a number that were over twenty-seven feet, and saw hundreds as we passed along that were from twenty to twenty-five feet in circumference, and from two hundred to two hundred and fifty feet high. A number of valleys containing large bodies of this character of timber enter Clark's river from both sides, and the soil of these valleys is very rich.

WESTERN SECTION:

Leaving Idaho, the Northern Pacific Road enters Washington Territory, which has three natural divisions, Eastern, Central and Western.

Eastern Washington is variously termed the Upper Country, sometimes the Walla-Walla Valley, and Spokane Plains; frequently "Colville" is made to embrace a large section of country.

As I cannot give the exact length of Road across the several divisions of this Territory, attention is directed to the table of distances to be found elsewhere.

EASTERN WASHINGTON.

Governor Stevens who frequently passed over the route of the Northern Pacific, as Superintendent of the Government Railroad Survey, thus speaks of this Section :

That portion of the great plain lying east of the main Columbia, and which may be regarded as bounded on the north by the Spokane, and on the east by the foot hills of the Bitter Root mountains, is, for the most part, well watered and well grassed. The eastern half of this portion is exceedingly well adapted to agricultural purposes.

The various streams,—the Pelouse, the Kamas Prairie Creek of the Coeur d' Alene, the Spokane and Coeur d' Alene rivers, are well timbered with pine, and numerous rivulets and springs are found through that portion of the country, facilitating the progress of settlements, and rendering the whole at once available for agriculturists.

W. Milnor Roberts, in his report, on page 19, thus writes :

The general character of all this region may be described as high rolling prairie, everywhere covered abundantly with bunch grass to the summits of the highest hills; treeless, excepting along the margins of the streams. Such is the country all the way to the northern boundaries of the United States, (latitude 49°) and beyond into the British Possessions.

* * * In Washington Territory alone, along its eastern side, there are at least, twenty thousand square miles, or twelve million eight hundred thousand acres of the finest grazing lands, on which thousands of cattle and sheep will be raised as cheaply as in any other quarter of the globe.

J. Ross Browne, in his report to Congress, on page 555, says :

There is a striking peculiarity about the innumerable streams which flow into the Walla-Walla River. They spread themselves in almost every direction not only in channels, but over and on top the surface constituting a most admirable system of self-distributing natural irrigants. To this feature this rich agricultural valley owes very much of its remarkable fertility and producing power. * * * The valleys of all these rivers and their numerous branches afford abundance of excellent farming lands, yielding heavy crops. The table lands and surrounding hills are possessed of soil of like character. In consequence of the absence of water, or difficulty of irrigation, which was deemed a *sine qua non* to their successful cultivation, until very recently no attempts were made to convert these lands into farms; but as settlement increases, they are being occupied and very successfully cultivated.

For grazing, these tables and side hills cannot be excelled.

GOLD.—The same report says on page 558 :—

Gold is found on all the streams and bars from the Spokane River to the Northern boundary, and up the Pen d'Orielle to the Catholic Mission.

Again on page 560 :—

There is no hazard in the statement that for health and salubrity, there is no climate in the world which surpasses that of Washington Territory in the two portions east of the Cascade Mountains. It is seldom essential to house or feed stock, though occasional severe winters serve as warnings to provide food and shelter.

CENTRAL WASHINGTON,

The second natural division of Washington Territory, lies between the Cascade mountains and the Columbia River. J. Ross Browne in his report on page 552 says:—

Great injustice has been done this country by a want of patience and consideration on the part of the gentlemen who have gone over it rapidly in the summer, and who have been over it but once. It is impossible to speak understandingly of a country unless one has had experience and opportunities of observation in countries somewhat similar. Now the most intelligent voyagers and best practical farmers in that country, agree in opinion that there is a large quantity of arable land throughout this country, and very superior grazing. This is the opinion of intelligent Indian Chiefs, who have themselves made some progress in raising crops, and who are already great stock raisers.

South of the Yakima is a low divide separating its waters from the waters flowing into the main Columbia, in that portion of the river, where, after leaving Fort Walla-Walla, it proceeds westward. This divide has a general parallel course in the Columbia, is nearly east and west some 30 miles from the main river, and between it and the Columbia is a large body of arable land, nearly every acre of it adapted to cereals.

On the several tributaries of the Yakima, particularly towards its upper waters, the land is rich and adapted to most of the crops; and so in the valley of the Yakima itself. This valley has been denominated by some a desert and sage plain; sage does occur in spots and small quantities, but much of the country is cultivable and productive.

GOLD.—Gold was found to exist, in the explorations of 1853, throughout the whole region between the Cascades and the main Columbia, to the north of the boundary, and paying localities have since been found at several points.

