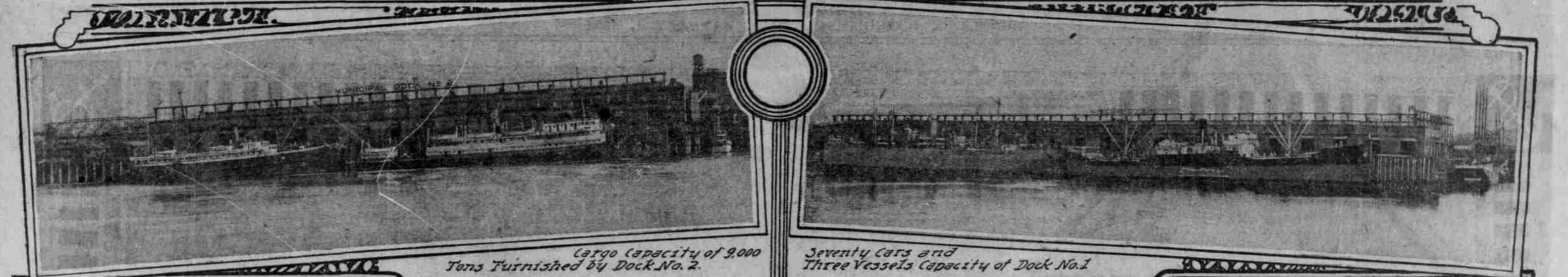


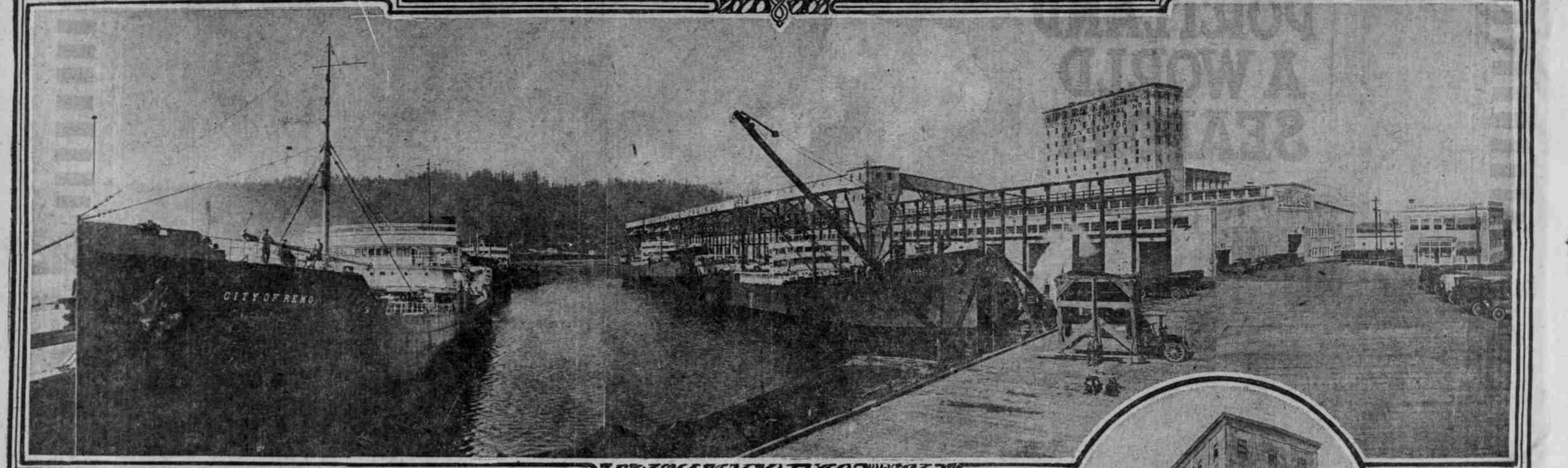
UNEXCELLED HARBOR EQUIPMENT AIDS DEVELOPMENT

Municipally Owned Provisions of Port of Portland for Handling Vast Commerce Include Four Terminals, Two Drydocks and a Grain Elevator With 1,000,000 Bushels Capacity

