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Rivers of Steel: The Economic Development of Seattle During the Rail Age, 1870-1920

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Rivers of Steel:

The Economic Development of Seattle During the
Rail Age, 1870-1920

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Submitted for partial fulfillment of Master of Science degree in Geography
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ACRONYMS

CPR	Canadian Pacific Railway
C&PS.....	Columbia & Puget Sound Railroad
GN.....	Great Northern Railroad
NP	Northern Pacific Railroad
OR&N	Oregon Railway & Navigation Company
OSN	Oregon Steam & Navigation Company
P&PS.....	Portland & Puget Sound
PSS	Puget Sound Shore Railroad
SC&T.....	Seattle Coal & Transportation Company
SLS&E	Seattle Lake Shore & Eastern Railroad
S&WW	Seattle & Walla Walla Railroad

ABSTRACT

The Pacific Northwest experienced massive urban development and growth in population from 1870 to 1920. The railroad was a key factor contributing to the influx of people and expansion of the built environment. The rival port towns around the Washington Territory's Puget Sound all strove to become the dominant center of trade. As the pattern of railroads expanded, this new mode of transportation would have a significant effect on which ports would prosper and which would languish. This paper will show that the rail network that developed between 1873 and 1893 would come to favor Seattle at a critical point in history: just before the Klondike Gold Rush. But as the railroads shaped the development of the Sound, other factors shaped the pattern of the rails as well. Seattle was able to play an early role as a local supply hub because of its early start as a community, central location, and strong maritime trade. The city's proximity to large and high quality coal deposits also played a role its development and the extension of local rail lines. Seattle's role as trade hub and local rail network created the infrastructure necessary to convince the Great Northern transcontinental railroad to make the city its terminus, nullifying the competitive advantage of its main rival on the sound, Tacoma. The railroad network that developed during this period further entrenched Seattle's role as the trading hub of Puget Sound, which played a crucial role in the city's rise to become the dominant port on the sound. This paper contributes to the historical analysis of Seattle's early days as a burgeoning port town by surveying the works of scholars and providing a new perspective on the driving forces in Seattle's rise to economic supremacy.

Seattle, Washington, stands today as the preeminent port in the Pacific Northwest. Home to Boeing, Nordstrom, Microsoft, Amazon.com, and Starbucks, Seattle has a diverse economy with extensive international connections (Beyers 2011). The Queen City, as it is also known, boasts the largest population in the region, with 608,660 residents within its city limits and a Metropolitan Statistical Area (MSA) population of 3,500,026¹ (U.S. Census 2010a; U.S. Census 2010b). The city is said to possess an entrepreneurial dynamism, known simply as the “Seattle Spirit.” This phenomenon has been attributed to local actors who, at various points in Seattle’s history, have been thought to play major roles in shaping Seattle’s growth and development. Some scholars (MacDonald 1959; Sale 1976) see Seattle’s rise to become the dominant port in the Pacific Northwest occurring in the first decade of the 20th Century. These authors use population data from the U.S. Census and trade statistics to show that Seattle became a more populous city with a more extensive hinterland than Portland, Oregon between 1900 and 1910. Their analyses rely on concepts similar to central place theory, where the pattern of urban centers is shaped by their competition over hinterlands (Ullman 1941). The dominant urban center will rise to become the central place, while all challengers will hold secondary and tertiary statuses.

Carl Abbott (1992) argues for a different interpretation of this history, claiming that the advent of Seattle’s dominance actually arose in the 1950s and 1960s. In his article “Regional City and Network City: Portland and Seattle in the Twentieth Century,” Abbott attempts to explain when and how Seattle surpassed

¹ Seattle’s MSA, as defined by the U.S. Census, includes the cities of Tacoma and Bellevue.

Portland as the Pacific Northwest's dominant urban center. He argues that the development of a regional hinterland does not serve as an adequate explanation for Seattle's rise to preeminence, because both cities had extensive regional hinterlands, granting each the status of "regional city" (1992, 293). At the beginning of the 20th Century, Seattle had already established itself as the dominant city on Puget Sound through the development of extensive trade relations. However, Abbott considers both Seattle and Portland as regional cities during the first half of the 20th Century; it was not until after 1950 that Seattle began to develop *extra*-regional networks beyond what Portland could claim. These extra-regional networks, he suggests, contributed to Seattle's growth in the latter half of the century. Abbott argues that the basic changes in the "sectoral compositions and spatial patterns of economic activity" in the 20th Century create the circumstances where extra-regional networks become more important for a city's growth than regional ties (1992, 298). He suggests a "dual urban systems" model where one set of cities conducts international trade, while a set of smaller cities are primarily responsible for national trade (1992, 298). Abbott asserts that Seattle's ability to be the primary outfitter for the gold rush in Klondike region of Canada's Yukon Territory during the late 19th Century, was a first step, toward which the city would expand its extra-regional trading networks, leading the city to attain the status of a "network city" (1992, 300). The data that Abbott highlights include population, income ratios between each city and its relative hinterland, the Ginsberg Index², waterborne

² The Ginsberg Index is the population of the most populous city in the region divided by the combined populations of the next four largest cities.

international trade, and immigration. He uses these quantitative data to support the claim that Seattle surpassed Portland in the 1950s and 60s.

Taking Abbott's assertions into account, the question that this paper answers is: what factors led Seattle to have the capacity to eventually serve the role of supply hub for the Klondike Gold Rush (also referred to as the Yukon Gold Rush)? To address this question, scholarly literature is analyzed to determine these primary variables. This paper focuses on the social, economic, and geographic factors, with an emphasis on the role of railroads in the reshaping of the region, during the time when these changes first became apparent. The time period of 1870-1920 represents the age in which the railroads were a major factor in the development of urban centers in the Pacific Northwest. But this was not a one-way causality; the railroads were influenced by development as well. In addition to the rail network of Puget Sound, there are four factors that led to Seattle's ability to capture the market for the Klondike Gold Rush: 1) Seattle's early establishment as a community; 2) central location on Puget Sound; 3) strong maritime trade; and 4) proximity to large coal deposits. Some factors helped to give rise to other factors, such as Seattle's early establishment and its central location laid the groundwork for a strong maritime trade network to develop. In turn, all four of the aforementioned factors played an important role in how the rail pattern developed around Seattle. By the early 1890s, the railroad network would effectively connect Seattle with important places, locally and nationally, establishing trade relationships and funneling population towards the city. Using qualitative and quantitative data, this paper will argue that Seattle's local and transcontinental rail connections played a crucial role

in the city's ability to become the primary outfitter of the Klondike gold rushes. While the railroads would boost growth in the broader Pacific Northwest, the specific geographic pattern of track that emerged would serve as the most important factor in Seattle's ability to capture the Klondike market and its rise to become the dominant port on Puget Sound. Understanding how different network patterns and modes of transportation have shaped the regional economic development of urban centers in the Pacific Northwest can assist researchers in the study of transportation modes and their effects on the urban fabric in other regions and time periods. Determining what has changed and what remains the same, with regard to the connective, space-conquering qualities of transportation, can clarify how people understand their society and its everyday inner-workings.

