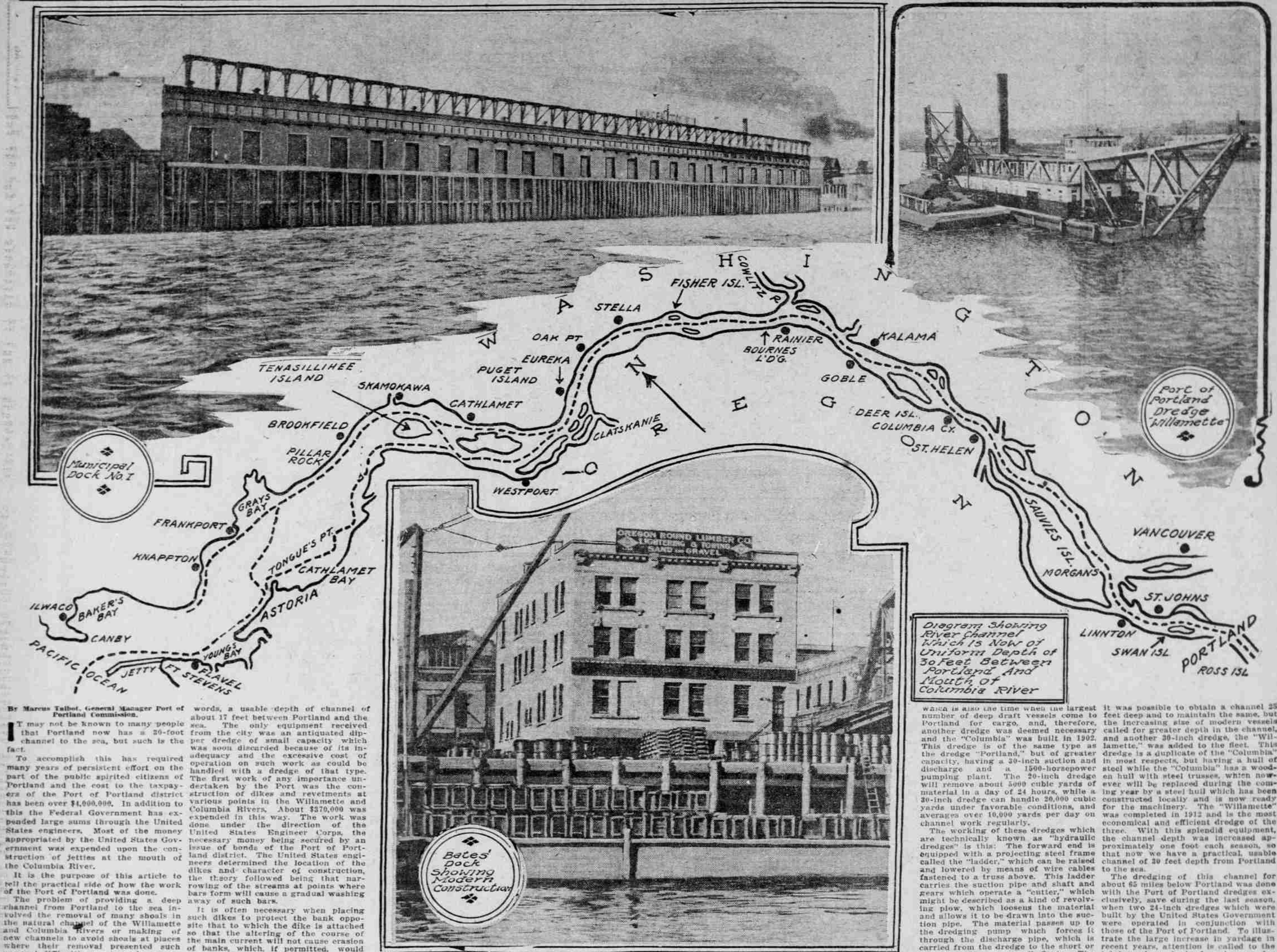


30-FOOT CHANNEL TO SEA IS GREAT ACHIEVEMENT FOR PORT



By Marcus Talbot, General Manager of Port of Portland Commission.

