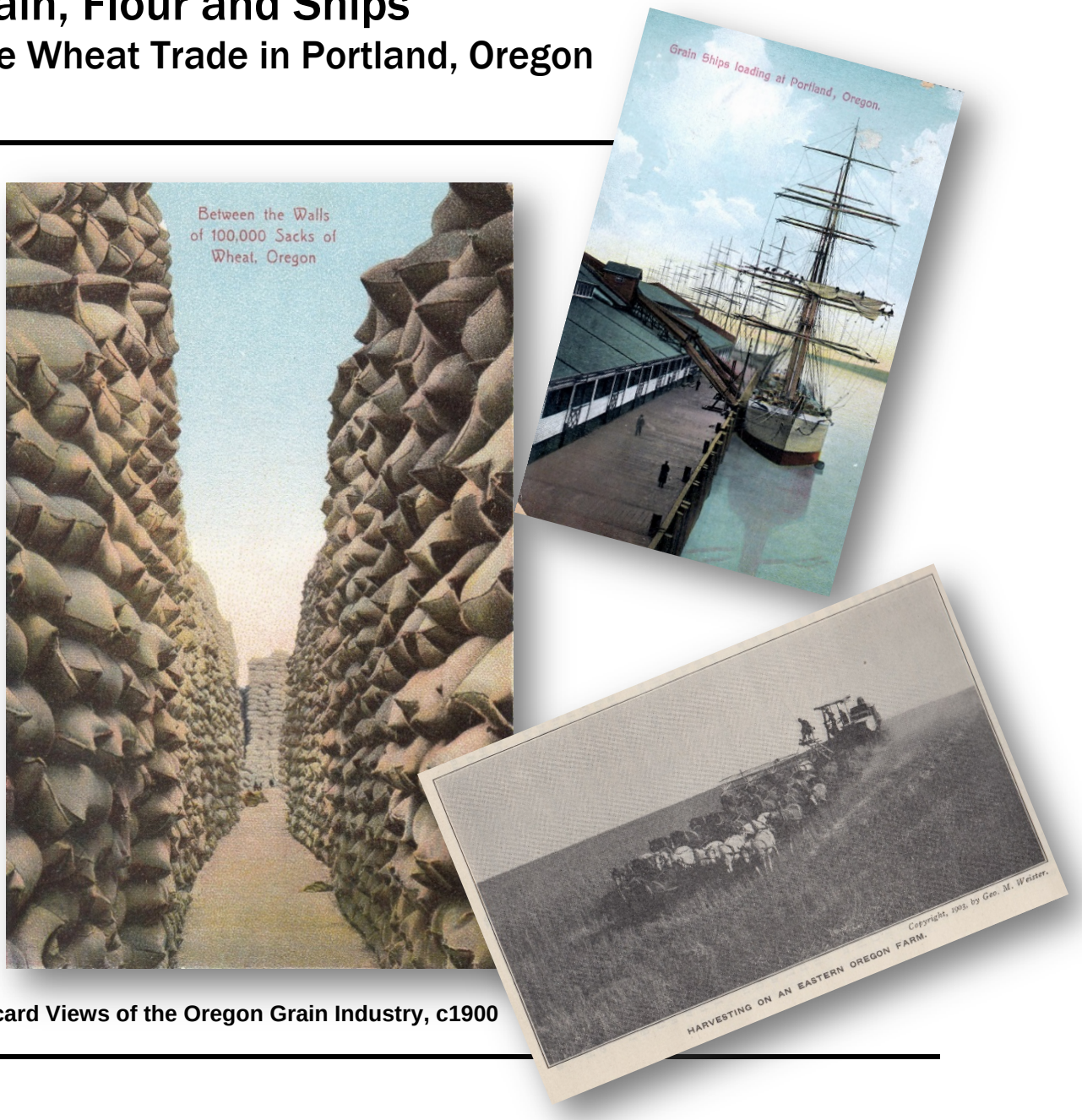
Grain, Flour and Ships
The Wheat Trade in Portland, Oregon



Postcard Views of the Oregon Grain Industry, c1900

Prepared for Prosper Portland
In Partial Fulfillment of the Centennial Mills Removal Project
Under Agreement with the Oregon SHPO and the USACE

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GRAIN, FLOUR AND SHIPS:
THE WHEAT TRADE IN PORTLAND, OREGON

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1. Introduction

The Portland wheat trade, fueled by hundreds of thousands of acres of wheat fields in eastern Oregon, Washington and Idaho, grew to become Oregon's single largest export during the early years of the 20th century. Farmers in the Palouse, in Umatilla and Arlington, newly connected to large markets by rail, shipped bushels of grain by the carload down the Columbia River to Portland. There, milled into flour, put raw into sacks, or later shipped in bulk inside the specially designed hulls of the "wheat fleet," millions of tons of grain and flour from eastern Washington and Oregon were transported to ports all over the world, in Europe, around the horn or through the Panama Canal, to South America, or across the Pacific Ocean to Japan and China, Australia and elsewhere. Dozens of ships lined Portland's waterfront each month, huge elevators stored and mixed grain, and, at its peak, nearly a dozen flour mills in Portland and surrounding cities created high quality refined flours and cereal for domestic and export consumption.

Today the wheat trade in Oregon continues and Portland still ships bulk grain to Asia and distant markets, remaining one of the largest wheat shipping ports in the United States. However, the historically significant role that the wheat trade played in building modern Portland has largely been forgotten, overwhelmed by later developments in lumber, high-tech and other manufacturing. Gone are most of the wharves and the graceful sailing ships (later steel tankers), that once lined the Willamette in downtown, waiting to be filled with grain. Gone, or converted to other uses, are the huge flour mills that lined the waterfront, and their fleets of smartly-painted delivery trucks that sent Portland-milled flours to bakeries and consumers through the Pacific Northwest. Gone are the regular "marine reports," in the *Oregonian* and the *Daily Journal*, reporting the comings and goings of ships, their cargos, their expected day of departure and estimated travel times. Gone are the exploits of the "Sons of Neptune," the often-raucous foreign sailors who would populate portions of downtown while their ships were loaded and unloaded at port.

Wheat, simply, was what much of Portland did prior to World War One. It created fortunes and supported the growth of the city in a way little remembered today. Many of the city's leading businessmen and companies were either directly or indirectly tied to the movement of wheat and grain. Their wheat-based wealth supported civic improvements, major institutions, education, charity, art, and more.

The following historic context documents the history and operation of the wheat, grain and flour industry in Portland specifically, during the heyday years before World War Two. It attempts to answer the question, "how did this all work," how and why did Portland became a center of wheat shipping in the Pacific Northwest, a business that still continues to supply much of the world with the bounty of the state's eastern counties. Although nominally focused on the flour mills themselves, it includes information on the transport of grain, both from the wheat fields of eastern Oregon and Washington, and the worldwide bulk grain and flour trade that centered on Portland during the 19th and 20th centuries.

Grain, Flour and Ships was prepared by George Kramer, Senior Preservation Specialist, for Heritage Research Associates, Eugene, under contract to Prosper Portland. This context is partial mitigation under Section 106 of the National Historic Preservation Act of 1966 as the result of the demolition of multiple buildings at the Crown, or Centennial Flour Mill, complex in northwest

Portland. Crown Mills, once one of the largest such facilities in Oregon, opened in 1910 and remained in operation until 2000, the last major flour milling operation in downtown Portland. *Grain, Flour and Ships* is an outgrowth of earlier work Heritage has prepared for Prosper Portland (formerly the Portland Development Commission), including Historic American Engineering Record (HAER) documentation on the entire Crown Mills complex that was completed in July 2016 (Kramer, 2016).

Figure 1. Oregon – The Land of Opportunity, cradling a sheaf of wheat, c1910 (Kramer Collection).

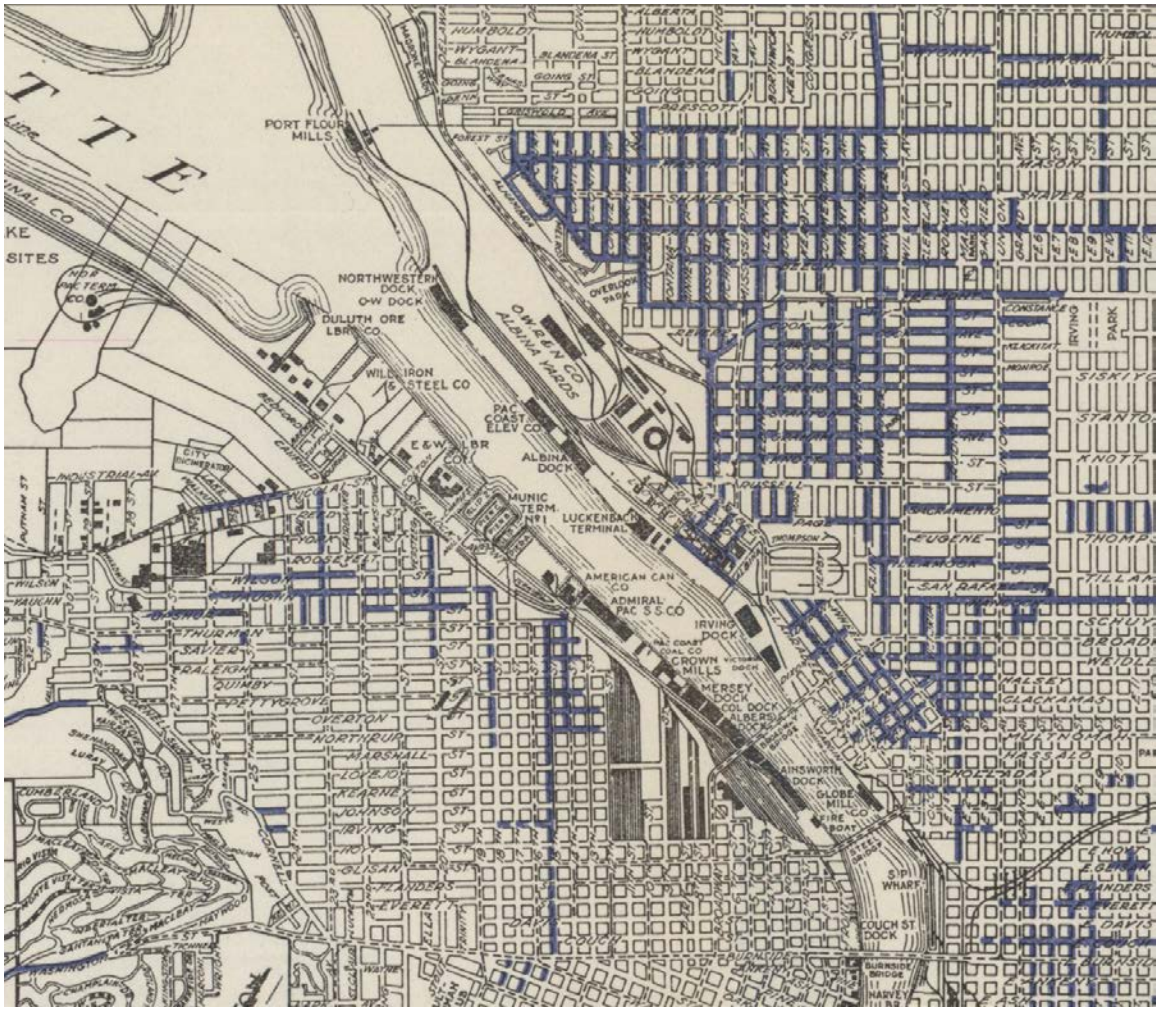

Figure 2. Portland Waterfront Map, 1926. Detail, from *Map of the City of Portland, Oregon*, Department of Public Works (City of Portland Archives Image A2000-002).

