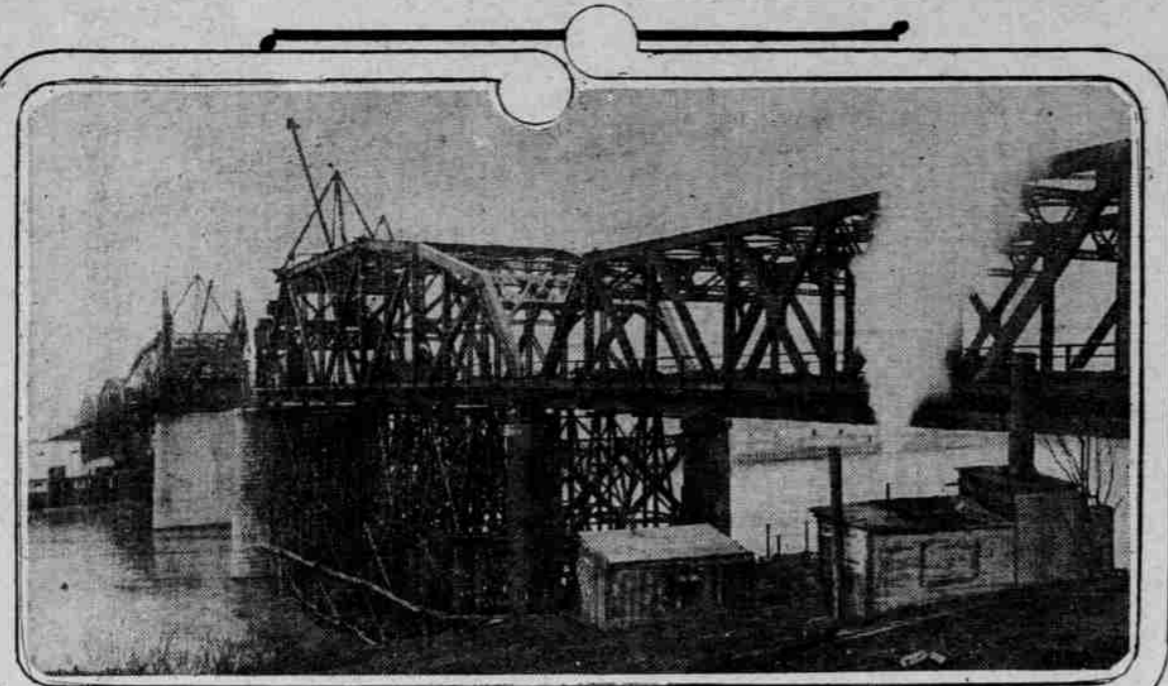
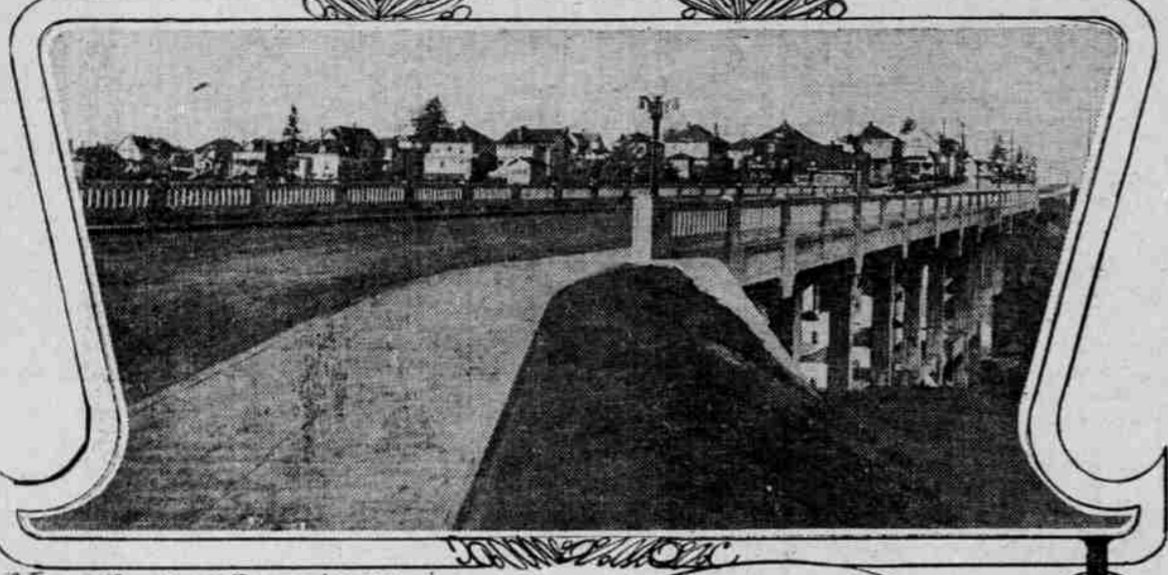