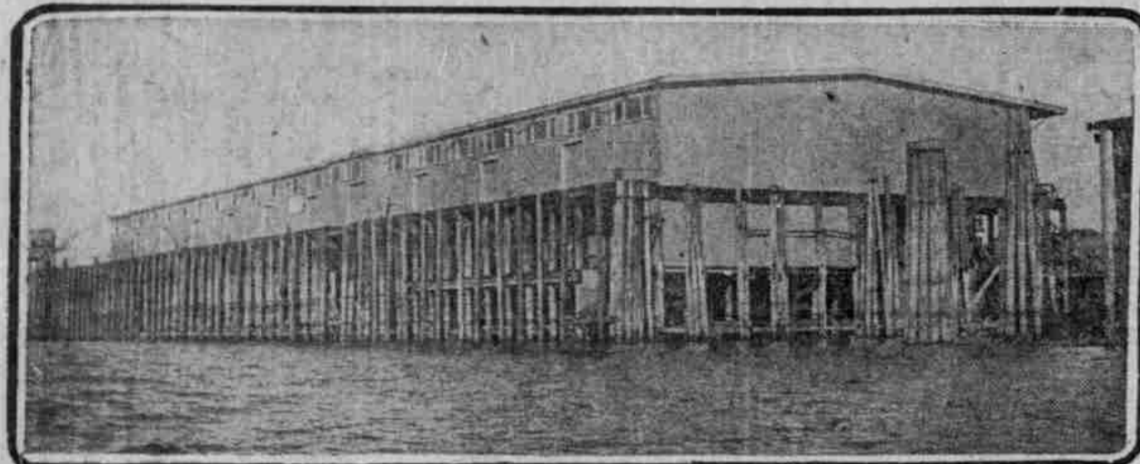


Cargo Capacity of 9,000 Tons Furnished by Dock No. 2

Seventy Cars and Three Vessels Capacity of Dock No. 1



"Where Rail and Water Meet" - The Last Word in Modern Terminals



Terminal No. 3, General Cargo Dock



Pier No. 1 Terminal No. 4 Holds 56,000 Tons of Flour



Million-Bushel Grain Elevator Can Deliver 20,000 Per Hour To Vessels

By G. B. Hensford, Chief Engineer, the Commission of Public Docks.

DURING the last six or seven years the Pacific coast has witnessed a concerted and enormous growth in port development, large sums have been expended by the major ports in the provision of modern facilities for the handling of its rapidly expanding water-borne commerce. Practically all of this vast terminal work has been done by the municipalities, or the state in the case of San Francisco, construction by private interests, a water frontage of more than four and one-half miles which was being used by vessels ranging from the usual type of river steamers and coasting vessels to the large ocean-going carriers.

ment service with this port in the last 12 months.

The earliest waterfront development of the port was provided for the purpose of furnishing facilities required for the shipment of the principal commodities produced locally and in the port's tributary—grain and lumber—but with the constantly increasing commerce of the port, additional facilities were rapidly constructed until 1910, when the commission of public docks was created, there had been developed by private interests, a water frontage of more than four and one-half miles which was being used by vessels ranging from the usual type of river steamers and coasting vessels to the large ocean-going carriers.

versal custom of handling this commodity in bulk, both rail and export, be adopted, the commission of public docks took necessary steps to construct elevator and pier facilities for the proper handling of the grain. At the same time it decided to concentrate, as far as practicable, at such terminal, later designated as municipal terminal No. 4, its main facilities for the accommodation of the port's principal import and export business, and for this purpose obtained a site containing approximately 160 acres with a harbor frontage of 2730 lineal feet in length, with transit shed 175 Municipal Terminal No. 4.—This terminal, when fully completed, will consist of five piers and three slips and will afford berthing space at one time for 17,500-foot vessels, with about 20 miles of railroad tracks on the terminal site, serving the pier, elevator, bunkers, vegetable oil plant, etc., together with the 50-acre industrial section of this terminal.

At this time there have been completed and are in operation at this terminal the following facilities:

Pier No. 1, 1500 feet in length, of which 600 feet has two levels, covered with a transit shed 180 feet in width and 1500 feet in length. The total general cargo capacity of this pier is 25,000 tons and if used for sacked grain and flour, 56,000 tons.

tributing mains, car cleaning pit, track scale, etc.