2. Historic Overview – Grain and Flour in Portland

Growing and Harvesting

> *The interior wheat lands of Oregon and [the] Washington Territory have attracted attention by their unfailing crops, the large average yield, the comparatively small amount of precipitation, and the general dryness of the summer months (Secretary of War, 1888).*

During Oregon's mid-19th century Euro-American settlement period, much of eastern Oregon was viewed as a largely arid, near desert, that pioneers endured on their way to the fertile valleys west of the Cascade Mountain range. Wheat growing in western Oregon, especially in the Willamette valley, was an early crop, and much of it was exported to California to support miners and that state's growing cities. But as quality bottomlands in the western Oregon were claimed, pioneers looked east again and re-evaluated the potential of the Columbia plain. The broad plateau east of the Cascades was perfect for wheat growing, in the words of one historian, in prodigious quantity.

> Right from the first, the settlers knew that Eastern Oregon would grow [wheat], but there wasn't much local market for it... and it was too expensive to ship down the river or over the Barlow trail. Freight charges in 1865, by river and portage, were $45 per ton, which prohibited much commercial agriculture (Brumfield, 1968:19).

Commercial wheat growing in eastern Oregon began in earnest in the mid-1860s and quickly expanded. By 1869 Oregon wheat harvest statewide was reported at 17,500,000 bushels, valued at over $1.5 million (*Oregonian*, 9-October-1871).[1] That rise in production, spurred by financial support from outside interests seeking to develop a source of grain supply, grew rapidly over the next twenty years. By 1878 international export and trading firms such as Balfour, Guthrie & Company, based in Liverpool, England, were making significant investments in the wheat growing regions of Oregon and the Washington Territory. "Farmers in eastern Oregon and Washington were supported through a system of loans, crop insurance, and other programs that served to lock them into a particular system operated by one of the large international houses, such as Balfour Guthrie, assuring the latter a stable source of supply" (Kramer, 2016:7). By the end of the 1880s, Balfour Guthrie had also become major player in Portland's waterfront and much of the waterfront was focused on the wheat export trade. "Balfour Guthrie and Company built more than seventy warehouses on the one hundred and seventy lots it owned on Portland's waterfront" (MacColl, 1979:325). Other firms too, pursued similar paths, establishing a system of harvest and shipment to Portland, Tacoma and other port cities.

> This wheat plateau is entirely treeless, and most of it lies at an elevation of over 1,000 feet above the level of the sea, some of it being elevated 1,500 feet. The wheat grown is most spring wheat; it is sown in April or as late as May and harvested in August or September. The best wheat regions lie in valleys, or on the successive terraces of this plateau (US Department of Agriculture [USDA], 1880, 01:75).

[1] "Bushel" is a weight equivalent that varies for different crops or commodities. For wheat, a standard bushel weighs sixty (60) pounds.

Wheat *exports* from Portland between 1870 and 1880 continued to grow as the result of increased cultivation and improved transportation east of the Cascades. By 1896 the grain and rapidly growing flour milling industry in Portland had sufficiently expanded to the point that the Portland Flouring Mill Company alone produced and exported more than 750,000 barrels to Europe, China, and elsewhere (*Oregonian*, 1-Jan-1896, 15:1).

As wheat became the primary agricultural crop in Oregon, the huge farms of Eastern Oregon dominated the market. "The winter wheat, the leading grain crop of the state, is grown largely in the Columbia Basin...under the dry farming systems, as shown by the size of the average individual farm acreage" (Chapman, 1913:57). The average Columbia Basin farm growing winter wheat was 377 acres, nearly 100 times larger than the average Willamette Valley farm growing the same crop and three times larger than the average wheat farm in Central Oregon. Spring wheat was also grown mostly in Eastern Oregon, but on smaller tracts not suitable for fall sowing.

The growth of wheat farming was explosive. In 1880, for example, Umatilla County had 31,046 acres in wheat production. Ten years later, that number had grown to over 126,000 acres, producing 1.64 million bushels (USDA, 1880, 1890).

Figure 3. Threshing Wheat in Oregon, c1900 (Postcard view, Kramer Collection).

Transporting Grain to Portland

Moving grain from the fields of eastern Oregon to Portland, whether for local consumption, milling into flour or, later, bulk export, was long stymied by the monopolistic shipping practices on the Columbia River. In 1862 the Oregon Steam Navigation Company, which operated much of the river's shipping, gained control of the portage roads around the Cascade Rapids, a major shipping obstacle. Control of the portage routes gave OSN effective control of all river freight upstream from Portland. "It is a well-known fact that the carrying trade of the Columbia river is monopolized by the Oregon Stream Navigation Company by their ownership of the only means of transportation for freight and passengers over the portages..." (*Bedrock Democrat*, 5-November-1873, 1:4).

Figure 4. 141,000 Sacks of Wheat near Pendleton, Oregon, c1905
(Postcard view, Kramer Collection)

In practice, after a farmer had harvested their crop and made the laborious transfer from their fields to the river, a process that could involve large wagon teams and considerable difficulty, grain then had to be loaded onto barges for the trip downriver at high cost. Grain would then need be unloaded at Cascade Rapids, placed on wagons (later horse-drawn railcars) and moved through the portage around falls, before being reloaded onto downstream barges below the falls. All this added considerable time, and high expense, to shipping costs, especially when the OSN's monopolistic practices inhibited any real competition. "Hitherto transportation charges consequent to the many handlings at different portages have not left much margin of profit to the producer" (*Harper's New Monthly Magazine*, December 1882:4).

Transport significantly improved after 1884, when the Oregon Railway and Navigation Company line was completed. This created a direct rail line from Huntington, Oregon to Portland via a route roughly paralleling the Columbia River. Later work would extend the rail line further east, to Pendleton and beyond, creating a far more efficient, portage free, route from the grain growing areas to Portland.

> Previous to the completion of the Oregon Railway and Navigation Company's line of road from Portland to Eastern Oregon and Washington the only means of getting the wheat product of this great section of the country to Portland was by means of the boats on the Columbia river, and owning to numerous portages on this great stream and consequent necessary loading and unloading, the rate on wheat from Eastern Oregon to Portland was more often otherwise prohibitory (*Oregonian*, 26-May-1889, 1:1-3).

> The Oregon Railroad and Navigation Company is the main artery of travel and commerce in the Inland Empire.... [It is] the transportation company the people depend upon to serve them (*East Oregonian*, 9-February-1898, 4:1).

While the direct rail line significantly improved transportation time, by reducing the need for portage transfers, the pricing was still high. "Railroads are, in general, not beneficent institutions and the O. R. & N. is not exception to this rule" (*The West Shore*, 1-September-1888, 495). So great was the improvement, however, that the rails virtually eliminated steamboat shipments in the short term, with all eastern Oregon wheat being shipped in hopper cars to Portland.

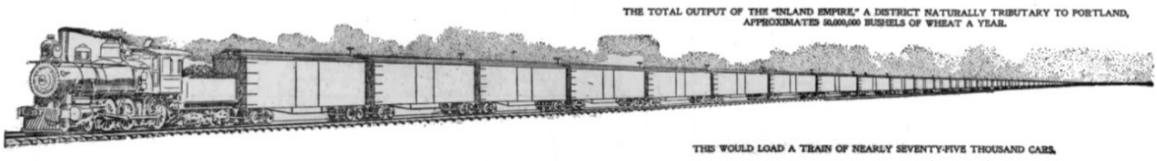

Figure 5. The Great Wheat Shipping Port of the West (*Oregonian*, 1-January-1902).

Large railroad terminals were built on both sides of the Willamette River in Portland to handle freight and a huge infrastructure developed along the waterfront to serve the wheat trade, connecting to the main lines via spurs and sidings to support easy movement of grain into warehouses and mills. Huge grain elevators were constructed to store and mix grain, docks were built for the export trade, and new warehouses and mills were built to store and process the vast amounts of eastern Oregon and Washington wheat that flooded into the city.

> During the wheat hauling time in the winter months, an average of 900 to 1200 tons of wheat are received daily at Portland over the Oregon Railway & Navigation Company, a line of railroad connecting Portland with Eastern Oregon and Washington. The East Side division of the Southern Pacific brings in during that same time about 350 tons while the receipts each day from the West Side division of the same road average about the same. In addition, these lines of railroad, the boast on the Upper Willamette, running through to Portland, bring in on an average of 90 to 100 tons of wheat per day total during busiest shipping season, 2000 tons daily *(Oregonian*, 26-May-1889, 1:2-3).

Figure 6. Wheat in an Oregon Warehouse, 1907 (Postcard view, Kramer Collection).

Exporting from Portland

Transporting grain *to* Portland after 1884 relied largely on the new railroad connection to eastern Oregon, although some barge traffic likely remained. Exports of grain and flour *from* Portland, at least in large quantity, was initially hampered by the difficult passage of the Columbia River Bar, at Astoria, and the shallow depth of the Columbia and Willamette river channels, which limited the size of shipping in and out of the Portland harbor. This was a problem that was especially serious during low water periods.

The first task of the Portland District of the US Army Corps of Engineers, an office that was established in 1866, was improving the navigation on the Willamette and Columbia rivers. In this work the Corps was building upon work that had begun under the direction of the City of Portland, and was to include continued and expanded dredging, removal of silt and gravels to deepen a waterway, and snag removal, eliminating hazards that narrowed the waterway. "Keeping the newly created channel open required annual dredging" (Willingham, 1983:11).

In 1871 demands for improved river transportation in Oregon had increased to the point where the Corps created a Portland Engineer Office, under the direction of Major Henry M. Robert.[2] The office's main focus was also to even further improve navigation on the Columbia and

[2] Henry Martyn Robert (1837-1923) was effective in Portland despite his short tenure (he was replaced in 1873). He continued his career with the Corps in Wisconsin, Michigan and later New York, Tennessee and elsewhere. He is perhaps best remembered today for his *Pocket Manual of Order for Deliberative Assemblies*, first published in 1876. *Robert's Rule of Order*, as it is commonly known, remains the primary authority for group discussion and decision making in the United States.

Willamette rivers, already considered the backbone of northern Oregon's economy. Robert's replacement as District Engineer, Major Nathaniel Michler, continued river improvements, blasting deeper channels, and eliminating bars and rapids. The Corps' work brought significant results, increasing the scope of river traffic into and out of Portland by ten-fold during the decade ending in 1876 (Willingham, 1983:21).

Even more river improvement projects would follow during the tenure of Major John M. Wilson, who took charge of the Portland District in 1876. Wilson developed projects designed to maintain a year-round navigable depth of twenty feet from Portland to the Pacific Ocean, which would allow significantly larger vessels to load and unload freight in Portland during even low-water periods. While some commercial and shipping interests continued to believe Astoria, with its direct access to the ocean, would eventually supplant Portland as Oregon's primary port once rails arrived there, the Corps' continued improvements to the Columbia River channel, encouraged by the economic and political power of Portland's business community, maintained Portland's primacy, much to the chagrin of Astoria's leadership. "The position of Albany, on the Hudson, and New York city, a great port of entry, and Portland and Astoria are parallel cases and we leave the intelligent reader to cogitate on the future" (*The Daily Astorian*, 20-October-1881, 2:1). The Astoria Chamber of Commerce was just one of many groups that pushed the US Congress to fund improvements to the Columbia River Bar to allow improved ship access. The Corps responded in September 1882 with plans for a 4.5-mile-long south jetty at Astoria, creating a "self-maintaining" 30-foot-deep water channel, even at low tides. Work began in 1884-1885 and took over a decade to complete. "The deeper channel generated speedy economic returns to the region....cargos crossing the bar more than doubled the annual average for the prior decade" (Haglund, 2011:17-18). But the Port of Portland, itself benefitting from the improved access at the mouth of the Columbia, still remained the region's primary shipping port.