Regional Context

A survey of the regional context is important to understanding the dynamics of Seattle's development. The patterns of development across the Pacific Northwest played a role in Seattle's particular growth as a city. Competition between urban centers was a common theme throughout the rail age, where residents hoped that their city would become the ascendant metropolis of the region (MacDonald 1959; Quiett 1965; Armbruster 1999). Inter-urban rivalry was often a zero-sum situation, where the rise of one urban center directly led to the descent of a rival city. These patterns were shaped by actors at the local, regional, national, and international scales, as well as the region's physical and human geography (Figure 1).

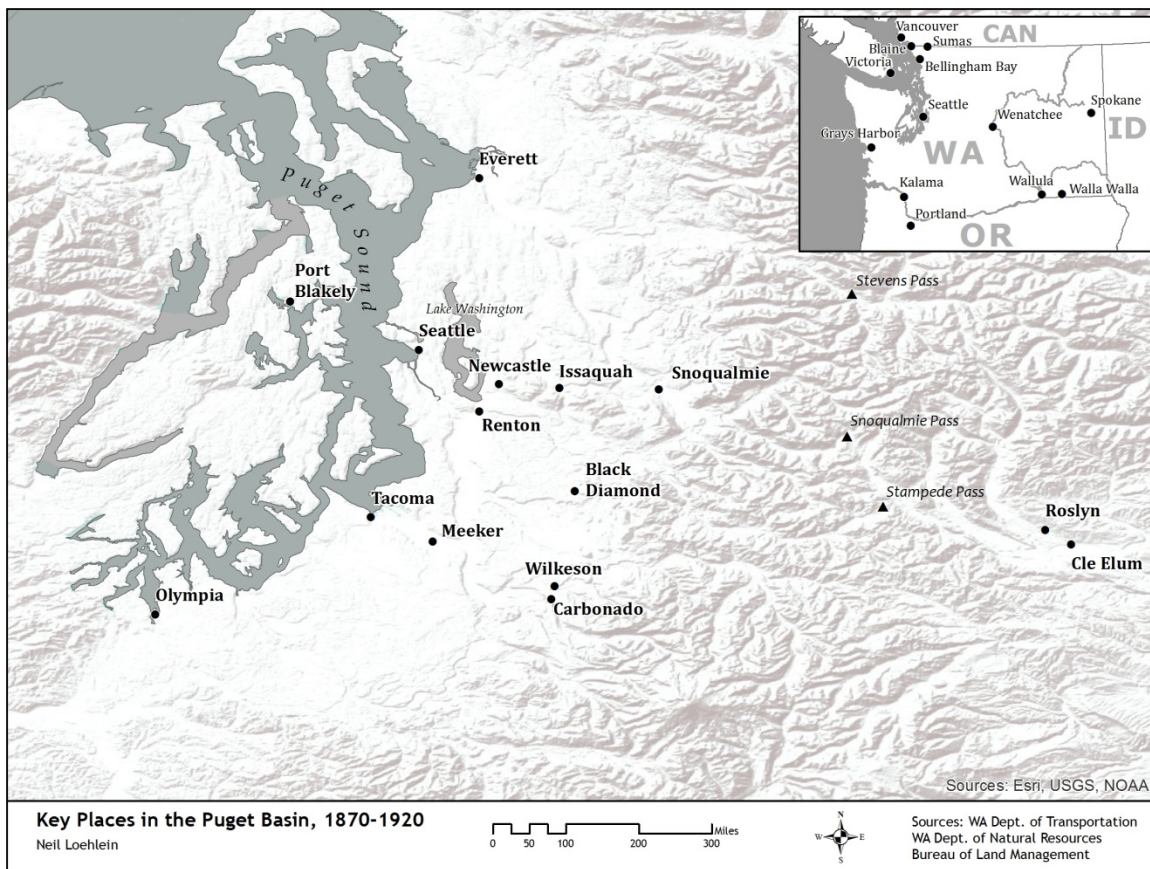


Figure 1. Key Places in the Puget Basin, 1870-1920 (Source: Author 2014)

Geographic Effects on Settlement

The Pacific Northwest is a region of the United States that includes the states of Oregon, Washington, and Idaho. Before the advent of railroads, rivers and other bodies of water served as the primary transportation routes. This had a profound impact on the location of urban development. Cities would most likely develop along rivers or coastal areas with sheltered harbors, where available. MacDonald describes how most pre-railway population centers are located around “transportation breaks” or places where the transportation of goods and people requires a change in the mode of transportation to continue to their destination (1973, 69). Examples of transportation breaks can be natural features (such as a

mountain pass, a seaport, or a confluence of rivers), or artificial features (such as a meeting of rail lines or a steep hike in rail rates between two destinations).

Requiring a shift in the mode of travel, these breaks create opportunities for diversification within a town's economy through storage, packaging, handling, and processing, in addition to the standard transport. MacDonald suggests that the advent of rail transportation places limits on the primacy of natural transportation breaks, explaining that artificial transportation breaks quickly became an important factor in the trajectory of a city's growth or decline.

The Pacific Northwest experienced the largest concentration of urban growth along its far western edge. This was due to the West Coast serving as a transportation break between land and sea that stretched the entire length of the Pacific Northwest. Other than Spokane, which became the dominant hub of the Columbia Valley's (also known as the Inland Empire) wheat trade, all major cities emerged west of the Cascade Mountain Range, where they could connect the hinterlands of the region with extra-local markets via sea transportation.

The urban centers that emerged west of the Cascades were part of two major water systems: the Lower Columbia Basin and the Puget Basin. The physical geography of these two water systems affected the prospects for growth of their respective urban centers. Whereas the Cascades isolated the Puget Basin to the east, the Columbia River Gorge opened the Lower Columbia region to a vast network of rivers and fertile plains (Figure 2). MacDonald suggests that the confluence of the Columbia and Willamette Rivers was "probably the best natural location in the

Pacific Northwest for the development of a major city” (1959, 4-5). He goes on to mention that this location was also at the crossroads of both the main north-south