TWO COSTLY NEW BRIDGES ACROSS RIVER HELP EFFACE PHYSICAL BARRIER IN CITY

Broadway and O-W. R. & N. Spans Will Do Much to Facilitate Traffic Across Willamette—Another Viaduct Over Sullivan's Gulch Also Development of Year.



Broadway Bridge Across Willamette, to be Completed March 1st



New East 21 Street Bridge Across Sullivan's Gulch

BETTER transportation facilities for vehicle and streetcar traffic are provided by an extensive bridge-building programme carried out in Portland in the year just closed. One new bridge across the Willamette River—that of the O-W. R. & N. Co.—was completed; another, the Broadway bridge—was started and will be completed within the next ten weeks, and an additional viaduct was built across Sullivan's Gulch—at East Twenty-first street—thus affording connection between the Irvington district and central East Portland.

The new O-W. R. & N. bridge replaces the old "Steel bridge" that was built in 1888. The old bridge was so named because it was the first steel structure to be built across the Willamette. It answered well for its day and generation, but long since became entirely too light for the heavier rolling stock that came into use. The new bridge is located about 600 feet up stream from the old one, and reaches from Third and Glisan streets, on the West Side, to Adams and Oregon streets, on the East Side. The length over all is 1822 feet, of which about 1600 feet is of steel. A noteworthy feature of the bridge is the use of two decks, the upper one for highway traffic and the lower one for the steam railway traffic. This combination plan is used for the three main spans, crossing the river itself. Out on the shore the railway tracks are built on the ground, but the highway deck structure continues independently out to the proper terminal for it, with a total length of approaches of 1643 feet.

The bridge was designed for the very heaviest traffic on both decks that could reasonably be expected to use it. The lower deck has double tracks. The upper deck has a 28-foot width of roadway in the center for the streetcar traffic and automobiles and a space 15 or 16 feet wide on either side of the bridge for horse vehicles, except that on the lift span this width is reduced to 11 feet because of space taken by the trusses and there is a foot walk for pedestrians at each side of the structure next to the railing.

The west part of the upper deck has an up-grade of 8 per cent leading to the lift span and the east approach has a grade of 2 1/2 per cent. The lift span is so constructed that the lower deck can be lifted up to the underside of the upper one, thereby giving a clearance above low water of 72 feet and above high water of 51 feet. This height clears all but a very few of the larger steamboats at ordinary stages of water. The upper deck can be lifted to any height required up to 93 feet, thereby affording a clear height above low water when both decks are up to 145 feet. The new bridge is unusually heavy and massive, considering the comparatively short length of the river crossing. The weights of steel in some of the principal parts are: Approaches, 1190 tons; two fixed spans across the river, 4180 tons; lift span, complete, 1800 tons; towers, 860 tons; trolley poles, handrails, gas main, 840 tons; machinery and motors, 480 tons; total, 8590 tons.

The great advantage of this bridge over the older river bridges is that traffic on the upper deck is very seldom interrupted by opening of the draw. The bridge cost \$1,704,000, of which the highway part cost \$821,000. The Broadway bridge is expected to be open to traffic by March 1. It begins at Seventh and Hoyt streets, on the West Side, and runs north on Seventh street past the Union Depot, thence it turns northeast and crosses the river directly on the line of Broadway. The bridge ends on Broadway at Laurier street. The length over all spans take 1737 feet, and the two approaches the remainder. The Broadway bridge is for general highway and foot traffic and for electric railways. The bridge will have a distinct advantage over the O-W. R. & N. bridge for vehicle traffic in that the heaviest grade used on either approach is only 2 1/2 per cent, as against 8 per cent on the other bridge.