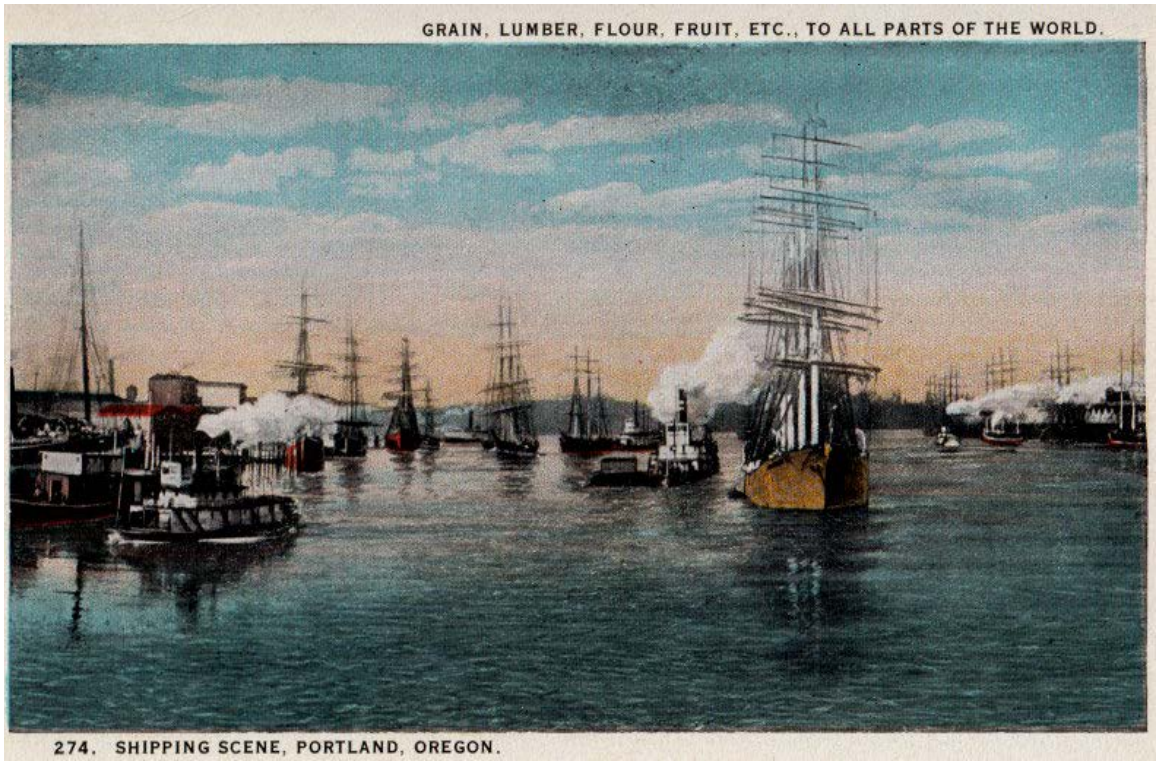

Figure 7. Shipping Scene, Portland Harbor, c1910 (Postcard view, Kramer Collection).

The Army Corps continued work to the Columbia and Willamette river channels, dredging and blasting out rock to improve passage for the larger, ocean-going ships that were required to support the grain export trade out of Portland throughout the end of the 19th century and beyond.[3] On the Willamette River in the "harbor" that lined the channel in downtown Portland on both sides of the river, grain exporters built wharves along both sides of the river to support their warehouses and shipping points for sacked grain, as well as flour mills to process it for domestic and export use. The "grain trade" was a newsworthy topic, and shipping reports became a standard part of the local press. The arrivals and departures of sailing ships from Europe and elsewhere, as well as the longshoremen's progress in loading wheat into ships became a regular part of the Portland harbor. Huge three- and four-masted British, German, and French sailing ships lined the river and were filled with Oregon wheat bound for distant Asian and European ports.

Flour Mills

Milling grain into flour was among Oregon's earliest industrial endeavors, beginning in the late-1820s with Dr. John McLoughlin and the Hudson Bay Company's efforts to feed its trappers at Vancouver. McLoughlin later built what is generally considered the first commercial flour mill in Oregon, at Oregon City in 1843. Long before statehood in 1859, most of Oregon's scattered Euro-American settlements had some sort of small water-powered grist mill, grinding wheat and other grains for local consumption. Beginning in the 1860s, the time-honored processes around flour milling underwent a sudden series of change, as new technologies related to cleaning and sifting, and finally grinding, grain were developed. These included, primarily, air purification and the roller mill, both of which were perfected and in large-scale manufacture by the late-1870s, just as eastern Oregon grain production grew significantly, in anticipation of improved transport to new markets.

> All great and radical changes in the methods or process of any industry have followed changes in demand or supply....We have in the milling industry the latest example of this; for, great as has been the change in process during the past ten years, it was caused by the great and rapid change in the wheat market, owing to the settlement of the northwestern states and immense production of spring, rather than winter, wheat (USDA, 1880, 3:561).

Processed flour generated more profit than bulk grain. William S. Ladd, a prominent area investor, incorporated the first large-scale export flour mill in Oregon, the Portland Flouring Mills, an outgrowth of his earlier Albina Flour Mills, in 1883 (MacColl, 1988:236). The Portland Flouring Mill consisted of a "first class structure" six stories high, with a warehouse, grain elevator and more than 600 feet of docks along the Willamette River. It was capable of processing over a thousand barrels of flour daily (*The West Shore*, September 1883:242). The Portland Flouring Mill, under the direction of Ladd's manager and eventual successor as owner, Theodore B. Wilcox, grew to become part of the largest milling operation in the Pacific Northwest.

With large-scale flour mills in Portland, the grain system reached maturity. Sacked grain from eastern Oregon and Washington arrived in Portland by barge or rail and was off-loaded into elevators, where it could be stored and, more importantly, mixed with other grains, into custom "blends." Grain elevators, built of stacked wood (typically 2x6" milled lumber, spiked together

[3] The Corps today continues to regularly dredge and improve the vital shipping channel between the Portland harbor and the Columbia River Bar.

in horizontal courses) rose high into the air and contained a series of small vertical chambers or bins, often just 6x6' in size or smaller, that could hold bulk grain. Even a small elevator might hold as many as forty or fifty such chambers, arrayed into a rectangular plan.

Grain was moved to the top of the elevator via a series of bucket-belt conveyors—canvas belts with small metal scoops that ran in a powered loop from the bottom, loading point, and dumped grain into a vertical bin at the top. Individual grain shipments were directed into the various bins by a distribution point that could be moved to fill each of the bins. Elevators allowed the operator to mix grains from varying sources, or of varying type, to create custom, blended mixes based on the proposed use, by opening and closing gates at the bottom of each bin, controlling quality, or mixing the proportions in each blend. Different wheat sources, for example, were preferred for cake mix, bread mixes, or other types of products. Grain exited the elevator at the bottom by gravity, where it was sacked, or sent directly via a series of conveyors and chutes, directly into ships or trucks for bulk shipping. Other grains could be moved internally, from the elevator to the mill, for processing into flour.

Mills, where the grain was cleaned, ground, and dry-mixed into flour, were also large vertical buildings that relied upon gravity to send grain through a series of processing points as it moved downward toward sacking and shipping. Internally, the process of flour milling relied on a variety of specialized machinery, typically each arrayed on a floor level of the mill, that accomplished a discrete element of the milling process. Modern mills after the 1870s relied on air purification, a process that replaced the traditional mechanical sifter or sieve, to separate grain into finer particles. While early, "pioneer" era flour mills typically relied upon a horizontal rotary or buhr, stone by the 1880s Portland's commercial flour mills, were uniformly *roller mills*, relying upon a manufactured steel system that cracked the grain to separate the bran and germ and, isolate the endosperm, the component of flour itself. Bran and germ were shunted to other areas, for use in other products.

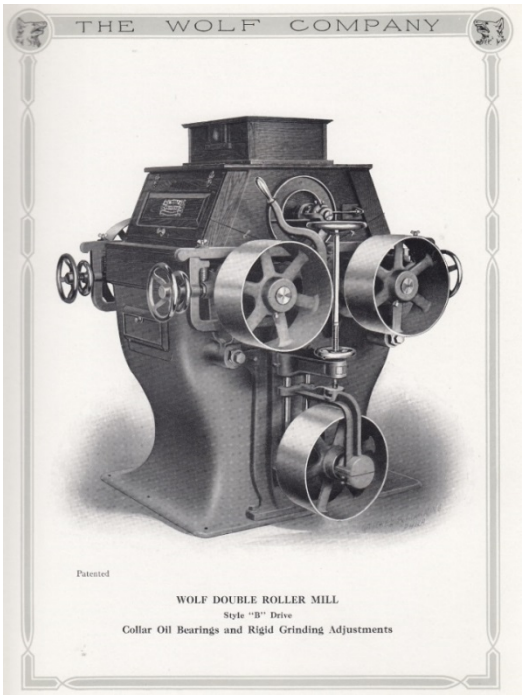

Figure 8. Modern roller mill, c1910 (from *Machinery for the Modern Mill*, The Wolf Company, Chambersburg, PA).

Table 1. Businesses Listed under "Flour Mill" in Portland City Directories, 1899-1952 (selected years).

Business Name	Address	Info Source(s)	Notes
Acme Mills	20-22 N Front	1899 Polk, 1911 Polk	Flour & Feed Mill
Albers & Schneider Mill	20 Front	1899 Polk (see US Mills)	Flour & Feed Mill
Albers Mill	1128 NW Front	1928, 1952 Polk	Flour Mill, Flour & Feed Mill (1928)
Astoria Flour Mills Co.	1000 Lewis Bldg	1928 Polk (see Kerr Gifford)	Flour Mills
Atlas Milling Co.	95 Front	1899 Polk	Flour & Feed Mill
Campbell, J.A. Co.	204 RR Exchange Bldg	1928 Polk	Flour Mills
Centennial Mill	733 Oak	1952 Polk	Flour Mill
Columbia Milling Co.	E 2nd NW Cor E Market	1911 Polk, 1928 Polk	Flour Mills
Crown Mills	733 Oak	1928, 1952 Polk	Flour Mill
Dr. Middleton's Food Products	411 Guaranty Bldg	1928 Polk	Flour Mill
Electric Roller Mills	254 Front	1899 Polk	Flour & Feed Mill
Everding, Henry	45 Front	1899 Polk, 1911 Polk	Flour & Feed Mill
Everding & Farrell	140 Front	1899 Polk	Flour & Feed Mill
Fisher Flouring Mills	247 Union (307 SE Washington)	1928 1952 Polk	Flour Mill
General Mills Inc.,	139 SE Washington		
Hennessy & Stephenson	195 Front	1899 Polk	Flour & Feed Mill
Jobes Milles Co.	St. Johns	1911 Polk	Flour & Feed Mill
Johnson & Co.	312-314 Front	1899 Polk	Flour & Feed Mill
Kerr Gifford & Co.	1000 Lewis Bldg (Front St. at Broadway Bridge)	1928, 1952 Polk	Flour & Feed Mill
McBreen (William) & Co.	170 Front	1899 Polk	Flour & Feed Mill
Montana Flour Mills Co.	1112 Board of Trade	1928 Polk	Flour Mill
Northern Flour Mill Co.	815 Yeon Bldg	1928 Polk	Flour Mill
Old Fashion Mill Inc.	241 Holladay Ave	1928 Polk	Flour Mill
Pillsbury Mills	535 SE Water	1952 Polk	Flour Mill
Portland Flouring Mills Co.	224 Stark (E 2nd and Washington)	1899, 1911, 1928 Polk	Flour & Feed Mill
Powell & Shipley	280 Front	1899 Polk	Flour & Feed Mill
Russell-Mill Milling Co.	Foot of Burgard	1952 Polk	Flour Mill
Smith, W. K.	301 Front	1899 Polk	Flour & Feed Mill
Sperry Flour Co.	E 2nd and Washington	1928 Polk (see Portland Flouring)	Flour & Feed Mill
Terminal Flour Mills Co.	924 Board of Trade Bldg	1928 Polk	Flour Mill
Triangle Mills Inc.	175 Tillamook	1928 Polk	Flour Mill
Tuke, H. and Co.	234 Front	1899 Polk	Flour & Feed Mill
US Mills	240 Front	1899 Polk	Flour & Feed Mill (Albers Bros. Milling at this address in 1911)
Vollmer-Clearwater Co. Ltd.	53 4th	1928 Polk	Flour Mill
Wasco Warehouse Milling Co.	607 Lewis Bldg	1928 Polk	Flour Mill
Welser Flour Mills	911 NW Hoyt #3	1952 Polk	Flour Mill

NOTE:
This listing is not presented as exhaustive or complete. It includes all business entries listed under the heading of "Flour Mills" (or "Flour & Feed Mills") found in R. L. Polk Directories, 1899-1990, 1911, 1928 and 1952. It does *not* include businesses entered separately under "Feed Mills," or other grain-related concerns.