It may not be known to many people that Portland now has a 30-foot channel to the sea, but such is the fact.

To accomplish this has required many years of persistent effort on the part of the public spirited citizens of Portland and the cost to the taxpayers of the Port of Portland district has been over \$1,000,000. In addition to this the Federal Government has expended large sums through the United States Engineers. Most of the money appropriated by the United States Government was expended upon the construction of jetties at the mouth of the Columbia River.

It is the purpose of this article to tell the practical side of how the work of the Port of Portland was done.

The problem of providing a deep channel from Portland to the sea involved the removal of many shoals in the natural channel of the Willamette and Columbia Rivers or making of new channels to avoid shoals at places where their removal presented such unusual difficulties as to make a new cut more practicable.

When the Port of Portland was created in 1891 to take up the river and harbor improvement work, which the City of Portland had been doing in a desultory way for some years, there was a minimum, or, in other words, a usable depth of channel of about 17 feet between Portland and the sea. The only equipment received from the city was an antiquated dipper dredge of small capacity which was soon discarded because of its inadequacy and the excessive cost of operation on such work as could be handled with a dredge of that type.

The first work of any importance undertaken by the Port was the construction of dikes and revetments at various points in the Willamette and Columbia Rivers. About \$370,000 was expended in this way. The work was done under the direction of the United States Engineer Corps, the necessary money being secured by an issue of bonds of the Port of Portland district. The United States engineers determined the location of the dikes and revetments, and the theory followed being that narrowing of the streams at points where bars form will cause a gradual washing away of such bars.

It is often necessary when placing such dikes to protect the bank opposite that to which the dike is attached so that the altering of the course of the main current will not cause erosion of banks, which, if permitted, would probably form new bars and cross currents. Experience has shown that in confining river currents or changing their course care must be taken to avoid violently disturbing the natural flow of the current, or many bad results will follow. The dikes were only partially successful and when it became apparent that dikes, even if eventually causing the desired deepening to take place, were at best a slow working agency of improvement, and the rebuilding of the maritime commerce of Portland made it necessary that a sufficient channel be provided as quickly as possible.

It was determined that dredging would be the solution, so a 30-inch suction dredge, called the "Portland," was built and placed in operation in 1892. It was found, however, that all the work necessary could not be done with this one dredge as the several shoals places must each year be dredged over and the material deposited thereon by the Spring freshet removed promptly so that the channel will be unimpeded during the low water period of the Summer and Fall.

As a consequence, the acreage sown in wheat this Winter has been largely increased and with favorable weather conditions from now on, Portland will have more wheat to handle in the coming season than ever before.

Oats prices were also tending upward at the close of the year with good indications of going to a record level before the supply is exhausted.

More barley has been fed to stock this season, owing to the high price of wheat. This fact, and some buying for export to Europe, has had a favorable effect on barley prices. Barley, however, is still the cheapest on the market.

The importance of the Portland Merchants' Exchange as a trading institution is made plain by the volume of business transacted since it opened for cash trades on August 18, 1914. From that date to December 12, wheat sales aggregating 500,000 bushels were posted, oats sales amounted to 2330 tons, barley sales 1550 tons, bran sales 1425 tons and shorts sales 1600 tons, the whole representing an aggregate value of \$1,068,556.

The officials who have charge of the workings of the Exchange are D. A. Patullo, president; A. Berg, vice-president; A. Cohn, secretary and treasurer; and Fred Clark, assistant secretary. The membership of the exchange includes about 50 grain firms and embraces every grain house in Portland as well as dealers at Tacoma, Seattle, Spokane, San Francisco, Los Angeles, Lewiston, Walla, Walla, Pendleton, La Grande, Wainburg, Athena and Warrenton.