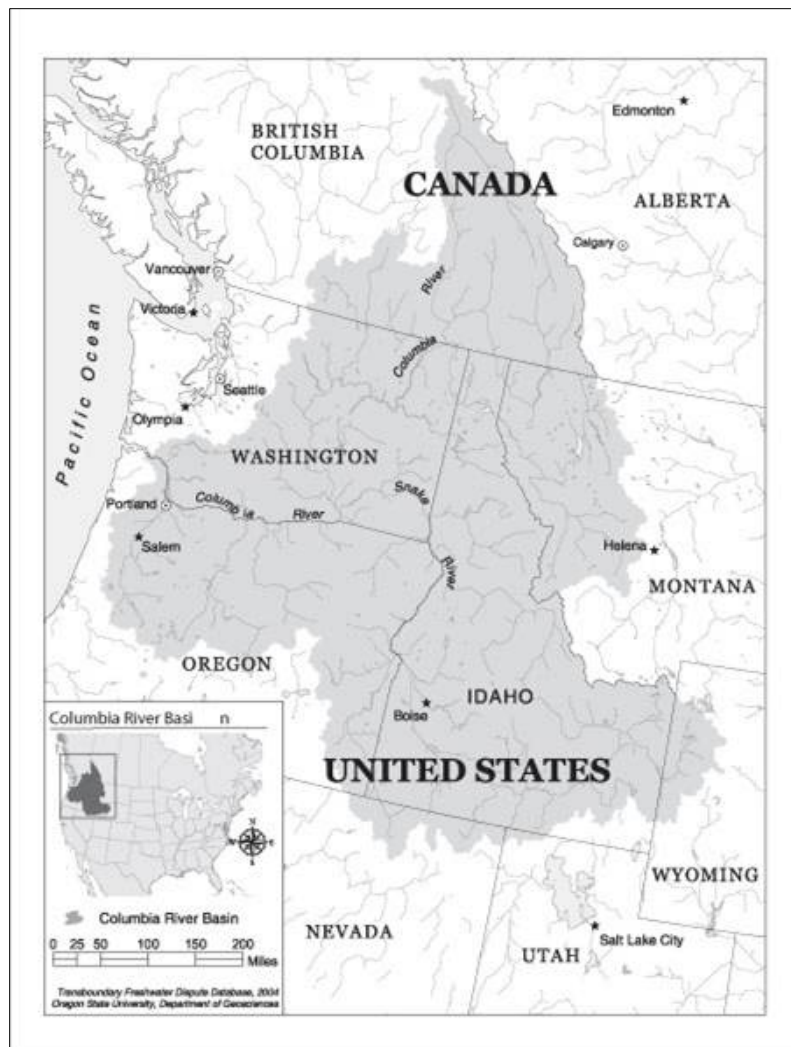


Figure 2. The Columbia River Basin (Source: Priscoli No Date)

and east-west routes of the region. The Lower Columbia had access to both the Willamette and Columbia Valley hinterlands, while there was relatively little farmland available throughout the glacier-scraped Puget Basin. This lack of nearby farmland would affect the early development of the Queen City. Until the late 1870s,

Seattle actually imported almost 50 percent of its edible goods, meaning higher foods prices, due to transportation costs (MacDonald 1959).

Portland would have access to the entire 259,000-square-mile Columbia watershed as its natural territory until rail transit reduced the Columbia River Gorge's role as the dominant route across the Cascades (Robbins and Barber 2011). James Hedges explains this concept in relation to the mining efforts within the Columbia Plain:

In the absence of rail communication, Portland's command of the Columbia had made her the natural distributing center for the trade brought to the Northwest through this new activity (1967, 20).

This dominance was secured as the Oregon Steam Navigation Company (OSN) made Portland its home base and quickly monopolized river travel throughout most of the watershed (Holtgrieve 1973). The Inland Empire was so isolated from the sound that there was even a petition effort by leading members of Walla Walla to incorporate the southern Columbia Plain into the State of Oregon (Meinig 1998).

While Portland had the early natural advantage, the sound's deep-water ports were much more desirable for sea trade than the Columbia's dangerous and long channel to the Pacific Ocean (MacDonald 1959; Nesbit 1961). Varying water levels, a shifting sandbar at the mouth, and a one hundred-mile journey inland made Portland's port much less attractive to traders than the deep and easily navigable waters of the sound. Armbruster (1999) adds that companies along the Columbia River were also known for their larcenous fees: pilot, tug, and docking charges ran as much as ten times that of Puget Sound. Once the isolation imposed by the

Cascades could be overcome, the ports of the sound would have a substantial shipping advantage over Portland. This would not become a reality until transcontinental lines made their way across the Washington section of the Cascades.

Economic Geography

From 1870 to 1920, the Pacific Northwest's economic base consisted primarily of exports of natural resources which included timber, coal and other minerals, fish, and wheat (Gates 1954). Edwin Cohn (1952) explains that the region's isolation from the rest of the country's urban centers inhibited its industrial growth. Due to the relatively long distance to ship products, manufacturers in the Pacific Northwest could not compete with manufacturers that resided closer to the country's mean center of population. Conversely, raw materials also cost more to be shipped to Pacific Northwest industrialists, making the costs of industrial inputs a competitive disadvantage for these manufacturers. A low relative population for the region is another factor, Cohn asserts, that inhibited industrial growth. This is due to the need for a local market to drive demand for manufactures. The advent of rail transit would begin to challenge the limitations that Cohn describes, though heavy manufacturing would not be established until the advent of large-scale shipbuilding in the early 20th Century (MacDonald 1959).

Regional economic trends of this time period largely echoed national trends and provide insight into how and why the region developed. The early half of this period was mired in recession, starting in 1873, followed by a boom period in the

mid- to late-1880s, and reaching its economic nadir with the Panic of 1893 (Gates 1954). This economic climate had a negative impact on the expansion of industry and trade networks, as well as on the railroads. The depression ended for the Pacific Northwest in 1897, as gold was discovered in the Klondike, prompting a series of gold rushes in Alaska and a boom for the region's industries. Military demand prompted by World War I would ramp up farming and manufacturing in the Pacific Northwest, only to leave most of the region in a post-war slump following the war's end in 1919. The rail age closes with the region thrown back into recession and a decline in the railroads' significance as a major force shaping the development of the Pacific Northwest's economy.

The region's relationship with the rest of the United States in this period was based on an unbalanced power dynamic, which shaped broader economic trends in the Pacific Northwest. Writers such as William Robbins (1994) consider the Pacific Northwest to have a colonial relationship to the power brokers of the eastern states. Robbins sees international and eastern U.S. capital calling the shots and shaping the region. He explains:

[T]he transformation of the northern West was always a part of a wider arena of activity in which events and circumstances in distant lands and continents influenced local conditions. In that sense, an understanding of the wide-ranging relationships associated with modern capitalism provides a way to bring organization and structure to an explanation of historical change in the region (1994, 122).

This concept of empire is rooted in the investment that outside capitalists had in the region throughout the 19th Century. These elites hailed from dominant centers of

capital, such as New York, Boston, London, Berlin, and San Francisco. In many instances, decisions by outside investors had profound impacts on the development of the region. Lumber, the region's dominant industry, was extensively controlled by interests in San Francisco. Cox describes the city's dominance in the following passage:

San Francisco was to emerge not only as the main West Coast market for lumber and the nerve center from which its manufacture was increasingly controlled, but also as the locus from which the maritime commerce that linked the sawmills and their Pacific markets was directed (1974, 71).