The roller mill (the term was used both to designate the entire mill operation as well as the individual piece of component machinery) was perfected in the 1880s, just as large commercial milling in Portland and the northwest was first developing. Roller mills consisted of a series of steel rollers, some cut with teeth and opposed by those with matching grooves, that were rotated to crush the grain. Millers could vary the speed and spacing, or throat, of the rollers to obtain coarse or finer grain yields, or even send the grain through the rollers for multiple passes, a process termed gradual reduction. "Coupled with air purification, rollers complete the technology of New Process milling and completely changed the industry by producing a more consistent, higher quality, product at the same time that they improved efficiency and capacity" (Kramer, 2016:13).

Taken as an entire system, the development of commercial-scale flour milling in Portland beginning in the mid-1880s was perfectly timed to take advantage of increased cultivation in eastern Oregon, improved transportation between flour growing areas and the Portland shipping portion, and bolstered by significant improvements in milling technology.

As shown in Table 1, a random sample of business entities listed in the R. L. Polk City Directories for Portland over the half-century 1900-1950, there were a variety of companies listed as "Flour Mills" doing business in the city. Many, as evidenced by their locations in downtown office complexes, were mostly brokers or jobbers, or perhaps grain buyers or agents associated with mills located elsewhere. There were, certainly a large group of "flour mills" located on Front Street, immediately adjacent to the river and the railroad.

"Our Wheat Fleet"

Even before the advent of a direct rail line between eastern Oregon and Portland, the wheat production of Oregon far exceeded the state's own needs, supporting what quickly grew into a brisk export trade. Willamette Valley wheat and other agricultural products were shipped overland to California miners in the years before statehood. The first wheat exported by ship from Oregon occurred in 1869, and event that has been called the inauguration of a new era in Portland history. "The first cargo of wheat was shipped...in 1869, on the bark *Helen Angier*, under Captain Staples, by John McCracken...other cargos followed in that year" (Scott, 1924:V-308). McCracken's cargo, of nearly 40,000 bushels of wheat, made the trip to Liverpool, England and in so doing inaugurated what would grow into a regular trade between Portland and that city. By 1882, just before the completion of the direct railroad line to Eastern Oregon, Portland saw more than one hundred ships filled with wheat heading to foreign ports (*Oregonian*, 1-January-1903, 24:103).

In the early years of the wheat trade, ships within the coastal fleet, ocean-going vessels that moved north and south along the Pacific Coast between Seattle and San Diego, would be piloted across the treacherous Columbia River bar at Astoria and then head upriver to Portland. Ships often brought in trade goods, manufactured products, and left Portland with lumber, wheat, or other locally-sourced Oregon commodities. Smaller ships might be capable of navigating the river under their own power, but larger vessels were often towed by more nimble, smaller craft, which significantly limited freight tonnage. The narrow river channel on the Columbia, with instream obstructions especially at low water levels, was less than ideal for the large-scale shipments, leading to increased calls for dredging and blasting to open and maintain a deeper river channel. "The time of the year when the larger vessels would be most needed at the

Figure 9. Grain Ships loading at Portland, Oregon, c1910 (Postcard view, Kramer Collection).

Portland wheat docks was in the months following the harvest, when the river was its lowest" (Blalock, 2012:24).

By the turn of the 20th century, as the export of grain from Portland had grown dramatically during the last two decades of the 19th century, the arrival of the "Wheat Fleet" became a much-anticipated part of Portland's waterfront economy. From July 1, 1898 to May 1, Portland shipped over 10,000,000 bushels of wheat. Oregon wheat was shipped to Europe, Asia (then termed the "Orient"), as well as to ports in South America and Australia.

> Early in the Summer the grain fleet begins to arrive. Last year, by September 1, seven ships, all flying the British flag, had cleared from Portland, bound for English ports. In the month of December, 19 vessels, three of which were German, completed their cargo and were towed out to sea (*Oregonian* 4-November-1900, Section 3, 1:1-8).[4]

[4] This quotation, along with several that follow, are taken from a full-page illustrated article entitled "Portland's Grain-Carrying Fleet," one of the first in periodic series on the process and role of grain export in the city's development that were published in the *Oregonian* in 1900.

Figure 10. Grain Ships from all parts of the World, c1910 (City of Portland Archives Image 002.2042).

During the first decade of the 20th century the Wheat Fleet—also called the grain fleet and, sometimes "*our*" wheat fleet, or "our grain fleet" in local reports—grew to number well over 100 vessels. These were mostly large and graceful wooden three- or four-masted schooners. The fleet would arrive from European ports and come up the Columbia to Portland. Their hulls, filled with goods or ballast, were off-loaded and then made ready to accept huge cargos of grain or flour. "Although every month in the year witnesses the loading and detachments of the fleet, it is not until near the first of October that the ships begin to gather in noticeable numbers but from then until the last of March, the wheat docks on the lower river front are lined with speedy ocean-going vessels taking on cargo" (*Oregonian* 4-November-1900, Section 3, 1:1-8).

> The capacity of the graceful three and four-masted vessels that yearly visit this port is something to surprise an unreflecting person. Ten freight trains of 25 cars each, or one train over a mile and half long, would be required to carry the wheat that goes into the hold of a single ship (*Oregonian* 4-November-1900, Section 3, 1:1-8)

The early grain shipments from Portland were almost exclusively in British ships, headed toward British ports, mostly to Liverpool but as the trade expanded, especially after 1900, the British fleet was joined by ships from France, from Germany and elsewhere. Before the completion of the Panama Canal, a British ship arriving in Portland in ballast and then making the return trip filled with grain would complete an 18,000-mile round trip voyage taking months.

The arrival and departure of the grain fleet in Portland often drew considerable interest. Certain ships, such as the German bark *Henriette*, were noticed in the paper as though an old friend, having first arrived in Portland in 1898 as the *Royal Forth.* "At that time, she was the largest sailing vessel to have ever entered the Columbia River [and] no larger sailers have since come here" (*Oregonian*, 2-November-1901, 10:1). The *Henriette* was a huge four-masted ship drawing 23'-2" of draft left after almost twenty days in port, carrying a record cargo of 178,000 bushels of

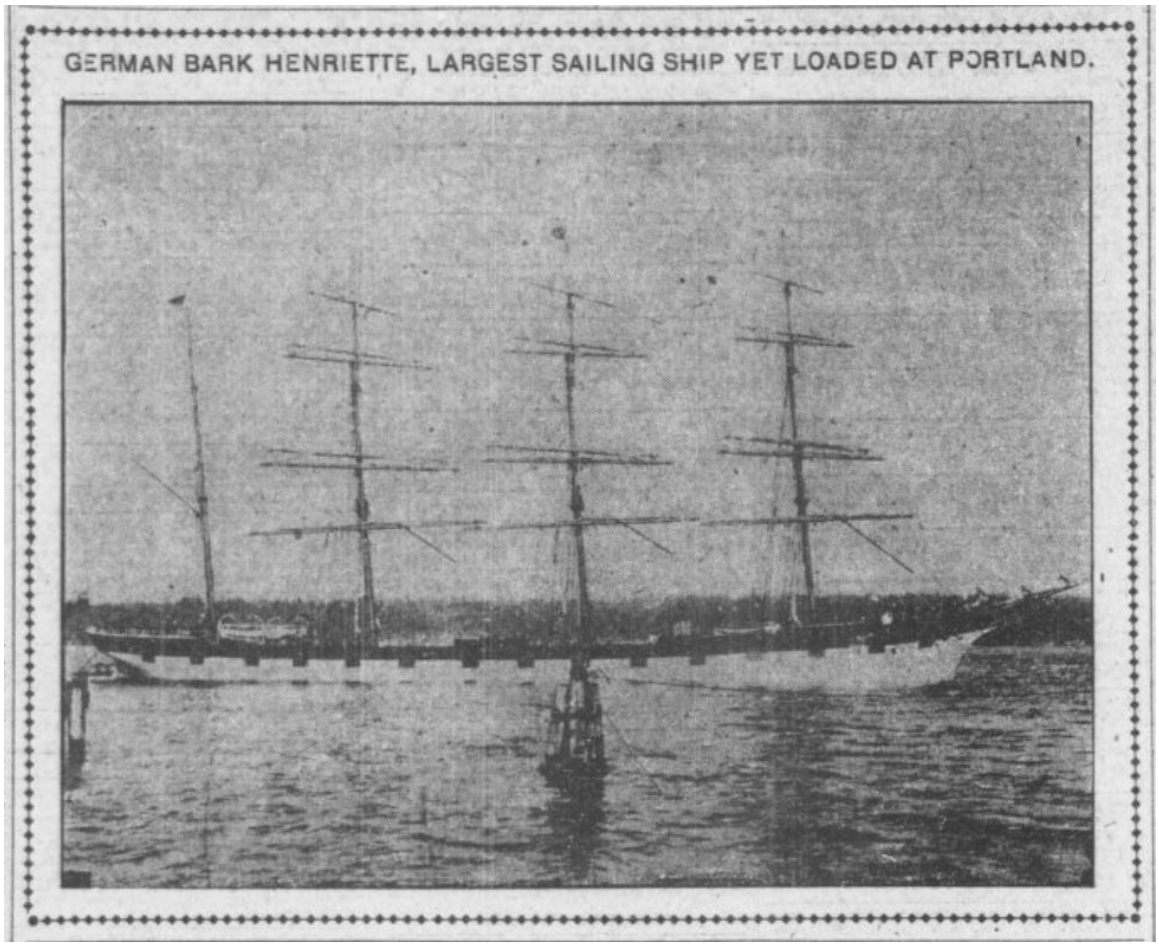

Figure 11. German Bark *Henriette*, 1901 (*Oregonian*, 1-November-1901).

wheat, reported as more than 250 rail cars of grain valued at more than $100,000 (*Oregonian*, 11-November-1901, 10:2-4).

Ships leaving Portland loaded with grain or flour faced a long and arduous journey. Towed down the lower Columbia River and sailing out into the Pacific Ocean, they either headed west, toward Asia, or more, typically, south, along the west coast of the United States and South America, before rounding Tierra Del Fuego, and entering the Atlantic, on their way to Liverpool, England or some other European port. All in all, it was a months-long voyage of more than 18,000 miles at sea. And, arriving in Liverpool, unloading their grain and taking on ballast or, perhaps, some mixed, cargo, they soon turned around and did it again in reverse. It wasn't uncommon for things to go wrong. In 1903 the *Oregonian* reported on the more than 300-day passage of the French bark, the *Grande Duchess Olga*, which was chartered to carry wheat from Portland. Leaving Shields in the Summer of 1902. She was "demasted" during an Atlantic storm in November and limped into Rio de Janeiro, Brazil for repairs. Delays in obtaining needed materials kept her in port until March 21, all while grain prices fluctuated making her passage questionably profitable. She eventually arrived in Portland in early Summer 1903, nearly a year after setting sail. (*Oregonian*, 4-May-1903, 11:1).

The construction of the Panama Canal offered the promise that the grain fleet ships could avoid the difficult passage around Cape Horn at the southern tip of South America, and in so doing cut

more than 8,000 nautical miles off the passage from Portland to Europe. Opened in August 1914, its lengthy and difficult construction was watched with interest in Portland, due to the understanding of what it would mean for the city's booming export trade.