WESTERN WASHINGTON OR PUGET SOUND COUNTRY.

In Lewis and Clarke's Journal, vol. 2, page 371, is the following:

Trees of a large growth are very abundant, the whole neighbourhood of the Pacific Coast being well supplied with excellent timber. * * * We often found trees thirty-six feet in circumference. One of our party measured one and found it to be forty-two feet in circumference at a point above the reach of an ordinary man. The trunk for the distance of two hundred feet was destitute of limbs.

W. Milner Roberts in his report on pages 12 and 13, says:

The coast line of all these inland seas covers a distance of 1,800 miles, surrounded on the eastern side by magnificent forests of pine, fir, cedar, &c., surpassing any forests elsewhere to be found on the Globe, in the quantity and quality of the timber. Numerous settlements already exist at different points, generally where saw mills could be conveniently located, adjacent to the valuable timber tracts, and with their piers so arranged that the largest ocean ships can lie there in perfect safety, at all times, and receive their cargoes of lumber directly from the mills. The facilities for the greatest lumber trade the world has ever known are here.

There is not anywhere else on the globe to be found an unoccupied field for the establishment and permanent support of a new great city, such as should form the terminus of a Continental Railroad, uniting the waters of the Pacific and Atlantic by the shortest line between the great Puget Sound indentation of the coast in the west, and the Lake Superior indentation of the coast on the east.

Between these extreme points the distance by a direct line is only about 1,350 miles; being thirty degrees of longitude of forty-five miles to each degree, between the latitude of 46° and 48° . * * * It is certain that the soil where these vast forests now grow is remarkably prolific. And if at some period in the future when numerous flourishing cities shall have grown up with the growth of this Pacific Coast, the timber should be exhausted, a bountiful Providence has stored up for the use of the coming generations an abundant supply of coal, an article which is the basis of most of the wealth of Great Britain, and which, more than any single product of the mines, has enabled the United States to take her present stand among the nations.

J. Ross Browne, in his report on 574th and following pages, says:

From the cascade range to the Pacific, comprising about *one half* of Washington Territory, the surface is densely covered with the finest forest growth in the world; some of the trees, straight as an arrow, are 400 feet in height, and 14 feet in diameter near the ground. Varieties of the fir predominate interspersed with spruce, hemlock, tamarack, white cedar, maple, ash, white oak, and on some of the mountain slopes white pine.

Washington Territory has a climate excelled only by that of California. We know not where to point to such a ramification of inland navigation, save in the British possessions to the northward. For depth of water, boldness of approaches, freedom from hidden dangers, and the immeasurable sea of gigantic timber coming down to the very shores, these waters are unsurpassed, unapproachable.

SHIP BUILDING.—The abundance of timber, coal, water power, and iron ore in the vicinity of navigable waters, together with fine harbors, large saw mills, temperate climate, and natural facilities for manufacturing cordage, all clearly indicate that the Puget Sound country will soon occupy a prominent position in ship building.

FISH.—With no rivalry from the east or elsewhere, with abundance of fish, unfrequent storms during the fishing season, the best climate to cure fish, safe harbors; salt by the cargo at a comparatively low price, and all the requisite provisions for an outfit: it is scarcely possible to overrate the advantages of this region as the centre of the great fishery of the Northern Pacific.

CLIMATE.—The climate of Western Washington is essentially different from that of the portion east of the Cascade mountains. * * * Properly speaking, however, there are but two seasons, the dry and the rainy. * * * It is not unusual for the three winter months to be mild, without snow or ice, the grass growing meanwhile. In February, the weather may occur mild and genial as May, to be succeeded in March or April with our coldest weather. In July or August, days in some portions of which the maximum temperature will reach 90° or 100° are sometimes followed by cold nights, occasionally accompanied by heavy frost. * * * The summers of this Territory are unsurpassed in the world. * * * Of the sixteen winters pass in this Territory, the writer has known but three so severe as to render it essential to house and feed stock.

COAL.—The appearance of veins and outcroppings of coal in almost every section of the Territory west of the Cascade mountains, indicates its very general distribution and inexhaustive supply. Geo. Gibbs, favorably known to the scientific world, thus alludes to the universality of coal indications :—"The whole of this formation has been considered by geologists as tertiary, and the coal as not belonging to the true coal. Be this as it may, its value for economical purposes is unquestionable." * * * The formation commences at the Columbia River, where lignite or brown coal is found in thin seams, and extends continuously northward to a great distance, the quality of the coal improving in that direction. Mr. Gibbs also says : The "Pattle Claim" has upon it a vein 11 feet thick."