The river channel is occupied by a bascule span of the Rail type. The two halves or leaves of this are connected over the center of the channel when the draw is closed, and the opening is made by each leaf being tilted back by a counterweight on a short arm at its further end, aided by operating machinery. When the leaves reach a vertical position the clear opening is 250 feet. The clearance underneath the bascule span when closed is 93 feet at the lowest stages of the river and 65 feet at the highest stages that may reasonably be expected. The draw will seldom have to be opened except for the passage of sailing vessels. The clearance at the harbor lines is only nine feet less than at the middle, thus permitting the free movement of the smaller craft without much reference to the bridge spans.

OREGON LUMBER WILL SOON COMPETE IN NEW MARKETS

Cut Across Isthmus Will Take Cargoes Into Atlantic Ports, From Which Distance Now Bars Them.

By Ernest H. Meyer. ACCORDING to latest advices, the Panama Canal, an achievement which is the most remarkable engineering feat ever accomplished by any nation in the world, is to be opened September 23, 1913, on the anniversary of the day Balboa discovered the Pacific. The lumber industry is the foremost in the development of the Pacific Coast; in fact, the lumberman is recognized as being the pioneer of this country. What effect the Panama Canal will have on our lumber industry is a question that is being weighed in the minds of all our lumbermen today with variable degrees of interest. In considering the effect upon our domestic business, we should bear in mind that all markets that may be opened to us, or brought nearer to us, on the completion of the canal, are now fully taken care of from some source of supply, and that this same source of supply will still continue to produce and to market its lumber and other products. Our Pacific Coast mills for years have shipped large quantities of lumber, all rail, to the East Coast. Large quantities have also been shipped by vessel by the hazardous passage around the Horn. Our lumber is accordingly well known to these Eastern markets, but these shipments to the East Coast have been confined almost entirely to what are termed specialties. Our Pacific Coast timber is depended upon exclusively to furnish large and long timbers. Other specialties are fir flooring, fir finishing, spruce factory lum-

ber, cedar siding and finishing, redwood and cedar shingles, Oregon yellow pine, California redwood and upper grades of California sugar and white pine. The present rate tariffs make the rate on fir rough lumber \$3.75 per 1000 feet to the Eastern Coast market. All water rates will undoubtedly enable us to put our lumber into the East Coast markets at about one-half this rate, or even less. There is an immense market in the Atlantic states for our large square timbers and heavy planking. With this low water rate our Panama Canal will allow us to transport cheaper grades of lumber and at the same time broaden our field and enlarge our market for these large timbers and for our flooring, siding and finishing, and for cedar, California redwood, sugar, yellow and white pine specialties. The New York field has always been one of the largest markets for spruce and white pine box and crating material. This immense market will be brought nearer to us and the demand for this material will be enormous. The box manufacturer consumes more lumber than any other industry except the railway. Our principal distributing points will be New York, Philadelphia and Boston. To these distributing points we will be able to ship our fir timbers, all water, and then inland to the great Ohio basin. We will compete for business over a large area. We must keep in mind that the large

CHANNEL ADMITS LARGEST VESSELS

Three of the deepest-draft vessels to leave the harbor at Portland, or, in fact, sail from the Columbia River, in the history of navigation were dispatched during 1912, the first being the British steamer Willesden, which got away in October with 301,987 bushels of wheat, and drew 27.1 feet water. The Danish steamer Kina left the latter part of the same month with a cereal cargo for abroad, drawing 27.45 feet, and the deepest draft cargo steamer also gained the port record, the big five-masted German bark, R. C. Rickmers, which was down to 27 1/2 feet. Vessels drawing 24 feet and over to be loaded here during the past three years are listed below:

Month—Vessel	Foot Draft
1910	
February, M. S. Dollar	24.7
March, Glenafric	24.1
March, Augustus	24.0
June, Knight of Garter	24.0
July, St. Dunstan	23.7
July, Louisa	23.7
October, Knight of Garter	24.0
October, Uganda	24.8
October, Irish	24.8
November, Masunda	24.8
December, Solveig	24.11
1911	
January, Orteric	24.0
February, Queen Alexandra	24.0
February, Hercules	24.0
March, Siverly	24.0
March, Northumbria	24.4
April, Lucretia	24.0
May, Hercules	24.3
June, Serak	24.4
July, Ethelwyn	24.4
August, Earl of Portar	25.8
November, Kumeric	25.9
December, Celtic King	24.9
1912	
January, M. S. Dollar	24.2
January, Hercules	24.8
February, Hartington	24.9
February, Earl of Portar	24.9
May, Cian Maciver	24.6
May, Hercules	24.6
June, Sylvia	24.0
June, Verona	24.1
June, M. S. Dollar	24.2
June, Unkal M. M.	24.0
August, Orteric	25.3
August, Guernsey	24.9
August, Notberpark	24.9
August, Solveig	25.11 1/2
August, Hercules	25.5
September, British Monarch	25.0
October, Willesden	27.1
October, St. Dunstan	24.0
October, Kina	27.4 1/2
October, Egon	24.0
October, Terrigast	24.0
December, R. C. Rickmers	27.6 1/2
December, Jerabok	25.9
December, Louisa	25.2 1/2

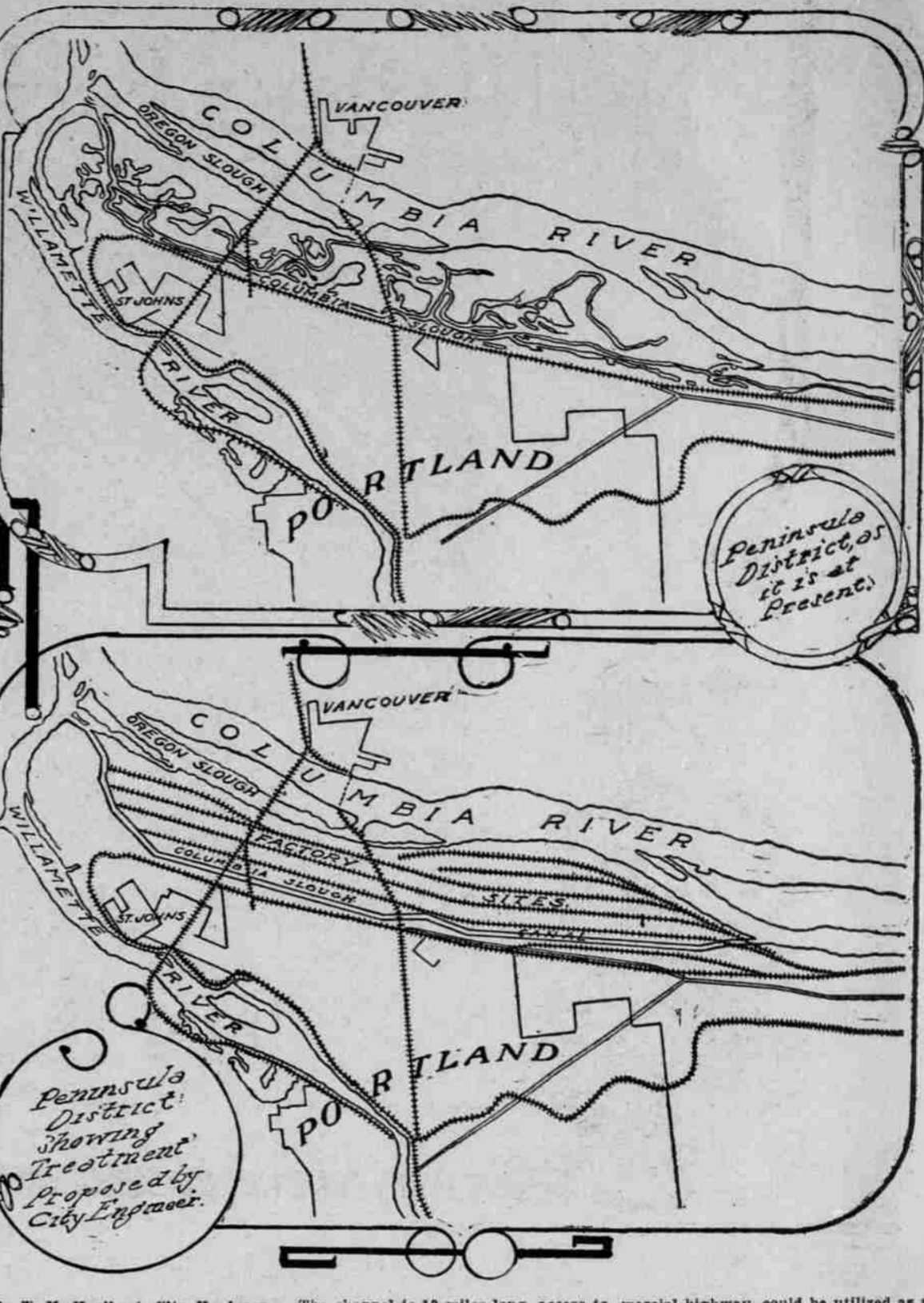
wholesale lumber dealers in our Eastern cities are large holders as well as operators of Southern pine and of the white pine of the Georgian Bay country, which now supply these markets. This undoubtedly means that our lumber Pacific Coast lumber operators will be obliged to establish large distributing yards in the Atlantic Coast cities if they expect to do much business. Yellow pine creates a principal competition in the Atlantic field today. Spruce from Maine and the Quebec country, and white and Norway pine from the Great Lakes and Georgian Bay district, also afford strong competition. We do not look for much business immediately in Eastern territory for the building of material for lower grades of lumber; nearer markets will undoubtedly continue to hold nearly all of this trade; but the all-water route should enable us to compete, sooner or later, even in these lower grades of fir. Our spruce box, however, will be placed in New York for less money than the white pine box from the Great Lakes. An important result will be upon the opening of the Panama Canal, too frequently overlooked by manufacturers, is the developing of our home markets along the entire length of the Pacific Coast through increased immigration to this Coast. It is estimated that 50,000 tickets have already been sold for passage to this Coast via the Panama Canal. Further estimates state that fully 500,000 immigrants will come to this Coast within the first two or three years after the Canal opens. If this is true, the lumber industry in the different Coast districts should organize in order to care for this immense immigration that these people may be settled upon tracts of land at reasonable cost that they may live as they develop the land, to become useful and productive citizens. These will create a demand for our low-grade lumber; and, after all, it is the same market that supplies the margin to enable the manufacturer to conduct and expand his business.