> With the elimination of this long and hazardous voyage the grain fleet, going by way of the canal, will be able to reduce freight on grain destined for Europe very materially....Portland is bound to grow in importance as a wheat shipping point until the day comes when the grain grown in the United States will be needed to feed our own people (*Oregonian*, 22-Dec-1912, 6:5).

Eastern Oregon grain arrived in Portland by rail or by barge, and was offloaded on both sides of the "lower harbor," the wide part of the Willamette River downstream from what is now the Hawthorne Bridge, the area that was regularly improved and dredged to accommodate the fleet. Some grain was sent to flour mills for processing, some moved mechanically into the huge grain elevators that rose along the river-front, but the bulk of it, especially in the early years of the trade, arrived in sacks, was moved into warehouses, and stacked awaiting shipment.

The unloading of cargo and ballast, and the loading of grain, supported an entire "longshoreman" culture in Portland during the 19th and early 20th century. Ships and sailors from around the world arrived in town and were largely ashore during unloading and loading process. Sailors, typically young, underpaid, single men would stay in boardinghouses during the unloading and loading process, before returning to a ship, often not the same one that they arrived in. An entire economy built up geared toward separating young sailors, or "Sons of Neptune," from their pay while they were in port.

The Oregon Legislature, in an effort to control scams that were giving the port a bad reputation among the world's sailors, passed The Sailors' Boarding House Act of 1889. Boardinghouse owners had developed a system of significantly over-charging young sailors between ships, with the goal of building up insurmountable expense that allowed them to broker a sailor's services to complicit captains, often stripping the profit out of the sailor's months at sea. This was termed "shipping a man," and the boardinghouse owner was compensated handsomely by the ship captains, who needed crew. "Depending on the time and circumstance, fees ranged from thirty-five dollars to one hundred dollars, with the middle amount more the norm" (Blalock, 2012:55).[5] This 1889 bill made it illegal for Portland boardinghouse owners to charge more than ten dollars to ship a man. Despite the legislative effort, house owners seem to have largely ignored the law and captains continued to consort with them to the detriment of sailors and shipowners. A decade later, in 1900, friction with shipowners, with complaints about boarding house owners charging exorbitant fees to house sailors and enticing them to desert their ships, sometimes with the support of ship captains, led to the unusual step of direct action by "The Shipowners Association of Liverpool." According to W. J. Burns, the Portland-based partner of Balfour, Guthrie & Company, the laws of Oregon were being openly defied and sailors were being encouraged by boarding houses to dessert, or charged absurd lodging fees if they would not.

> English owners never before combined to correct abuses at the port of Portland...The change now made, by which the captains are relieved of the power to ship crews as they please, is an important step toward correction of the evil that now causes complaint. It is probable that Parliament at its next meeting will pass a law imposing a fine on the captain who shall not take (crew members) back to England" (*Oregonian*, 19-September-1900, 5:1-2).

[5] www.measuringworth.com, a leading internet site regarding the value of money over time, calculates a $50 fee in unskilled labor in 1889 to be roughly the equivalent of $7100 in 2017 (visited 23-January-2019).

Figure 12. Loading sacked grain in Portland, c1922 (Oregon Historical Society Image 0017499).

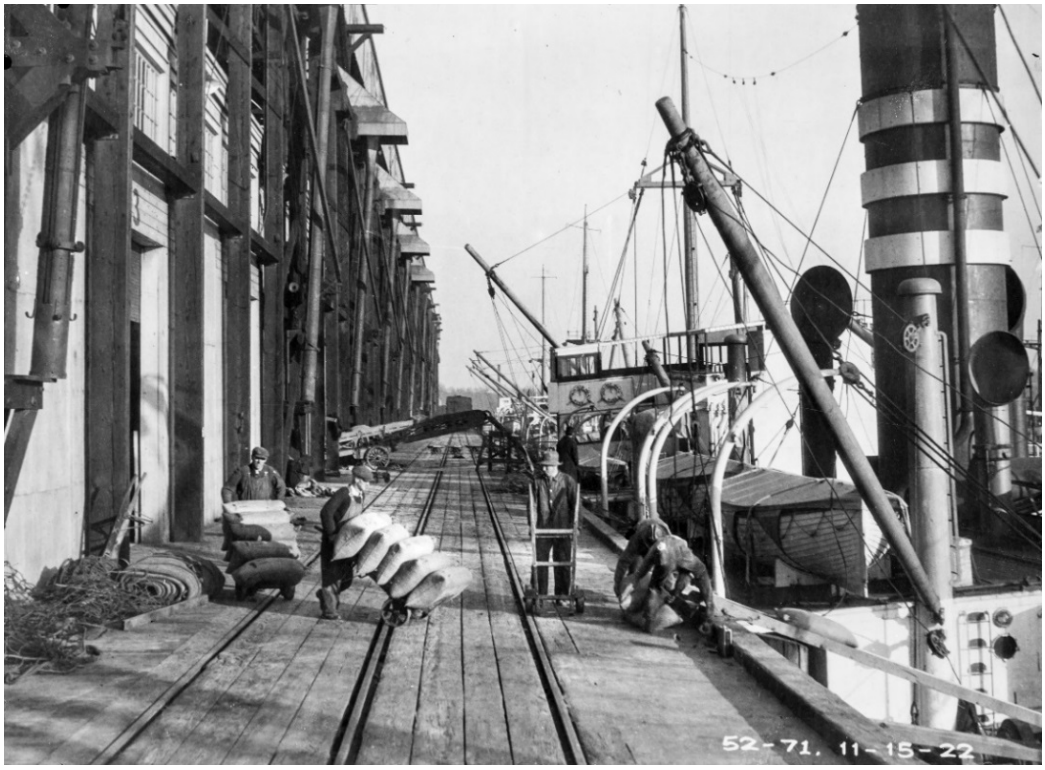

Figure 13. Loading sacked grain in Portland, 1922 (Oregon Historical Society Image 17496).

Figure 14. Loading bulk grain in the rain, with protective tents, 1921 (Oregon Historical Society Image 17498).

Warehouses and Docks – Private and Public

Even before the rail line from Eastern Oregon was completed, the impact of the export grain economy re-made the Portland waterfront. The railyard, located on the western side of the river, north of downtown and including the new Union Station passenger terminal, covered more than 24 acres of land, containing more than seven miles of track that was capable of storing over 1400 rail cars on sidings at one time. The sheds and docks used for the foreign freighting business were located along the southeasterly border of the yards, lining the harbor of the Willamette waterfront. Special wharves were dedicated to different commodities, including coal and general trade goods, in addition to grain and flour.

> The Portland waterfront was a particularly interesting place. Like the river itself, the waterfront was the source of the city's life. The money that trickled out from the banks into the hands of waiters, barbers, streetcar men, newsboys and the like largely came from the grain deals worked out in London and Liverpool....Like Portlanders today, the town people cared little for the maritime business of the city, but when tall masts lines the wharves, they knew the grain fleet was in town (Blalock, 2012:10).

Figure 15. Loading wheat with automatic conveyors, Portland, Oregon, c1915 (Postcard view, Kramer Collection).

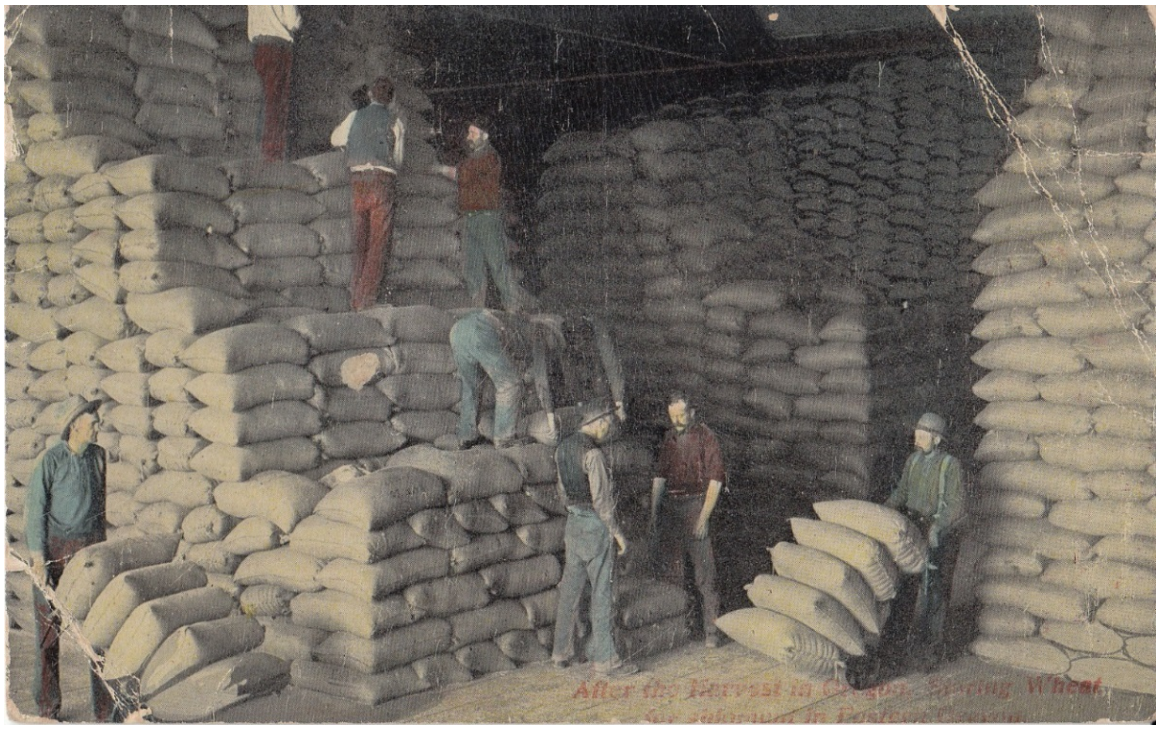

Figure 16. After the Harvest in Oregon, Spring Wheat for Shipment from Portland, c1908 (Postcard view, Kramer Collection).

In the early years, most grain arriving in Portland was sacked, placed in heavy-weight cotton or tightly-woven burlap bags, which often had printed labels to identify their origin.[6] After off-loading, sacks of grain were placed in storage in warehouses awaiting shipment, loaded direct into the hold of a waiting ship for transport, or sent into a mill, where they were opened for processing. Each sack weighed 240 pounds (Blalock, 2012:43). How grain was loaded or unloaded depended upon the water level in the river. Most of the grain docks, the wharves built alongside the river channel by the various Portland flour mills or grain exporters, had two levels.

When the river was low, the lower dock was used. Grain in sacks was sent down a series of chutes, sort of like children's slides, to workers in the ship's hold, where they were then neatly stacked inside the hull. Loose grain was then added to fill the voids between sacks and prevent shifting during the rough ocean passage. If the water was high the upper docks were used, sending loose bulk grain into the hold by using elevators or conveyors, to fill the hold. Special tents were erected over the holds during periods of rain, keeping the grain dry and allowing the loading to go on unimpeded, night and day if necessary, so the ship could leave port with minimal down time (see Figure 14). "It is by no means unusual for a ship to begin discharging ballast Monday morning and have her cargo stowed by Saturday night of the same week" (*Oregonian*, 4-November-1900, Section 3, 1:1-8).

As the grain trade expanded, numerous exporters, and flour mills, developed their own docks and wharves on the Willamette to service their trade. In the season that ended in June 1922, Portland was the second largest exporter of grain in the US, all of it shipped out of one of the following privately held docks that extended, collectively, for nearly a mile (4800 lineal feet) along both sides of the Willamette River in downtown (Table 2).

Table 2. Privately Held Wheat-Related Docks on the Willamette River, 1923.

