

CELILO CANAL WILL JOIN UPPER AND LOWER COLUMBIA; 4 1-2 MILLION DOLLAR WATERWAY NEARING COMPLETION

DITCH IS BUILT FOR NINE MILES THROUGH SAND AND SOLID ROCK

Five Mile and Ten Mile Rapids and Celilo Falls Are Natural Barriers Overcome by Work

RIVER NAVIGABLE FROM MOUTH TO PRIEST RAPIDS

Renewed Activity In Navigation on Upper River Certain to Follow.

By Fred W. Vincent.

THE year 1915 will mark the opening of two canals that are destined to play roles of greatest importance in the development of Portland and the Pacific northwest.

Facts and figures concerning the first, the Panama canal, are familiar to all; of the second, Celilo canal, which is at our very doors, virtually little is known, notwithstanding the fact that it will have everything to do with the growth of upper river transportation on the Columbia and Snake rivers, and will overcome the last obstruction standing between the continuous navigation of the Columbia from the Pacific to Priest Rapids, Washington, a distance of 407 miles.

The drainage area of the Columbia is 259,000 square miles, and with the canal's completion a large portion of this magnificent agricultural and stock growing empire will be thrown open to navigation, which will be free then to compete with the railroad systems which now hold a transportation monopoly.

Completed, the Celilo canal will lack only four tenths of a mile of being nine miles long. At the present time it is about two thirds finished.

Within a very short time the concrete work at all of the locks will be ready for the installation of the steel lock gates. To complete the concrete lining of the canal where it runs through sand and gravel will require about eight months' work, and an additional four months will be needed to put on finishing touches before the water is allowed to enter the west's newest "ditch."

The first estimate of the cost of the canal was \$4,854,000, but it is now believed that it will be finished at a cost of several hundred thousand dollars less.

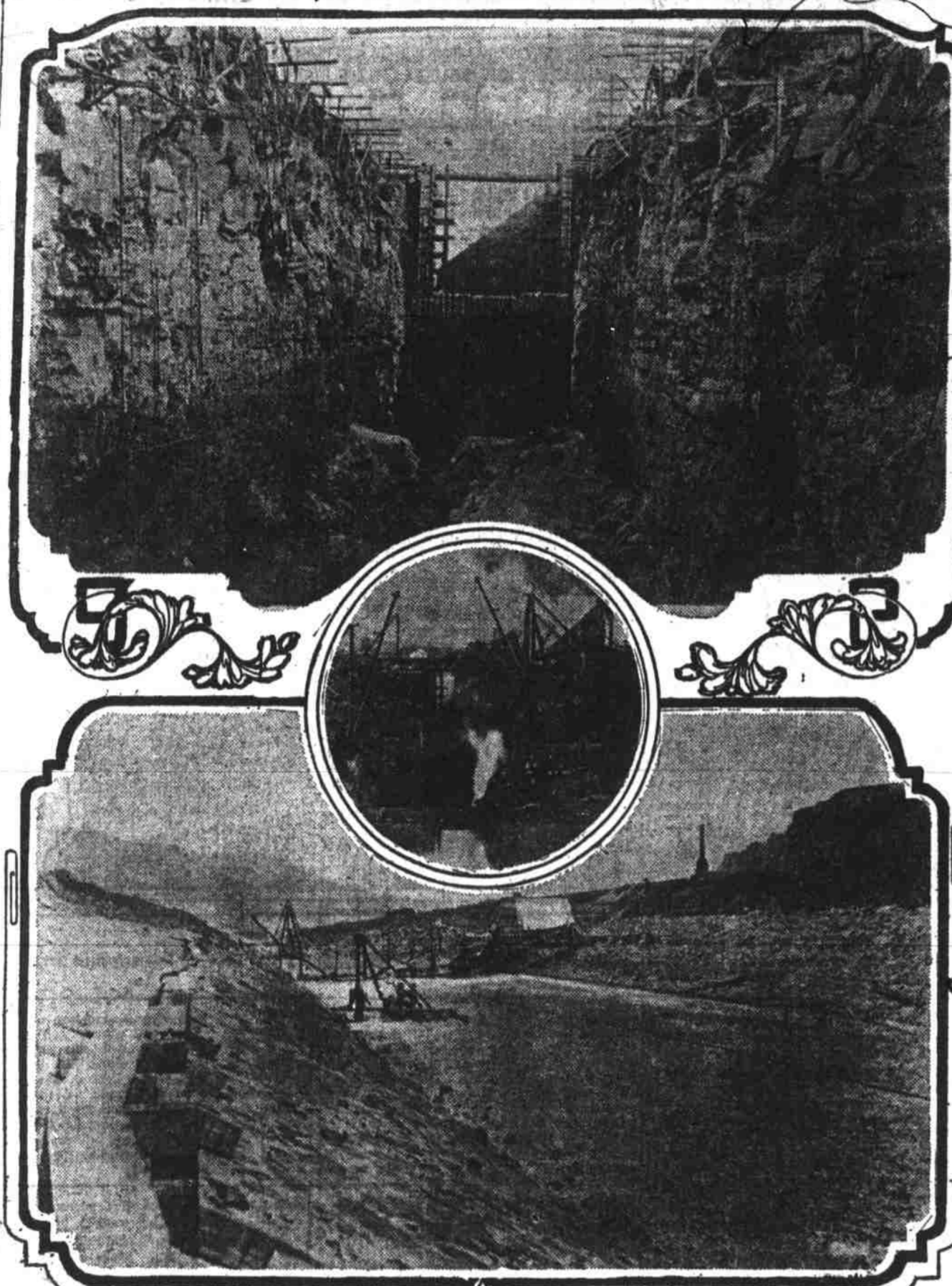
Just what the effect of the opening will be is problematical. About the first thing, in all probability, will be the reduction of freight rates to points on the Columbia, below Priest Rapids, and on the Snake river to Lewiston, Idaho, for then a steamboat can travel from Astoria to Priest Rapids, 407 miles, or to Pittsburg Landing, Idaho, 550 miles. Sufficient transportation and low freight rates will naturally prove inviting to investment seeking capital, and one of the reasons for slow development—high transportation charges—will have been done away with. With an open river will come growth, that cannot be gainsaid.