Our Pacific pine, spruce, California sugar and white pine and redwood destined for the United Kingdom and for the Continent, and for the East Coast of the northern part of South America, at present, are shipped around the Horn, or via the isthmus, or via rail to Galveston and thence via vessel. A great deal of California redwood, white pine and sugar pine are now shipped to New York all-rail and thence by vessel to the United Kingdom. The Panama Canal will lessen this distance by the all-water route from 19,000 miles, thereby effecting an enormous saving in transportation. This saving in freight should result in these products being sold at a lower percentage of their requirements from the Pacific Coast, and proportionately less yellow pine from the South and white pine from the Great Lakes region, these products being now our strongest competition in these foreign markets.

Although the southern part of the Atlantic Coast of North America will not be brought closer to us via the canal, yet our market should be greatly enlarged in the Argentine Republic, where an extensive business must develop at once for our spruce box lumber. On the contrary, the Panama Canal will open the west coast of South America and a portion of North America to the Southern pine dealers, placing them very much nearer than at present, and at a favorable freight rate, to our market. Furthermore, this market with them to some extent; but the Southern yellow pine mills have not the class of timber to meet the requirements of this market. Our Pacific Coast timber is depended upon exclusively to furnish large and long timbers. Other specialties are fir flooring, fir finishing, spruce factory lum-

CONVERSION OF COLUMBIA SLOUGH INTO SHIPPING CHANNEL NOW IS ADVOCATED

City Engineer Presents Plan to Extend Industrial Area on Peninsula and to Add to Portland's Prestige as Harbor—Survey Shows Plan Possible.