Company/Dock	Length
Albers Bros. Docks No. 1 and 2	460 feet
Albina Dock	775 feet
Columbia Dock No. 1	355 feet
Crown Mills Dock	300 feet
Globe Milling & Elevator Dock	380 feet
Irving Dock	400 feet
Mersey Dock	325 feet
Pacific Coast Elevator Company	560 feet
Portland Flouring Mills Co.	560 feet
SP&S RR Dock (3/4ths of total)	750 feet

Source: Port of Portland. *The World's Largest Sea Lanes Lead to the Port of Portland*, Portland, Oregon, USA. Portland, OR: Port of Portland Traffic Department, 1923.

Docks and wharves that were owned and operated by the private mills and elevators, obviously, were generally limited to serving those businesses. Most of the early docks did not have the capability of handling "bulk" grain. By the mid-1920s, bulk grain was overtaking sacked as the preferred method of shipment. "Most of the wheat now handled through Portland comes in sacks, but officials ...hold that with the building of elevators in the country...the growth of bulk handling [will become dominant]" (*Oregonian*, 2-April-1921, 15:4).

[6] See Friedrich, Alvin (ed.). *Early Flour and Feed Sack Manufacture in Oregon*, unpublished manuscript, 1992 (OHS Vertical Files).

Figure 17. Loading bulk wheat, 12-31-1938
(Oregon Historical Society Image 017502).

To accommodate larger shipping interests and improve grain handling, the Portland Commission of Public Docks announced plans to build Municipal Terminal No. 4, to occupy what was then a 160-acre site near St. Johns, destined to be the most extensive and modern development of the port. The Commission of Public Docks completed the first phase of Terminal No. 4 in 1919 and announced plans for its continued expansion to serve the grain trade.

> When fully completed, (Terminal No. 4) will have space for the berthing at one time of fourteen 500-foot vessels and a trackage serving the piers and elevator of fifteen miles.... [and] a fireproof elevator for handling grain in bulk, having a capacity of 1,000,000 bushels (*Oregonian*, 1-January-1920, 4:1-8).

Terminal No. 4 consisted of multiple piers and slips, to allow ships to load and unload, as well as specific infrastructure to support Portland's grain trade. "If the word of experienced mariners will suffice, Portland has in Terminal No. 4 the most efficient dock and cargo handling facilities on the Pacific coast, if not the entire United States (*Oregonian*, 1-January-1921, 3:5-8).

Although the vast majority of grain that arrived in Portland was exported to foreign destinations via ship, not all of it was, and certainly a large percentage of grain that was milled into flour was processed and sold regionally or locally. Flour mills such as Crown would load processed flour on the inland side of the mills, away from the docks on the river. Sacked flour was loaded either into rail cars on sidings along the mill's loading dock, or directly into a fleet of delivery vans that supplied specially milled blends to local grocery stores and bakeries.

Figure 18. Grain elevator at Municipal Terminal No. 4, 1921
(City of Portland Archives Image A2004-001.451).

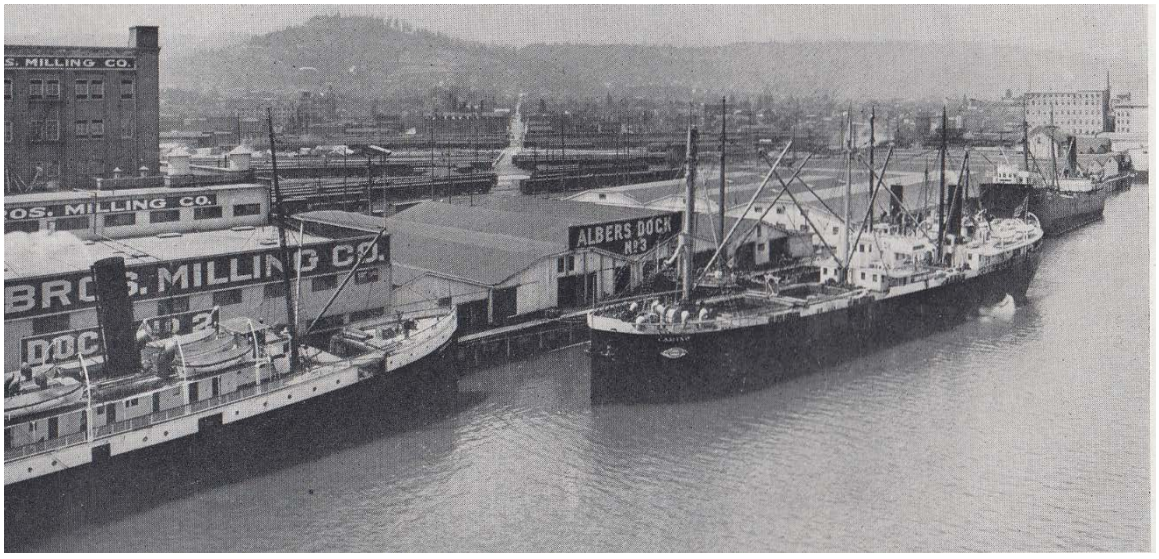

Figure 19. The Albers Brothers Milling Plant, as seen from the Broadway Bridge, c1914
(*Portland Metropolis & Vicinity*, Kramer Collection).

Figure 20. Crown Mills – The Home of Crown Flour, c1930 (*Choice Recipes*, Crown Mills, Kramer Collection).

Changing Operations

Development of the flour and wheat industry continued during the 1920s. The completion of Terminal No. 4 and the technological improvements required to handle larger, often steel-hulled, ships for bulk grain, hastened the shift away from sacked flour. Market changes, along with international developments including increased domestic production and changing diets, all combined to soften demand for northwestern wheat production and reduce exports. "The hopes for prosperity waned as wheat prices sharply dropped by the mid-1920s" (Donovan, 2010:13). "Flour prices are utterly out of line with wheat market values and have been so for some time past" (*Oregon Daily Journal*, 4-April-1921, 11:3). In Oregon a severe crop freeze in 1924 placed even more stress on growers.

The Oregon Wheat Growers League (now the Oregon Wheat League), a non-profit association of growers and others that work to promote wheat interests and advocate on both state and farm legislation, was founded in Moro, Oregon, in February 1926. Wheat was then selling for less than it cost to grow, and the eastern Oregon growers were faced with an uncertain future. "The League was the first commodity organization formed in the United States for wheat, and as such, holds a unique position in the annals of agricultural history."[7]

Grain and flour exports continued to fare poorly during the early 1930s, as the impacts of the Great Depression reduced already depressed prices. From more than 37 million bushels of wheat exported from Portland in 1921, a trade that had ebbed during the early 1920s and then surged again by the end of the decade, nearly collapsed during the early 1930s, with just 4.7 million

[7] "First of its Kind." Oregon Wheat League (http://www.owgl.org/consumers/history/, visited 30-January-2019).

export bushels in 1932 (Donovan, 2010:16). During World War Two, like so much of America's domestic industry, the wheat trade boomed, as demand for products soared to supply the war effort. Partially to ease the transition to a post-war wheat economy, the Oregon Legislature, at the urging of the Wheat Growers League, created the Oregon Wheat Commission in 1947. The Commission provided another voice to support and guide the industry's future.[8]

Postwar development again brought significant change to the operation of Portland's flour mills and grain-export businesses. Crown Mills, long owned by Balfour Guthrie and operated, essentially, as an Oregon entity despite its English ownership, was sold to another pioneer flour mill, Centennial Mills of Tacoma, in 1948. In 1953, a giant commodities concern based in Minneapolis, Minnesota, purchased all the capital stock of Kerr Gifford, then the oldest independent grain trading firm in the western United States (*Oregonian*, 12-June-1953, 1:2). Smaller flour mills, faced with new competition from these larger, national or international, corporations, struggled to retain market share. Still, as late as 1962, the *R. L. Polk City Directory for Portland* listed six flour mills in the city, plus the Albers Mill, which remained in operation producing animal feed.[9] Still, the Oregon grain market shifted more and more toward export, with local flour supply shifting to national, rather than, local labels.

Portland wheat exports, bolstered by various international agreements, surged in the late-1950s and 1960s. "Japan was one of the first countries to buy large quantities of wheat, followed by India, Pakistan, Taiwan, Korea and the Philippines....over 90% of Pacific Northwest wheat was exported to Pacific Rim countries" (Donovan, 2010:21). In 1972 Portland became one of the first cities in the United States to export grain to the People's Republic of China and Soviet Russia (*Oregonian*, 12-November-1972, 33:3-8).

Asian markets remain the primary importer of Oregon wheat. "Cheaper wheat is available from Russia, the Ukraine and elsewhere, but buyers in Japan, Korea and Taiwan are 'premium buyers' who remain willing and able to pay for Northwest wheat" (Mortenson, 2016). Consolidation in farming, as in milling, significantly impacted supply, with ever-larger corporate farms and the loss of the traditional, family-owned operations that historically characterized the industry.

Flour milling no longer exists in downtown Portland. The Albers Mill, which remained as a feed mill long after its flour operation ended, sat vacant and decrepit for years before being sold for redevelopment in 1984. Crown Mills, renamed Centennial Mills, the last of the once-bustling pioneer mills in Portland, was sold to a series of national, and then international, operators before becoming part of ADM, the Archer-Daniel-Midland Company, in 1981. Centennial Mills ceased all operations by 2000, when the property was sold to the Portland Development Commission (now Prosper Portland). In 2016 all of its grain elevators and the Feed Mill were removed in connection with the anticipated redevelopment of the property.

Flour milling in Portland, once a significant element of the city's bustling waterfront economy and part of its valuable wheat and flour export trade, gradually fell victim to national market trends, beginning with consolidation of smaller companies into regional, and then national, concerns, coupled with increased labor costs and, at least in the case of Centennial Mills, the high cost of retrofitting century-old milling equipment to modern standards. Although flour milling along the Portland waterfront has ceased, grain harvest remains a key economy in eastern

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[8] "They Broke the Trail." Oregon Wheat League (http://www.owgl.org/consumers/history/they-broke-the-trail/, 30-January-2019.

[9] *R. L. Polk's Portland City Directory*. Portland, OR: R. L. Polk & Company, 1964 p260.

Figure 21. Centennial Mills grain elevator demolition, March 2016 (Kramer Image).

Oregon and Washington, and grain export, much of it through Portland, continues. Portland is still the primary shipping point for the vast acreage of eastern Washington and Oregon wheat fields. As late as 2012, the last year for which data could be located, Portland retained its pre-eminent position in the wheat trade.

The Port of Portland exports the largest amount of wheat from any port in the United States and is the third largest wheat shipping port in the world.... Almost 50% of the wheat exported from the United States is transported through the Columbia River to overseas markets (Rekart, 2012:178-179).

In 2018, wheat ranked as Oregon's fourth-largest export. While the industry faces increased competition from Russia, now the world's largest grain producer, India, Canada and other countries, along with challenges related to the United States' international relations and tariffs, the total Oregon wheat crop in 2019 was still more than 51,000,000 bushels, an increase of 7%.[10] In 2018, between 85 and 90 percent of all Oregon wheat was exported, more than 20% going to Japan alone (Plaven, 2018). Very little is milled into flour in Oregon.

[10] See USDA/National Agricultural Statistics Service "Field Crop Report, Posted Online Feburary 8, 2019," (online at https://www.nass.usda.gov/Statistics_by_State/Oregon/Publications/Field_Crop_Report/crop%20reports/2019/CP01_1.pdf, visited 1-April-2019).

3. Portland Grain and Flour Companies

This section includes brief histories and, where available, photographs and mapping, documenting the Portland grain infrastructure during the first quarter of the 20th century, when grain was at its apogee of impact on the city. Listed resources including docks or wharves specializing in the grain trade, flour mills, and warehouses related to them located on the Willamette River, downstream from the Burnside Bridge. Many grain exporting entities of note essentially functioned as brokers, with no physical presence on the river itself, but working from downtown offices to negotiate trades worldwide.

