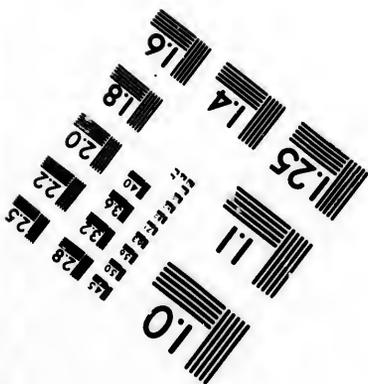
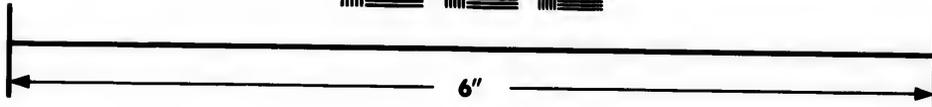
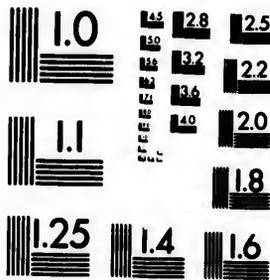


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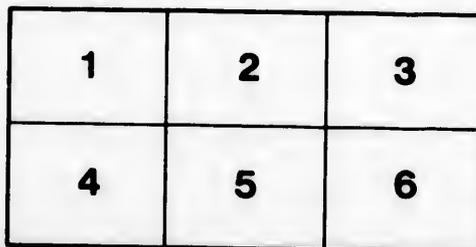
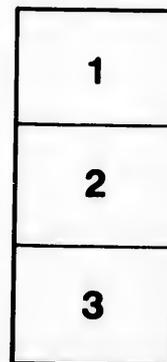
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THE  
NORTHWEST COAST,

INCLUDING

Oregon, Washington and Idaho,

A SERIES OF ARTICLES UPON THE N. P. R. R.

IN ITS RELATIONS TO THE

Basins of the Columbia and of Puget's Sound.

By REV. G. H. ATKINSON, D. D.

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*First Published in The Oregonian.*

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PORTLAND, OREGON:  
A. G. WALLING, STEAM PRINTER AND BOOKBINDER.  
1878.

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## PREFACE.

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These articles are reproduced in pamphlet form, in their order of time, for convenient reference.

The statistical facts collated with other arguments carry their own force of reason to the thoughtful citizen of this section, and to the broad-minded statesman of every section of our country.

The hope is cherished that they will give some aid to secure the needed Congressional Legislation, and thus confer a common benefit upon this prospective empire of the Pacific Northwest, and upon our country.

G. H. ATKINSON.

PORTLAND, OREGON, Oct. 25, 1878.

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## THE NORTHWEST COAST.

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### VALUE OF LAND INCREASED.

Ballroads give actual value to lands. Even where fares and freights equal the old coach and wagon rates, the time saved is money to the farmer and the merchant. A trip of six days for a man and team would be required to take a ton of wheat (33 bushels) 100 miles, at a cost of not less than \$12, or \$2 per day, which is equal to 36 cents per bushel. The car will put that wheat into market in half a day, and leave man and team at home for work. Six days of work on say six acres are worth \$12, which sum is added to the value of the land, or to other land. This sum is equal to \$2 per acre per year, or the interest of \$30 per acre. If the land was worth \$5 per acre without the railroad, it is worth \$25 with it, counting merely the time saved. But if the railroad rate is one-half or one-third the wagon rate, as is usually the case, it will save enough to add a hundred per cent. more to the original value of the land. The Willamette farm lands near the railroad, within a hundred miles of Portland, have risen steadily in about these proportions. The lands in the interior valleys of California have risen to much higher values since their railroads came, although the rates of transportation are reported to be very high.

But the lands east of the mountains, far from the river or railroad, have very little value except for stock ranges. The finest wheat lands must lie untilled. Coal fields must remain undeveloped. Even minerals cannot be mined, except the precious metals in rich deposits, without railroads.

Mineral and coal regions to a large extent are valueless until cheap transportation is afforded. The coal of Wyoming, the copper and the coarser silver ores of Utah and Nevada waited for the railroad car to give them value.

The original Union Pacific Railroad land grant was 12,077,981 91-100 acres. The sales to December 31, 1875, were 1,193,942 91-100 acres, for \$5,336,044 02, at the average price of \$4 47 per acre. An equal value surely was given to the same number of acres on the even sections retained by the government. The total value of the original land grant at the minimum rate of \$2 50 per acre was \$30,194,952.

The coal, iron, copper, silver, gold, marble, lime, cinnabar, etc., long hid in the rugged mountains, but now brought into use, will far more than compensate for any poor lands.

The original number of acres of the land grant to the C. P. R. R. and to the California and Oregon Railroad was 13,222,400. If valued at \$2 50 per acre, it makes the amount of the grant \$33,056,000. It is fair to say that these two roads are giving almost the entire estimated value of \$63,250,950 to these lands, and an equal sum to government lands lying adjacent to them

Millions of acres lying outside the limits of these railroad grants now have a market value impossible before the road was built. The Illinois Central railroad added several hundred per cent. to the real worth of the belt of land 60 miles wide along its track, enriching the people as well as the railroad corporation.

The route of the N. P. R. R. is through a good belt of country. Its capacities for pasturage, for the cereal, for vegetables and fruits, have been proved. Soil and climate invite settlers. But these products cannot be transported to the markets of the world. It is useless to raise any for export. The lands lie idle, as they have done for a thousand years. The lumber of the mountains falls and decays or is burned up. The coal beds are untouched. The minerals cannot be brought into use. The lands must remain unsold or unsurveyed for want of buyers. Complete the road from the Columbia to the Missouri and this strip, 80 miles wide and 2,000 long, of 160,900 square miles, or 102,400,000 acres, will acquire a real worth, at one dollar per acre, of \$102,400,000. At two dollars per acre it will be worth \$204,800,000. At the government price for even sections, \$2 50 per acre, the whole amount will be worth \$256,000,000, of which the government will receive half, or \$128,000,000, and the builders of the road the other half. That new value will be created by the road, and will become steadily available to the government and people. Without the road it cannot exist; without the road it never will exist

#### FREIGHTS SAVED.

Roads built on the basis of these land grants save certain sums in the cost of government freights over these routes, which may be fairly added to the land values created by them. Senator Stewart, of Nevada, said that "The cost of the overland service for the whole period from the acquisition of our Pacific coast possessions down to the completion of the Pacific railroad was \$8,000,000 per annum, and constantly increasing." The editor of the *Pacific Tourist* adds: "Since the building of that road, say for seven years—1869 to 1876—the cash paid to railroad companies for one-half charge of transportation per year was about \$1,200,000 per annum, or the sum of \$8,400,000 for the whole time." The cost to the government of military transportation in 1870 was \$8,000,000 per annum, and increasing over \$1,000,000 per year. In 1876 it would have been over \$14,000,000. The average for seven years, at \$10,000,000 per year, would amount to \$70,000,000. Thus the total saving in seven years to the United States Government was \$61,600,000. This is equal to the creation or earning of \$61,600,000 for the government.

It is an item worthy of notice that the government paid the interest on the Pacific railroad bonds during these seven years, an average of \$3,897,129 per year, or a total of \$27,279,906. Deducting this sum from \$61,000,000, there was a net profit over all expenses to the United States of \$34,420,094." It is fair to estimate these savings as so much value added to the belt of country traversed by the road.

The writer quoted remarks that "these figures do not include vast amounts of incidental items which would have been of incalculable trouble, or immense expense to the United States, such as the indemnities constantly being paid by the United States for the destruction of life and private property by Indians; also dep-

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redations of Indians on property in government service; increased mail facilities and decreased mail expenses; prevention of Indian wars; the rapid sale of government lands, and the energetic development of the mining interests of all the Territories."

Hon. Henry Willson, in a speech before the Senate, thirty-seventh Congress, boldly said: "I give no grudging vote in giving away either money or land. I would sink \$100,000,000 to build the road, and do it most cheerfully, and think I had done a great thing for my country."

The average transfer of through passengers on the Pacific railroads per year, for four years, was 72,183, and of way passengers 318,182. The average transfer of freight for 1872 and 1875 was over three billions of pounds per year.

This power of transportation is a definite commercial value, created by the railroad. It is a commodity produced where none existed before, as really as the product of new grain fields or new manufactories. The only question is, whether such wealth producers are needed or are in excess. When the New York Central Railroad was first proposed, farmers objected to the project as an injury to the freight business by wagons, and, in fact, to the business of raising horses. The one answer to all such objections is, that two, and perhaps three, broad belts of the continent within our national limits can be traversed by *new railroads*, and their resources developed by them, and *in no other way can this ever be done.*

#### A MILITARY NECESSITY.

The N. P. R. R. is as truly a military necessity, in its section as the U. P. or C. P. R. Roads were in their section.

It will annually save millions of dollars to the government in freights alone.

It will quell Indian outbreaks so quickly and effectually that they will be less and less likely to occur. Such outbreaks do not now happen as formerly in Nebraska, Wyoming, Utah and Nevada. Had the N. P. R. R. been completed, the Black Hills war would have been speedily closed, and with less sacrifice of life. The present war with Chief Joseph's band of Nez Percés could have been nipped in the bud if the N. P. R. R. had been built.

#### A NATIONAL NECESSITY.

The one Pacific railroad is now developing a central tier of states across the continent. More than any other agency, it lifted Nevada to this position. Utah would be the next state, but for the antagonism of Mormonism. Wyoming hastens to join the rank. Nebraska was ushered into the list while yet the Pacific railroad was making its way through her prairies.

#### SOUND STATESMANSHIP DEMANDS THE N. P. R. R.

The following items show the business of Utah in 1875: The value of imports was in that year \$9,150,851; the value of farm products, \$7,861,772; miscellaneous, \$860,384; mineral products (mostly silver bullion), \$6,145,211; manufactures, \$2,805,000; making (exclusive of flour, \$1,603,935) \$17,310,000. The valuation of assessable property, according to the auditor's report in 1875, was \$23,289,189.

On this property the aggregate taxes assessed in 1875 were \$58,222 95. To the Pacific railroad a large proportion of this business and wealth is due.

The assessed value of property in California in 1864-5 when the C. P. R. R. was begun, was \$180,484,949 85. The assessed value five years later, in 1869, when the Overland railroad was done, was \$237,483,175 07. A gain of \$56,998,225 22, or about 32 per cent., or 6 2-5 per cent. per year. The assessed value in 1874-5, five years later, was \$611,495,197 00, a gain of \$374,012,021 93, or about 150 per cent. in five years, or 31 3-5 per cent. per year.

These values are as well sustained as any values are sustained in any other part of our country. Their vast increase is largely—mostly due to the Pacific railroad.

It is not certain that the N. P. R. R. will produce similar results as quickly; but the resources of the northern route are as vast, as varied and more permanent; and they will ultimately be as grandly developed.

Dakota, Montana, Idaho, Washington and Oregon wait for this road. It will stimulate all their energies. It will establish vigorous settlements. It will open new regions. It will unfold the hidden treasures of the soil, the mines, the forests, the river, the lakes and the ocean. It will hasten the immigrations, by giving confidence to the people that their labors and enterprise shall be rewarded.

#### INCREASE OF POPULATION.

"In 1860 the population of the Pacific slope was 619,000. In 1870 it had doubled. In 1876 it had again increased 40 per cent.

It is safe to calculate upon six per cent. increase annually on the completion of this road. Grant the present population of Oregon, Washington and Idaho to be 200,000—ten years at 6 per cent. will add 158,874, or a total of 358,874.

The increase may be double that amount, giving over a million of people to these three states, as they will then be, in twenty years.

It is the part of good statesmanship to provide for the future welfare of our country, it would seem a present duty to establish this tier of states on our northern border from the lakes to the Pacific. In order to do this every hand and every voice ought to help on the building of this road.

The lands granted if sold at \$2 50 per acre minimum, will give that sum in value by the construction of this overland road. Thus the value of the grant being fairly earned, and in no sense a gift.

The government or the people alike make a large profit by the subsidy. The builders do the same. It is like laying out a town site, and giving half the lots to settlers, who will *build* houses, and on them thus double or quadruple the value of the remaining lots.

#### A VALUABLE INVESTMENT.

Land subsidies for transcontinental railroads are good investments for the people. They make one acre worth two, three and four, or a dozen acres of the same quality, which have no railroad facilities. The cry against such subsidies is absurd and misleading. To prevent such grants is to defraud the people. Its encouragement sets the wheels of industry in motion, employs laborers, feeds the hungry, opens new avenues for business, and adds largely to the national wealth.

The arguments which apply to the Northern P. R. R. apply with equal force to the Southern P. R. R., or Texas P. R. R.

Wilderness regions along that belt of country will become rich states by thus opening the highway of commerce.

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Similar reasons urge the building of cross-roads, intersecting new regions, like the P., D. & S. L. road, and S. & W. W. R. R., which will be of far more worth than many built in the eastern states. If this increased value is given to regions traversed by railroads, which does not exist without them, it is fair and wise to give the builders a share in the wealth which they create.

The iron, the coal, the manufactories, the skilled and the unskilled labor of the country wait to be employed on such national enterprises.

#### ITS SOCIAL AND MORAL POWER.

In the problem of a nation's life easy intercommunication is found to be an essential factor. Already our nation feels the vital force of the Union and Central Pacific. The heterogeneous population that presses into new regions, especially into those rich in the precious metals, and in mineral and agricultural resources as the electric chain, needs that constant connection with the whole body politic.

Interlace the continent with railroads and you ensure the unity of the people, by the community of interest which must and will be quickly felt. No power acts with such force now to harmonize the north and the south, the east and the west. This force is needed along the northern and southern belts from the Atlantic to the Pacific.

#### ITS ECONOMY OF FORCE AS A PROBLEM OF ENGINEERING.

It is a fixed principle of engineering that it is as easy to draw seven loaded cars on a level track seventy feet as to raise them one foot.

The wear and tear of machinery of the track, combined with the strain or force required to draw such a load show the equivalents to be as seventy feet in length to one in height.

On hearing this principle stated by an engineer, as it was new to me and the revelation of important results, I stated it to General Tilton, a well-known engineer of high standing, for explanation and verification. With the carefulness of a mathematician, he answered, that it was as nearly correct as the elements of the problem involved, could be stated; that it was often discussed and affirmed by E. F. Johnson, Esq., consulting engineer of the N. P. R. R., the teacher of us all.

It is a working rule, which we can safely follow, he said. Moreover, when weights increase the equivalents increase. For example, fourteen loaded cars can be drawn one hundred and forty feet on a level track as easy and with as little wear and tear and strain as they can be lifted one foot, but the law of equivalents is not exactly the same for the higher numbers.

Do you mean, General, that it is as easy and economical to run a freight train of seven loaded cars around a mountain seventy miles as to lift it one mile high over that mountain? Yes, he replied.

Is it as easy and economical to draw a loaded train of 14 cars 140 miles on a level around a mountain as to lift them one mile high over it? Yes, he said, that is the practical fact. How would it be with 21 loaded cars? The General replied that the same law operates, yet the tests and figures have not been made to show how much it may be modified. General, how do the two Pacific railroad routes, via the N. P. R. R. and the U. & C. P. R. R., compare as to gradients? Those of the N. P. R. R. are far the lowest and easiest. For example, they (the C. P. R. R.) climb the Nevadas over 7,000 feet,

descend into the valley of the Humboldt about 3,000, ascend again about 2,000 at Promontory Point and 1,000 more at Coopers'; and they reach 8,200 above the sea at Sherman. The N. P. R. R. runs through valleys from 1,000 to 3,000 feet and at no point rises higher than 5,000 feet above the sea level. It is the valley route across the continent. This is the substance of a conversation with General T., at Tacoma, four years ago, which is reported from memory, as I trust accurately.

In a conversation with Edwin F. Johnson, Esq., in Chicago, in October, 1868, who was then understood to be the engineer-in-chief of the N. P. R. R., he said that he began more than 30 years before, in Connecticut, and followed his business as an engineer through New York, Ohio, Michigan and farther west, constantly studying the face of the continent and the laws of its climate, and that he found the isothermal line constantly veering northward, and the surface of the country more level and better adapted for agriculture and a population. He added that the proposed route for the N. P. R. R., so far as the preliminary survey had been made, showed easy gradients compared with the Central route, and that the actual distance by measure to ocean waters at Puget Sound was about three hundred miles less than to ocean waters at San Francisco, and that two hundred miles more were saved by easier gradients, making 500 miles gained by this route over the other of land travel, while the ocean route from Puget Sound to China, being on the arc of the great circle, is about 400 miles shorter than the route from San Francisco.