Not only has the exchange become a valuable factor in the grain trade of this city and the Northwest by providing a reliable market at its daily sessions, and thereby establishing responsible prices, based on supply and demand, but it is also an institution designed to further the welfare of the grain industry of the territory tributary to Portland. A matter now in the hands of this body relates to state grain inspection. The exchange has gone on record as favoring such inspection and a bill has been drafted by a committee which will be presented to the Legislature and its passage urged. The bill is patterned after the Washington inspection law and will put Oregon on an equal footing with other grain-growing states.

Wheat stocks in the Northwest were sharply reduced at the end of the year, in fact the supply now on hand is probably the smallest the farmers have ever carried on this date. At no time since the war began has there been a cessation of the demand from Europe, and it is certain that a much larger crop could have been disposed of without the price being affected.

Wheat prices in the closing month of the year were the highest ever known in this part of the country. For several weeks now farmers, even in the remote interior, have been getting over \$1 a bushel net.

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Portland Chief Wheat Market Center of Northwest

In Both Wheat and Flour Receipts Big Showing Is Made Over Seattle and Tacoma—Wheat Receipts for Year Totalled 26,439,800 Bushels—Trade Territory Expands.

By John M. Lowndale.

SINCE wheat growing began on a commercial scale in the Pacific Northwest, Portland has been the leading market for the cereal in this section. For several years now it has also been the principal market for wheat on the Pacific Coast. In the past year it easily maintained its lead.

Several causes are responsible for Portland's supremacy as a wheat-trading center. The water level route from the wheat growing sections makes this city the natural marketing and distributing point. The building up of the business has long been in the hands of experienced and energetic merchants with ample financial resources. The guarantee of quality furnished by the Chamber of Commerce grain standard committee facilitates the sale of the cereal in foreign markets, and cargoes are floated at this port with a minimum of expense. Lastly, that excellent trading organization, the Portland Merchants' Exchange Association, has provided an open market where grain can be sold in any quantity on a strictly cash basis, and actual values are thereby established which are now recognized throughout the entire Pacific Northwest.

Portland Leads Northwest. First of all, as showing Portland's rank as a wheat-receiving point, a comparison may be made of the arrivals at Portland, Tacoma and Seattle during the current grain season. From July 1 to December 1, wheat receipts at Portland amounted to 12,737,700 bushels. In the same period, Tacoma received 7,994,900 bushels and Seattle 6,393,600 bushels. Portland also received more flour from the interior than Seattle, the principal flour shipping port of the Northwest, the Portland receipts in the period named being 432,500 barrels as compared with 422,400 barrels received by Seattle.

Statistics for the calendar year 1914 show that 21,251,000 bushels of wheat were received at Portland from the inland Empire. Receipts of flour during the year were equal to 5,135,000 bushels more, making a total of 26,439,800 bushels, or almost one-half of the wheat crop of Oregon, Washington and Idaho. There was less wheat to move last year, than in 1913, when Portland's receipts totalled 23,073,000 bushels. In 1912 the Portland wheat receipts were 21,539,000 bushels, in 1911, 19,655,200 bushels, in 1910, 13,245,700 bushels, and in 1909, 11,544,000 bushels, showing a remarkable expansion of the wheat business of this city since five years ago.

Flour Movement Strong. A vast quantity of flour, aside from that ground by local mills, is handled by the trade of this city. This is indicated by the receipts during 1914 from interior milling cities of 1,146,400 barrels. In the preceding year, 1,173,200 barrels of flour were received; in 1912, 917,600 barrels; in 1911, 1,109,600 barrels; in 1910, 915,500 barrels and in 1909, 927,600 barrels.

The quantity of barley received last year was also slightly less than in 1913, but was much greater than the quantity brought in in other previous years. The receipts in 1914 were 32,880 tons compared with 29,880 tons in 1913; 36,755 tons in 1912; 22,400 tons in 1911; 24,450 tons in 1910 and 45,815 tons in 1909.

The volume of the oats trade, on the other hand showed an increase in 1914 over the preceding year. Local receipts amounted to 45,400 tons compared with 36,440 tons in the preceding year; 43,500 tons in 1912; 68,400 tons in 1911; 56,220 tons in 1910, and 54,640 tons five years ago.