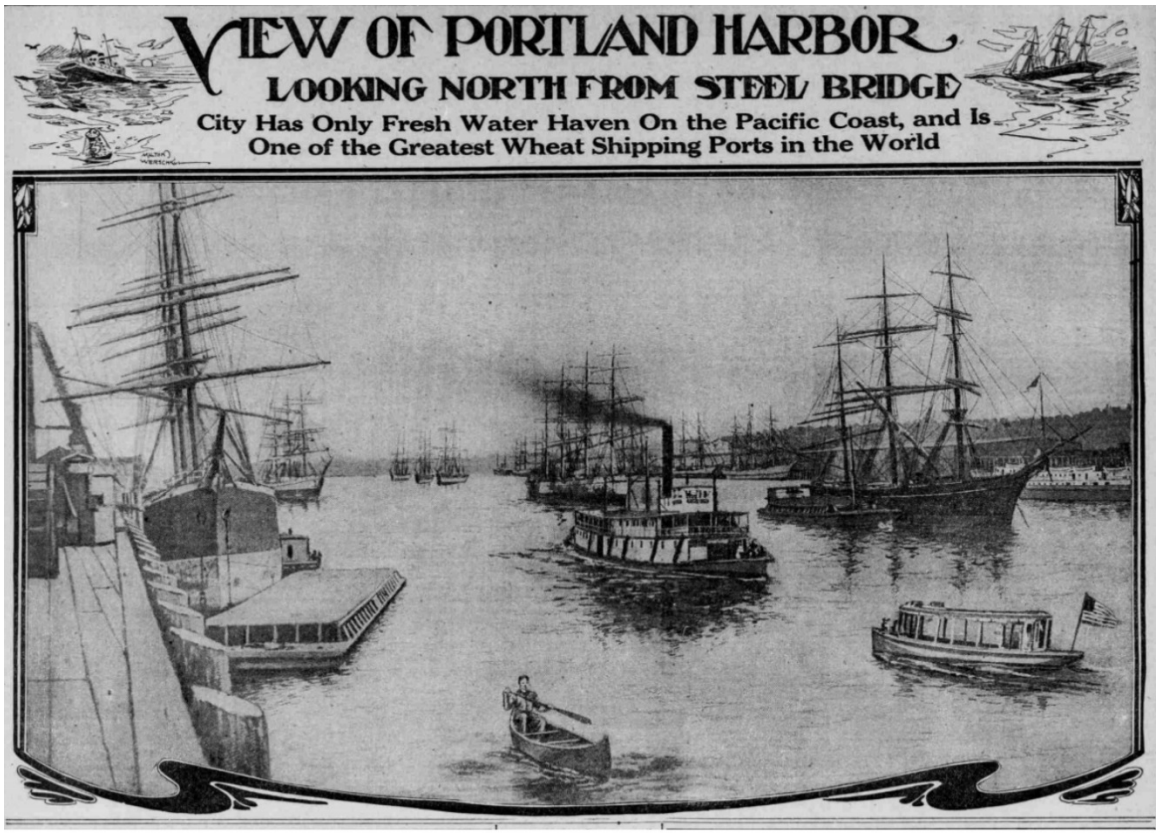


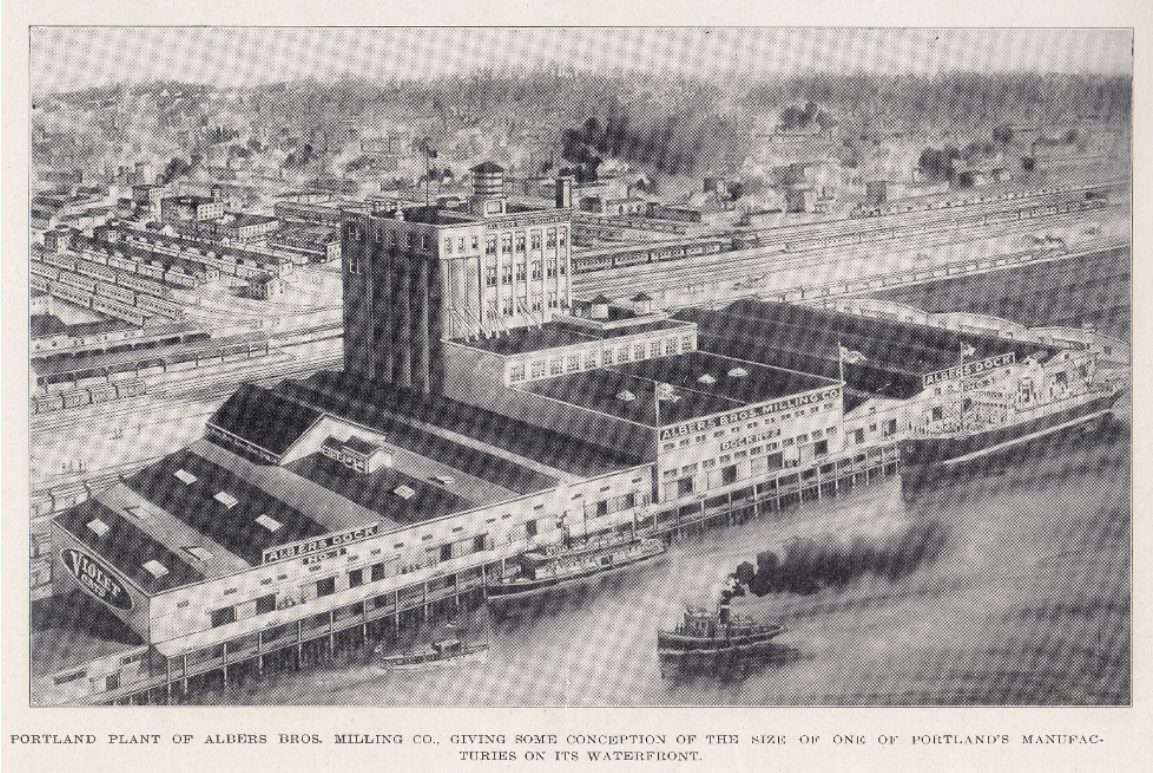
Figure 22. View of Portland Harbor, Looking North from Steel Bridge (*Oregonian*, 1-January-1908).

Albers Brothers Milling Company

(1909-c1970s)
1118-1130 NW Naito Parkway (NW Front)

Development History

By 1898 the Albers Brothers controlled 600 feet of dock on the waterfront, including a mill and warehouses related to the operation. The flour, oats, cereal and feeds were produced under a variety of trademark brands, including Albers, Carnation, Peacock, Del Monte and Sunripe (Heritage Investment Corporation, 1984).



PORTLAND PLANT OF ALBERS BROS. MILLING CO., GIVING SOME CONCEPTION OF THE SIZE OF ONE OF PORTLAND'S MANUFACTURIES ON ITS WATERFRONT.

Figure 23. Albers Brothers Milling Company Plant (*from Pictorial Oregon: The Wonderland* [Sayre and Gregory 1915], Kramer Collection).

In 1909, Albers Brothers purchased the Greenwich Docks Nos. 1 and 2 from J. Couch Flanders for $500K (*Oregonian*, 25-May-1909, 5:1). "With the new property we will have over one-eighth miles of Portland's choicest waterfront and we intend to improve this property to the best advantage" (including planning a new cereal mill to supplement the existing facilities). The six-story brick and concrete flour mill was built between 1909 and 1911. "The big plant of the Albers Brothers Milling Company will be occupied by August 1....it will be devoted exclusively to the manufacture of cereals" (*Oregonian*, 28-May-1911, 11:1). In 1921 the business was reorganized under the direction of Moritz Thomsen, "millionaire miller" of Seattle (*Oregonian*, 14-May-1921, 1:6). Albers' property includes "two cereal mills and two docks in this city, and mills also at Seattle, Tacoma, San Francisco, Oakland and Los Angeles with a leased mill in Ogden, Utah."

In 1984 the mill, described as having been "long vacant," was purchased by Sam and Bill Naito who eventually rehabilitated the structure for office use (*Oregonian*, March 26, 1984, D12). The Albers Brothers Milling Company building was listed on the National Register of Historic Places in 1984 (https://npgallery.nps.gov/GetAsset/5082480e-76a6-472e-85ab-cb993cc21b3f).

Figure 24. Albers Brothers Dock No. 3 (Oregon Historical Society Image 017492).

Crown Mills (Centennial Mills)
(1910-2000)
1362 NW Naito Parkway

Crown Mills was built and operated by Balfour-Guthrie & Company, a Liverpool-based exporter that first became involved with Oregon's grain trade in the 1878, opening an office in Portland and securing grain for export. In 1909, in order to avoid unfavorable treatment from existing mills, the company decided to build and operate its own flour mill in Portland, in support of its growing export trade. Crown Mills occupied a riverfront site at the foot of Pettygrove Street, with 300 feet of two-level dock frontage on the river and a railroad siding and loading dock lining what is now Naito Parkway.

Figure 25. Crown Mills (Oregon Historical Society Image 013301).

Development History

Crown Mills constructed its first elevator and the flour mill in 1910, adding additional elevators and a feed mill (for animal feed) in 1928. Balfour Guthrie operated the business, both for export and domestic trade (marketing Red Crown flour) until 1948, when the business was purchased by Centennial Milling Company, of Tacoma, WA, a pioneer milling concern. Later owners included United Pacific Corporation (1960), Univar Corporation (1974), and finally ADM Milling Company (1981). The Centennial Mill was the last operating flour mill in downtown Portland when it was closed in 2000. Considered eligible for listing in the National Register of Historic Places, Crown Mills (Centennial Mills) was documented for the Historic American Engineering Record (OR-184) in 2016.

Kerr, Gifford & Company (Globe Milling & Elevator)

1919-36 (Elevator continues)
900 North Thunderbird Way

In 1921 the Kerr, Gifford & Company leased (and then later purchased) the former Globe Milling and Elevator, and elevator and warehouse/dock located at the east end of the Steel Bridge. Some reports indicated the mill had been vacant; however, the Globe Grain and Milling Company announced plans in June 1918 for the construction of a new "$150,000 mill with a capacity for 1500 barrels daily" to located on its "East Side waterfront between the Steel and Broadway bridges..." (*Oregonian*, 4-Jun-1918, 23:1). Kerr Gifford's purchase describes the lease as consisting "...of a concrete elevator with a capacity of 18,900 tons of bulk and sacked wheat and wooden dock with a frontage of 380 feet" (*Oregonian*, 2-April-1921, 15:4). This may indicate that Globe's plans failed.

Figure 26. Globe Milling and Elevator property purchased by Kerr, Gifford & Company (Oregon Historical Society Image 017489).

Development History

The Kerr, Gifford Company was in operation prior to 1902 under the direction of Peter Kerr, company president and majority owner, in association with his younger brother Tom and a former business associate, Patrick Gifford. Kerr-Gifford operated with branches throughout the West, including Seattle, Spokane, Walla Walla, San Francisco and Boise, along with multiple locations

in Oregon. It owned and operated flour mills but was primarily a grain trading and export company. In 1921 Kerr Gifford & Company exported more than 12,000,000 bushels of wheat, accounting for 3.5% of the US total exports and making it one of the largest grain exporters in the nation (Federal Trade Commission, 1921). The flour mill was closed in 1936 and the company ceased production. The elevators remained however the export and general grain and feed business continued (*Oregonian*, 14-April-1936, 5:3).

At the time Kerr Gifford & Company was sold to Cargill in 1953, it was reported as the largest grain exporter on the West Coast. Peter Kerr's nephew Tom founded the Kerr Grain Company in 1953 and that concern remains in operation, as Kerr Pacific, today.[11] The Globe/Kerr Gifford elevator complex is now operated by Louis Dreyfus Company and may contain some portion of the original development.

[11] www.kerrpacific.com, visited 14-January-2019.

Municipal Terminal No. 4

11040 N Lombard St.

Built by the City of Portland Commission of Public Docks and now operated by the Port of Portland, Terminal No. 4 is located on the east side of the Willamette River channel at the foot off North Terminal Road. The current site address is 11040 N Lombard Street.