As a necessary adjunct in the operation of a terminal of this magnitude a large administration building, a cafeteria or restaurant seating 250 people and a welfare building have been provided, together with many other conveniences which add materially to successful terminal operation.

completes, and construction is under way on the outer one-half of the pier of a transit shed of the same width as that on pier No. 1, or 180 feet.

Pier No. 5.—This pier has a length of 665 feet on the harbor line and 900 feet along slip No. 2. The harbor line portion of the pier is completed and in operation and the 900-foot extension along the slip under construction is to be completed early in 1921.

Grain elevator of 1,000,000 bushels' capacity, capable of delivering bulk grain to vessels at the rate of 20,000 bushels per hour.

For the handling of vegetable oils and molasses 11 steel storage tanks of 1,072,000 gallons' capacity have been installed, together with two 60-ton scale tanks for weighing of oils, complete pumping and dis-

While in some ports in this country these public facilities are self-sustaining in the majority of cases, it is believed, they are not so now and in some cases they probably never will be. Notwithstanding this, the people have freely voted the funds necessary to provide such terminal facilities, feeling that the collateral benefits which the community at large will derive through them, by the increase in the port's commerce and the upbuilding of its industries, fully justify the large expenditures that are being made for that purpose.

Large Sums Appropriated.

Since 1912, when the commission of public docks, the official body charged with the reconstruction of the city's waterfront, entered the field as a municipal agency to provide the port with modern and efficient shipping facilities, the people have voted the sum of \$10,590,000 for such work, and from expenditures made to December 1, 1920, there have been provided the following publicly owned and operated municipal port terminal facilities, besides others which are now under construction and will be completed during the early part of 1921:

Municipal terminal No. 1, a quay dock 955 feet in length, with transit shed 100 feet by 325 feet; a pier 484 feet in length, with transit shed 175 feet by 350 feet and a warehouse 190 feet by 200 feet. This installation furnishes a very compact terminal, with rail trackage accommodating at one time 10 standard freight cars and a harbor frontage affording berthing space for three large vessels. The total general cargo capacity of this terminal is 20,500 tons.

Municipal terminal No. 2, a two-level quay dock, 525 feet in length, covered with transit shed 100 feet in width the full length of the dock. The dock has trackage for placement of 20 cars and a general cargo capacity of 9,000 tons.

Municipal terminal No. 3, a quay dock 540 feet in length, with transit shed 100 feet by 440 feet, trackage facilities for 27 freight cars and a general cargo capacity for 5500 tons.

These terminals were constructed previous to 1916 and are considered as general cargo docks and are not, as a rule, used for the handling of grain.

Export Facilities Concentrated.

When, in 1916, it became apparent that the old method of transporting the grain crop of the port's tributary territory to tidewater in sacks would soon be done away with and the uni-

CHANNEL PROJECT UP TO LEGISLATURE

Port and Dock Commission Consolidation Would Carry Swan Island Proposal to Straighten River Route

THOUGH defeated at the November election, the proposal to place the port divided authority and responsibility of the Port of Portland commission and the commission of public docks in one consolidated commission is a living project in the minds of thousands of interested Portlanders and particularly in the minds of the members of the port administrative bodies.

The vote rolled up for and against the port consolidation measure showed clearly that the electorate of the Port of Portland district is heartily in favor of the consolidation and of the attendant project of improving the harbor in the vicinity of Swan Island. The proposals were defeated by voters outside of Multnomah county. As it is the local voters who will pay the increased taxes if the consolidation is effected and bear the entire expense of the proposed improvement, it is held by the friends of the scheme that it is their vote

that matters, not that of the outside counties, whose voters and taxpayers are not vitally affected by the matter one way or the other. Therefore, they are determined to carry out the will of the people of the port district and effect the consolidation of commissions through action of the state legislative assembly.

The bill that will be presented to the legislature is already being framed by a committee of attorneys, among whom are Gus C. Moser, appointed by the Port of Portland; J. B. Kerr, appointed by the committee of fifteen, and W. P. LaRoche, appointed by the commission of public docks.