Having given this intelligent, inquisitive, and venerable engineer, many facts respecting the mildness of our north Pacific coast climate, confirming his tentative observations and carefully formed theories—which testimony seemed very grateful to him—our interview of a half hour closed. It left the conviction on my own mind that every step in the progress of such a vast enterprise must be taken under the guidance, and subject to the most rigid and accurate tests of engineering skill, and, when so made, its success will be assured with mathematical certainty.

On the subject of routes, W. Milnor Roberts, U. S. civil engineer and engineer-in-chief of the N. P. R. R., in his special report of a reconnaissance of the route for the N. P. R. R., between Lake Superior and Puget Sound, in 1870, via the Columbia river, makes the following statements:

"An examination of the profile of the Union Pacific and Central Pacific lines, between Omaha and Sacramento, a distance of 1,775 miles, shows that there are four main summits: Sherman summit, on the Black Hills, about 550 miles from Omaha, 8,235 feet above the sea; one on the Rocky mountains, at Aspen summit, about 935 miles from Omaha, 7,463 feet; one at Humboldt mountain, about 1,245 miles from Omaha, 6,076; and another on the Sierra Nevada (only 105 miles from the western terminus at Sacramento), 7,062; whilst from a point west of Cheyenne to Wahsatch, a continuous length of 450 miles, every portion of the road is more than 6,000 feet above the sea; being about 1,000 feet, on this long distance, higher than the highest summit on the N. P. R. R. route, whilst for the corresponding distance on the Northern Pacific route the average elevation is under 3,000 feet, or 3,000 feet less than on the Union and Central line. The highest summit on the Northern Pacific line is about *three thousand feet* lower than the Sherman summit on the Union Pacific."

On the Union Pacific road the profile also shows that for nine hun-

dred continuous miles, from Sidney westward, the road has an average height of over 5,000 feet, and the lowest spot on that distance is more than 4,000 feet above the sea; whereas on the Northern route only about sixty miles, at most, are as high as 4,000 feet; and the corresponding distance of nine hundred miles, extending from the mouth of the Yellowstone to the valley of Clark's river, is, on an average, about 3,000 feet lower than the Union Pacific line. Then allowing that 1,000 feet of elevation causes a decrease of temperature of three degrees, there is a substantial reason for the circumstance, now well authenticated, that the snows on the Northern route are much less troublesome than they are on the Union and Central Pacific route. At the same time it should not be claimed that there will be no trouble from snow on the Northern line. \* \* \*

"The impression I would wish to create is this: That a line can be so located between the valley of the Missouri and the mouth of the Columbia river, and to Puget Sound, that for the greater portion of the distance it will not encounter any serious trouble from snow; and that in the passage of the belt range, between the Yellowstone and the Upper Missouri, and the crossing of the Rocky mountains at Deer Lodge pass, no greater obstacles from snow are likely to be met with than have already been encountered and overcome on roads in New England states and in the state of New York.

The grades beyond the Missouri, along the valley of the Yellowstone, to near the Bozeman pass, like those east, will undulate within the general limit of about forty feet per mile, although it may be deemed advisable, at a few points, for short distances, to run to a maximum of fifty-three feet per mile.

The height of the country upon which the line is traced, may be approximately stated thus beginning at Lake Superior, going westward:

	<i>Miles.</i>	<i>Av. Height above Sea.</i>
To Dakota valley.....	300	1,200 feet.
Yellowstone river.....	300	2,200
Along Yellowstone.....	400	2,600
Flathead valley.....	300	3,500
Lewis or Snake river.....	200	3,000
Puget Sound.....	500	400

Lake Superior to Puget Sound, via Portland, 2,000 miles; direct line, 1,775 miles.

The difference between direct and Columbia river route, 225 miles, is more than made up by its lower grades. Compare this with the profits of the finished line of the Union and Central Pacific roads. Properly, the comparison should be made from Chicago, the terminus on Lake Michigan, of the Omaha line. There are on that route, approximately, as follows:

	<i>Miles.</i>	<i>Av. Height above Sea.</i>
From Chicago to Omaha.....	500	1,000 feet.
Near Cheyenne.....	516	3,300
Coopers.....	87	7,300
Promontory Point.....	482	6,200
Humboldt.....	406	4,750
Reno.....	130	4,000
Auburn.....	45	4,400
Sacramento.....	39	300
San Francisco.....	135	50
Chicago to San Francisco.....	2,410	†

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. If, therefore, the roads were the same length between the Pacific waters and the great lakes and navigable rivers east of the Rocky mountains, the advantage would be largely in favor of the northern route; but this actual distance is 410 miles less, and the equated distances for ascents and descents in its favor will be very considerable in addition."

This last remark of the engineer, Mr. Roberts, doubtless, applies to the gain of force and economy of low grades, which is equivalent, in the engineer's mathematical estimate, to a definite number of miles. Engineer Johnson estimated 200 miles of such gain for the whole route.

As an attesting fact, it is reported from one of the directors of the Central Pacific railroad that the cost of wear and tear of their railroad 200 miles over the Nevadas, including machinery and increase of force demanded is equal to the expense on 1,100 miles of the rest of their road on lower grades.

As another attesting fact, it is reported that the Reading railroad, of four tracks for transporting coal 44 miles to market, was first constructed along the side of a hill, requiring a great force to carry the trains over such an elevation. On the estimate of their engineer, they found that the road-bed could be lowered about 32 feet, and the four tracks relaid at a cost of about \$2,000,000, and that the economy of force and wear and tear thus saved would be annually the interest on \$1,000,000 above this extra cost. They decided to abandon the old road-bed and build the new one.

The facts and principles thus far adduced from the highest authority of engineers, show that the Northern Pacific railroad route runs through a series of valleys that extend with but little interruption across the continent. Of the remarkable pass at Deer Lodge, well named the Gate of the Mountains, Mr. Roberts says: "The whole 40 miles from Deer Lodge City to the summit of the Rocky mountains, by this route, can be built as cheaply as roads are built through prairie countries generally.

"A remarkable circumstance connected with this pass will convey a clear view of its peculiarly favorable character. Private parties engaged in gold mining in a gold field which exists abundantly on both sides of the Rocky mountains, have dug a ditch across this summit which is only eighteen feet deep at the apex of the divide, through which they carry the water of 'Divide creek,' a tributary of the Missouri, across to the Pacific side, where it is used in gold-washing, and the waste water passes into the Pacific ocean. This has justly been termed highway robbery."

#### THE N. P. R. R. ROUTE FIXED BY NATURE.

These principles and facts must control the western end of the road. Its course down the valley of the Columbia is by a natural law as fixed as the flow of the waters that cut this channel to the ocean.

It is the natural route for the transportation of freights. If not built there at first, competition will ultimately compel it to this line, as the great transcontinental route for the Pacific and Asiatic traffic.

### THE CLIMATE FAVORS IT.

This temperate climate conserves the goods in transit. While torrid heats destroy 5 per cent. of the value of teas in transit through them, this route through a belt of such cool and even temperature keeps all such goods in perfection. This is also true of fruits, meats, fish, grain, flour and doubtless of many other articles of merchandise. It is destined to be the most regular rapid route for freight and passage across the continent, as it has the easiest and lowest grades and the fewest dangers of interruption from snows and storms.

### THE LAW OF COMMERCE DICTATES THIS ROUTE.

The demands of its commerce, like that of all railroads, will direct its route through the most prolific part of the basin of the Columbia. The countries that have the largest annual harvests, or power of harvests, will naturally traversed on its way to the sea. Judging from the contour of this upper basin of the Columbia, coming on its surveyed route by Pend d'Oreille Lake to near the mouth of the Lewis or Snake river it will cross that narrow stream; then skirt the foot hills around to the Dalles; then through the Cascade mountains to the Willamette; thence down the Columbia, making one crossing opposite Kalama below the winter ice on the Columbia, and thence completing its connection with its terminus on Puget Sound. The charter expressly requires the line to be north of the 45 degree of latitude, to some point on Puget Sound, "via the valley of the Columbia river," with a branch across the Cascade mountains to Puget Sound. On this route it will easily drain the products of the richest agricultural counties of Eastern Oregon and Washington, viz: Stevens, Whitman, Columbia, Walla Walla, Umatilla and Wasco, and will secure its share of the vast and increasing trade of the Willamette valley. It will largely assure the O. & C. and the O. C. R. R. traffic and thus our welfare. It will, indeed, lose half of the land grant for the distance passed in a state, but its gain in freights, and in the route will, no doubt, compensate for this loss. But whatever may be the opinions or wishes of the different sections interested in the route, we can hardly doubt that the two elements that must and will decide the question, will be the best grades, and the best and most steady supply of freights. These two laws hold with a force that controis such enterprises.

### WHEN AND HOW CAN THE ROAD BE BUILT?

The whole northwest is more interested in the fact of the completed road than in its route. Hope on this point was blighted when Mr. Jay Cooke & Co. failed. Its construction has to some minds seemed less and more probable during all the four years of the panic.

### OBJECTIONS.

Thoughtful men question the possibility of securing funds to build it. Some have distrusted its board of directors, and charged its officials with wasting the funds of confiding bondholders. Some complain that its land grant is too large, and that it ought to be restored to the people.

### ANSWER TO OBJECTIONS.

It is very probable in the flush times of 1871-2, when there was every prospect of selling bonds enough to complete the road, that the expenditures for depots and rolling stock were in excess of the

present need, yet they were probably in anticipation of its immediate future. When its bankruptcy occurred, the only legal course was to turn over its assets to its real creditors, who were its bondholders and not its stockholders. But when this was first proposed, it was objected to by men in high position, even as lawyers, that its corporate life could not be transferred to its creditors, but that its 550 miles of completed road, and its lands earned by their construction must be divided among its creditors, and that the enterprise must be given up as a failure. Already the sheriff was waiting in New York—that in hand—to levy on the property and force the sale.

But an inspection of their franchise and their rights under their charter led the prudent and hopeful members of the Board of Directors to resist doing this great wrong to their creditors. One plan was to exchange bonds for lands at fair rates, which would satisfy the claims of those who chose this method. This was done, to some extent, without the wastage of legal seizure and forced transfer. But the comprehensive plan was to transfer the whole property, the completed roads, the land subsidy already earned, the corporate life of the company, with its inchoate franchises, to the creditors. They were authorized to do this by virtue of Article VI. of their charter, which (as amended by act of Congress approved May 31, 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. This last clause was construed to mean its corporate life.

Under this ruling by the court, the transfer of all its property and franchise was made by a legal sale to a third party, and by him to the bondholders, who became the preferred stockholders of the road, with all the rights and powers of the original stockholders to hold the property and complete the enterprise.

#### CAUSE OF DELAY IN ITS CONSTRUCTION.

More than a year of diligent effort on the part of the Directors was spent in saving the N. P. R. R. from overthrow and absolute annihilation, and in securing the creditors all the assets. This was to all appearance a transaction most creditable to the head and the heart of the directors. The creditors had all their own property for their bonds, if they should choose to accept it. About \$24,000,000 of bonds were given up for preferred stock. Some millions were exchanged for lands. Some bonds are still held back, yet provision is still made for their transfer for stock or lands.

#### VALUE OF THE TWO SECTIONS ALREADY BUILT.

The 550 miles of road paid all current expenses and earned \$300,000 more, as per report of 1876. Of this surplus the 105 miles of the Pacific division earned \$60,000 over its expenses.

#### NEW SECTIONS BUILT IN 1877.

During the last twelve months the Directors have built 63 miles of road, connecting its eastern division at Brainard with the railroads at St. Paul, Minnesota; and 31 miles connecting its western terminus with the vast coal fields of the Puyallup valley.

#### ITS OWNERSHIP.

The whole line is owned by its present stockholders. It is free from debt, and is paying no interest—unless it be on the sections built this year—while its earnings are increasing annually.

#### WHAT THE ROAD ASKS OF CONGRESS.

As the time of its franchise expires soon by limitation, it earnestly asks an extension of time to complete the through line.

#### THE ROAD NOT RESPONSIBLE FOR THE DELAY.

The railroad was not responsible for the failure of Messrs. J. Cook & Co, its financial agents. It has not been responsible for the panic and the business failures that have swept over the United States and Europe like a hurricane during the last four years. It is not responsible for the unsettled condition of politics or of the currency. It has done nothing to complicate the labor question, or lay unjust burdens on poor working men. It has earnestly desired the opportunity to go forward and employ thousands of the unemployed in completing its line from the Missouri to the Columbia and the Pacific.

#### IF GRANTED, THE GOVERNMENT AND PEOPLE WILL BE GAINERS.

It asks no additional subsidy. It is content with the lands granted, most of which have yet no value, but to which its construction will give value. It expects to give the same value to an equal amount of contiguous government land; which has now no appreciable value in any market of the world.

#### IT IS AN INVESTMENT TO CREATE VALUES WHERE NONE EXIST NOW.

The road expects to earn its subsidy as it goes along, mile by mile and section by section. This is true of every railroad through an unsettled country. It thus does not claim or ask the subsidy as a gift, but only as an opportunity to confer an equal and even greater value upon the government, for the trust thus long put in its keeping.

#### THE ROAD HAS BEEN A SUFFERER.

It shared its measure of loss and suffering and delay on account of the great failure, and the greater financial disasters that ensued, and the general disturbance of public affairs. All those things were unforeseen and beyond its control. They have caused the road an unavoidable loss of money and of time. The money can be earned again by the completed road for its creditors, if Congress will merely grant an extension of time to do it. This privilege will not cost the government a dollar. As a business principle it is not withheld but promptly given by man to man in all the circles of commercial enterprise. To refuse it is like the old law of putting a poor debtor in jail in order to compel him to pay his debts. It is a demand for the *“the money or the pound of flesh.”* When understood, men will not do this unkindness. We must hope and believe that Congress, urged by the voice of the people, will grant the North Pacific Railroad an extension of time to complete its road under its charter.

#### ITS PLAN OF COMPLETION.

A plan has been proposed and earnestly advocated by several of its Directors to hasten this completion by commencing next year on the Missouri, working westward, and on the Columbia near the

mouth of the Snake river, working eastward as rapidly as possible until the two sections meet in Montana. In order to do this it is proposed that the company sell their lands at the government land offices, get the minimum price of \$2 50 per acre, give titles to purchasers, use the proceeds, with the prospective earnings of the roads, to build the line east and west, and also to give credit and a good sale to new bonds which may be issued to perfect the scheme. The object of the Directors is ostensibly to build the road and not to speculate in the lands. For this object the subsidy is entrusted to them. They want settlements and steady business along the whole line.

This plan to put their lands in the common market with the even sections held by the government, will, no doubt, satisfy all the demands of settlers and win a just commendation from all the people. It is to be hoped that it will meet the approbation of the entire Board, and be placed on their records and in the provisions of the bill for extension of time.

#### BRANCH ROAD TO PUGET SOUND.

Some objection has been made to their retention of the subsidy for the branch road from the Snake river through the Yakima valley to Puget Sound. It is evident that such a branch is needed. The surveys show easy grades. The main valley and its affluents are rich in resources, and if allowed time there is little doubt but that the N. P. R. R. will ultimately build this road. But if not, let some other company do it.

#### INTERCOMMUNICATION ESSENTIAL.

Rev. Dr. Field, a recent observer in Greece, where he is still, remarks that the interior of that country is less advanced than the capital. The great want is that of *internal communication*. "Greece is a country made by nature for commerce and agriculture, and if a few short railroads were opened to connect the inland valleys with the sea, so that the farmers and peasants could send their produce to market, the exports of the country might be doubled. A line of one hundred miles would connect them with the railroad system of Europe. Such a road would give them new life."

Dr. Field here reveals the secret also of their historic provincialism. It is intercommunication which makes a people one in interest and thought. The lack of the former defeats the latter. By quick and free intercommunication we become one people. Without it we are only a company of provinces, feebly bound together, apt to be jealous, and without enterprise. Every argument urges the completion of this direct means of intercourse and this bond of connection with the great body of our nation.

#### VIEWS OF THE DIRECTORS.

In a conversation with Capt. J. C. Ainsworth, one of the Directors of the N. P. R. R., he says distinctly that it is the judgment and the purpose of some of the Directors of the Northern Pacific Railroad, with whom he fully agrees in the plan to urge the sale of their lands in the government land offices, at the minimum price fixed of \$2 50 per acre, and to use the proceeds with other funds at once to connect the Columbia and Missouri rivers by railroad, and thence to extend the road westward, on the south side of the Columbia to Portland on the Willamette, and thence to Puget Sound.

THE COLUMBIA RIVER AND ITS TRIBUTARIES—COMMERCIAL STATUS AND IMPORTANCE.