Johansen and Gates appear to agree with the Pacific Northwest's lack of local autonomy in this period by stating that "[g]iant corporations with tremendous working capital and centralized management brought the frontier, however remote, into the orbit of their control" (1967, 302). They temper their argument in a later passage by citing Earl Pomeroy's statement that some of the region's most significant monopolies were created and controlled by local interests, citing the Oregon Steam Navigation Company (OSN), as an example of a local monopoly. As the centers of urban power (most significantly, Seattle) developed a significant level of regional autonomy from outside investors, more local monopolies would develop, though this would not occur on a large scale until the turn of the century.

The Puget Basin

The major urban centers to develop around the Puget Basin were all port towns, so the transfer of goods from land to sea (and vice versa) was a key function they performed. Each urban center developed a hinterland, which was a less

developed, rural area where the production or extraction of raw materials and foodstuffs was the primary land use. The trade relationship consisted of raw materials being sent from the hinterland to the ports, and goods and finished products being sent from the port towns to the hinterlands (MacDonald 1959). The expansion of hinterlands was a key factor in the development and relative dominance of port towns around the sound, which created competition between these urban centers. Transportation would play a critical role in the port/hinterland relationship, with the railroad pattern altering the advantages of different Puget Sound port towns at different times in its development. But the physical environment also played a prominent role in the development of the urban fabric as well, creating natural advantages for some ports and disadvantages for others.

Physical Geography

The physical geography of the Puget Basin played a role in shaping the urban development along the sound. The physical characteristics include landforms that impede travel, the morphology of water bodies, and the location of natural resources. While it is people who make history, they do so in an environment that shapes and constrains their actions.

The rivers of the Puget Basin empty into Puget Sound. The basin is confined by the Cascade Mountains, to the east and south, and the Olympic Mountains to the west (Kruckeberg 1999). The basin is a product of successive Pleistocene-era stades of glaciation (which gave the basin its U-shape), while the mountain ranges

that frame the watershed have come into being through the tumult of plate movement (and volcanism, in the Cascades). As the glaciers retreated, they carved out the rivers and watersheds while taking most of the basin's topsoil with them, leaving little arable land in comparison to the fertile Willamette Basin, south of Portland.

The coal deposits of the Puget Basin, an important resource, formed 34 to 56 million years ago. In the Eocene epoch the area that is now the Puget Lowlands was a network of bogs and lakes called Weaver Plain (Walsh and Phillips 1983). As ash, igneous rock, and other volcanic material settled over the plant material of the bog, the pressure, heat, and time created the high ash coal deposits along the Cascades' western and eastern slopes. Later volcanic activity buried a small portion of these deposits, while leaving most deposits exposed in long, narrow bands. The largest deposits of coal in the basin are located in present-day King County, just east of Seattle, while lesser deposits lay in central Pierce County and to the north, running through Skagit and Whatcom Counties (Cory 1894; Melder 1938).

Relatively recently, the "modified Mediterranean" climate of mild, humid winters and dry summers arose around 3,000 years ago (Kruckeberg 1999, 59). Some scientists speculate that the drought-like conditions in the summer are the condition responsible for the dominance of coniferous trees in the region. These trees include Douglas fir, western hemlock, western red cedar, and western white pine, and covered much of the land in the Puget Basin before the arrival of settlers.

Throughout the vast network of glacier-carved rivers and streams, salmon would make yearly returns to their native streams from their ocean voyage. Genetically diverse and considered a keystone species by some researchers, the salmon play an important role in providing a food source for other animals and nutrients for riparian plant species after they die (Klingbe 2007). Salmon, and other fish of the basin, were also an important food source for the first people to inhabit the Puget Basin. Later, fishing and canning were staple industries around the sound, but did not play a major role in determining the pattern of urban development.

Seattle's location on Puget Sound, and within the Pacific Northwest more broadly, has had a profound impact on its development from a small settlement in 1852 to a vibrant metropolis at the beginning of the 1920s. Seaman (1930) views Seattle's central location on the eastern side of the sound as being crucial for creating an effective transportation network with the rest of the communities of the sound, both northern and southern. Before the railroads, transportation around the sound was primarily carried out by water-based transportation. In tandem with Seattle's early development as a community, its central location was a major reason for the city's dominant maritime trade. The location on the eastern shore also offers Seattle the advantage of close proximity to the more fertile hinterlands of the east of the Cascades. This will become important when the railroads extend north from Seattle into the agricultural areas of Snohomish and Skagit counties.

While Seattle possessed a suitable harbor, it is important to note that other harbors along the sound had comparable attributes. In his PhD. dissertation, *Seattle's Economic Development, 1880-1910*, Alexander Norbert MacDonald explains:

Most of these communities had good natural harbors with freedom from obstruction in the approach channels. The only possible drawback was the excessive depth which made wharf construction difficult and expensive, but vessels of any size could approach shore with little fear of running aground. As such, they could all be considered potential entrepots for future trade with California, Alaska and the Orient (1959, 12-13).

Seeman (1930) notes that Seattle's Elliot Bay provides 565 acres of water that range from 30 to 270 feet deep. While the oldest city on the sound, Olympia, had a poor port with tides that would expose a huge mud flat at low water, Tacoma's Commencement Bay was so deep that the townspeople bragged that ships could sail in and tie up to tree trunks (Nesbit 1961; Quiett 1965). Bellingham Bay, due north of Seattle, also boasted a deep harbor, though navigability through the twisting Rosario Strait was challenging, as it was laden with hidden shoals and rocks (Armbruster 1999). Rather than just the harbor itself, Seattle's central location on the sound also played a role in setting it apart from other ports early in its history.

To the east of Seattle, the Cascades created a barrier that isolated the town from the eastern part of the state. However, Seattle is at the focal point of the three lowest passes across the Washington Cascades, with the Snoqualmie Pass opening right up to the city (Seeman 1930; Nesbit 1961). MacDonald (1959) notes that Stampede pass is the natural entrance to Tacoma; Stevens to Everett; and Snoqualmie to Seattle, while Seattle has a central location to all three. While this

was most likely not a factor in the Seattle's development before the 1890s, it would prove to be advantageous from the 1890s and onward, as intercontinental rail lines stretched across all three of these passes.

Seattle was also closest to the largest coal deposits in the region (Figure 3). Whereas Tacoma was closest to the coal fields along the Carbon River³, just to the east of the Seattle sat deposits of higher yield and generally higher quality (Cory 1894). This locational factor would prove to be significant in Seattle's development after a local line was constructed to transport tons of coal daily from the mines extracting from these deposits to the city's port. Seattle had numerous locational advantages in relation to the physical geography of the Puget Basin. These natural advantages would contribute to the city's early growth as a local supply hub.