STO-LE-AUA-MAH COAL.—A specimen of this coal was sent by Commodore C. W. Skinner, United States Navy, to Professor Walter R. Johnson, for analysis. That distinguished chemist thus speaks of it :

"It seems to be one of the finest American coals which I have yet seen. It has a specific gravity of 1.315, and will weigh, in the merchantable state, from 51 to 55 pounds per cubic foot, according to size of lumps, and will require on board a steamer about 42½ feet of space to stow one gross ton. It is of brilliant lustre, wholly free from liability to soil. It is composed of :

Volatile matter, 40.36; Fixed Carbon, 56.84; Earthy matter, 2.80

SEATTLE MINE.—A shaft is being sunk, which will reach the coal at the depth of 70 feet, from the mouth of which, by a chute, the coal can be directly laden into scows or barges.

The vein at the croppings is 23 feet thick, mostly clean, pure coal, mixed with dirt on the sides, but to all appearances free from slate or sulphur. No analysis has been made, but smiths who have used it pronounce it superior for their purposes to any coal obtainable on this coast, though inferior to the Cumberland.

It burns up very clean, leaving nothing but a clear white ash, with no clinkers.

LAKE WASHINGTON COAL FIELDS.—Rev. Geo. F. Whitworth, a gentleman of scientific culture, thus speaks of these mines :

The coal is remarkably clean, is a jet black, and as we advance along the seam is becoming much harder. Some of it seems to be nearly as hard as Anthracite. It burns with a clear flame, does not emit the black smoke so common to other coals on the coast, and so far as tried it is pronounced superior for purposes of steam. Its heating power seems to be very great. It burns up thoroughly, making no clinkers, and leaving a very small portion of ashes.

In speaking of one of these mines opened in this locality, Mr. Whitworth says :

There are four seams, two of five feet each and two of nine feet each, making in all 28 feet of pure coal.

J. L. A regular correspondent of the St. John "Evening Globe," in a letter dated at Seattle and published in that paper 21st June, 1870, says of the Washington Coal Fields :

At the south east end of this Lake, 3 miles from the shore, are found some of the largest beds of Coal in North America. It is said to be inexhaustible in quantity and of superior quality. It is generally used here and gives the best of satisfaction.

Of the lumber of Washington Territory, he says in the same letter :

I have seen lumber containing 250 M. to the acre, and 100 M. to the acre is common. In fact what we call good timber land will average 100 M. to the acre.

In New Brunswick where we could get 7 or 8 M. to the acre, we called it good land, and in Wisconsin and Michigan, I believe, the timber land averages about 12 M. to the acre.

Mr. Brown concludes his report on the Coal fields of Washington Territory as follows :

That there is good coal universally diffused, in quantities inexhaustible and generally accessible for transportation, cannot be doubted.

The U. S. Land Commissioner, Hon. Joseph S. Wilson, in his report for 1869, said :

The Northern Pacific offers a pretty safe guarantee against those formidable obstructions from snow which the more southern route has already experienced. The undeveloped resources of this Company are attracting the attention of capitalists. Its landed subsidy is double that of the Union Pacific Road. Comparatively a very small portion of this line runs through an elevated region. Governor Stevens [who repeatedly passed over the route of the Northern Pacific Railroad, and studied it in all its aspects] was of the opinion that *not more than one-fifth of the land from Red River to Puget Sound is unsuited to cultivation, and that this fifth is largely made up of mountains covered with bunch grass and valuable timber and filled with precious metals.* It is evident that an immense agricultural area is here awaiting development. The great wheat-growing regions on the left bank of the Upper Missouri promise speedy settlement upon the opening of an avenue for the transportation of their products to market. Each section of the Road as it is completed, will, from local traffic alone, find ample returns for its investment.

The *New York World* in a long article on the Northern Pacific Railroad, referred to its land grant as follows :—

Doubtless this road will be a great benefit to the region through which it passes, opening it up to immigration and enterprise ; but although it is now too late to protest against such an enormous grant, it may be questioned whether it is a right policy to lavish empires on private corporations. It of course insures the repayment of the money invested in building this road, for while there is not a single case on record of the first mortgage bonds of one of our large railroads not being met at maturity, *it seems as if it were beyond the limits of dishonesty or maladministration to imperil the bonds secured by this grant.*

COST OF ROAD.

W. Milnor Roberts, in his special Report of Reconnoissance of the Route of the Northern Pacific Railroad, estimated the cost at \$42,638 per mile. My limited space will not admit of giving more than a brief extract, the report itself will be cheerfully furnished on application. He says :—

In making this estimate, I assume that the graded road-bed, bridges, culverts, etc., are to be such as we find on our first-class roads ; and that the track is to be thoroughly constructed, with rails of sixty pounds per lineal yard, put together with the most improved joint-ties, and completely ballasted with gravel or broken stone.