It is a maxim of commerce, both terrene and marine, that the *wagon must meet the ship and the ship the wagon*. Facts illustrate this axiom from earliest times to the present in all countries, whether goods have been moved to the sea by the long caravan of camels, as in Asia, or by the slow wains of central and northern Europe and America, reaching first the rivers and shallower bays, thence on light boats and barges to the ship; or whether, as in recent times, the vast and varied products of the country reach the sea by the swifter railroad trains. The exchange of the products of the sea must go inland by these return trains. This is commerce. *This is the problem of transportation*. This is the key to the busy hum of seaport cities. It is the factor which, more than any other, excites stocks. It is now the motive of railroad and steamship lines, as it was a few years since of canals and river steamboat companies. It is the chief question that enters into the merchant's estimate of his profits, and into the farmer's account of his income.

THE IMPORTANCE OF THIS HIGHWAY.

For example, when wheat sells in San Francisco at \$2 35 per cental, and only at \$2 10 per cental in Portland or Astoria, the difference is 15 cents per bushel against the farmer of Oregon or Washington. His loss is 15 per cent. as rated by the bushel, or 25 per cent. per 100 lbs. On 100 bushels he loses \$15; on 1,000, \$150; on 10,000, \$1,500; on 100,000, \$15,000; on 1,000,000 bushels the community of farmers lose \$150,000, and on 5,000,000 bushels, the estimated export of wheat the present year, their loss is \$750,000. The commission merchants of the State lose a large per cent. of profit in the transfer of the business to the market below. Yet the fact is established that ships can come from any port of Asia or Europe to the entrance of the Columbia river as easily, and as quickly and as cheaply as to the entrance of the Golden Gate.

OFF SHORE SOUNDINGS.

The late off shore soundings by the U. S. Coast Survey steam cutter *Hassler*, Capt. Geo. W. Collin commanding, which occupied two months, July and August, 1877, gives the following facts, which are kindly furnished from the official records:

1st—*extent of survey*—From Cape Disappointment northward to Yoke Point lighthouse, 26½ miles of coast line and about 13 miles out to sea.

From Cape Disappointment southward to False Tillamook Head, 31½ miles of coast line and 15 miles out to sea.

Total square miles surveyed, 812.

Lines of soundings were 1½ miles apart by ship. Lines of soundings were traversed in to 9 feet by boats.

SOUTHERN SHEET.

2d—*Ratio of increase of depth to distance off shore.*

Off north channel, due west line, it is five fathoms to the mile.

Off Point Adams, due west line, it is 5 fathoms to the mile.

Off Ben Holladay's, due west line, it is 4 fathoms to the mile.

Off Tillamook Head, due west line, it is 5¼ fathoms to the mile.

Off False Tillamook Head, due west line, it is 5¼ fathoms to the mile.

## NORTHERN SHEET.

Off Stout's house, due west line, it is 4 fathoms per mile.

Off point midway between Cape Disappointment lighthouse and Leadbetter's point, is  $3\frac{1}{2}$  fathoms per mile.

Off Leadbetter's point, due west line it is  $3\frac{1}{2}$  fathoms per mile.

Off Yoke Point lighthouse, Shoalwater bay, it is  $3\frac{1}{4}$  fathoms per mille.

3d—Increase of depth to seaward in a direction off the south channel (main ship channel), it is  $4\frac{1}{2}$  fathoms to one mile.

4th—*Increase of depth to southward.*

At 2 miles to seaward from Point Adams, west, is found  $5\frac{1}{2}$  fathoms.

At 2 miles to seaward from Grimes's house, west, is found 11 fathoms.

At 2 miles to seaward from Tillamook Head, west, is found 30 fathoms.

At 2 miles to seaward from midway between Tillamook and False Tillamook Head, west, 20 fathoms.

At 2 miles to seaward from False Tillamook Head, west, is found 32 fathoms.

## CURRENTS.

5th—*Outside* of 4 or 6 miles are coast currents parallel to the shore line, to the southward in summer and northward in winter, whose velocities are very dependent on local winds, which, when strong, often reverse the current.

*Inside* of 5 or 6 miles, the currents seem to be governed by the outflow and inflow of the Columbia river (south of Cape Disappointment). North of Cape Disappointment Shoalwater bay affects the current in shore more than the Columbia river, Shoalwater bay being of large area and almost dry and bare at low water. The inflow causes a strong set close in shore to the northward almost always; the outflow apparently not running down in shore, but joining the coast current further outside. This is apparently due to the conformation of the land about the entrance to Shoalwater bay.

## DISCOLORED WATER.

6th—The distance outside of the bar at which discolored water may be seen varies with circumstances. Good signs to the navigator are the strong tide rips met with off the bar, and to the northward and southward of it—sometimes as far as 10 and 15 miles, but rarely more than five or six miles to seaward of the bar.

## PRECAUTION.

7th—Vessels in doubt as to position would do well to keep outside of 25 fathoms in bad weather, fog, etc. The boats of the survey developed deep water between Tillamook rock and the Head, and probably large vessels may pass through in case of necessity or to avoid other dangers, though the passage *is not recommended.*

## INFERENCE.

The Columbia river has probably cut a channel through this vast bed. These official statements assure the navigator approaching the bar of his mode of safety, and furnish him many hints to find his position by the lead and by the currents, even if the land marks are hidden. If they are seen, his course is plain.

## CHANNEL.

The south channel averages a half mile in width, and 20½ feet at mean low water, and five fathoms in high water; with smooth, hard sand bottom, free from rocks, well buoyed and mainly direct, with few alterations of the ship's course into the river channel.

The shifting sands which form Clatsop Spit and Point Adams on the south side of the channel, and Sand Island and its spits extending westward on the north side of the channel, are broken and moved by tides and currents, which sweep through the channel, keeping it open in full measure of depth and width.

If the north channel grows shallower, which the last survey indicates, the south channel will doubtless deepen to the same extent.

## DRAFT OF VESSELS.

Vessels drawing 22 and 23 feet loaded have passed and repassed the bar at high tide. Present surveys show that vessels drawing 21 feet of water can always, on half tide, come to Astoria with a pilot, but better with a pilot and tug. Vessels drawing 17 feet can always, pass and repass the channel to Portland with a pilot.

## TIDES.

Tides rise from 6 to 10 feet on the bar, and from 6 to 10 feet at Astoria, and from 1 to 2 feet at Portland, 120 miles inland.

## RIVER AND HARBOR IMPROVEMENTS.

The United States, in accordance with its liberal policy, has kept efficient superintendents of survey and of lighthouses and buoys, and furnished these materials and erected these structures for the benefit of commerce for several years past. Of late dredgers have been added, and fresh parties have been kept at work on coast and river. Charts have been made with more minute and accurate measurements. The river and adjacent ocean bed are becoming perfectly plotted, so that when these maps and charts shall all be issued to mariners from the government office, the safety of navigation, with ordinary care, will be assured more definitely.

It is also reasonable to expect larger government outlays and increased efficiency, to observe changes, to plant more buoys and shore signals, and to employ dredgers of more power and capacity, thus turning the vast body of river water into the deeper and thus deepening channel. We have no reason to think that the Columbia river will ever have less capacity of commerce, as furnished by nature, but more, as guided by skillful engineers, authorized and supported by the government.

## DISASTERS ON THE BAR.

The facts of navigation above considered affect commercial insurance, but absolute wreck at the entrance of harbors is a greater terror to underwriters than the perils of the high seas. Report of such disaster renders the insurer timid and stamps a bad fame upon the entrance to harbor or river mouth. The evil reputation increases as it becomes current. An article published in the *Atta California*, March 19, 1873, from the pen of Capt. Wm. Tichenor, of Port Orford, and written in February, 1872, remarks: "On the northwest coast of the United States, between the Bay of San Francisco and Puget Sound, a distance measured by more than ten degrees of latitude, there is no harbor a vessel can enter in heavy southern weather."

He adds: "The Columbia river, latitude 46° 12', longitude 124° 00', has a barred harbor. Many disasters, and some of a fearful character, have occurred upon the bar. Among others I now recollect the loss of the *General Warren*, Captain Thompson, with 52 persons; the *Demarest*, of New York, Capt. Collins, with 9; the *Virginia*, Capt. Bird, with 10; and the *Industry*, with most of the officers and crew. Commodore Hudson, of the sloop of war *Vincennes*, told me, I think in 1852, that he had visited most of the ports on the globe, and that none presented such terrors to him as the entrance of the Columbia river. He lost the sloop of war *Peacock* there in, I believe, 1816. [July 18, 1811, is the correct date.] Capt. Hudson had no pilot. The *Shark* was lost at the same time.

"The dread in which it was held by mariners in earlier years has, in a great measure disappeared, under the influence of a better acquaintance with it, and by the aid of the thorough and efficient pilots engaged upon it. But it is not one of those dangers the familiarity with which will ever breed contempt. There is not much detention in getting to sea in the summer months, but during the heavy gales of winter vessels dare not approach the bar, and are compelled to lie off and on sometimes for weeks, waiting for the sea to run down." "From 1812 to 1851 the Hudson Bay Company had navigated the Columbia. Some of their pilots had, in 1851, been in their employ on the bar and river for over thirty years."

The editor of the *Alta* remarks: "It is to be regretted that it is impossible to improve the entrance of the Columbia river, which, inside the bar, has a large, deep and secure bay, and has a thousand miles of channel suitable for navigation by large river steamers. We say that improvement is an impossibility—at least it is improbable. The breakers are so fierce, and the sands at the bottom of the entrance so treacherous, that no breakwater could stand." To complete this gloomy picture the *Alta* published a list of disasters north of San Francisco, from the pen of T. B. Shannon, Collector at San Francisco, under the direction of the United States Treasury Department, from January 1, 1861, to December 31, 1869—nine years. Yet in this list of 198 disasters, 110 were small coasting schooners, plying along shore, and only three occurred on the Columbia river bar, viz:

	Loss.
In May, 1861, brig <i>Woodpecker</i> stranded.....	\$ 30,000
In March, 1865, bark <i>Industry</i> wrecked.....	75,000
In May, 1867, bark <i>W. B. Scranton</i> wrecked.....	225,000
Total amount.....	\$330,000

This is a relative loss of only one and a half per cent. in nine years, or of one-sixth of one per cent. for one year.

But the impression made by such statements, massed together, is to damage the reputation of the Columbia river bar.

Hon. D. C. Ireland, Clerk of the Board of Pilot Commissioners, attests that only nine vessels have been wrecked at or near the Columbia river bar in the last twenty-five years. Five of those were coming in without a pilot, and the loss of the others was due to the loss of wind and the lack of a tug. Since the tugs have been put on there has been no loss, except the *Architect*, coming in without a pilot. These nine disasters, in about 12,500

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crossings of the bar, during twenty-five years, is about 7-100 of one per cent.

Hon. Wm. Reid, Secretary of the Board of Trade of Portland, has compiled among others the following

#### TESTIMONY OF MARINERS.

Capt. Maginn, when President of the New York Board of Pilots, was instructed to report his opinion as to the merits of the entrance to the Columbia river compared with the entrance to New York. He says:

There is deep water on the bar, it having four and one-half fathoms without the addition of the tide, while New York harbor has on the bar but four fathoms, without the addition of the tide, which is six feet. The bar in the Columbia is about half a mile across, while that of New York is three-quarters of a mile.

The channel of the bar at the mouth of the Columbia is about 6,000 feet, and shoals gradually, while the channel of the bar at Sandy Hook is about 600 feet, and shoals rapidly; the channel across the bar is straight at the Columbia; that at New York is crooked. In accessibility to the sea the Columbia river is the best, as it is immediately at sea, and ships can get out of the sea into the harbor at once, and also get out at once into the high sea. The winds at the mouth of the Columbia are marked regular and steady, while the winds at New York are entirely variable, and cannot be calculated upon by the mariner for any time. The mouth of the Columbia is free from ice and great heat.

The San Francisco *Commercial Herald* of May 21st, 1874, says:

"The bar at the mouth of the Columbia river, Oregon, has been made the ground of a very unjust and unreasonable discrimination of rates of insurance on vessels bound into the river. The number of casualties that have occurred there is fewer than that of any other barred river known to commerce."

#### OPINIONS OF GOVERNMENT OFFICIALS AND MASTERS OF VESSELS.

The Commissioner of the General Land Office at Washington, in his annual report to Congress for 1870, at page 156, "By the use of a steam tug in crossing the Columbia bar, the entrance to the harbor is rendered as safe as that of the Golden Gate or the Straits of Fuca."

Capt. G. W. Harris, of the U. S. Revenue Service (who has crossed the bar some thirty times), says: "The crossing of the bar at the mouth of the Columbia river, with the ordinary precautions, is as safe as the entrance to any bay or harbor in the United States."

Capt. Hughes, master of the British ship *Montgomery Castle*, 1,300 tons burden, says: "There is no more risk in entering and leaving the Columbia river, than there is in coming into or leaving any port or harbor I have ever visited."

Capt. D. Evans, of the British ship *Lu Escocosa* (who is well known), writing on the 13th of April, 1875, says: "I consider a vessel is as safe, with the use of a steam tug and pilot, in entering the Columbia river and going over the bar as going into any harbor in ordinary weather."

Capt. George White, writing on the 8th of May, 1875, says: "It is absurd to say that the Columbia river bar is a very dangerous entrance."

Capt. Francis Connor, now commanding the steamship *G. W. Elder*, has crossed the Columbia bar more than *one thousand times* during the last fourteen years, without a serious accident.

PRESENT EXTENT OF THE COLUMBIA RIVER COMMERCE, AS SHOWN BY THE FLEET OF TWO YEARS.

The report of the Board of Pilot Commissioners to the Legislative Assembly, at the ninth regular session—1876, gives:

	Vessels.	Tonnage.
Total arrivals and tonnage 1874-75.....	233	161,539
“ “ “ 1875-76.....	241	192,750
Aggregate arrivals and tonnage for two years were...	474	354,289
	Tons.	Value.
Total exports for 1874-75 were.....	148,131	\$ 4,392,272 26
“ “ “ 1875-76 were.....	162,830	7,453,318 01
Aggregate for two full years.....	310,961	\$11,815,590 27

PROPORTION ARRIVING IN BALLAST.

The number of vessels arriving in ballast in 1874-75 was 71, and in 1875-76 it was 75—a total of 146, or about 33 per cent.

THE AVERAGE DRAFT OF VESSELS.

The draft of incoming vessels varied from a small coasting schooner of 4 feet to an ocean steamer of 17 feet. The average draft of 474 vessels arriving was 12 feet. The draft of the entire fleet of vessels departing from the Columbia varied from 6 to 23 feet. The average draft of 474 vessels on departure was 14½ feet. The average draft of the whole grain fleet to Europe on departure was 18 feet. The average draft of 60 of that fleet loaded was 19½ feet. This draft of loaded vessels is declared by the largest European shippers to indicate the tonnage of the most profitable ships for general commerce at the present time. For example, the British grain fleet going to the Black sea is composed of this class of vessels, registering from 900 to 1,100 long tons, and drawing from 14 to 19 feet. It is found that the larger classes of ships built 25 years ago, and carrying immense cargoes, have long delays in loading, with larger risks of navigation and more difficulties to find markets.

These facts of practical experience both test and settle the question of the *permanent commerce of the Columbia river*. It has been supposed that the larger and deeper draft vessels were essential to the most profitable commerce, especially for long voyages like those to Europe. It has been often said that when a larger population and more capital came to our Northwest, and productions became quadrupled for export, the Columbia river commerce must seek San Francisco on small vessels and be transferred to larger ones to be borne to its European markets, or else be transported by railroad to Puget Sound for the same purpose.

San Francisco shippers and merchants nourish this sentiment, and make a strong pressure to *control* the large and rapidly increasing exports of the Columbia river. *The most absurd part of this scheme* is that the same classes of vessels will transport this produce from the Golden Gate or De Fuca Straits to Europe that now transport it from the Columbia river to Europe. This double shipment—now

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partly in process—of produce from our ports to San Francisco, and thence to Europe and Asia, is a loss in freight which falls chiefly upon our farmers, of \$500,000 to \$750,000 annually now. It is also a large loss to our business community, and thus to the enterprises which invite and encourage immigration. If we continue to export our raw material for food, wool, hides, iron and lumber, instead of adding home labor to make finished products for the world's markets, as other communities do, we only get a profit on the mere work it requires to collect these raw materials for the use of laborers in other countries, while we thus exhaust virgin soil and nature's resources and rapidly diminish our own capital in building up this sort of commerce. This is bad enough, as starving fields and weed-covered prairies already show. But when we pay our neighbors below a bonus of a half to three-quarters of a million dollars annually for the privilege of letting our goods pass through their port under their *California brand*, thus discrediting our own productions in the world's markets, and dishonoring our region and our climate in the view of the intelligent—since we can send off the whole from our own ports cheaper and in better order—we show a degree of folly which will be sure soon to bring us shame and greater loss; for every act of folly in business as well as in morals, surely brings its reward in the same coin.