First Peoples

Before white settlers came to Puget Sound, the native Salish bands were the primary human inhabitants of the area. It is estimated that these peoples came to the sound some 8,000 to 15,000 years ago, during the last glacial stade (Kruckeberg 1999; Klinge 2007). Klinge states that proximity to food and resources was important to their way of life, so they spent a majority of their time along shorelines and riverbanks, where both of these necessities were in abundance. Salmon was the most important food source to the Salish peoples, a food that was high in fat and could be smoked and dried for ingestion at a later time. In his doctoral dissertation on the geography of Seattle, Albert Seeman (1930) notes that the abundance of food,

³ Carbonado and Wilkeson were the two largest mining towns of this area.

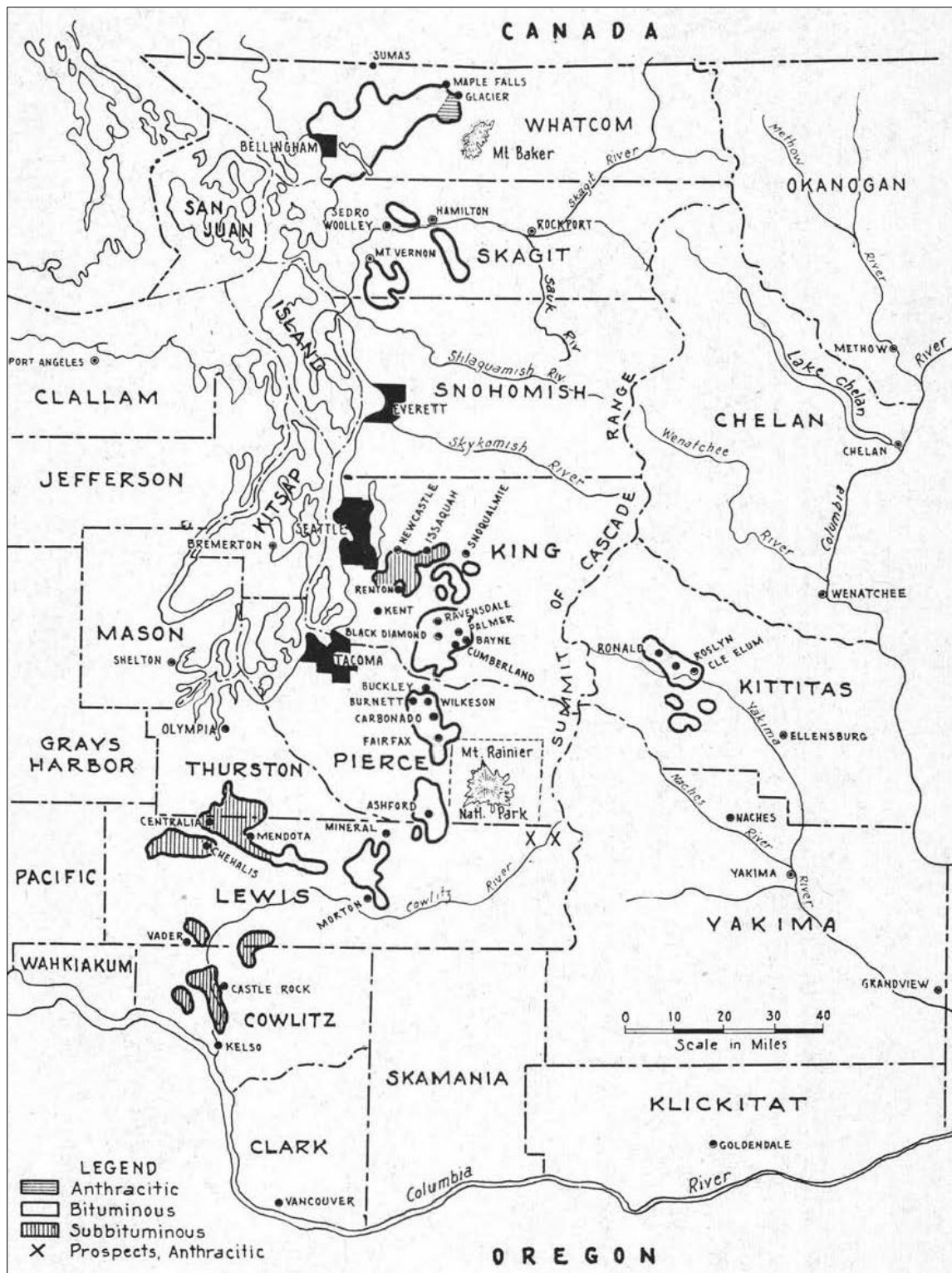


Figure 3. Coal Deposits of Western Washington (Source: Green 1943)

moderate climate, and the log shelters that were built for living quarters indicated that these indigenous people lived a sedentary way of life⁴, without intensive agriculture. This way of life changed with the advent of white settlers to the area. Waves of smallpox decimated native populations, and many tribes were pushed off of their lands and onto reservations as the promise of a new life beckoned successive waves of settlers to the region. Some natives took up open rebellion against the settlers while others assimilated and became a part of the new labor force for the small Puget Sound communities (Klinge 2007).

The Pacific Northwest was a space of conquest, and oftentimes barbarity, to the indigenous populations of the region. Eugene Moehring (2004) illustrates the conquest involved in the settler expansion to the broader Far West. He asserts that there was an inherent imperialism in the urban development of the west, where urban networks served to secure U.S. capital's interests while effectively displacing the native peoples by altering the physical landscape. Native peoples would continue to be displaced from their lands in this period, as the ideology of manifest destiny served to assert white settler control over the land, waterways, and resources.

The Early History of Seattle

The first white settlers arrived at Elliot Bay in 1851, led by John N. Low and Lee Terry (MacDonald 1959). The party initially chose the west bank of the bay, and established a small settlement garnering the name New York-Alki (eventually to be

⁴ This is in distinction to the nomadic ways of life practiced by the native groups in southeastern Oregon and southern Idaho (Kuhlken 2003).

known simply as Alki⁵). The California Gold Rush of 1849 generated a strong need for building materials in San Francisco (Meinig 1998). Driven by commercial interests, a group of these settlers surveyed the depths of the waters around the bay to find the most opportune harbor to ship lumber to San Francisco's booming market (Seeman 1930). Based on their soundings, they found a new place to settle on the eastern shore of Elliot Bay. Their new settlement had a deeper harbor that was better sheltered than the wind-swept landing of Alki, and trees could be felled and carried to the shore with relative ease. A year later, the majority of Alki residents (led by Arthur Denny, D.S. Maynard, and O.D. Boren) moved to this location and dubbed the settlement Seattle, after the Duwamish Chief Sealth, who greeted the settlers shortly after their arrival. In 1853, the new settlement received a boost from the establishment of Henry Yesler's sawmill, which continued to be an icon of the town's entrepreneurial spirit⁶. The mill provided the means by which commerce with California markets could continue at a steady pace while the demand for labor created the impetus for population growth. Lumber continued to be Seattle's primary export and an engine of growth as the town grew and strengthened its ties with San Francisco (Nesbit 1961).