* * * * *

The highest ground encountered between Lake Superior and the Missouri river, at the mouth of the Yellowstone, is only 2300 feet above the sea, the low summit of the Rocky Mountains is but little over 5000 feet, and the Bozeman pass, through the Belt range, is assumed to be about 500 feet lower. The height of the country upon which the line is traced, and upon which my esti-

mate of cost is based, may be approximately stated thus, beginning at Lake Superior, going westward:—

	Miles.	Average height above the Sea.
To Dakota valley.....	300	1200 feet.
Yellowstone river.....	300	2200 "
Along Yellowstone.....	400	2600 "
Flathead valley.....	300	3500 "
Lewis or Snake river.....	200	3000 "
Puget Sound.....	500	400 "

Lake Superior to Puget Sound *via* Portland, ..2000

[Direct line.....1775]

Compare this with the profiles of the finished line of the Union and Central Pacific Roads. Properly, the comparison should be made from Chicago—the eastern terminus on Lake Michigan, of the Omaha line. There are on that route, approximately, as follows:—

From Chicago	Miles.	Average height above the Sea.
To Omaha.....	500	1000 feet.
Near Cheyenne.....	516	3300 "
Cooper's.....	87	7300 "
Promontory Point.....	482	6200 "
Humboldt.....	406	4750 "
Reno.....	139	4000 "
Auburn.....	45	4300 "
Sacramento.....	39	300 "
San Francisco.....	135	50 "

Chicago to San Francisco.....2410

On the Northern Pacific line there need be but two principal summits, whilst on the other there are four; the lowest of which is about a thousand feet higher than the highest on the northern route.

* * * * *

In conclusion, I would state as the result of these explorations and investigations, after much reflection, and fully appreciating the responsibility devolved upon me as the Engineer selected by you for the duty, that the Northern Pacific Railroad route, with the land grant secured to the Company by the Government, possesses great intrinsic value, and will be, as a whole, a remarkably favorable line in all important respects; a line which, if judiciously located, honestly constructed, and properly administered, will pay within a few years a fair dividend on its cost. I had apprehensions that personal investigations might disclose material or possibly vital errors in some of the anticipations induced by former Reports. The result, however, has been in the other direction; and I am constrained by the facts to present an estimate of cost essentially lower than those previously submitted by the able Chief Engineer, and I offer it confidently as reasonable and reliable.

CHARTER AND MORTGAGE.

SYNOPSIS OF THE CHARTER.

The leading provisions of the Charter of the Northern Pacific Railroad, as amended to the present date (February, 1871), are as follows:

1. The Northern Pacific Railroad Company is authorized to construct, operate, and own a continuous Railroad and Telegraph line, "beginning at a point on Lake Superior, in the State of Minnesota or Wisconsin; thence westerly by the most eligible railway route, as shall be determined by the Company, within the territory of the United States, on a line north of the forty-fifth degree of latitude, to some point on Puget Sound," *via* the valley of the Columbia River, with a branch "from some convenient point on its main trunk line," across the Cascade Mountains to Puget Sound.

11. In aid of the work, the charter grants to the Company 20 alternate sections, or 12,800 acres, of public land, to each mile of finished track, through the States traversed, and 40 alternate sections, or 25,600 acres, per mile, through the Territories. This grant of land applies to the chartered branch of the Northern Pacific Road as well as to the trunk line. The charter also grants right of way, 400 feet in width, for both main line and branch, through the public domain, and the privilege of taking, free of cost, from the Government lands adjacent to the Road, all necessary construction material. Iron and coal lands are expressly embraced within the terms of the grant.

111. As often as 25 consecutive miles of the Road are completed, "in a good, substantial, workmanlike manner," such finished portion is to be examined and approved by three Commissioners, appointed by the President, and thereupon patents are to be issued transferring and confirming to the Railroad Company the lands of the grant corresponding to, and conterminous with, such completed section. By the operation of the Charter and the General Mortgage, such Government patents vest a perfect title to the lands of the Grant in the Trustees of the Mortgage, who represent the holders of the bonds now being negotiated. The Road is to be in all regards first class; the rails are to be made from American iron and American ore; and the Company is prohibited from charging the United States higher rates for transportation than are charged to individuals.