Sixty-five feet wide, the canal has already taken shape. For more than five miles it pushes its length through rock and the remainder of the distance is given over to sand and gravel formation and man made rock—concrete—these give the ditch form and staunchness.

Five locks will be necessary to carry a vessel through the waterway. At Big Eddy, the lower end of the canal, will be tandem locks, each capable of lifting or lowering a boat 35 feet. Opposite five mile rapids, there is to be a third lock which will lift 12 feet, and opposite Ten Mile rapids, another which will be used to elevate watercraft five feet during high water, while the last, just above Celilo Falls, will bring boats up the last step, 10 feet and allow a boat to float out on the level of the river, this time above the falls. These locks will be operated by electric power which will be generated by power from the river.

Among the obstructions overcome by the canal are the Five and Ten Mile rapids, where the great river, upended, tosses, squirms and foams between rock walls so narrow that a small boy can cast a pebble from one side to the other, and lastly, the reef known as Celilo Falls. Six thousand feet wide at this point, the mighty stream foams and sprays through and over the saw like teeth of volcanic rock, and falls thundering into the basin below.

Construction work on the canal, which followed years of surveys, re-



Views of construction work along the Celilo canal. Top—Tandem locks cut practically ready for concrete lining. Center—West entrance to tandem locks cut. Bottom—Rubble slope lining in sections of the canal excavated from gravel.

ports and time spent in securing a right of way, began in October of 1905. At that time a contract was let by the United States government for one half mile of canal which consumed all the funds then available, \$300,000.

In 1908 a second contract was let for 14,000 feet of canal at a cost of \$400,000. At that time it was planned to finish it in seven years, expending approximately \$600,000 each year.

But in 1910 it was decided that the government should do the work, employing hired labor, and in July of 1910 operations under this system were begun. They were continued until September of 1911, when available funds ran low and operations were gradually suspended pending the authorization of another appropriation. By June work was entirely shut down and as the funds did not become available until the latter part of July, 1912, considerable delay was suffered and work not actively resumed until September, 1912.

Congress Renews Appropriations. But congress was particularly generous in July. It appropriated \$1,200,000 and since September of 1912 operations have been carried on vigorously except when freshets or wintry weather interfered.

At the present time every piece of machinery is at work and 600 or more men each day throw muscle and brain into work that is bringing nearer the day when all is done and the Columbia will be free.

Four steam shovels are at work on excavation; six traveling derricks are placing concrete linings; four large stiff leg derricks are doing their share toward placing the concrete for the various locks and a dredge is deepening the channel at the point where vessels will make entrance at the Celilo end of the canal.