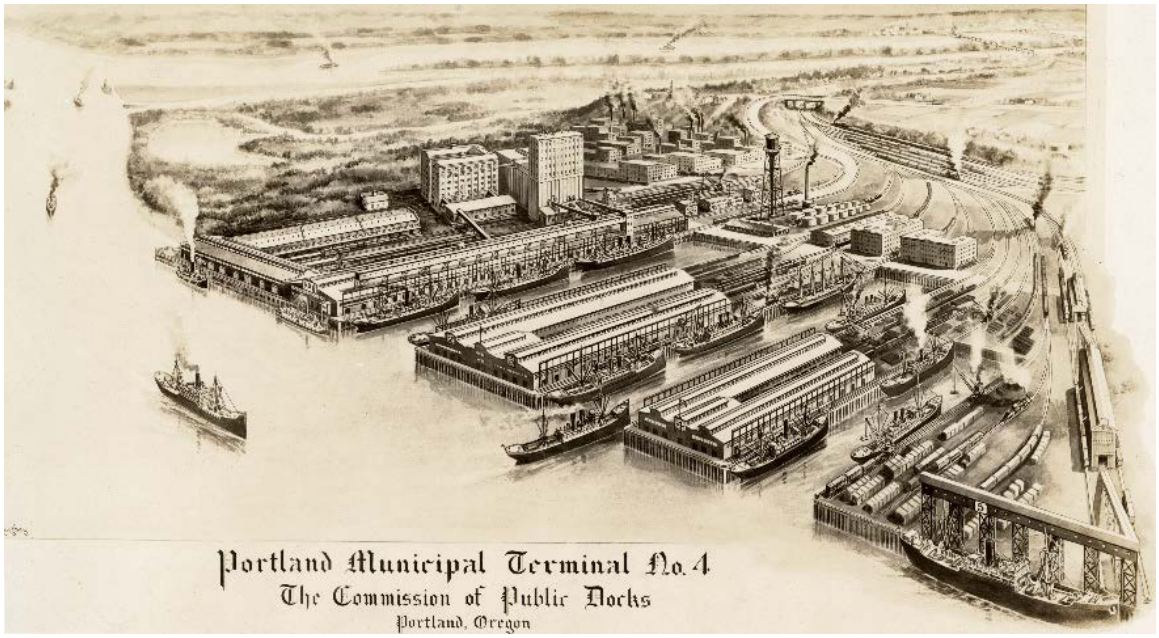


Figure 27. Portland Municipal Terminal No. 4 (City of Portland Archives Image A2001-026).

Development History

Terminal No. 4 was a large and multi-component development that included docks, piers, slips, warehouse, rail services, and a one-million-bushel grain elevator designed to support the grain export trade. It was built and financed by public interests and increased the ability to handle bulk grain shipments. "The grain elevator was the central feature of the new shipping terminal" (Donovan, 2010:1). The elevator itself was expanded in 1930 and 1954. The Terminal operated throughout the Great Depression and through World War II, shifting its operations in response to wartime needs. After the war, in 1946, the grain elevator was leased to Kerr Gifford & Company, although Commission of Public Docks retained operation of the docks and piers. In 1954, funded by public bonds, a new 5.5-million-bushel annex was constructed, bringing the total capacity of Terminal No. 4 to 7.5 million bushels. Cargill and Company, which acquired Kerr Gifford in 1954, took over operation of the elevators at Terminal 4 as part of that purchase. In 1974 the newly created Port of Portland invested more than $12 million in revenue bonds to further modernize and upgrade Terminal 4. "The Terminal No. 4 Grain Elevator maintained its status as one of the largest elevators in the Western U.S. One-third of the nation's wheat exports were shipped through the Port's grain elevators and privately-owned elevators including Bunge Grain, Louis Dreyfus, and Continental Grain" (Donovan, 2010:223).

In 2003 Cargill terminated its lease on the Terminal No. 4 grain elevator, its use ended, and it was subsequently demolished. Today Terminal No. 4 is a multipurpose 262-acre facility with four ship berths capable of handling dry and bulk cargo including automobiles and manufactured goods.

Portland Flouring (Sperry) Mills Co.

(1884-1922)
Albina, E. Side Willamette River,

The Portland Flouring Mills Company was established as the first large-scale flour mill in Oregon in the city in 1884, under the direction of some of Oregon's leading businessmen including W. S. Ladd, who served as its president. The original mill at Albina burnt and was rebuilt in 1887, then significantly reconstructed and expanded in 1901 (*Oregonian*, 04-March-1904). The Portland Flouring Mills played a leading role in the development of grain export to China and Japan in the late 19th century and quickly expanded to operate mills at Oregon City, Salem, and Albany in Oregon, as well as five more in Washington State by 1902. The Portland Flouring Milling Company marketed its home and commercial flour under the "Olympic Flour" brand. The company also owned and operated the Pacific Elevator Company (q.v.).

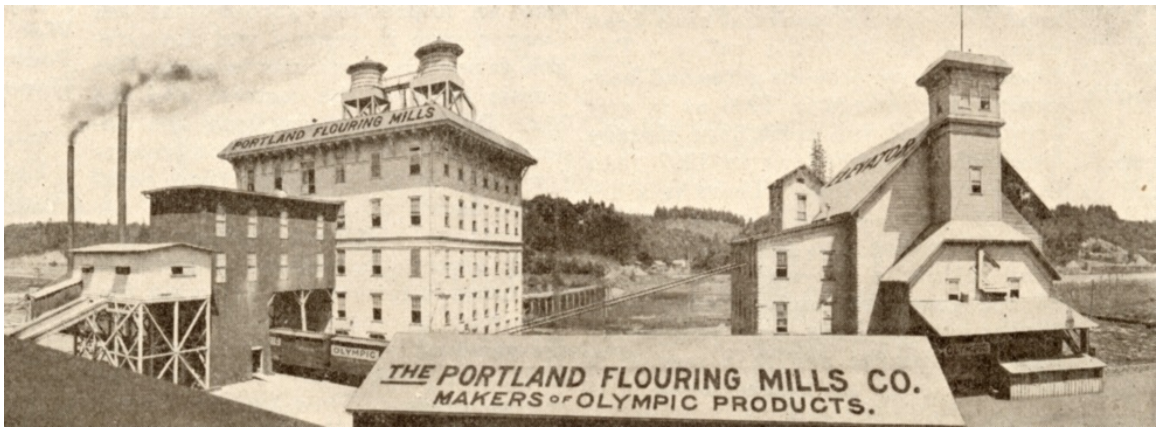


Figure 28. Portland Flouring Mills Co. (City of Portland Archives Image A2004-002.9947).

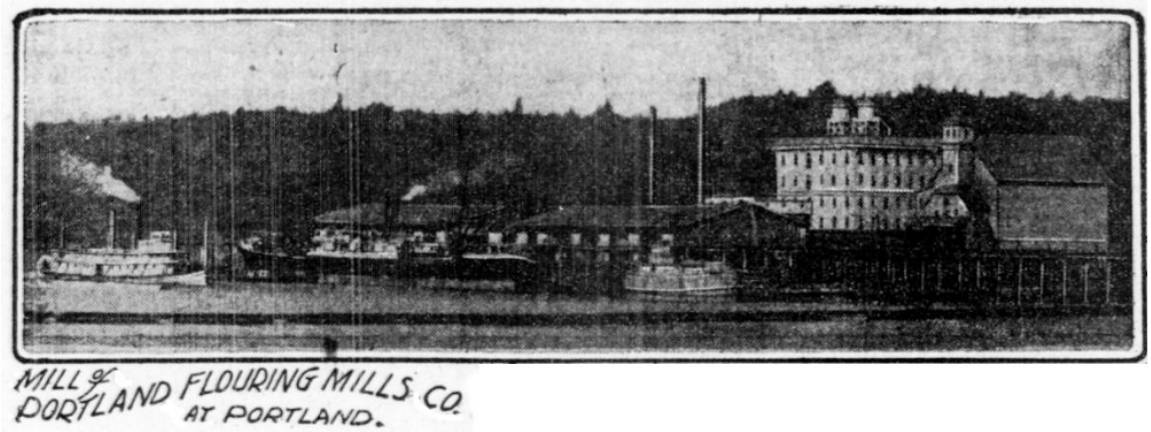


Figure 29. Portland Flouring Mills Co. (*Oregonian*, 1-January-1902).

Development History

Capitalized by W. S. Ladd and others, the Portland Flouring Mills, which were located in the then-independent city of Albina on the east side of the Willamette, were managed by T. B. Wilcox, who built the organization into the leading flour mill in the Pacific Northwest. The mill shipped out nearly 330,000 barrels of flour to Europe in 1895, with a matching amount to China. Smaller quantities were shipped to South America, Central America, and Hawaii, with 78,000 barrels retained for local trade (*Oregonian*, 1-January-1896, 15:1).

In 1918 T. B. Wilcox, the long-time manager, purchased the majority of the stock and became "...practically the sole owners of the company," which was still one of the largest flour milling operations in west (*Oregonian*, 1-Feburary-1918, 16:3). Wilcox's sudden death shortly thereafter threw the operation in chaos. The mill, including the Albina plant, and the fire-damaged Olympic Mill in East Portland, and several parcels of land, was sold at Sheriff's auction and purchased by the Sperry Flouring Company, of San Francisco, for $1.17 million dollars (*Oregonian* 8-Dec-1922, 20:4).

Olympic Cereal Mill

(1920-1950)
107 S. E. Washington

The Olympic Cereal Mill was built for Portland Flouring Mills and later operated by Sperry Flour.

Figure 30. Olympic Cereal Mill after 1923 acquisition by Sperry Flour (Oregon Historical Society Image 017494).

Development History

The Olympic Cereal Mill was constructed for Max Houser, as part of his expansion of the Portland Flouring Mill in 1918. It was acquired by Sperry Flour, along with that company's purchase of the Portland Flouring Mill operation in 1923. Sperry manufactured and marketed "Snow Drift" flour and multiple mills throughout the western United States.

In 1950 the building was purchased by the Baggage and Omnibus Company, a freight and storage company, and the building became known as the "B & O Warehouse." The B & O Warehouse is a contributing property within the Central Eastside Industrial Area Historic District and as such was listed on the National Register in January 1989.

Figure 31. Olympic Cereal Mill (Oregon Historical Society Image 017486).

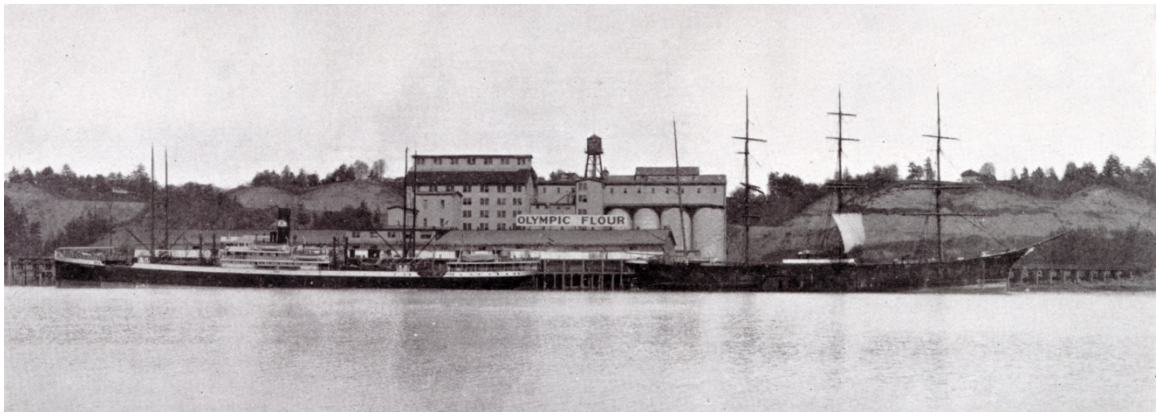


Figure 32. Olympic Cereal Mill (City of Portland Archives Image A2004-001504).

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