The Swan Island project, with which the consolidation measure is inseparably linked, provides for the opening of the west channel in the Willamette river around this island, closing of the present narrow and tortuous east channel and deposition of the spoils of dredging on the lowlands of Guild's lake and Mook's bot-

tom to make these now idle properties available as sites for docks, terminals and industries.

Voters Seek Efficiency.
The funds voted and expended for municipal, commercial water terminals at this port in a most practical way indicate a liberal policy and the desire on the part of the voters of the city of Portland to have their port brought up to the highest standard of efficiency for the accommodation of shipping, the latest facilities to be provided being both in respect to magnitude and convenience, equal to any on the Pacific coast. It is gratifying that the people at home are learning to appreciate more and more the excellent advantages which this port possesses and to know that the port and its facilities are being used at the present time to a much greater extent than ever before.

This condition becomes still more encouraging when we consider the large number of regular steamship lines which have established perma-

seven minutes. The conveyor machinery of the plant delivers the bulk freight to vessels at the rate of 300 tons per hour and automatically trims it in the vessel's hold.

commodities, under shed or for open storage, without congestion, and where present as well as future requirements can be provided for.

The plans of the commission contemplate the entire completion of terminal No. 4 in the near future.

Modern coal bunkers with 500-ton per hour ship delivery.

In municipal terminal No. 4 the city of Portland has provided a self-contained, combined rail and water terminal of great flexibility and expansive possibilities, where all services incidental to terminal operation can be performed with economy and dispatch, where ample space will be available for all classes of cargo and

feet, have a total cargo space under shed of 1,086,750 square feet. There is also a grain elevator of 260,000 bushels capacity.

Mechanical Equipment Complete.

The large sawmills of the port have eight large docks with a total berthing space of 4742 lineal feet.

As a mechanical equipment of municipal terminals, cargo hoists, electric winches, freight piling machines, electric trucks, tractors, ramps, elevators, cranes and conveyors and locomotive cranes are well distributed among the terminals. At terminal No. 4 the commission maintains its own switching engine, flat cars for transfer between piers and dump cars for handling ballast, to which will be added, as required, such other equipment as will insure the expeditious and economical handling of cargo.

Private Docks Developed.

There is now in operation a five-pontoon floating drydock capable of handling vessels 500 feet long and of 10,000 deadweight lifting capacity, and another floating drydock of 15,000 tons' capacity is under construction. It will be ready for operation about April 1, 1921.

These private general cargo and grain docks have a combined capacity for 262,050 tons of cargo at one time.

As another floating drydock of 15,000 tons' capacity is under construction. It will be ready for operation about April 1, 1921.

Four fuel oil docks, with a total berthing space of 1542 lineal feet. Total crude oil storage 17,760,248 gallons and refined oil of 6,562,878 gallons.

The municipal terminals, with exception of terminal No. 3, are provided with automatic sprinkler systems and are otherwise protected with most modern fire protection devices.

Modern coal bunkers with 500-ton per hour ship delivery.

While the municipality has supplied the port with modern and most efficient water terminal facilities, private interests have, as already noted, developed more than four and one-half miles of the port's water frontage, and a brief description will here be given of those which are being utilized in connection with the deep-sea shipping of the port—general cargo, grain, lumber and fuel docks.

While the port at this time is well supplied with waterfront facilities to care for the large commerce of the port, it is evident that with the prospective increase of shipping which undoubtedly will soon develop on this coast that additional facilities will have to be provided and the policy of the commission is to at all times keep abreast of actual requirements and to supply such standard and special equipment as will meet the demands of shipping for the economical and expeditious handling of cargo at this port.

Five general cargo docks have a total berthing space of 2305 lineal feet, with a total cargo space under shed of 400,750 square feet.

And when the further fact is taken into consideration that on the entire Pacific coast of the United States, between Vancouver Island and Mexico some 1500 miles, the number of first-class harbors through which the commerce of the orient as well as other nations of the world must be handled is so very limited, the further and extensive development of these ports will, undoubtedly, in the near future, engage the serious attention of the respective port authorities.