Everywhere there is hurry, bustle, the shrill whistle of hurrying construc-

tion trains, the roar of machines and the detonation of dynamite as it rips away rock and makes way for the water to come.

The canal headquarters at Big Eddy resemble a small factory town with its shops, offices, hospital, stores and houses where the men at work make their homes.

Here are accommodations for about 400 men and along the line between Big Eddy and Celilo other camps are scattered, the principal one being "Camp 3" at Robert Station, where 1000 men can be cared for.

Each camp is well arranged and sanitary. Each is provided with a sewer system and excellent water for drinking purposes is supplied from wells driven through from 100 to 250 feet of solid rock.

Camp equipment includes a regular hospital corps consisting of a physician and the necessary nurses, who find their chief activity looking after injured men, as there has been little sickness among the working force.

Major Jay J. Morrow, corps of engineers United States army, with headquarters in Portland, has general charge of the canal work. Captain T. H. Dillon, who relieved Captain H. H. Robert last summer, is in local charge with headquarters at Big Eddy. He is assisted by F. C. Schubert, assistant engineer, James Brownlee and James H. Polhemus, junior engineers, and Frank W. Saunders, superintendent of field work. Under them are many assistants, overseers and foremen who are carrying out the plans to give to the northwest something of inestimable value—an open river, a mighty current, free to navigation and a natural roadway to the sea for the products of the far interior.

Out of the Question. The talk topic turned to modern extravagance, and this one was contrib-

RAILROAD TO COAST FROM EUGENE WELL UNDER CONSTRUCTION

Coo's Bay District to Have Rail Connections With Outside World.

By Mark Woodruff.

NO MORE important railway development has ever been undertaken in Oregon than was witnessed by the year 1913 when the Southern Pacific company started from Eugene to Coo's Bay with the construction of the Willamette Pacific railway. Unannounced, unnoticed in this land of big things, it has quietly begun the opening up of a district larger and richer than the combined wealth of a quarter of a dozen of eastern states which might be grouped for comparison. Its completion gives the Southern Pacific three lines from the interior to the Pacific ocean, and three cross valley lines of importance: The Willamette Pacific from a connection with the Natron line to Coo's Bay, the Salem, Falls City & Western from Silverton to Black Rock, and the Corvallis & Eastern from Albany to Yaquina bay.

While the pioneers of the Coo's Bay country in southwestern Oregon sought gold in its shifting beach sands, their successors have found larger wealth by harvesting salmon from its waters, timber from its hills, coal from beneath the earth's surface, and in utilizing green grass the year around in keeping up a flow of milk that has made Coo's county second only to Tillamook in production of west coast dairy products. The Coo's Bay country has become an empire of itself since 1856, when the first saw began rasping boards from logs 10 feet in diameter. With no outlet, save for a few coastwise ships, its tremendous natural resources have been joined to the advantages of its wonderful land locked harbor to produce a population of 10,000 for the four incorporated towns that border the bay.

Trade Now Goes to California.

Handling an export ship tonnage valued at \$3,000,000 during 1912, its trade has gone to California to a large extent, and although accredited as a

huge section of the Oregon map, the Coo's Bay country has heretofore stood as a commercial colony of California—save for voting and taxation purposes it might have as well be one of the islands of the South seas.

Aside from the encouragement of the investment of capital in its industries and the construction and operation of a 27 mile railroad between Marshfield and Myrtle Point, the Southern Pacific company has not until 1913 been able to begin the execution of its plans for the betterment of western Oregon, and which will give Coo's Bay a standard railroad connection with a transcontinental line. The Southern Pacific is now pushing the construction of its Willamette Pacific railway from Eugene to Coo's Bay, a distance of 135 miles, and will have the road in operation before the expiration of 1914. Deemed of foremost importance in its scheme for giving all of its Oregon territory adequate transportation facilities, the Southern Pacific has given precedence to the construction of the Willamette Pacific and its electrical operations in the Willamette valley.

Starting at Eugene, the capital of Lane county, the Willamette Pacific strikes west toward the Coast range, 26 miles of the road being now completed. In its approach to the mountains it traverses a rolling and rich agricultural district, the valleys being highly cultivated and the slightly timbered hills forming most inviting prospects for the industry of the home builder.

Coast Range Is Tunneler.