By T. M. Hurlburt, City Engineer. MY opinion on the other proposition presented to the people of this city possesses such immense possibilities as are offered by making a traffic highway of Columbia Slough. I have long contended that if this natural waterway, which extends from the Willamette River in an easterly direction, a distance of 12 miles, to the Columbia River, is dredged to a sufficient width and depth to permit river boats and even larger vessels entering, it would provide one of the largest and best harbors on the Pacific Coast, and do more than any other undertaking to establish Portland's supremacy as a harbor in the Pacific Northwest. It is my plan first to clear the present channel of all trees, stumps, driftwood and other debris and open it up sufficiently to permit a portion of the water from the Columbia to flow through it. Starting at the confluence of the slough with the Willamette, I would dredge a channel of sufficient width and depth for ordinary river traffic, increasing the depth, and possibly the width, according to the needs and amount of traffic traversing the channel. At certain points along the channel I would dredge basins of sufficient size to permit the anchoring of vessels. The possibilities of this slough for commercial purposes are unsurpassed. The channel is 12 miles long, access to it being below any of the bridges in the present harbor, and it will bring into use ground on both sides of the channel for docks. The land on each side for a mile back could be utilized for railway terminals and manufacturing sites and other industries. There are absolutely no obstacles in the way for developing this waterway as a commercial highway and its accessories, excepting the cost, as the system could be laid out without any hindrances such as now confront the city on our present waterfront. A general plan could be formulated and all desiring to avail themselves of the advantages offered by opening the stream as a great harbor could be forced to build in conformity to these plans. In my opinion it would not be long before the great commercial forces of the city would realize the importance of the project and back up my efforts to bring it to a successful culmination. Docks, terminal yards, mills and factories could be located there. Columbia Slough should not be confused with the Oregon Slough, over which the jurisdiction of the Port of Portland Commission recently was extended, and which is one of the channels of the Columbia River. It is distinctly separate from the Oregon Slough. A secondary proposition—the slough, if drained and made into a com-

PANAMA CANAL TO RESULT IN LOWER FREIGHT RATES BY RAIL AND WATER

Reduced Charges for Ocean Shipping Are Certain, and Transcontinental Lines Must Meet Them to Seaboard Cities.

By J. H. Lathrop, Manager Transportation Committee, Chamber of Commerce. T has been announced that the Panama Canal will be officially opened on September 23, 1913. President Taft has issued a proclamation prescribing the terms on which tolls are to be levied on vessels passing through the canal. The rate is \$120 for each net ton. This, however, does not apply to American coastwise traffic as Congress has decreed that on this no tolls will be assessed. The opening of the Panama Canal will be an event of the greatest importance not only to this country, but to the world. The canal will shorten the distance by hundreds of miles between many of the largest trading points, and will divert to new channels much of the world's commerce. It will bring new competitors into the field, who have heretofore been excluded because of greater distance from markets or because of prohibitive freight rates. A large number of settlers from foreign countries will come direct to the Pacific Coast, that would otherwise land at Atlantic ports. The opening of the canal means tremendous growth and rapid development of the entire Pacific Coast and the intermountain country lying to the east. What the freight rates will be on traffic passing through the canal is problematical. Volume of tonnage, and the number and kind of steamers engaged in the business will have much to do in determining how much existing rates will be reduced. There is but little doubt that ocean rates will be substantially lowered. Furthermore, much freight now regarded as sea-going, owing to necessary, damaging and expensive transfer from boat to cars and back again to boats, will be vigorously solicited for transportation by water. Quicker service also will tend largely to increase the movement by sea. If the preponderance of ton-

nage should be the manufactured goods of the East, or materials produced in that section and required on the Pacific Coast to be employed in manufacturing or because of prohibitive freight rates, home products, needed for return cargoes, will move at low rates. Oregon lumber, which up to this time has moved in limited quantities, will be forwarded in cargo lots to New York, Philadelphia, Boston and other cities, by steam schooners, and on the transoceanic route, on the return trip in lieu of ballast. Low rates will prevail. The conditions existing at present between Portland and San Francisco will be duplicated, but upon a much larger scale. Our hops, wool, dried fruits, canned fruits and vegetables, and other Oregon products will be largely sought. There will be developed new industries that will use our natural products, and utilize our natural resources, due primarily to our ability to reach the Eastern markets at low freight rates. Wood fibre made from Oregon fir and other woods will supply the paper mills, which owing to the depletion of Eastern forests, must look elsewhere for their supply. The question has frequently been asked, "what will the railroads do?" We may rest assured that the water trip in lieu of the forthcoming decision of the Supreme Court with respect to the long and short haul section of the interstate commerce law, and which will also prescribe to what extent the railroads may go in meeting water competition, and in fixing rates that are not actually water competitive. Regardless of these features, however, the canal will be the direct cause of a rapid growth and development of the entire Northwest, and will be a potential factor in regulating as well as reducing freight rates. The rate structure of the whole country will be materially changed. Taking all these things into consideration, we can reach but one conclusion—that Portland will reap substantial benefits as a result of the building and opening of the Panama Canal, and freight rates will be greatly reduced by reason of the operation of direct steamers to and from Atlantic and Gulf ports.