It was a less active year for the hay dealers, for supplies received in this city amounted to 45,400 tons compared with 56,440 tons in the preceding year; 43,500 tons in 1912; 68,400 tons in 1911; 56,220 tons in 1910, and 54,640 tons five years ago.

Cereal Total 25,516 Carloads. Total receipts of grain, flour and hay in the year just closed amounted to 25,516 carloads, according to figures compiled by the Merchants' Exchange. This was 2028 cars less than received in 1913 and 1523 cars more than in 1912. The greater receipts of some products and the smaller movement in other lines was due not only to variations in the size of crops but to the effect of the war on the demand.

The inquiry from Europe for wheat and flour was never stronger and had facilities for transportation by sea been adequate, a much greater wheat crop could have been disposed of without lessening the high prices. The barley movement started off well, but was checked when the brewing trade of Europe was interrupted by the war. There is now a renewal of the demand, as barley is needed on the other side of the Atlantic for grinding and the en-

sharply reduced at the end of the year, in fact the supply now on hand is probably the smallest the farmers have ever carried on this date. At no time since the war began has there been a cessation of the demand from Europe, and it is certain that a much larger crop could have been disposed of without the price being affected.

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Railroads Big Factor in Northwest's Development

Immense Producing Sections of Oregon, Washington and Idaho Served With Adequate Transportation Facilities. New Districts Opened Up by Extension of Lines—Era of Intensive Progress Is Due.

By Wm. McBurney, General Passenger Agent Oregon-Washington Railroad & Navigation Company.

THE railroad is a significant factor in the development. The year 1895 marked the beginning of transcontinental railway construction, and at the close of that year 40 miles had been built. The Union Pacific was the pioneer in railroad-building in the West. The total mileage of track has grown from 40 miles to 7673 miles. In 1870, the nearest census to the time the first rails were laid in the West, Oregon, Washington and Idaho had a combined population of 139,917. At the last census, 1910, the population had increased to 2,149,349. The Oregon-Washington Railroad & Navigation Company is a part of the Union Pacific system, and its lines are operated in the states mentioned. In attempting to show the part the railroads have taken

in the development of the West, my statements will be confined to the system with which I am identified.

Increase in population follows railroad construction and development is the result of peopling the land. The figures given show remarkable growth in the number of inhabitants, but the increase has been greater by far in the cities than in the country. One-third of the population of Oregon is within the confines of Multnomah County. Practically half of the inhabitants of the state of Washington live in a dozen cities. The gigantic strides in development in the Pacific Northwest are gratifying. Its timber, fisheries, farm products, livestock and other sources of wealth go to make it one of the most desirable sections of the continent and the world.

Portland Shipping Center. Portland, as a shipping center, is naturally situated. It is the natural distributing point for a region 250,000 square miles in extent. Railroads penetrate the forests, the mining regions, the agricultural, horticultural and stock-growing sections of this vast empire. A deep water harbor furnishes facilities for transshipment of products to all parts of the world. Commerce has grown. Statistics show steady increase, and new avenues of commerce are opened by the Panama Canal. This is a factor in transportation. It is not yet fully developed.

This section of the Northwest is destined to be a manufacturing country. We are rich in timber, clay, gypsum and other minerals. Our grain lands are broad enough to feed the Nation. No limit can be placed on our resources. There is power enough in the streams of the Pacific Northwest to turn the wheels of manufacturing plants without number. Milling and packing industries will multiply. Growth in manufacturing is always cumulative. At present, barring a few leading items, our market is just beginning to grow.

In bringing about the growth of manufactures and commerce, the railroads are destined to play an important part. There is abundance of raw material of certain kinds available. But the figures I have quoted show that there must be redistribution of population, or new men must be brought to service in sections where traffic originates. Portland and other cities of the Northwest, gratifying as has been our growth, wonderful as the progress made in certain lines, Oregon cannot be properly developed with a population of seven to the square mile. Washington's broad acres are a long long way from intense cultivation, with 17 people to each square mile of area, while three persons constitute the population per square mile in Idaho, the neglect of its great possibilities.