The Role of Railroads

The Rail Age was a period of massive growth and transition for the Pacific Northwest. The region experienced an explosion of population, the rise of urban

⁵ This word roughly translates to "by and by" in Chinook Jargon, a regional trade language of native peoples.

⁶ Despite being a local icon, Yesler's sawmill was considered to be a poorly-run business by Cox (1974).

centers, increasing trade networks, and industrialization linked closely to the offerings of the natural environment (Gates 1954). The railroad network that extended across the United States would accelerate the speed at which goods and people could travel from place to place. Comparing the railroads to earlier modes of transportation, William Cronon explains that the rails “broke much more radically with geography” (1991, 74). He argues that while the railroads often followed conventional paths, such as waterways, they also challenged the geography of a region by attempting to establish the most direct path between market centers. According to Cronon, railroads also displayed a higher resilience to the climatic conditions that limited older forms of transport. Lumbering and coal mining in the Pacific Northwest were first driven by San Francisco’s need for these products to suit the city’s booming post-gold rush economy (Cox 1974). After the emergence of the transcontinental railroads, the Northwest’s exports were able to reach a wider market, extending east across the country, and reaching international markets as well. Railroads helped to eliminate the factor of distance, and therefore, the isolation of the region from other urban centers.

The railroads also played a significant role in the development of Seattle, in particular. The locally-sponsored lines of the Seattle & Walla Walla and the Seattle, Lake Shore & Eastern connected the city to important coal- and timber-rich regions, while expanding Seattle’s local trade relations (MacDonald 1959). These connections were crucial for Seattle’s growth as an urban center, as they created the conditions whereby the city could develop as a supplier of goods to the extractive industries and agricultural regions, a role on the sound that was exclusive to the

Queen City. Though Seattle was initially snubbed by a transcontinental railway, in favor of Tacoma, the city was later rewarded with a transcontinental terminus in 1893, connecting it to eastern lumber markets and eastern wholesalers. By 1896, Seattle was capable of dominating the market to outfit gold miners headed for the Yukon.

The Railways Extend Westward

Around the same time as Seattle's founding, a national effort to develop a transcontinental railroad was underway. Driven by the 1849 San Francisco Gold Rush, and the vision of a cross-country gateway to Asia, the U.S. Congress ordered a survey be conducted in 1853 to find the most efficient rail route to the west coast (Schwantes and Ronda 2008). San Francisco's economic dominance and centrality to west coast trade made it the obvious choice for a western terminus (Meinig 1998). The first transcontinental railway was thus initiated as a joint effort between the Union Pacific, Central Pacific, and Western Pacific rail corporations, connecting Omaha to Oakland in 1869⁷. The Pacific Northwest would have to wait for its link to the eastern states, but more transcontinental lines were soon to come, as the government issued land grants, and rampant speculation fueled a frenzied western expansion.

The development of rail transportation in the Pacific Northwest had a stimulating effect on the majority of towns that were awarded a stop. MacDonald

⁷ Though no definitive explanation was found for San Francisco's continued dominance over Oakland after the latter received a transcontinental terminal, John S. Hittell (1878) suggests that San Franciscan investment in the silver mines of Nevada throughout the 1860s and mid-1870s was the primary factor in the city's continued economic prominence during this period.

(1959) describes the impact that transportation networks have on the economic growth of urban centers, suggesting that the greater efficiency and reach of transportation can increase the volume of commodities, lower shipping costs, and increase the connectivity with other centers, leading to specialization. Specialization, in turn, leads to large scale production which can lower production and bulk shipping costs. Leland Jenks echoes this sentiment:

Much of this demand for durable goods turned eventually into a demand for labor in mine and quarry and mill, into wage payments to labor. And these wages too were spent for consumers' goods and meant widening markets, increased specialization, and, presumably greater productivity. Thus the initial impetus of investment in railway construction led in widening arcs to increments of economic activity over the entire American domain, far exceeding in their Seattle merchants would expand their scale of total volume the original inputs of investment capital (1994, 7).

These concepts are important to keep in mind in connection with Seattle's rail development. After 1893, Seattle was the center of a transportation network that allowed the city's merchants to expand to an economy of scale that made them capable of wholesaling during the Klondike gold rushes.

Railways often altered patterns of development in a region, yet were also shaped by the existing patterns and human desires. In his study of town populations and transportation networks within the Willamette Valley, Donald Holtgrieve (1973) presents the spatial differences between rail lines built in the eastern and western United States. He offers that eastern rail was built primarily to link up to existing intermediate areas, while the western rail stretched across vast undeveloped territory to link up major urban centers, often supporting the

development of towns in between as a means of “filling in” the empty areas (109). Holtgrieve also notes that eastern routes tended to supplement river ways while western routes sought to open up new markets and urban hinterlands. These routes most often reflected the geography of migration paths, exhibiting noticeable patterns from east to west, nationally, and from country to city, regionally. In the Pacific Northwest, however, rail played a major role in overcoming the limitations of these older transportation networks and expanding the possibilities for development.

The decision whether a railroad company would designate a stop in an urban center could make or break the town. Subsidies of money or land were most often expected if a rail line was to make a stop in a town and not pass it by (Holtgrieve 1973). As Schwantes and Ronda explain:

Something so basic as where a railroad located its tracks determined which communities prospered and which languished or were still-born. Should an already established community try to force a railroad to do its bidding, the railroad lords of creation might retaliate. They could punish town leaders and bypass the place entirely, locating the nearest station some distance away on railroad-owned land (2008, 114).

The town of Yakima, Washington, is an example of the power of railroad abandonment. In the 1880s the people of Yakima refused to donate land to the Northern Pacific (NP) for a right-of-way station. The railroad responded by building a station outside of town on NP land, which forced the town to physically relocate around the station, leaving the original town deserted after three years (Schwantes and Ronda 2008). Holtgrieve mentions that in 1871, even Portland, the Pacific

Northwest's dominant city, had to pay \$100,000 to Ben Holladay of the Oregon and California Railroad Company to guarantee that the rail made a stop in the city. The railroad companies now had a measure of power over the pattern of growth in the Pacific Northwest. The history of Seattle provides a stunning exception to this tendency. After initially being denied terminus status by the transcontinental NP, the city managed to build its own local set of rail lines, which helped to persuade the heads of the Great Northern to establish Seattle as the railroad's western terminus. This connection to the east, in turn, was a key factor in Seattle's rise as the dominant port on Puget Sound.