#### THE INTERESTS OF ALL CLASSES OF THE COMMUNITY ARE IDENTICAL AND NOT DIVERSE.

Some division of sentiment has existed and has been fostered, as if the city is a foe to the country, and that the country must watch and defend itself against mercantile frauds and overgrown monopolies. These prejudices confuse trade by diverting it from its natural channels. They also taint and pervert legislation. We try various methods of relief. At one time we work hard for railroads as the sure means of general prosperity. Next we try schemes of immigration. But the former do not come on call, and the latter find little certainty of profitable business for their welcome, and so many turn back in disappointment and disgust.

#### OUR PRESENT NEED.

Both the home born and the stranger want the solution of the commercial problem of the Columbia valley and its tributaries. Is it or is it not an inviting home? Can we and our children and many thousands and hundreds of thousands more of intelligent and industrious people abide here, or come and make good homes here? Is all we make and all we bring destined annually to be drained off to pay for imports, or shall a fair part of our income circulate like healthy blood through our own body politic? In other words, have we a sure future in our vast Columbia basin, enclosing, as it does, the most of Oregon, Washington and Idaho, and a part of Montana—an area, according to the census, drained by the Columbia river of 250,000 to 300,000 square miles, or four times the area of all the New England States, whose products will drift as naturally to the western seaboard as its waters flow to the Pacific! We know that the natural resources are as valuable and as various as its area is vast and adapted to multiplied industries and modes of living.

We know that its climate is health-giving and harvest-giving, having been attested by many of us for thirty years past without failure. We learn that immigrants, merchants, mechanics and farmers

from Great Britain and France, both the almost exact analogue of our northwestern coast in climate and productions, discover the home-like similarity and take enlarged views of its present and prospective development of resources and settlements.

British capital comes here freely and confidently. British fleets rapidly absorb our commerce, and we are glad to see them come.

British insurance companies already control the maritime part of this business, and much of that pertaining to fire risks.

Already they have reduced the price of marine insurance to our ports to the same rate as to the port of San Francisco, except the fraction of one-fourth of one per cent. extra charge on wheat shipment. Cargoes of flour and salmon are now insured at the same rates in British offices.

British wool-growers are moving from Australia and New Zealand to Eastern Oregon and Washington as the best country for this business.

British woollen, flax, iron and leather manufacturers are sure to follow and produce the goods here instead of wasting a rich margin of profit in the double transportation of the raw material home and the goods back.

Facts and reasoning evince the certainty that the homes of industry, thrift and intelligence must and will be established all through the basin of the Columbia and its tributary valleys.

#### INTERCHANGE OF PRODUCTS.

The union of all citizens in city and country to increase the means of cheap and easy intercommunication in order to set all the wheels of business in motion, and to give all hands work in village shop and on country farm, on land, on river and on bay, will do much to inspire heart and hopes.

Whatever State or National legislation is needed to improve rivers, build railroads or canals, or redeem waste lands, and increase the number and value of the homes of the people, by putting a value upon products that will induce production, ought, of course, to be secured by united votes and efforts, instead of being lost by partisan strife or selfish chicanery.

Much has been done already by men intrusted with legislative power. More can be done on land and river. If the cost of inviting commerce to our river be by a merely nominal price of pilotage and towage, at the cost of the State, it might be a saving of three-fourths of what we now waste on double freights and commissions.

If a few hundred thousands of dollars would clear out the shoals from the Columbia, Cowlitz, Chehalis, Willamette, Snake, Clearwater, Yakima, Spokane, Clark's Fork, and build needed portage or canals, the profit of one or two harvests would pay the costs, besides inviting thousands of settlers into these vast regions, and bringing those there now out of their exile into fellowship with all other sections.

In the wide regions that railroads must do the business of transportation, *united effort* without delay could soon give us these facilities on a scale equal to local wants and transcontinental needs, freeing us from tribute to distant and hostile corporations.

#### PROSPECTS OF THE INCREASE OF OUR COMMERCE.

The average annual gain in the report of breadstuffs from the Columbia to all ports, by seasons, from 1868 to 1877, is 38½ per

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It is reasonable to estimate the addition to the population of the Columbia basin this year at 25,000, a number equal to one-sixth of the present inhabitants. It is fair to count the gain to commerce one-sixth. At this rate the State Board of Pilot Commissioners may be able to report to the next Legislature in 1878 the arrival of 550 vessels, with a tonnage of 410,000 tons, and an export of 360,000 tons, valued at \$14,000,000, as the business of their two official years. The gain this year indicates more instead of less than those figures.

The gain in the upper Columbia business—as per O. S. N. Co., apparent exhibit of growth, is a large per cent. in two years. Their plans with others promise more rapid and wider means of river commerce. We venture no estimate of the amount, but the drift of 200,000 or more bushels of wheat to the western ocean per year, from the upper Columbia, will not surprise those who watch the progress of the plow and reaper there.

It is hardly needful to say, yet it is wrong to forget, that this problem of our commerce has factors, which enter into every home of the people; into every factory and store; into every social question; into every school and every church of our wide-reaching settlements. It touches us daily, alone or in the crowd, in the routine of business and on journeys. It inspires hope and shapes our plans. It is worthy of our thought, while its successes commands our gratitude.

Confidence in this railroad revives. It is known that the company turned its assets over to the bondholders at the least cost and delay, giving them the full benefit of their mortgage. The act shows a desire and purpose to complete the road. It stands now in the hands of the new or preferred stockholders—or former bondholders—free from debt, with 550 miles of road finished and furnished with rolling stock, machine shops, depots, and other means of work and progress. The Pacific division has paid all its running expenses, the salaries of its officers, and \$30,000 of old debts, without calling for help from the East.

The Eastern division has paid the running expenses and \$30,000 or more overplus. The company have also nearly the entire land subsidy for the whole distance completed. With such assets on which to effect new loans, there is hope to raise the funds and extend the road.

Besides these elements there are new factors in the problem. When the Union and Central Pacific was proposed, it was counted a wild scheme to build that long road over a trackless desert. The problem of fuel was not solved. It was not deemed solvable. The supply of water was supposed to depend upon artesian wells. The eminent State Geologist of California at that time, said: "I know the limited supply of wood and timber on the Sierra Nevadas, and the road must carry this more than a thousand miles for daily use. It is liable to wear out the track and the stock supplying its daily trains with power to run." His thought or fear was that the transcontinental road could not be a success. Many other intelligent and thoughtful men shared his fears. A graver factor in the problem was, how to get way business, which is known to be the most important element in the success of every railroad. As the road progressed every one of these difficulties were removed. The Rocky Mountain coal fields

along and under the very track of the road furnished the best of fuel for the present, and for the indefinite demands of the future. Streams and wells supply water abundantly. Wyoming, Utah and Nevada have unfolded marvelous mines of the precious metals, and untold riches of agricultural and pastoral lands. The united road pays larger dividends, probably, than any other lines of equal length in the world. Similar factors are already solving some elements of the problem of the North Pacific Railroad. Hardly had the Pacific division connected the waters of the Columbia with those of Puget Sound, when the remarkable coal fields of the Puyallup, 25 miles from Tacoma, were discovered. The coal has been tested by A. Campbell, Esq., of Seattle, and by several blacksmiths of Portland, and by others in Washington Territory, Oregon and California, and pronounced by them all equal to the Cumberland and Blossburg coals for all the uses of their shops. One of them pronounces it the best for welding steel of any he has ever tried in thirty years' experience.

President G. F. Whitworth, of the Washington Territory University, has examined the fields, and found the veins very numerous—scores of them—from one foot to three five, and even seventeen feet in thickness. They are cut through by several mountain streams, which permit a series of *self-draining* shafts to be run at different levels into every vein, all above the shutes, while these are above the natural railroad cut or bed which the streams have made. The Puyallup valley—a garden in itself—is level for twenty miles, leaving only from five to eight miles of steeper gradients into the mountains. Several engineers of the North Pacific corps have declared the route easy to make, and capable of an immense traffic. The outlet for coal into shutes on the bluff at Tacoma, permits its shipment without rehandling. Prof. Whitworth finds it a choice cooking coal, with a large per cent. of fixed carbon, hard, compact, and not easily broken by handling, or disintegrated by the weather. Four hundred and ninety pounds of this coal, as tested by the Portland Gas Works, produced 2,250 feet of superior gas, and 400 pounds of coke. The best test of Nanaimo coal gave 2,000 feet of gas from 500 pounds of coal.

Besides the fact that Tacoma bay is a safe and extensive harbor, inviting the largest vessels and fleets from all the ports of the Pacific and of the world, so that every product of the region can at once be put into the currents of commerce, these vast beds of choicest coal, which are in so great demand for steam and mechanical purposes, will at once assure business at this northwestern terminus of the road. Good and abundant coal is a factor which will ensure any railroad that terminates on tide water. These coal fields invite the completion of the Northern Pacific Railroad, at the earliest possible moment. It will save the immense transportation of Sydney and other foreign coals to our coast and growing interior. It will save the great cost of transporting the Pennsylvania and Maryland coals to this coast. It will develop the iron industry, in foundries and furnaces, preventing the costly importation and transportation of this product. It will employ artisans and laborers, and build up the homes of an industrious population, and by reaction stimulate the fisheries, the shipbuilding, the agricultural and pastoral pursuits.

Another factor in the problem of the Northern Pacific Railroad is the food supply of this northern region through which its survey is made. It is a known fact that the most productive and enduring

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wheat lands of our continent lie between the Cascades and the Rocky Mountains. They have the largest proportions of the potash and phosphates which nourish the cereals. It has been stated by a well-known geologist, that during the six distinctly noted volcanic overflows the ashes, which were carried largely by the prevailing winds eastward into the bays and lakes which formerly occupied the great Interior basin, mingled with other sediment to form the deep deposits which now constitute the soils of those valleys and high prairie lands. It is easy to infer that the excess of alkali in spots results from the drainage of this substance from the hills. But the wheat harvests of Walla Walla, Whitman, Umatilla and Baker counties prove the wonderful fertility of this region. Every year the crops seem to increase in value and amount. The hills and dry sage-brush plains have rewarded the cultivator. It is known that every acre touched by water becomes luxuriant with cereals and fruits. The drippings and overflows of that long miners' ditch constructed by the Chicago Company through Baker county, has produced many oases in the hitherto dry plains. It is known that an ocean of aerial moisture floats over these regions from the vast western ocean. It needs only a cooler to deposit the dews. Every field or blade of grass or grain acts as a cooler.

The fields of winter grain, started by early rains or melting snows, provide the vegetation, which in summer deposits enough of this aerial moisture to perfect their growth until the harvest.

The deep plowing loosens the soil so as to absorb the air loaded with moisture, which grows cool enough to leave its moisture about the roots of the plant. Thus the lands that have for ages abounded in the bunch grass, which is now wasting away before the increase of flocks and herds, can be restored by the plow, and the choice cereals, wheat, oats, barley and corn, with orchards about every farm house.

Thirty five, forty, and even sixty-five bushels per acre of wheat are said to be frequently harvested in the counties named. Their need is not food but transportation to market. Their cattle and sheep, and wheat and corn abound far beyond all the wants of their present population. It is claimed that two or three of those counties can produce as large a surplus for foreign markets as the whole Willamette valley. This factor enters into the problem of the N. P. R. R. It opens a vast business of transportation from the interior to the ocean, and from our forests and coal fields a large return to supply the treeless interior. Every year also gives steadiness and surety to the mining of gold and silver and other metals in the Blue Mountains, as well as to those of Montana. Unknown resources are as likely to appear along the N. P. R. R. line in its progress, as along the Union Pacific. The delay of construction has caused the intelligent to study the problem more intently, and to feel sure that home interests demand it more than ever. Worthless regions will have known values when it comes, and the finest visions promise to be realized by it.

**FULL TEXT OF THE HOUSE BILL AS REPORTED BY THE COMMITTEE ON PACIFIC RAILROADS.**

In the house of representatives, February 5, 1878; read twice, recommended and ordered to be printed.

II. R. 3066 Report No. 120 A bill to extend the time to construct and complete the Northern Pacific railroad.

Mr. William W. Rice, from the Committee on Pacific Railroads, reported the following bill :

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the grants, rights, privileges, corporate powers, and franchises, including the franchise to be a corporation conferred upon the Northern Pacific R.R. Company by its charter, and the various joint resolutions of congress amendatory thereof and supplementary thereto, be, and the same are hereby confirmed, granted, and continued to the said Northern Pacific Railroad Company as now reorganized; and ten years' time from the passage of this act is hereby granted to said company for the construction and completion of its main line, subject to all the terms and conditions prescribed by said charter and joint resolutions, except as changed by this act; *provided, however,* and said extension of time is granted upon the following express conditions, namely:

First—The said company shall, within one year after the passage of this act, commence the work of constructing its main line at or near Umatilla, in the state of Oregon, or some suitable point between there and the mouth of Snake river, as the said company shall determine, and shall complete not less than twenty-five miles of its road eastwardly per year thereafter, and shall complete, in addition to the road already completed, at least one hundred miles of its main line within two years after the passage of this act, and at least one hundred miles of said main line each year thereafter, including in each said one hundred miles the twenty-five to be completed per year eastwardly as aforesaid.

Second—The main line of said railroad between Portland and a point as far east as Umatilla, in the state of Oregon, shall be located and constructed on the south side of the Columbia river.

Third—Actual settlers on unsurveyed agricultural lands within the limits of the grant to said company, if said lands, when the government surveys shall be extended over them, shall be found to be embraced in said grant; and actual settlers on any agricultural lands within the limits of said grant, who shall have settled thereon at a distance of one hundred miles or more beyond the completed portion of said road at either end; and actual settlers on any agricultural lands within the limits of said grant remaining unsold at the expiration of eight years from the completion and acceptance of the section of the road opposite thereto, if said last mentioned lands shall be then surveyed by the government, and if not, then within eight years after the government surveys shall be extended over the same, shall be entitled each to purchase from said company one quarter section, or a legal subdivision thereof, on which they shall have settled, at the price of two dollars and fifty cents per acre, excepting coal and iron lands within the right of way for said railroad; *Provided, however,* That this section shall not apply to the funds already earned by said company.

Sec. 2. That all the lands heretofore withdrawn for the branch line of said road, be, and the same are hereby, restored to the public domain, to be disposed of as other public lands, except for the distance of twenty miles north of the portion of said branch now constructed from Tacoma to Wilkeson, in Washington Territory. And the said company shall receive patents for a quantity of land equal to twenty sections per mile on each side of said constructed portion of said branch, such land to be selected from the odd-numbered sections on each side of said constructed branch, but on the north side,

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not farther than twenty miles therefrom; but the said company may select and receive patents for lands to make up any deficiency in said quantity from any of the public lands within the limits of the grant for the main line.

Sec. 3. That where pre-emption or homestead claims were initiated, or private entries or locations were allowed, upon lands embraced in the grant to said company, prior to the receipt of the orders of withdrawal at the respective district land offices, the lands embraced in such entry or location shall be patented to the parties entitled to the same, as if said grant had not been made, and, in case of abandonment by them, shall be open to settlement by pre-emption or homestead only; but the said company shall be entitled to indemnity therefor, as now provided by law.

Sec. 4. That entries remaining unadjusted and suspended in the general land office, on account of an increase of price of the even sections within the limits of said grant, where the same were made or based upon settlement prior to the receipt of the orders of withdrawal of said lands at the district land offices, shall be relieved from such suspension and carried into patent; but nothing in this act shall be construed to affect existing adjustments, or to authorize the refunding of any moneys received for such lands under existing laws.

Sec. 5. That the said company be, and it is hereby, authorized to issue its bonds from time to time, to aid in the construction and equipment of its road, and to secure the same by mortgages on the whole or any part or parts of its railroad and property and rights of property of all kinds and descriptions, with the rights, privileges, and franchises thereto appertaining, including the franchise to be a corporation; and as proof and notice of their legal execution and effectual delivery, such mortgages shall be filed and recorded in the department of the interior.

Sec. 6. That in case any of the lands heretofore granted by congress to aid in the construction of said railroad shall become forfeited to the United States, and be restored to the public domain, by reason of the failure of said company to perform the conditions herein set forth, or any of them, the actual settlers on such of said granted lands as shall not then have been earned by said company, who shall have settled thereon under the provisions of this act, or by license from said company, shall each have the right to obtain title to such lands, not exceeding one quarter section, under the homestead or pre-emption laws, as if said grant had not been made.