Avoiding grades and difficulties of winter operation of railroads in mountainous countries, the Willamette Pacific burrows under the Coast range in making use of the great Noti tunnel, 2480 feet in length and all completed, and emerges upon the Siuslaw river. Passing down that stream to Acme, Florence and Marshfield, the new road crosses the Smith and Umpqua rivers en route and affords shipping facilities to a large area of the lower watersheds thereof. The contractors have established grading camps at intervals from Coo's Bay to the Noti tunnel, and it may be said that work on all parts of the western slope grade is now in progress. The construction of this road requires the building of so many steel bridges that the laying of rails can only proceed from bridge to bridge, ballasting operations keeping close behind the track layers.

The completion and opening of the Willamette Pacific railway means that the lumber mills of that section will secure better facilities in marketing the 100,000,000,000 feet of logs standing on the hills adjacent to Coo's Bay, that the coal from its mines can be placed within the reach of the coast cities, that its

fisheries will be available to market, that its unexcelled dairy lands will be more generally used and their products be enabled to find more ready sale, and that within a short time the Coo's Bay country will be rivaling the Willamette valley in the value of its output of the farm. Its cheap logged off lands and burns are already in demand.

Recounting of the year's activities would be incomplete without the story of what the Southern Pacific company is doing in preparation for the 1915 world's fair rush to the Pacific coast. Five millions of dollars are being expended by the company in preparing new equipment to handle the crowds of people it will aid in showing "Oregon first, and all of Oregon."

Corvallis & Eastern Improved.

In carrying out its policy for the interior development of western Oregon, the Southern Pacific is now engaged in laying heavy steel on the line of the Corvallis & Eastern, the road which connects the Willamette valley with Yaquina bay and Newport. The rails are already laid from Albany to Corvallis and from Corvallis to Norton's, the track is being rebalasted a distance of 36 miles, while from Norton's to Yaquina bay, another 36 miles of 15 pound steel is going down, making the road one of the best in the state.

Between Portland and the California line the Southern Pacific has this year constructed 12 miles of sidetracks as aids in handling the business of the farms and cities along its main line, and preparatory to handling the excursion business of 1915, when it is hoped that thousands of people may be induced to take advantage of stop-over privileges for investigating the country back from the coast. The main line has just been heavily ballasted from Oregon City to Hubbard, and during the coming winter crushed rock will be placed on the roadbed between Hubbard and Marlon, another stretch of 36 miles. In addition to these improvements and betterments, 90 pound steel has replaced lighter material on 70 miles of the main line in Oregon.

What's in a Name.

From the Rocky Mountain News. Mike, one of the unemployed, was told of a vacancy and went to apply for the job. After he had answered a number of questions, the employer asked: "What's your name?" "MacGonigal, sorr."

"Spell it." "Mo-nol Mo-a-g— Mike stuck, but tried again. "M-a-g-a— Ach, to blazes wid ye. Ye can keep yer ouid job."

Your Account Is Invited

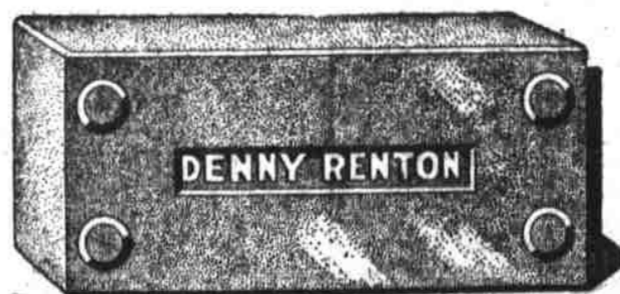
This bank has a thoroughly equipped plant, an efficient staff, ample capital, large resources, a strong directorate, capable officers

LUMBERMENS NATIONAL BANK

CORNER FIFTH AND STARK
Resources 7 Millions

Vitrified Paving Brick

That meets every condition of the paving specifications of the City of Portland



Highways Paved With Our Vitrified Paving Brick or Block make permanent Roadways for Horse or Automobile. "Think it Over!"

DENNY RENTON CLAY AND COAL CO.
176-S BURNSIDE STREET

THE CANADIAN BANK OF COMMERCE

HEAD OFFICE: TORONTO, CANADA

Established 1867

A General Banking Business Transacted
Interest Paid on Time Deposits

Portland Branch:

CORNER SECOND and STARK STREETS