Early Railroads of the Pacific Northwest

As the Pacific Northwest awaited the arrival of its first transcontinental line, smaller-scale rail lines were established to transport goods and people, though these were concentrated in Oregon. A notable example of early rail in the region (and an exception to Holtgrieve's assertion) was the series of portage railroads built in the mid-1870s along the Columbia River Gorge that supplemented steamboat travel in areas of difficult or impossible river navigation (i.e. rapids and waterfalls) (Schwantes 1993). This early rail system was developed by the Oregon Steam & Navigation Company (OSN). The company was incorporated in 1860, and within five years, it captured a monopoly over trade along Columbia River (Johansen 1941). The OSN was established just in time to capitalize on the Idaho gold rush. Driven by the need to supply the gold rush and to ship Walla Walla wheat to Portland and other commercial hubs, the company bought up the privately-owned

portage routes one-by-one. The OSN then built rail along these portage routes to fill the gaps in river transportation that horse-drawn wagons had previously handled. In 1881 Henry Villard bought the OSN and reestablished the company as the Oregon Railway & Navigation Company (OR&N). Villard extended rail along the entire south side of the gorge, eliminating the necessity of a dual mode of transport. He also bought up Dr. Dorsey Baker's 30-mile Walla Walla & Columbia River Railroad⁸, creating a direct rail connection from Portland to the rich wheat fields and mining communities of the Inland Empire (Hedges 1967; Vance 1995). Albro Martin elaborates on the significance of this line, explaining:

[the OR&N] provided a water-level route to Portland through some of the most rugged territory in the Northwest. At the turn of the century, therefore, the Oregon Railway & Navigation Co. was one of the most strategically important railroads in the United States (1976, 483).

Small gauge railroads sprang up all along the Willamette Valley, from the 1870s and into the early 20th century, increasing the connectivity between Portland and its hinterland⁹ (Holtgrieve 1973). It is not surprising that railroad activity first centered around Portland, as it was the region's dominant urban center and trading hub. The port towns of Puget Sound would have to wait for the Northern Pacific before they were to see any significant railroad activity. By 1870, Oregon could boast 109 miles of track, while Washington Territory had no railroad to speak of (Robertson 1995). Puget Sound saw its first railroad development when the

⁸ The Walla Walla & Columbia River Railroad was a rail line in Eastern Washington Territory running from Walla Walla to Wallula.

⁹ Thomas Cox (1974) argues that some of the smaller lines, particularly in the Willamette Valley, did not create the traffic that was originally expected of them.

Northern Pacific (NP) laid track. This line connected Tacoma to the town of Kalama on the Washington side of the Columbia River.

The Sound's First Railroads, 1873-1885

The arrival of the first transcontinental railroad would connect the Pacific Northwest with the eastern half of the U.S. Before the arrival of the transcontinental lines, the region was largely isolated from the eastern states and reliant on the Mullan Road¹⁰ for access to this part of the country (Meinig 1998; Schwantes and Ronda 2008). The transcontinental lines brought the hope of integration with the eastern states and a new age of development for the region. There was even talk of creating a gateway to Asia by some rail enthusiasts (Johansen and Gates 1967). To fund these lines, the government issued the railroad companies massive land grants. The largest of the grants went to the Northern Pacific Railroad, which received 470 million acres. These grants were then sold to raise money for continued railroad construction. In an effort to sell their awarded land parcels, the railroads published advertising brochures in many languages to attract people westward (Schwantes and Ronda 2008, 118). The establishment of a rail connection from the Northwest to the eastern U.S. would allow for a greater amount of goods to reach eastern markets and greater migration of people out to the developing Northwest.

Later in this period, various moneyed interests attempted to develop independent rail lines, the most relevant occurrence to this paper is the creation of the Seattle & Walla Walla Railroad. This railroad was started by members of

¹⁰ Mullan Road was an overland military route that stretched from the Missouri River to the Columbia River.

Seattle's elite, who wanted to establish a rail connection to the east, linking the Queen City with coal mines in eastern King County and crossing the Cascades to reach the wheat fields of the Inland Empire (MacDonald 1959). Fallout from the economic collapse of 1873 limited investment and railroad development for the early part of this period, and the Northern Pacific enjoyed the dominance of a virtual monopoly over the Puget Sound region. However, the creation of the Seattle & Walla Walla was an important early development in the establishment of Seattle's early rail network.

The Northern Pacific

The Northern Pacific Railroad (NP) would complete its connection from Kalama to Tacoma in December of 1873 (MacDonald 1959). The initial plan for this railroad was to make a single, direct connection with Puget Sound, over the Cascades, but the development of Portland into the major urban center in the 1860s complicated the NP's western route. Rather than just extending a branch line down the Columbia to Portland, and a main line across the Cascades to the sound, the NP sought to reach the sound via Portland. The NP would utilize the tracks of the Oregon Rail & Navigation Company that traversed the Columbia River Gorge to reach Portland (Figure 4) In 1869 the heads of the NP were authorized by Congress to establish this line north from Portland. They saw a major port city eventually developing on the shores of Puget Sound and wanted to make sure that competition from a rival railroad did not threaten their hegemony over the Columbia (Hedges 1967). James Hedges explains:

This resolution was most significant. Behind it was the realization of the value of the Columbia River gateway and the prosperous town on the Willamette in control of the river traffic. To build a branch line to Portland would not be a sufficient guarantee against a rival from the south turning that river port to its own purposes. Firmly convinced that some point on the Puget Sound would eventually be the great port of the Pacific Northwest, the ruling figures in the Northern Pacific, by the resolution of 1869, would build a branch to Portland, but would extend that branch to the main terminus on Puget Sound. By this means, a change of carrying all of the trade of the Inland Empire to a port on Puget Sound would be placed in the company's hands and there would be less opportunity for another corporation to establish a dangerous competitor on the river (1967, 21).