Development Just Started. Development in the Northwest has only started. Manufacturing is in its infancy; industrial enterprises are barely begun, and the great and productive areas of land are as yet unoccupied farms. Within the past three years it has developed that corn can be made a principal crop; within five years it has conclusively proven that there is no better swine-growing section and that dairying is a pre-eminent success. The soil is our own basic and enduring wealth. Diversified farming is what Oregon and Washington and Idaho need. It is what they must have. The railroads have done much to aid in the development of this Western country; they are laboring earnestly to bring about its advancement, and they will continue to be helpful in exploiting its resources. They are doing a work that is usually undertaken and carried out by the state authorities. They are engaging in educational campaigns and they are getting results.

Northwest to Forge Ahead. Figures showing commercial growth are easily obtainable. This growth is not satisfying to me. Its paucity is due to lack of men on the land. We are continually buying products which we should have for sale. The railroads have been doing their utmost to aid in the development of the land in the west, and they purpose to continue in the good work. The prosperity of the country is their only hope of revenue on their investment.

I am convinced that prosperity to the country at large is soon to return. Better times are in store. The Northwest is in line for development. Growth in manufacturing is always cumulative. At present, barring a few leading items, our market is just beginning to grow.

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SHIPMENTS OF DOMESTIC GOODS TO PORTLAND BY WATER.

The movement of domestic goods by water to Portland in 1914 compares favorably with the record of 1913. Among the commodities received in larger quantities than in 1913 were butter, cheese, coffee, fruit, iron and steel, plaster, powder, salmon, sugar, tobacco and general merchandise. The Merchants' Exchange summary of the 1914 totals, compared with previous years, is as follows:

	1914	1913	1912	1911	1910
Asphaltum, barrels.....	54,296	111,519	97,984	124,099	115,552
Butter, cases.....	18,261	75,151	14,887	8,692	258,206
Canned goods, cases.....	296,354	233,189	207,236	227,996	258,206
Cement, sacks.....	1,169,111	2,459,980	3,269,531	4,632,833	3,179,643
Cheese, cases.....	20,585	13,399	12,519	15,384	8,219
Coal, tons.....	1	1	1	1	1
Coffee, sacks.....	27,245	14,015	12,982	21,518	22,236
Electrical goods, cases.....	17,432	19,549	15,568	16,770	16,719
Fruit & vegetables, tons.....	8,137	7,874	12,302	9,465	8,311
Grain bags, bales.....	1,684	6,553	3,084	7,277	460
Flour, sacks.....	20,932	20,938	20,938	16,132	36,382
Iron and steel, tons.....	12,584	8,935	10,624	16,865	9,169
Leather and hides, tons.....	877	1,092	469	433	1,096
Liquor, packages.....	18,489	26,218	26,497	20,236	17,422
Livestock, number.....	21	1	1	1	29
Lumber, 1000 feet.....	1,423	1,274	1,129	1,459	674
Machinery, tons.....	1,254	753	1,129	1,459	674
Magnesian, tons.....	364	1,546	987	774	1,026
Matting, rolls.....	91,300	75,737	59,074	69,481	70,623
Merchandise, tons.....	4,232,517	4,232,011	4,501,443	4,238,101	3,755,638
Oil (fuel), barrels.....	184,367	75,639	80,294	65,939	65,939
Paints and oils, pkgs.....	111,713	106,634	115,234	97,812	136,017
Powder, cases.....	24,946	6,214	4,012	4,012	4,012
Rice, sacks.....	1,549	4,012	4,012	4,012	4,012
Salmon, cases.....	190,979	98,705	82,363	50,365	39,884
Salt, sacks.....	196,701	282,804	290,713	212,081	219,836
Sash and doors, pkgs.....	469	1,441	4,254	21,183	25,228
Sugar, sacks.....	621,936	582,682	480,245	638,862	448,829
Supplies, sacks.....	9,512	14,126	21,622	17,157	6,942
Tobacco, packages.....	16,166	9,890	14,941	17,311	607
Wool, bales.....	824	354	1,511		