Sec. 7. That when said company shall sell, or contract to sell, or shall convey, except by way of mortgage or deed of trust to aid in the construction of its railroad, any of said granted lands, the lands so sold, contracted or conveyed shall be subject to taxation, according to the laws of the state or territory within which the same may be situated.

Sec. 8. That this act shall not be construed to affect existing private rights, except as hereinbefore expressly provided; and congress may at any time, having due regard for the rights of said Northern Pacific Railroad Company, add to, alter, amend, or repeal this act, or the charter or resolutions hereinbefore referred to, and may provide by law against unjust discriminations and excessive charges whenever the same shall be made by said company.

Sec. 9. That the said Northern Pacific Railroad Company shall file with the secretary of the interior, within six months from the date hereof, its assent to, and acceptance of, the provisions of this act,

or be forever debarred from taking or receiving any benefit from or under the same.

#### REPORT ACCOMPANYING THE BILL.

The Northern Pacific Railroad Company was incorporated by act of congress; approved July 2, 1864.

By section 8 of that act it was required to complete its road by July 4, 1876.

Joint resolution of the senate and house of representatives, approved May 7, 1876, extended the time for the completion of the road two years.

Joint resolution, approved July 1, 1868, and entitled "joint resolution extending the time for the completion of the Northern Pacific railroad," amended section 8 of the original act by changing the time for the completion of the road to July 4, 1877.

The company claims that joint resolution of May 7, 1866, applies to section 8 of the act of July 2, 1864, as amended by joint resolution of July 1, 1868; and, consequently, that its time for completing the road does not expire until July 4, 1879.

Oh the other hand, it is claimed that joint resolution of July 1, 1868, although by its title *extending* the time for completing the road, in effect *diminishes* that time, and that it really expired at the date fixed by that resolution, to-wit, July 4, 1877.

The department of the interior is reported to have adopted the more liberal construction, and to have assumed that the company has the longer time for the completion of its road.

Equity and generous dealing seem to justify this conclusion, and in view of the impossibility of the completion of the road even within the *longer* time, we do not deem it necessary to express an opinion as to the technical effect of the foregoing resolutions. At all events, further time *must* be granted, or this great enterprise, as at present organized, must be abandoned.

Up to 1873, the company was not in default. It had constructed its main line to Bismarck, in the territory of Dakota, a distance of 450 miles, and on the Pacific coast from Kalama, on the Columbia river, northerly to Tacoma, on Puget Sound, a distance of 105 miles. The financial disasters of 1873 suspended its operations, frustrated its resources, and forced it into bankruptcy.

By joint resolution approved May 31, 1870, congress had authorized the company to issue its bonds, and to secure them by a mortgage of its property. Under this authority the company had issued bonds to the amount of \$29,119,400, and had secured the same by a first mortgage on all its property, including its franchises.

In 1875 this mortgage, the company being in default, was foreclosed, and all the property of the company passed into the hands of a committee appointed by the bondholders, and for their benefit.

In the summer of 1875, the bondholders, all concurring, either actively or tacitly, adopted a plan for reorganizing the company: preferred stock was issued in exchange for the bonds, and in September of that year a board of directors was chosen, which was put in possession of the property of the old company covered by the mortgage.

The stockholders in the company thus reorganized are between eight and nine thousand in number, and are scattered through more than half the states of the union. Their money made the property they now seek to save and enhance. They ask no subsidy, no addi-

tionnal grant or privilege, only an extension of time in which to complete the enterprise in which their money is invested, and which has been delayed and hindered by causes over which they had no control, and which occurred by no fault or omission of theirs.

The question for the consideration of the committee is, whether the public interests require the completion of this road, on the route and terms provided in the act of 1864, in the same or in a greater degree than at the time of its passage; and if so, whether additional time should be granted to the company now engaged in the enterprise for its completion.

The arguments, *pro* and *con*, on the subject of national encouragement to transeontinental railroads are too familiar to require recapitulation. This discussion was ably and stoutly maintained on either side by statesmen whose intellectual strength and comprehension of the subject have left little or nothing to be added. The result was in favor of promoting, by public aid, the construction of northern, central and southern roads from the Mississippi valley to the Pacific ocean.

In pursuance of this policy, thirteen years ago 47,000,000 acres of the public lands were granted for the construction of the northern road. Its route lies through a fertile country, rich in all the physical characteristics necessary for the support of a vast and prosperous population. Its grades are easier than on most of the roads in the eastern states, and where the line diverges from a straight course, to avoid impassable mountain ranges, it opens to settlement the fertile valleys of the rivers whose banks it follows.

Settlers have proceeded in the faith of its construction, and prosperous territories all along its route are only waiting for the additional population which its completion would speedily bring to claim their places among the states.

The committee are of opinion that a due regard to the interests of these territories, and of the hardy pioneers who have settled them, demands liberal action on the part of congress to complete this road, to which, in a measure, the public faith was pledged; that the lands originally granted are held, as it were, in trust for the benefit of those settlers; and that, even if, *strictissimi juris*, advantage might be taken of the failure to meet the requirements of the charter in point of time, still, good policy, if not good faith requires the waiver of that advantage and a reasonable extension of time to secure the accomplishment of this great national work.

It further appears that the present company is composed of those who have contributed whatever money has thus far gone into the work, and that nobody else proposes to undertake it.

It is operating at the present time nearly six hundred miles of road, in good condition and under excellent management.

In 1874 its net earnings were.....	\$ 22,876 49
In 1875 its net earnings were.....	152,140 00
In 1876 its net earnings were.....	202,062 31
In 1877 its net earnings were.....	392,698 47

Its property has actually cost about \$20,000,000 in money. It is free from debt, and its directors are confident that they can complete the road upon the credit of this property and the land grant, if sufficient time is allowed them. The distance from Bismarek to the Columbia river is 1,205 miles, and the construction of the road for that distance gives a continuous route by rail and water from the lakes to the Pacific ocean.

The committee are of opinion that, under the circumstances, the company is entitled to the favorable consideration of congress, and that there is a reasonable assurance that it will be able to finish the work during the next ten years.

By the original charter of the Northern Pacific company it was authorized to construct its road by two routes through Washington territory, the upper being designated as the main line, and the lower as the branch line.

By subsequent acts these designations have been reversed, so that its main line now trends southerly from Lake Pen d'Oreille to the Columbia river and thence through the valley of that river to Portland, in Oregon.

It is the desire of Oregon that the last division of the road should be constructed on the southerly side of the Columbia river, and the committee have so provided in the bill.

The company has changed the location of the branch line to one more southerly, and it is doubtful whether even the new location is practicable, owing to the difficulty of crossing the Cascade mountains, which divide the territory, running northerly and southerly across almost its entire width. The representatives of Washington territory oppose the continuation of the grant for the construction of this branch as keeping the lands tied up against settlement, and the committee, in deference to their wishes, report in favor of the restoration of the land withdrawn on that branch to the public domain, excepting about 793,000 acres earned by the construction of a road extending thirty-one miles easterly from Tacoma.

By this change of location, more than 6,000,000 of acres of land in Washington territory, covered by the original locations, will be restored to the public domain.

A proposition was considered by the committee to declare forfeited by the Northern Pacific company all lands in Washington territory withdrawn for its branch line, and to grant an equal amount to the Portland, Salt Lake and South Pass company, a corporation of the state of Oregon, organized to construct a railroad from Portland, through the Columbia valley, to Umatilla, and thence by a southerly route through Eastern Oregon, some 450 miles to the Union Pacific and Central Pacific at Ogden.

This seems to your committee to be a scheme to obtain from Congress an endowment for a new, independent road, and one which, if constructed, would be a rival road to that of the Northern Pacific. These reasons, without passing upon its merits, seem sufficient to the committee to prevent its incorporation in a bill to promote and encourage the completion of the Northern Pacific road, and they leave the lands restored to the public domain by the discontinuance of the branch unincumbered by any new appropriation.

While reporting in favor of extending the time within which the company may finish their road, the committee are greatly impressed by the necessity of withdrawing, as far as possible, all obstacles to the settlement of the lands covered by the grants to this company.

The marketable value of the lands will, of course, be enhanced as the work of construction progresses, and the company should be allowed some control of that enhancement, and some advantage therefrom.

At the same time, the public advantage to be derived from the early settlement of these lands should not be sacrificed.

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The committee have, therefore, enlarged the rights and opportu-  
nities of actual settlers, while reserving to the company the con-  
trol over the land already earned on the line of the finished road,  
and over the surveyed lands within the limits of one hundred miles  
from the progress of its construction.

All of which is respectfully submitted.

#### VIEWS OF THE MINORITY

To accompany the report of the Committee on the Pacific Railroad,  
on the bill extending the time to construct and complete the North-  
ern Pacific Railroad:

The undersigned disagree to the report of the committee, and op-  
pose the passage of a bill for a renewal of the grant of lands made by it,  
which is in substance and principle a *new grant*, to which we are  
opposed. Such grants are not now warranted by the public interest,  
and are condemned by the public judgment.

WM. R. MORRISON,  
J. K. LUTRELL,  
G. M. LANDERS.

Two telegrams and their resolutions from one of the Directors, and  
the word of another, who was at their meeting April 25th, declare  
that they cannot build the road under the provisions of the bill,  
which passed the senate April 23d. It has been hoped that the House  
would amend this bill, and that the Senate would concur, and thus  
assure the road.

But this hope is fallacious. This bill cannot be reached in the  
House, and the proper House bill, if reached, is likely to be compli-  
cated and defeated by this Senate bill. But the point of chief trouble  
is that for four months the original Senate bill was held in the hands  
of their railroad committee in order to enforce restrictions which the  
company could not accept. Mr. Mitchell said in the discussion of  
this bill in the Senate, April 22d: "And because I have during the  
past four months contended with all the zeal and energy I could com-  
mand for terms that would induce, or, if you please, compel, the  
Northern Pacific Railroad Company to concede in this proposed leg-  
islation conditions which, as one of the representatives of the State of  
Oregon and the great Pacific northwest, I regarded as but just to  
that section of our common country, and which conditions I did not  
then and do not now regard as materially embarrassing to that com-  
pany, etc." Mr. M. assumes with obvious propriety to represent in  
this question "the State of Oregon," "the great Pacific Northwest,"  
and "that section of our common country." He was thus holden  
by his peers in the Senate to the argument upon that high and com-  
prehensive trust. His just and eloquent exordium upon this "great  
life artery of the continent," was calculated to inspire further confi-  
dence in his zeal and his purpose to secure the early completion of  
the road.

The progress of the discussion shows that Senators were ready to  
aid the enterprise.

#### RESTRICTIONS.

What conditions did he as chairman of the railroad committee try  
to enforce upon the Northern Pacific Railroad Company during four  
long months? On page 5 of his speeches, April 22d and 23, he says:

First—"Such provisions as would compel at an early day the

building of so much of their road as would be necessary to open up the monopoly-bound Columbia river to free navigation."

Mr. M. professes friendship for the N. P. R., as a national trancontinental road, shorter and of better grades than others; road needed for interior commerce, needed to check the spirit of monopoly of the Union and Central Pacific companies; needed by the struggling people of the Pacific States and Territories; needed for the commerce between Asia and Polynesia; needed for the growth of the great Northwest, etc. He sees and declares the necessity of this national road as others see it. He is not in the fog of any point. He claims to represent its broad interests. He knows the original purpose of the government in the survey of this route and its plan in the large grant of land to induce capital to build the road. He knows that \$30,000,000 have been invested in it by ten thousand honest, confiding men and women, from twenty States, on their faith in this government subsidy. He knows that a general bankruptcy for which they were not responsible, has compelled those creditors to take the property of the unfinished road and become its stock holders. He knows they are compelled to ask more time to complete the road, and that this is all they ask. He knows that they must do it to secure more funds. He knows that the measure as stated by Mr. Lamar—page 14—"is demanded alike by justice, propriety and policy," and that, as Mr. L. says, "there is objection to loading this bill with other conditions than those which provide for a simple extension of relief."

He knows that their claim for more time was equitable, and that their investments on the previous pledges of the government had given them vested rights in the whole original land grant for the road.

He knows that no act of these creditors has vitiated these vested rights, and that Congress cannot justly; and that probably it has no disposition to compel these people who have received little or no interest on their investment, to make a new and harder bargain.

He knows that they have never surrendered their franchises; that no *quo warrant* writ has been issued against them; and that by common law "the privileges and immunities, the estates and possessions of the corporation, when once vested in them, will be forever vested without any new conveyance to new successions."

He knows that the pioneer settlers from the great lakes to the Pacific ocean, along this northern route, have also made large investments on the pledges of the national government in their original contract with the Northern Pacific Railroad Company.

He knows that these investments of the hardy, self-sacrificing founders of new Territories and States have in equity rights of the nature of contracts, which on their part are in process of fulfillment, and that they wait with intense anxiety along the whole line for the government to fulfill its part.

He knows that the whole nation will gain largely by this investment of its lands, which now have no value, but which will at once sell for cash if the road is assured. He knows that government expenses along the route will diminish and government receipts will increase millions annually if the road is completed.

He knows that many millions (\$50,000,000 or \$60,000,000) must be borrowed by the N. P. R. Company on their securities to proceed to finish their enterprise, and that capitalists in our own country and more so now in Europe, are shy of American railroad bonds,

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and that it will be hard to place new bonds of first-class railroads even in any market of the world; and that it will be impossible to place the bonds of any railroad that is cut down in its land franchises, and not allowed to sell its own lands—when earned—at market rates, and whose lands are shaded by the indefinite claims of others.

Mr. Mitchell has a clear mind and a sharp sight of the main issue in a question.

#### CASH TO COMPLETE THE ROAD THE FIRST GREAT NEED.

He has been aware, and he is now conscious, as appears by his own argument, that the chief object of the company is to get funds to build the road. For this they ask an extension of time on the original contract. The bankers to whom they apply demand time to complete the enterprise, and put it in condition to pay interest before they will open their vaults and issue cash on the bonds.

#### LOSSES BY DELAY.

Mr. Mitchell knows that the pioneers in Dakota, Montana, Idaho, Washington and Oregon suffer great inconvenience and loss by every month's delay of the road, and that its completion will add from one hundred to three hundred per cent. to the cash value of every acre of land in these States. The Union and Central Pacific railroads have, as per statistics, added from one to four hundred per cent. to the value of lands in the States traversed by them. "The sales of the U. P. R. R. land grant to December 31, 1875, were 1,193,912 91-100 acres, for \$5,336,044 02, at the average price of \$4 47 per acre. An equal value surely was given to the same number of acres on the even sections retained by the government. The average price per acre of lands granted to and sold by the C. P. R. R. Co., was \$1 58 to January 30, 1875." Many of these lands had no cash value before the road was built.

#### LOSSES BY RESTRICTING THE N. P. R. R.

Oregon, Washington, Idaho Montana and Dakota contain 546,271 square miles, which amount to 349,613,440 acres. Suppose they are worth one dollar per acre now, the N. P. Railroad and its tributaries, which would traverse and tap them in all directions, would add one dollar to every acre, or three hundred and fifty millions to the whole.

The average value added by the other transcontinental line is four times as much, which in this case would amount to fourteen hundred millions. No one doubts that the N. P. R. R. would add this sum to the property if not to the land of these States within five years after its completion.

#### PROOF.

The assessed value of property in California alone rose from \$180,000,000 in 1861-5, when the C. P. R. R. was begun, to \$237,483,175 07 in 1869, when the overland railroad was done. The assessed value in 1874-5 five years later, was \$611,495,197, a gain of \$374,012 43, or about 150 per cent. in five years; or 34 3-5 per cent. per year.

If one State gained in assessed property value three hundred and twenty-four millions of dollars in five years after the completion of the overland road to it, and fifty-seven millions in the previous five years, while waiting for its completion—\$431,000,000 in ten years—it is fair to assume that the five northern States, if traversed

by the N. P. R. R., which contain three times the area of California, will gain three times that sum of assessed property value, which would amount to twelve hundred and ninety-three millions of dollars. This sum of assessed valuation falls short of the previously estimated land or property valuation only one hundred millions. We know that assessments fall below real values more than one dollar in fourteen, which is the rate in this case.

#### THE PUBLIC KNOWLEDGE OF THESE FACTS.

Senator Mitchell has reason to know and to keep in mind all these facts as the watchful and sworn guardian of these great national interests, and the special representative, according to his own confession, of this "great Pacific Northwest."

If in the burden of his other duties he has not had time to make these simple calculations, or even to read and note the published statements of them, yet the great and intensely anxious public, whose eye has been fixed upon him as their representative in his place, at the head of the Senate Railroad Committee, has read them again and again, and weighed and measured them, having confidence in their Senator, have invested their names and their money on the assurances of this overland road.