IV. The Government is to cause to be surveyed the lands for forty miles in width on both sides of the line of the Road, as fast as this shall be rendered necessary by the construction of the track. On the Company's filing a map of its intended route through any State or Territory, the lands embraced in the Grant are to be withdrawn from market, and thereafter will not be liable to sale, entry, or pre-emption, *whether surveyed or unsurveyed*; and the alternate sections belonging to the Government cannot be sold at less than \$2.50 per acre. The usual authority is given the Company to appropriate a right of way through private lands by compensating owners therefor.

V. The charter provides that at least 25 miles of that portion of the Road between Portland (Oregon) and Puget Sound, shall be completed by January 1, 1872, and at least 40 miles each year thereafter until the entire Road, from Lake Superior to Puget Sound, shall be completed.

VI. The charter (as amended by Act of Congress approved May 31st, 1870) expressly authorizes and empowers the Northern Pacific Railroad Company to issue its bonds to aid in the construction and equipment of its Road, and to secure such bonds by mortgage on its property of all kinds and descriptions, real, personal, and mixed, including its franchise as a corporation. It is also provided that, as proof and notice of its legal execution and effectual delivery, said Mortgage shall be filed and recorded in the office of the Secretary of the Interior. [Note. The Mortgage has been thus filed and recorded.] The matter of the title to Indian lands, if any, embraced within the Grant, is to be adjusted by the Government in a manner satisfactory to the Indians; and in all stages of its progress, the policy of the Northern Pacific Railroad Corporation will be one of entire friendliness to the natives of the plains.

SYNOPSIS OF THE GENERAL MORTGAGE.

The General Mortgage authorized by the charter, and executed by the Northern Pacific Railroad Company for the security of the holders of its First Mortgage Bonds, is dated July 1, 1870. It is drawn with the utmost care, and every provision has been embraced in it which could add to the security of the bondholder.

I. It conveys to two trustees, Messrs. Jay Cooke and J. Edgar Thomson, all the property and rights of property of the Northern Pacific Railroad Company, including:

1. The Road-bed and track, as fast as constructed, of the trunk line and all authorized branches.
2. All rolling stock and other equipments; all engine-houses, machine-shops, depots, water stations, and other buildings.

3. The entire Land Grant of the Road, as fast as it accrues to the Company, embracing between Fifty and Sixty Million acres.

4. All rights, franchises, privileges, and other property now owned or hereafter to be acquired by the Northern Pacific Railroad Company.

II. The Mortgage provides that all the property named above, and all moneys arising from the sale of the same, shall be held by the Trustees as security, and pledged to the payment of the Company's First Mortgage Bonds, principal and interest, as they shall become due, and shall be promptly applied to that purpose by the Trustees, in case of any default by the Railroad Company.

III. The Railroad Company shall have the right at all times to contract for the sale of portions of the lands of the Grant, at prices to be approved by the Trustees, (but at not less than \$2.50 per acre); and THE PROCEEDS OF ALL SALES OF LANDS, WHETHER IN CASH, BONDS, OR OTHER SECURITIES, SHALL BE DEPOSITED WITH THE TRUSTEES, and upon the payment to the Trustees of the proceeds of such sale or sales, the Trustees shall and will make a full and clear deed to the purchaser of the lands thus paid for. Such deed from the Trustees releases the land thus sold from the operations of the General Mortgage. The First Mortgage Bonds of the Company are made receivable at par and accrued interest in payment for the Company's lands at their lowest cash price. By a subsequent arrangement between the Trustees and the Railroad Company, the bonds are made always receivable for lands at *ten per cent. premium*, of 1. 10.

IV. The Trustees, who directly represent the bondholders, are required by the terms of the Mortgage to see that the proceeds of all sales of First Mortgage Bonds are *devoted to the construction and equipment of the Road* and that the *proceeds of land sales* are used in *purchasing and cancelling the bonds of the Company*, if they can be bought before maturity at not more than 10 per cent. premium; otherwise the Trustees are to invest the proceeds of land sales in United States Bonds or Real Estate Mortgages for the further security of Northern Pacific bondholders. At all times, until the entire bonded debt of the Railroad Company is paid off and cancelled, the Trustees are required to see that they have in their control, as security, at least 500 acres of average land to every \$1000 of outstanding First Mortgage Bonds, besides the Railroad itself and all its equipments and franchises.

During the construction of the Road, the interest on the bonds secured by this Mortgage is to be paid from the earnings of the finished portions of the Road, and from the general fund of the Company. No portion of the proceeds of land sales is to be devoted to the payment of interest, unless the general treasury of the Company shall be first exhausted, in which case the Company shall, from the first net earnings of the Road, make good the amount thus taken from the land fund.

In case of the resignation or death of either of the Trustees, the surviving Trustee is empowered to appoint a successor; or, upon the request of the bondholders, the appointment may be made by the courts in the usual manner.



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