#### THE PEOPLE ONLY WANT WHAT IS JUST AND FAIR.

As reasonable men, the people along this whole route would far rather grant an extension of time to the company on the original franchise and contract, as the bill for extension of time passed the Senate, in the session of 1876-7—Senator Mitchell himself then favoring it—than to lose this overland road, or than hinder it by restrictions that kill it. Reasonable settlers prefer to buy their lands of the company at their market rates, varying with the quality and the location, rather than get those lands as homesteads and be deprived of this transcontinental railroad. They can afford to buy and pay for the lands with the road. They can not afford to take them and hold them as homesteads far on the route without the road. In this case most of the whole region must remain pasture ground.

#### THE ISSUE.

In the face of all these facts, and the untold collateral interests of the vast section of our common country which he represents, Senator Mitchell, as he says, tried for four months, in his place at the head of the railroad committee, "to compel the N. P. R. R. Company to build so much of their road as would be necessary to open up the monopoly-bound Columbia river to free navigation."

In other words, they must agree to borrow \$400,000, or perhaps \$900,000, as engineers estimate, mortgaging their completed road, in order to build 20 miles of portage road to compete with a local yet rich portage transportation company. In other words, they must lose the entire grant for the overland road unless they will fight what he styles a local monopoly. Mr. Mitchell admits, page 9, that "there are obstructions to navigation at these two portages, which cannot be overcome except by the construction of a canal and locks; and that the general government has commenced these at the Cascades, though a work of this character will require considerable time." He knows that the O. S. N. Co. can afford to take freight across their portages free, or so low as to break an opposition rail-

road portage company that has no continuous R. R. line from tide water to the interior. He may know that the company cannot borrow money on this end along the Columbia river until their railroad connects this river with the Missouri. Yet he insists on forcing the N. P. R. R. into a quarrel with a rich corporation.

They must fight with borrowed money and run the risk of losing both interest and principal. They must do it while dependent on that hostile company to do the freighting of the materials for their own main line eastward from the Columbia river. Senator Mitchell, as he confesses, sought to force local issue from December to April upon the N. P. R. R. Co., which wasted time and made capitalists more shy of the investment in their bonds, and so far defeated this great national overland road. He knew that if they could not afford to borrow money to build and run those opposition portage railroads, no other company could do it, and that the only possible way for the free navigation of the Columbia was by canal and locks.

#### SECOND ISSUE.

By constraint he admits that after April 1st, he yielded his restriction of uniting the Salt Lake branch with the N. P. R. R., yet insisted on complicating the two roads as a common road. Sections 8 and 9, with their numerous provisos, darken the prospects still more in the way of securing funds to complete the enterprise.

#### THE ESSENTIAL THING TO THE N. P. R. R.

A fixed purpose to have this road built, demanded that the bill be as Senator Lamar said, (page 14), without "other conditions than those which provide for a simple extension of relief." This was Senator Morrill's view—page 24. He thought the loss of eleven million acres a burden upon the road, and the combination of roads another burden. Success required that every provision of the bill be made after its review and acceptance by vote of the directors. Success required the report early in the session.

Defeat of the enterprise is the logical result of months of delay; of lack of harmony with the board of directors; of new restrictions upon the grant and fruitless local hardships upon its construction. These have triggered it and probably switched it off the track, entailing a deep disappointment and loss upon multitudes and gain upon only a few.

Senator Mitchell had the courtesy to send me a copy of his speeches, April 22 and 23, upon this senate bill, and I have felt at liberty to note what have seemed to me the fatal restrictions upon the enterprise. Sharing the pain of this defeat with large numbers of the pioneers of Oregon and Washington, who have waited long in hope of this overland road, I submit these views, with the more cheerful ones of past months, to the public.

#### THE LABOR MARKET.

The bankruptcies from 1873 to 1878, stopped many home industries and crippled others. Laborers have been thrown out of employment and compelled to use up their savings. Many out of work and out of funds have suffered. Families have been suddenly reduced to want and some to beggary or starvation. No wonder that industrious men ask for work. They may not all see that the civil war compelled the issue of two thousand millions of government notes and bonds, which were called money and taken as coin—

though at a discount—and that this great increase of what seemed to be money, caused prices of goods, food, lands, flocks, herds, manufactories and ships to go up; which in turn bred excessive speculation, that has ended in bankruptcies and the stopping of work. Such has been the fact. He may not see that these things always follow great wars. A few get rich, but the multitude get poor by war. Yet our country is rich in resources. It recovers rapidly. The government can and it will pay its debts.

#### LABORERS HAVE JUST CLAIMS.

Government owes a debt to its own laborers. If it was a duty to protect the nation for the sake of the people, it is no less a duty to protect the people for the sake of the nation. If it is fair—and it is—to pay the government bonds, according to contract, whether held at home or abroad, it is also fair to help the industries of the people, who must earn the money by their toil to redeem those bonds.

#### LEGISLATION APT TO BE PARTIAL INSTEAD OF NATIONAL.

After the war, the reconstruction raised new and grave questions, very difficult of solution. The passions of the hour, gave occasion for ambitious partisans to mount the rostrum, and secure the confidence and suffrages of the people on the specious plea of overflowing patriotism. When in power the partisan sacrifices the public interests to his private ambition.

While the state and national legislatures have done many noble things to harmonize conflicting opinions and interests since the war, and all branches of the government have deservedly won the gratitude of thoughtful citizens, yet they are open to criticism for neglecting to use the means within the province of legislation to revive the industries of the people.

#### EFFECTIVE LEGISLATION.

A most effective system of finance is to open the way for the minor, the artisan and the manufacturer to earn the money to pay the expenses and debts of the government. Instead of this, little has been done for five years by congress to start the iron furnaces of Pennsylvania, Ohio, Tennessee and Missouri, or develop their coal mines, or to restore the workmen to the ship-yards of Maine and Massachusetts, or open new ones in Oregon and Washington. Upon the farmers and stock-raisers, and cotton planters, and lumbermen and oil producers have been laid the chief burden to furnish their raw products for foreign commerce, most of which have been carried in foreign ships, and used to pay for supplies and the interest on our debt abroad.

It is true that some manufacturers, of late, under the pressure of sharp competition, have won their way into foreign markets with their cotton fabrics, their machinery, their agricultural implements and military equipments, and have turned the balance of trade in our favor. But these triumphs of trade have not been gained by the aid of congress, but in spite of its party strifes and adverse or uncertain legislation. The true policy in the United States as in England and in France is to furnish manufactured goods, as well as food to nations, and to carry these goods abroad and find or develop markets for them.

England holds the trade of China, South America, Africa, Southern Asia and most of Polynesia for her manufactured goods.

The leading men of the south to-day assure us that "they are looking for its future welfare not to politics, but to industry." A delegation of them, headed by Senator Gordon, recently visited Boston to learn more about the manufactures of New England. "Some time ago the cities of Charleston, Savannah, New Orleans, Galveston and others designated General Gordon to represent the industrial interests of the south in Europe during the coming season by presenting to capitalists and others, who might be interested the facts in regard to its natural resources, with a view to investments for their better cultivation and development."

"Speaking of the extension of foreign trade," says the *Boston Advertiser*, "especially with the countries nearest to us, it is always to be remembered that the first condition of success is a prosperous and vigorous home industry."

#### HOME INDUSTRIES, NOT PARTISAN POLITICS, OF MOST VALUE.

The strife between the North and the South and the East and the West is to be not which shall produce the most of the raw materials to be manufactured and sold by other nations, but which shall imitate England in employing the labor of the people, and thus reap the profits both on raw materials and finished goods. New and better routes of commerce must be opened and new markets for goods developed.

The Pacific States front the shores of populous Asia and Australia. We have the advantage of space and time, and immense but partially used resources to ultimately run a large share of that commerce.

#### THE THREE OVERLAND RAILROADS NEEDED FOR THIS PURPOSE.

The eminent statesman who projected them in 1853, and secured the act of Congress to make the surveys, foresaw their importance. The acts of incorporation of the Northern and Southern, requiring that American iron be used in their construction, aimed to employ American labor and promote our industries.

Those unfinished roads simply wait for Congress—in one case to merely extend the time of completion, and in the other to grant about one-sixth the aid extended to the Central and Union Pacific railroads.

#### AMOUNT OF LABOR AT ONCE EMPLOYED.

In the mere construction of the present trans-continental railroad: "A total force of 20,000 to 25,000 workmen all along the lines, and 5,000 to 6,000 teams had been engaged in grading and laying the track or getting out stone or timber. From 500 to 600 tons of materials were forwarded daily from either end of the lines. The Sierra Nevada suddenly became alive with wood choppers, and at one place on the Truckee river twenty-five sawmills went into operation in one week. Upon one railroad 70 to 100 locomotives were in use at one time, constantly bringing materials and supplies. At one time there were 30 vessels *en route* from New York, via Cape Horn, with iron, locomotives, rails and rolling stock, destined for the Central Pacific Railroad."

The labor employed in building those roads has opened vastly larger fields of labor on the routes and at both ends. Labor employed increases its own opportunities. The completion of the N. P. R. R. would employ many thousands of workmen on the routes,

and as many thousands more of artisans in the mines and shops. All industries would revive and would increase.

The Texas Pacific would produce the same effects. Both are legitimate, reasonable enterprises, sure to enrich the builders, the States and the nation, and to expand foreign trade, as they would build up our own industries.

The success of one line is proof of that of the other two, running at such distances north and south.

#### THE FOLLY OF RESTRICTIONS.

Who can tell the evil of hindering the completion of either of these roads? We feel most keenly the defeat of the N. P. R. R.

Workingmen feel it in their pockets, at their tables, in their lack of power to provide comforts for their families. Pioneers have been waiting twenty years for these overland roads, and politicians, by their acts, coolly tell them that the time has not come for these roads to be built. Our nation runs behind in the race with those who have fewer resources. Our artisans who ask for work are compelled to linger on street corners to get small jobs for the support of life. Shops are closed and fires die in the furnaces because, forsooth, legislators spend their time in planning for new elections.

Shame on American Statesmanship! Other nations mock us for our folly. Holding the key for the grandest progress across the continent and on both oceans, the partizan neither uses it for the relief of his suffering countrymen nor for the honor of his country!

#### POSSIBLE FORCES TO SECURE THE N. P. R. R. EXTENSION BILL IN THE NEXT SESSION OR IN THE NEXT CONGRESS.

The defeat of the N. P. R. R. bill this session, says the *Sacramento Record-Union*, "diminishes its chances of becoming a law at the next session." This would be true with the same conditions. But failure in one mode of a right cause turns true friends to another mode. Grant, for the sake of argument, that the U. P. and C. P. P. R. will try to stop every rival transeontinental railroad north or south of their line, or to buy its controlling stock, if it wins its way, then the first step is to measure the force of that combined opposition. It is folly to blink such a fact. It is wisdom to count its full measure. If it is a vested capital of \$200,000,000, with a net income of \$20,000,000—two hundred millions of dollars, with an annual income of twenty millions of dollars—opposing the N. P. R. R. and the Texas P. R. R., the friends of the two rival roads ought to keep that fact in sight.

#### LARGER FORCES CONFRONT THIS VAST CAPITAL.

This wealth created and represented by one railroad is only a sign of what can be created by one or two or three other lines across the continent. One store in a good location invites two or three or five others. They come and win their share of the trade and profits, and thus the village grows into a city. Suppose the first store fights the second and the two combine against the third, the contest will end in planting all three stores. If the present overland railroad develops business and pays better every year—which is the known fact—then rival lines can and will be built. The force of the existing line, however rich and mighty, points to a twofold or threefold force to be developed in other lines. We can count that force at twice twelve hundred millions, that will be real property in the market in ten years after the other two lines are built.

## CASH VALUE OF ONE OVERLAND ROAD.

The capital of the U. P. R. R., in 1876, was \$116,220,212. That of the C. P. R. R., in 1876, was \$140,440,188. Amount of both, \$526,660,400.

The assessed value of property in California alone, in 1874-5, was \$611,495,197.

Its value during five years after the overland railroad was done had risen over three hundred and seventy-four millions of dollars. This testimony from the assessors' books is a good affidavit in the case.

One hundred and fifty per cent. gain in assessed property in California in five years after the overland railroad was completed is an argument that will move capitalists to enter upon like enterprises. Thirty-one and three-fifths per cent. per year will rouse the bankers small and large in our country and in Europe to again secure the prize. Every man's acre shares the gain. Small landholders in California are made rich by the overland railroad who were poor before its completion. Large landholders there have gained the wealth of princes, without effort on their part, simply by the completion of that railroad. San Francisco has more than doubled its population and its property valuation by the same cause. Sacramento has lifted itself up out of the swamps, dyked itself with high and solid lines of embankment against the floods, and laid itself out with inviting homes for its increasing population of industrious artisans and merchants from the impulse given by the completion of this road. San Jose, Santa Cruz, Los Angeles, Marysville, Chico, and many other cities thrive and grow from the life imparted by this overland road and its branches.

## GAIN TO STATES AND TERRITORIES.

Other States through which this road passes have gained a large per cent. by its completion. They have received millions from this enterprise without investing one dollar in it.

The productions of Utah, mineral, agricultural and miscellaneous, in 1875, amounted to \$17,314,337. The increase of land cultivated in 1875 over 1874 was 60,250 acres. The Surveyor General reported land sold in the year 1875 49,956 acres.

The imports and exports of Utah during 1875 were \$9,150,851. The large business of that interior Territory is due almost entirely to the completion of the overland railroad.

Such facts apply to all the States and Territories on the line and adjacent to the line of the completed road. Nebraska, Kansas, Iowa and Missouri and Illinois have received like increase of real property values. The unsold millions of acres of government land on the line, and for hundreds of miles on either side, have been made saleable by that finished road.

## PRODUCTS MADE AVAILABLE.

The miscellaneous products of Utah consist of pig iron, iron ore, coal, coke, fire clay, granite, ice, wool, tallow, hides, pelts, which in 1875 amounted to 3,276,499 tons, worth \$860,384. They represent similar classes of products developed in other States and Territories by the U. P. and C. P. railroads.

These freights were moved and these goods were made marketable by means of the overland railroad and its connections. Such an interior commerce was impossible until that highway was opened.

Such productions are impossible from the vast interior of our continent without such trans-continental roads.

UTAH MINERAL PRODUCTS, 1875.

Base bullion, tons.....	16,330 at \$250	\$4,082,500
Lead bullion, tons.....	44 at 100	4,400
Silver lead ore, tons.....	312 at 100	532,000
Copper bullion, tons.....	349 at 250	87,949
Copper ore, tons.....	284 at 50	14,200
Silver bars.....	.....	35,800
Gold dust.....	.....	750,000
Ore on-dumps at mine, smelters' tons.....	10,000	.....
Tons.....	27,319	\$6,145,211

These mineral values were in fact mostly created by the railroad, which transports the crude ores and base bullion to the smelters and thus to market. The ores of Idaho, Montana, Dakota, Arizona and New Mexico lie buried and useless, waiting for the railroad cars and engines to put them into the life currents of business.

UTAH MANUFACTURES IN 1875.

Railroad ties, 200,000 at 50c.....	\$	100,000
Lumber, M 8,000 at \$45.....		360,000
Foundry works, boiler, &c.....		175,000
Boots and shoes.....		75,000
Leather.....		5,000
Lime, bushels, 100,000 at 40 c.....		40,000
Soap.....		3,000
Flour, pounds, 40,000,000 at 3c.....		1,200,000
Charcoal, bushels, 400,000 at 22c.....		88,000
Fire brick, M 500 at 80c.....		40,000
Building brick, 155,000 at 10c.....		155,000
Ale, porter and beer barrels, 15,914 at 15c.....		238,710
Cigars, M 375 at \$65.....		24,375
Woolen goods.....		300,000
Total.....	\$2,803,985	

These products were mostly created by the influence of the overland railroad. They represent like products in ten other interior States and Territories, which must depend mostly on trans-continental railroads for their development. Of these seventeen millions of Utah productions in 1875 it is fair to set ten millions as the effect of the overland railroad. Multiply that gain by ten other such States and you have one hundred millions of yearly products waiting for such railroads.

The rise in value of lands and other real property exceeds three hundred per cent. in ten years, as per the census tables in California. Count the gain one dollar per acre in Oregon, Washington, Idaho, Montana, Dakota, and the proposed Territory of Lincoln, as the result of the completed N. P. R. R., and count it as much in Western Texas, New Mexico and Arizona in case of the completed Texas and Southern Pacific Railroad—the whole making an acre of five hundred million acres—and that sum will at once be added to the permanent value of those States and of the nation.

Unless both roads are built those values cannot be created. This argument is effective now. In view of it the C. P. R. R. have pushed the construction of the Southern Pacific Railroad.

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The S. P. R. R. Co. has

Authorized capital stock.....	\$ 90,000,000
First mortgage bonds authorized.....	46,000,000
12,000,000 acres land grant value at \$ 50 per acre.....	30,000,000

Total.....\$166,000,000

This immense preparation and outlay imply faith in a completed southern overland railroad. The 500 miles built from San Francisco to Fort Yuuma on the Colorado, on the western end, and about 450 miles westward through Texas on the eastern end, are proofs of a set purpose to complete that entire line. The strife of the two companies to secure special grants and advantages from congress adds the evidence of their intense desire to win the greatest benefits from the enterprise. In fact, that transcontinental railroad has been a foregone conclusion for many months past in the minds of thinking observers of the facts.

THE SIGNS OF HOPE FOR THE N. P. R. R.

Its defeat in congress this year was evidently due to its restrictions. But the public in the great northwest, from the lakes to the Pacific, has become aroused to its importance and its danger. The press of Chicago and New York is awake on the subject. The plottings of its foes in and out of congress are watched and exposed. The merits of its claims and the injustice of neglecting or denying them are seen and felt by larger numbers in the house and senate. Business men and capitalists in city and country in the north, and many in the south, from the Atlantic to the Pacific, are believed to favor the enterprise as an act of justice to its creditors and of necessity to the unity and welfare of the whole country.

Its certainty and value to Oregon are assured by the present narrow gauge railroads built and in process and plan of construction to transport the products of the smaller valleys of the interior Columbia basin to the river. These branch lines anticipate not only water carriage to the sea, but a trunk line of railroad to tide water. Otherwise they would be idle three or four months every year while the upper Columbia is blocked with ice. Every railroad branch system implies a trunk line.

A CLEARER SIGN.

The increase of yearly business on its 600 miles of road; the quick sales of its lands in Dakota and Minnesota; the growth of settlements along its proposed route; the proofs of its vast resources of choice coal, lime and iron mines, and timber forests on and near Puget Sound, besides its agricultural lands, furnish evidence that it will pay expenases and the interest on the capital needed to finish it.

ITS NEED.

More than all it needs friends from Oregon and Washington in the house and senate. Faith, hope, courage and diligence in a man who sees and feels its absolute necessity to our region can win the case. An open, earnest, broad-minded, hearty plea in private and in public, with untiring zeal, will secure the *simple extension of time* to the N. P. R. R. Co. to finish their road. Divided counsels, partisan efforts and doubtful restrictions will defeat it in the future as in the past.

The late Oregon election hinged upon this question. Oregon has instructed her representatives in the legislature to send her ablest,

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truest and most faithful citizen to the senate to work for the completion of the N. P. R. as a national enterprise; and as an act of justice to 10,000 creditors who invested \$30,000,000 in its good faith 8 years ago, and who have received no interest on their investment, as an absolute necessity to the welfare of this great northwest, and to thousands of hardy pioneer settlers, who have, with faith in the government pledges to the road, invested themselves and their property in homes on this exposed frontier, and as a most efficient means of protection from Indian wars along this northern belt of our country. The voice and vote of Oregon emphasize every one of these reasons at this moment.

#### THE BASIN OF THE COLUMBIA.

The upper country gives signs of becoming a vast area of grain fields. The stock ranges, rich in bunch grass, are fast changing into far richer fields of wheat, which check the hills and valleys like a carpet. It is a marvel that the high hills produce all the cereals as abundantly as the plains. Its solution is due to a two-fold fact. First, the soil of this whole interior of high prairies was once the bed of a system of lakes, as appears from the lectures of Professor Condon, and illustrated by many fossils of former lacustrine and tropical life found embedded therein. It is also attested by the wonderful system of drainage carried on for ages by the Columbia river and its affluents. Those waters have not only cleaved dykes of basalt, miles in length and scores, and even hundreds of feet high, as with a knife, but they have cut through the Cascade mountains from their summit, 3,500 feet, down to tide water. Uncounted numbers of ravines, in all directions, indicate the extent and magnitude of the drainage, which has left its records on the rounded hills and deep canyons. The volcanic overflows, traceable in the Cascade mountains, that formed on cooling their basalt dykes and cliffs with their peculiar columnar crystallizations, added much to the mineral elements of the soil. Immense quantities of volcanic ashes doubtless were blown by winds or carried by streams into those ancient lakes, giving like valuable deposits.

Some of our rivers, as the Sandy flowing from Mount Hood, and the Nisqually, flowing from Mount Rainier, are now often made milky white in summer by these volcanic ashes, loosened by heat from their beds under the ice, and borne down by the rains and melting snows. The Sandy has thus for a long time been forming some of the alluvial soils, like the Columbia meadows. The soils of the Willamette valley owe much of their power to these sources, which become more apparent as the higher prairies and hills are cleared and sown with wheat or set with orchards.

In like manner these old volcanoes furnished the abundant mineral elements in the upper country, on which all the cereals feed and thrive, viz: the potash, soda, lime, magnesia, and phosphoric and silicic acids. The basalts are largely Feldspathic, which consists of silicia, alumina and potash, and are easily disintegrated by frost, thus adding large annual increments to the soil.

These high table-lands, under the plough, exhibit the finest tilth from one to twenty feet or more deep, and alike through the whole mass. Unlike the dark vegetable mold of the Mississippi basin, the soils of this Columbia basin are whiter and more highly charged with the alkalis and fixed acids.

Western farmers are astonished that such whitish lands there, and in the Willamette valley, can produce the cereals; but they are more

astonished to gather a harvest of 30 or 60 bushels of wheat per acre from these high tracts. It is also a surprise that the berry of all kinds of grain is so plump and large, and that the straw is so tall and strong. The wild rye grass of Yakima valley is like a withe for toughness. The bunch grass on the hill-sides bends before the wind and springs back like a bow of steel. The willow and the poplar and other soft woods take on a kind of robust, oaklike strength.

The analysis of mineral elements required for grain, published by Prof. P. Collier, of Vermont, suggests the reason, as was intimated in an article in the *Commercial* a few weeks ago. For example, the berry of wheat requires the following proportions: Ash 2.07 per cent., potash 31.1, soda 3.5, magnesia 12.2, lime 3.1, oxide of iron 0.7, phosphoric acid 46.2, sulphuric acid 2.4, silicic acid 1.7, chlorine 0.5 per cent., or ten mineral elements ranging upwards in the proportions of five-tenths of chlorine and seven-tenths of oxide of iron to thirty-one and one-tenth per cent. of potash, and forty-six and two-tenths per cent. of phosphoric acid.

These are factors mathematically fixed. The soil which has these elements, will produce wheat, other things being equal. Soils destitute or exhausted of them, cannot bear wheat. Rye requires very nearly the same proportions of the same substance. Oats require about half of the proportions of the same, with the addition of forty-six and four-tenths of silicic acid. Barley requires about two-thirds the same as wheat, with twenty-seven and two-tenths of silicic acid, instead of 1.7, required by wheat. But wheat straw requires ash 4.26, potash 11.5, soda 1.6, magnesia 2.1, lime 5.8, oxide of iron 0.7, phosphoric acid 5.3, sulphuric 2.5, silicic acid 69.1, chlorine 1.1 per cent.; that is, it demands the same mineral elements in the proportions, seven-tenths of one per cent. of oxide of iron up to 69 and one-tenth of silicic acid, which latter element gives the tube of the straw its firm glossy quality. E. L. Youmans remarks: "Silica is necessary to the growth of vegetation, and exists abundantly in many plants; particularly in the stalks of grains and grasses. It is this which communicates stiffness and strength to their stems, as the skeleton does to the bodies of animals. If there is a deficiency of soluble silica in the soil, the grain stalk will be weak, and liable to break down or lodge."

We may suppose by observing the growth of the grain in the upper country that those soils contain these elements in abundance. This supposition is confirmed by their geologic origin. The final proof will be a qualitative and quantitative chemical analysis rigidly tested.

While these elements remain abundant in the soils, the cereals can be produced. Exhaust them by successive crops, as in Western New York and in many western states, and crops will lose in quality and in quantity.

The second fact, which solves the problem of reclaiming this interior basin from mere pastures to farm lands, is that the invisible ocean of vapor, constantly borne inland from the Pacific over these high plains, can be cooled and deposited in the form of dews, mists and showers, so as to furnish all needed irrigation. The complaint was made for thirty years that they were practically deserts. It is only a few years since the plow has moved up the hill sides. Now fields of wheat, oats, barley and rye wave luxuriantly by the side of dry bunch grass tracts, even on the higher ranges.

The plow proves to be the cooler. It opens the light porous soil

to the air, which enters it freely and parts with its heat and its moisture at the same moment to nourish the plants. The higher the hill the quicker the cooling process occurs in still air, so that the night dews and mists water the plants there best every evening when the wind dies away.

Some persons have tried to explain the growth of grain on the upper plains by a sort of capillary attraction, drawing up the moisture. It has also been explained by electrical changes, caused by the telegraph. But whenever the plow is freely used, and the seed planted, though scores of miles away from the telegraph, the growth of grain and vegetables becomes luxuriant.

Orchards, groves and fields increase the cooling surfaces, giving more moisture and more summer showers in all that region, that had been rainless. The practical benefit already is a larger variety of productions and a grand harvest of cereals for home and foreign markets.

Granting that these two facts are true of the Upper Columbia basin; that the soil abounds in the constituents to furnish various and most valuable harvests, and that the climate is favorable to their production, it is reasonable to expect a wider area of cultivation every year. The day of doubt is passed. The experiment has been made. The plow, the reaper and the wagon of this season must be duplicated the next, and so on while markets demand supplies.

Forecasting the future, the country that can possibly be thus cultivated stretches from one range of mountains to the other, east and west, and from the high plains of Nevada into the British possessions.

It is reasonable to expect more springs from the hill sides and larger streams in the valleys with the increase of population. Instead of stock ranches and settlers' cabins widely separated, we may look for farming communities and thriving villages in sight and not far from each other. Such is the process now in Umatilla, Walla Walla, Columbia and Stevens counties.

The facilities for transportation furnished by the O. S. N. Co. and by the railway from Wallula to Walla Walla, completed by the skill and energy of Dr. D. S. Baker, will perhaps stimulate the early completion of a railroad from Umatilla to La Grande, and one from Dayton to the mouth of the Tucannon, on the Snake river. There is need of lumber and fuel all over that region. Every reason urges the completion of the N. P. R. R. to the Columbia, and the ocean waters, that the exchange of the commodities on the coast may be made at all seasons with those of the interior.

INVISIBLE VAPOR.

Air absorbs and retains a certain amount of moisture, at a given temperature. Heat it one degree and it will hold more. Cool it a degree and it will retain less and deposits dew. A glass of ice water in summer will cool the surrounding air and form drops outside the glass. It has simply reduced the power of the air to suspend the vapor. Let the glass stand a few minutes and the drops will evaporate. Warmer air carries them off.

TRADITIONAL FARMING.

The custom to hoe corn in New England three times rested on a scientific principle, but our fathers did not tell us boys 40 years

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ago what it was. Perhaps they did not know, yet their common rule, that it did the corn good to stir the ground often, insured a good crop.

The older men now work their gardens as long as the hoe can touch the ground between the plants. The result is thrifty growth and the finest vegetables.

The stirred soil presents a large cooling surface, which quickly tests a dew point in a still night, and waters the plants with a gentle mist. Science now unveils and extends the benefits of the old traditions.

#### THE EXACT AMOUNT OF VAPOR IN THE AIR IS KNOWN.

Tables of figures show the weight of vapor that the air can sustain at the various degrees of temperature. This power of suspension increases from 2.13 grains at 32°—the freezing point—to 18.84 grains at 100°—a gain of 16.71 grains per cubic foot.

#### WEIGHTS AND MEASURES OF AIR IN SUSPENSION.

A column of air ten feet square, 1,000 feet high, if saturated, at 32° sustains 30 pounds of water, which equals 4 5-7 standard U. S. gallons. At 5,000 feet—the base of Mount Hood—the same column at 32° will sustain 197 pounds, equal to 23 3-7 gallons. A column of saturated air covering an acre, 1,000 feet high, at 32° contains 13,068 pounds, or 1,568 gallons of water. The same column, 5,000 feet, holds 65,340 pounds, or 7,940 gallons.

#### AMOUNT IN SUSPENSION IN OUR FOUR SEASONS—AVERAGE IN WINTER SEASON.

Our average winter air, 39°, saturated in a column ten feet square and 1,000 feet high, holds up 39 3-7 pounds, or 4 5-7 gallons of water. The same column, 5,000 feet high, holds up 197 pounds, or 23 3-7 gallons. A column of saturated air at 39°, covering an acre, 1,000 feet high, contains 17,175 pounds, which equals 2,061 gallons. This column, 5,000 feet high, contains 85,875 pounds, or 10,305 gallons.

#### AMOUNT IN SPRING.

Western Oregon in Spring averages 52°. A column ten feet square and 1,000 feet high, saturated, holds 62 5-7 pounds, or 7½ gallons. At 5,000 feet—the highest of the lower clouds—it contains 313 pounds, or 37½ gallons. Such a column, covering an acre, 1,000 feet high, contains 27,318 pounds, or 3,278 gallons. At 5,000 feet, it contains 136,590 pounds, or 16,390 gallons.

#### AMOUNT IN SUMMER.

Oregon air in summer averages 67°, and if saturated, a column of it ten feet square and 1,000 feet high, suspends 104 pounds, or 12½ gallons of water. At 5,000 feet the column suspends 520 pounds, or 62½ gallons. A column an acre in size, 1,000 feet high, holds up 45,702 pounds, or 5,484 gallons. The same, 5,000 feet high, holds up 227,510 pounds, or 27,420 gallons.

#### AMOUNT IN AUTUMN.

Our air in Autumn averages 53°. A column of it saturated, 10 feet square, 1000 feet high, suspends 65 pounds, or 7 4-5 gallons of water; and 5,000 feet high, it suspends 325 pounds, or 39 gallons. A column covering an acre, 1,000 feet high, suspends 28,314 pounds, or 3,398 gallons. The same column, 5,000 feet high, suspends 141,570 pounds, or 16,990 gallons.

## UPPER COLUMBIA BASIN.

We are not able to get the average temperature for the four seasons in Eastern Oregon and Washington, as the U. S. Signal service is not yet extended thither, as it needs to be.

Assuming 70° as the summer average of the upper Columbia Basin, and assuming that the air, blowing constantly from the ocean by day, is well saturated with moisture,—which every one feels as he stands facing those sea winds—it holds 8.01 grains of watery vapor. A column of 10 feet square and 1,000 feet high suspends 114¾ pounds, or 13¾ gallons. The same column, 5,000 feet high, or about the height of the white clouds that hover near Mount Hood in summer, suspends 572 pounds, or 69 gallons of water. Such a column covering an acre, 1,000 feet high, suspends 49,864 pounds, or 5,983 gallons. At 5,000 feet high it suspends 249,320 pounds, or 29,915 gallons. Cool that air to 50°—which is done usually every night, all over Oregon and Washington—and it loses 3.91 grains per cubic foot, or almost one-half its vapor. Vegetation drinks it. Heavy dews cover the grass. Soils deeply plowed and broken up into fine tilth absorb it and give abundant food to plants. Prof. Brocklosby remarks: "The air over the ocean is always saturated, and upon the coasts, in equal latitudes, contains the greatest possible amount of vapor; but the quantity decreases as we advance inland, for the atmosphere of the plains of Oronoco, the steppes of Siberia and the interior of New Holland, is naturally dry." But the interior of Oregon, to the Rocky Mountains, cannot be called very dry, as its vapor comes fresh with every summer sea breeze.

## OCEAN OF INVISIBLE VAPOR OVER US.

There is such an ocean of vapor covering all of Eastern Oregon and Washington, from the Humboldt to the Frazer river valleys, and extending westward to the Pacific, 5,000 feet deep from the bed of the Columbia, enclosing an area of over 300,000 square miles.

## FEARS OF LACK OF MOISTURE.

The climate east of the Cascades has been called dry and the land arid. The question of assured moisture in summer is often discussed and weighed by comparing seasons. The last was better than former years. Showers were common in Walla Walla and other low valleys. But will showers increase and extend with cultivation? Will springs break out on the hill sides as the high prairies are plowed and tilled?

## AN EXAMPLE OF RAIN WITHOUT CLOUD.

Standing in Dayton, Columbia county, near the Touchet, July 12, 1877, at 5 o'clock A. M., as the sun rose before me I noticed a fine rain falling from a cloudless sky and wetting the grass in Mr. Matzgar's garden. Mr. M. had noticed the same fact often. Its solution was that the trees and grass and garden had cooled and compressed the column of air and deposited part of its vapor. As the sun rose higher in the clear sky the same moisture was re-absorbed by the re-expanding air, as a sponge takes up water and gives it out on pressure and re-absorbs it when the pressure is off. Cooling the air acts like pressing the sponge. Heat expands it and increases its capacity to hold vapor. Prof. B. attests several instances of showers occurring when the sky was clear. This phenomena was several times observed by Humboldt; and Kaemtz says it happens in Germany twice or thrice a year.

## NATURE'S IRRIGATION.

Grant that an acre of air at 70° and 1,000 feet high suspends 59,83 gallons of water, and when reduced to 50° on a still night gives out about one-half its supply, or 2,900 gallons, sprinkling it in finest dew over every inch of the land, and you have an irrigating process superior to any number of streams or system of artesian wells. Suppose the column 5,000 feet high, the deposit at 50° may be 14,500 gallons.

## OBJECTION.

Do you object that a far less amount seems to be deposited? Only approximates can be given. Air cools 1° every 243 feet high—about 3° per 1,000 feet. This reduces the vapor. Every degree of heat, with the ascending sun, re-absorbs the moisture until all is gone that was not drunk by leaves and grass or by the soil, and very soon the soil gives back what it received, unless its web of rootlets have drunk it up. If the soil is baked, never plowed, and never set in cereals or shrubs or trees, it gets very little good from its mighty drenching, and at the earliest sunrise the blessing flies away to its treasury in the skies.

## GOOD CULTIVATION GARNERS THE VAPOR ABOUT THE PLANT ROOTS.

On the high hills of Columbia county, Washington Territory, wheat grew luxuriantly in July, 1877, while four feet distant the bunch grass was drying up. This was the first plowing for the wheat, while the other land had never been plowed. That upland soil has a fine mixture of the mineral elements and alkalies, and thus a spongy lightness, which easily absorbs vapor and the gaseous foods. Hence its marvelous productive powers.

## IT NEEDS THE PLOUGH, THE SEED AND THE TREE.

Those high prairies that now seem so dry in summer need to be broken up, sown, set with shrubs and trees. The soil once open and set with wheat will absorb its full supply of moisture every cool night, which will carry its load of nutriment to rootlets or drip away to form springs. Trees and shrubs also become coolers and deposit moisture.

## FALLOW GROUND AN INJURY.

Rotate crops, as in Great Britain, for best results. No fields need be left fallow for many years. Sown or planted and tilled they will increase the deposit of moisture and thus assure the coolness and crops on other fields.

## WHEAT IN ROWS LIKE CORN.

If wheat or oats become too dry, as happens in the lower Walla Walla valley, run the light plow or cultivator through the grain every three or four feet, leaving it in rows like corn. Do it once or twice in the summer.

The section harrow and clod crusher made by Messrs. Carter, in Albany, will make a fine, light tilth, that will absorb moisture. This process will give a larger product of wheat from the rows of grain than from the entire field left crusted and dry.

## EXAMPLES.

A gentleman raised a fine field of corn  $2\frac{1}{2}$  miles from Walla Walla, ten years ago, without a drop of rain. He simply plowed the land, planted the seed and used the plow or cultivator between the rows. Two years ago, another farmer raised over 40 bushels per acre, of corn, back of The Dalles, without a drop of rain. His plow kept the ground loose and spongy, and it absorbed all needed moisture from the air.

In 1877, L. Patterson, of Hillsboro, planted three rows of new kinds of wheat in his garden  $2\frac{1}{2}$  feet apart, dropping the seeds about 8 inches apart in each row. From 30 to 60 stalks grew from each kernel, carrying as many heads, which had from 50 to 100 grains each. The ground was kept light and spongy, and was always moist a half inch below the surface. The wide spaces gave room for the plants to feed and grow well. The stalks sprouted from the center stalk like a currant bush. This proves that every wheat plant must have room and a fine tilth to give the largest products. Mr. L. thinks four quarts enough to plant an acre. His field of wheat a few rods distant looked fair, but it was crusted over and dry and impervious to moisture, and thus in part a failure, as every field of grain sowed broadcast and left to crust over must be.

Rev. O. Dickinson had a field of wheat near Salem last year, which became so foul with wild oats that he ran the plow through every three feet to kill the oats, leaving rows of wheat three feet apart. The result was a larger crop of wheat than the entire field would have given. This year he proposes to cultivate some land on this plan, using the Carter Excelsior combined section harrow to break the clods and reduce the tilth between the rows.

## THIS PLAN IS APPLICABLE TO FLAT PRAIRIES.

The yellow patches of grain on some of the flat prairies of Marion, Linn and Lane counties are an eyesore. It is stated that Linn county raised only half a crop in 1877, owing to late excessive rains, followed by hot, dry months. The ground baked and the plants were choked and stunted. Had farmers run their plows through the fields about two or three feet apart in June, as the soil began to crust over, and then followed in July with the cultivator or section harrow and clod crusher between the rows, the evidence is that they would have had a much larger crop. The plan is worth trying this year, as the continued rains may keep those lands soaked till late.

## THE PLAN APPLIES TO VINEYARDS.

The vineyard connected with the San Gabriel Mission, near Los Angeles—I am told—is cultivated of late entirely without irrigation. The plow, spade and hoe prove entirely sufficient to keep the ground moist and give an abundant crop.

## IT APPLIES TO DRY LANDS ELSEWHERE.

A gentleman has raised fine fields of corn ten miles south of Los Angeles without a drop of rain, simply using the plow and cultivator freely.

A Baker county farmer, I am told, plowed up the sage brush outside of an old field, and raised 70 bushels of oats per acre, without rain. The soil is mineral, light and spongy. Once open, it absorbed moisture enough for fine growth and product.

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The plains of Kansas were marked on the old maps, 40 years ago, as a part of the "Great American Desert." The plow and cultivator have caused luxuriant fields of corn and wheat to replace those once-parched lands.

#### ITS EFFECT TO PRODUCE SPRINGS.

Rev. C. Eells and J. A. Perkins, of Colfax, noticed stock water on a side hill near the Touchet last fall, where ten years ago there was only a slight sign of moisture. A dozen farms have been opened ten miles around within ten years. Others report springs since the hills have been cultivated where none existed before.

Suppose the rich bunch grass plains and those eaten off, which lie on the route from the Dalles to Umatilla, are plowed and sowed or drilled in wheat, the excess of moisture deposited will probably produce springs where none can now be found. Add trees and shrubs, and the result will at length become a certainty. Instead of depending upon costly artesian wells, it is better to draw a water supply from the air.

#### EFFECT ON THE STREAMS.

Doubtless the increased acreage now cultivated in the upper basin of the Columbia has added volume to the smaller streams. The limit of increase will not be reached so long as the plows and wheat fields and gardens and groves extend over those high hills and deep valleys. Grand and beautiful will be the panorama when the whole interior, now a treeless region, shall be dotted with farms, orchards and dwellings. The plow will hasten that day.

#### DROUGHTS PREVENTED OR MODIFIED BY SUCH CULTIVATION.

A traveler sent a letter to one of the Puget Sound papers last year, describing his rough, dusty journey northward from Southern California. One morning his stage started at 3 o'clock, and he found nothing to note but the ascent of a hill about 1,500 feet through a fog bank as many feet deep. As the sun rose, the same dry plains and hills greeted his eye on every side. That fog bank was nature's store house of water for the thirsty ground. The San Francisco *Bulletin* reported later fine fields of wheat in the upper counties without a drop of rain; but a wise use of plow and harrow opened the soil to absorb the invisible vapor. One farmer is reported to have planted wheat in rows and tilled it, raising as per his test over 60 bushels per acre. It is cheaper to raise 60 bushels on one acre than on four acres.

Probably a wise use of the plow in cultivating wheat, instead of the poppy, would have lessened the famine in the high plains of Hindostan last year, or have possibly prevented it. The northern provinces of China may possibly be saved from the same desolations by using horses and American plows instead of hoes and spades. Shallow cultivation gives too little cooling surface to the heated air of those high plains. It is certain that there is moisture enough in the air, but it must be cooled to the dew point in order to be used. The protection and assurance of crops every year is the deposit of invisible vapor suspended in the air.

#### THE PUGET SOUND BASIN—SHORE LINE 2,000 MILES.

This net-work of deep land-locked bays, inlets and sounds, opening to the Pacific through the De Fuca and Georgian straits, is the wonder of navigators and the joy of commerce. Fleets of lumber, coal, lime, vegetables, hops, grain, fish, oil, fruit, wool, staves, hoops,

furniture and furniture woods, water pipe and pump stocks, ship knees and spars, and the products of several other new industries, already glide through these ample water ways to the ocean and the world marts.

Freights are cheaper from Puget Sound to Liverpool than from Lake Michigan to Liverpool. The harvests now annually gathered from the forests and mines, from fields and orchards, from rivers and sea waters, all are mere signs of vastly greater and more varied harvests yet to be gathered.

#### LUMBER—MILLS.

The great mills are improving and increasing their machinery, using late inventions to economize force and perfect their lumber for the demands of builders and shipwrights, and other wood workers, while adding twenty to eighty per cent. to their average daily product. This draws more ships to their wharves, loads them quicker and oftener, and sends them in search of new markets.

#### COAL.

The Seattle mines of coal are a type of a vast series of veins which enriches this entire basin. These extend in sections northward into British America, and southward to the Columbia river, and along the foot hills and spurs to the Cascade and Coast mountains into California. The Seattle Coal Company will export over a hundred thousand tons the present year of very good domestic which is sold readily in San Francisco. The Seatco mines are sending an equally good domestic coal to Olympia, at lower rates on the O. & T. narrow gauge railroad. A short side track from the N. P. R. R. can put the same coal cheap into the Portland markets.

The Tacoma coal mines have begun to furnish fine grades of grate coal, and also of steam and gas and blacksmith, and of furnace coals. The steamer *Ataska* tested forty tons on her last trip, and her engineer, Mr. Stewart, pronounces it the best coal yet produced on the coast. She will now use it. The new railroad survey of the N. P. R. R. Co., *via* the Cowlitz Pass, reveals veins of true anthracite which give promise of ample supplies of smelting coals.

#### LIME.

The San Juan and Orcas Island lime have already become known as choice brands in our markets, displacing those from Santa Cruz, as the latter did the Oahu lime 15 years ago. The Puyallup lime beds now bid fair to rival those of San Juan, as their hops do those of more southern climes.

#### IRON.

Coal, lime and iron beds near together and near the sea, make blast furnaces and rolling mills and machine shops both possible and profitable. The same vegetation which produced the coal veins, also formed the deposits of iron ore. Their common laboratory was in the vast morasses of the carbonaceous period. Finding the coal outcroppings, you may expect to find the iron ores near by, and probably the lime rocks in some form. All these mines are found near Tacoma. The branch N. P. R. R., up the Puyallup valley, now opens the coal and lime to market, and touches the outcroppings of iron ore that indicate both the quality and quantity needed for home use and export. Once developed, the savings in freights alone will

furnish a large margin of profit for this home industry and a chance for export also to the vast marts of the Pacific coast, worthy the attention of the prudent capitalist and manufacturer.

#### LUMBER.

During twenty-five years the mill companies of Puget Sound have been exporting their products of fir and cedar to all the markets of the Pacific, while many cargoes of their spars and ship knees have gone to the maritime ports of France and England. Their annual export now exceeds two hundred millions of feet of sawed lumber. Yet they have only penetrated the forests from one to three miles from the shores of the bays and rivers, and only culled the timber so far. Single trees often make from 12,000 to 15,000 ft. Their average as estimated is 10,000 per tree and 50 trees, or 500,000 feet per acre. When cut close as in eastern forests, this amount in many places will be doubled. In the valleys curly maple, alder, ash, cedar and some other furniture and fine cabinet woods are found for a growing market.

#### FISH.

The waters of Puget Sound are the home of the salmon and salmon trout, the halibut, the herring, the rock and tom cod, the flounder, the sea perch and the smelt, with other varieties of food fish, besides extensive clam beds and oyster beds.

The dogfish and others are taken for oil. The fisheries have only just begun to enlist attention and capital, but they promise a large reward to enterprise.

#### FRUIT.

The apple, pear, cherry, plum, and even the Isabella grape flourish on the shores and islands of this archipelago; while the currants, strawberries, raspberries and blackberries grow luxuriantly, and give large and delicious harvests for the reward of every faithful gardener.

#### VEGETABLES.

The potato, turnip, tomato, beet, carrot, parsnip, squash, pumpkin, cabbage, cauliflower, celery and onion are raised easily and beyond the home market demands. Nearness to the sea offers a frequent profitable market for their exports.

#### THE GRASSES.

Timothy, red and white clover and orchard grass, blue grass, indeed every variety tested, thrives in this soil and climate, whether on lowland or highland.

#### THE CEREALS.

The specimens of these were shown by Mr. Bush at the Centennial Exposition, for which he received a well deserved medal of honor. His fine exhibit can be matched by any careful farmer in any of the valleys of the Puget Sound basin, and on all the wooded plains that trend toward the hills and mountains, and on the islands and dyke lands of the Skagit and Swinomish flats. These latter often yield 100 bushels of oats or barley per acre.

#### THE SOILS.

It has been thought at the first glance that the only good lands are

the river-bottoms and tide flats, and that the lighter and more sandy bluffs and slopes and forest-covered hills will be worthless to the farmer after the lumbermen have culled their grand treasures of timber. But look at the grass plots and gardens and orchards of Olympia, and the farms near by; or of Seattle, or Port Madison, or Port Gamble, or Port Ludlow, or Port Townsend, or Dungeness, or Coupeville, or Seabec, or any spot in Whatcomb, or Snohomish, or Island, or Mason, or Kitsap, or King counties, and you will see a luxuriant vegetation, a strength of tube and stock, a breadth of leaf, a deep rich coloring of flower, that give token of a soil and climate remarkably rich in all the mineral, vegetable, gaseous and vapor elements needed for garden and field, as well as forest.

The difficulty of clearing is more than matched by the cost of transportation from the distant though rich plains of the interior. The gain of nearness to the sea is found in the greater variety of products for use and export. The lack of alluvium and the deep black mold of the low valleys is more than compensated by the richer measure of the mineral, alkaline and siliceous deposits in these upland soils. They will last longer, make better and stronger tubes, holding up the grain heads firmly, proof against rust, and storm, and probably a surety against insect foes.

This soil, opened deeply by the plow, and often stirred deep in the summer afternoons, will absorb the air saturated with vapors, and furnish the finest irrigation to all sorts of plants, and yield the largest harvests.

Near every city, village and hamlet of the Puget Sound basin are open doors to abounding resources from the Creator's hand.

The need is of thought, toil, patience and economy to enrich that whole region with homes and farms abounding in comforts, health, luxuries and wealth.

TRANSPORTATION.

When the N. P. R. R. shall be completed, opening the vast grain fields and pastures of the interior to the sea, and carrying inland the lumber, coal, iron, and ocean commerce; and when the narrow-gauge railroads, like the S. & W. W. R. R., and the O. & T. R. R., shall extend the exports and imports through all the valleys, there will be ample occasion for an increase of enterprises on land and sea.

WESTERN OREGON AND WASHINGTON.—CLIMATE AVERAGE.

Winter.....	30	degrees, Farenheit.
Spring.....	52	“ “
Summer.....	67	“ “
Fall.....	53	“ “

ENGINEER'S CONDENSED REPORT, showing actual Steaming Qualities of Coal, Consumption of same, amount of  
Wheels, Running Time, &c.  
Pacific Mail Steamship Company's Steamer "ALBATROSS"



REMARKS GIVING PARTICULARS OF WIND, SEA, WEATHER, TRIM OF SHIP,  
KIND OF CARGO, &c.

The weather since leaving *Esquimalt* has been favorable. Ship's draft leaving *Esquimalt*, forward 19 ft. 2 in.—aft 19 ft. 3 in. Cargo consisting principally of produce. The coal received at *Tacoma* has been exposed to the Weather for months, which nevertheless has done good work corresponding to the power exerted. I would recommend all Steamship Companies, or large corporations, to give it a fair trial and test. In order to do this it is necessary to have a good Grate surface and good Draught. I would rather use this coal, from what I have seen of it, than any other on this coast. The mine is new, yet, and coal not at any great depth, and I am positive it will improve rapidly as they go into the mine. I have tried all other kinds of coal, except *Seattle*, and that, I am informed from good authority, is very sooty; while on the other hand, *Puyallup* coal makes no soot whatever,—therefore no sponging of tubes is necessary. I would say to all—try it, and I will substantiate my statement.

Very respectfully,

[Signed,]

JOHN STEWART,

Chief Engineer.

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