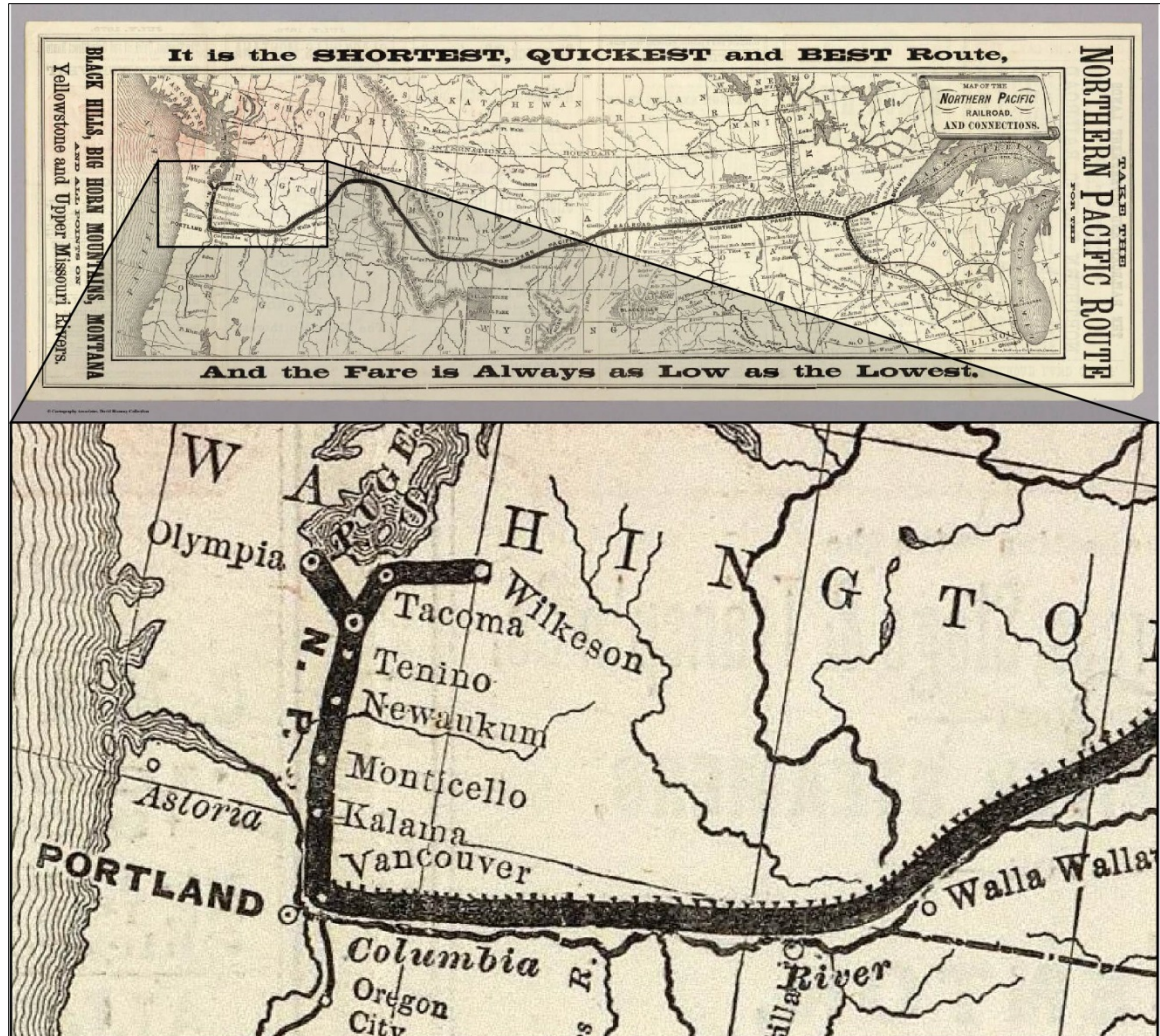


Figure 4. The Northern Pacific Railroad, 1879 (Source: Rumsey No Date)

The heads of the Northern Pacific had a choice to make: which Puget Sound port should they establish as the railroad's terminus? Seattle was poised to be the NP's final stop, having a population of two thousand and offering \$250,000 in cash and bonds, 3,000 acres of land, and the use of much of the city's waterfront (MacDonald 1959). Other ports on the sound offered sizable grants of money, land, and access to port facilities as well. This was to no avail, as some of the major investors in the Northern Pacific also had considerable investment in Tacoma, and would benefit greatly from the speculative boom the town received from being awarded terminus status (Meinig 1998). In 1873, the decision to make Tacoma the NP's terminal stop on the sound was made public. Kurt Armbruster (1999) claims that two factors contributed to this decision: 1) it was small enough to be free of competing interests and 2) Commencement Bay was the closest deep water port to Portland on the sound. While Olympia was the closest of the NP's possible choices, its harbor did not have the depth to be effective at low tide. The NP was completing this section of the transcontinental right after the 1873 economic crash, and promoter Jay Cooke's finances were in dire straits (Robbins and Barber 2011). Laying track was expensive, so the railroad's finances may have limited their choices to the most southerly of the ports on the sound. Thus, Tacoma was named terminus, and tracks were laid miles to the east of the original site and a "New Tacoma¹¹" was platted (Armbruster 1999, 40). In preparation for growth, Fredrick Law Olmstead

¹¹ The NP had investments specifically in New Tacoma, which was a settlement just to the south of the original Tacoma City. These two entities merged into what is now known as Tacoma in 1883 (Morgan 1979). No differentiation of the two settlements will be made in this paper.

was commissioned to design the city¹² (Morgan 1979). With the newly-awarded terminus status, Tacoma would become known in this period as the “City of Destiny,” due to the high expectations for growth that were placed with the town.

As the rail line approached from the east, Henry Villard began to fear that the Northern Pacific and the Union Pacific would break his rail and steamboat monopoly over the lower Columbia basin (Hedges 1967; Vance 1995). To protect his investments in the Oregon Rail and Navigation Company (OR&N) and in Portland, Villard bought up a controlling share of stock in the NP. By 1881 he had control over the Northern Pacific, which was now set to run on the OR&N tracks once it reached the Wallula junction, securing Villard’s interests from unwanted competition. Meinig (1968) details the influx of settlers and the expansion of new farming districts that the NP brought to the Columbia Plain. This area was Portland’s hinterland at the time, but as soon as the transcontinentals began to cross the Washington expanse of Cascades this situation would start to change in favor of the Puget Sound ports. Those with investments in Portland often tried to keep the sound communities isolated, even as the rail approached the region. Vance (1995) notes that Villard saw this threat and, in an effort to protect his and his German financiers’ interests, downgraded Tacoma’s terminus status to keep the flow of goods running through Portland instead of the sound. This tension between Villard and his associates’ interests in Portland, and a pool of investors that held substantial investment in land around Tacoma’s Commencement Bay, would shape the fortunes

¹² Unfortunately for Olmstead, there was public outcry against his curvilinear street patterns and finances were too tight to wait out the local discontent. Olmstead’s plans were scrapped for a standard grid.

of rival port cities in the region. After Villard's dismissal in 1884, the successive leadership of the NP¹³ put an end to his pro-Portland efforts and hastily built the Cascade line over Stampede Pass, connecting Tacoma with the Columbia Plain.

To receive its full government land grant, the NP had to complete a line to Seattle, but interests in Tacoma wanted to isolate Seattle as much as possible. The link to Seattle, dubbed the Puget Sound Shore (PSS), ran south to connect with the rest of the NP at the town of Meeker. The line was completed in 1885, giving Seattle a connection with the transcontinental, though service was so insufficient that it was dubbed the "Orphan Road" by Seattleites (Nesbit 1961, 56; Robertson 1995).

The Seattle & Walla Walla

Three days after hearing the disappointing news that the Northern Pacific was going to make Tacoma its terminus, members of Seattle's elite began planning their own line eastward across the Cascades: the Seattle & Walla Walla (S&WW) (Armbruster 1999). This railroad was intended to wind through Snoqualmie Pass, reaching the upper Columbia at Walla Walla. A city ordinance was passed in August granting the S&WW the tideflats to the south of King Street. In order to raise the money for the S&WW, Seattle's residents made pledges to the railroad. The S&WW would start as an independent venture for Seattleites.

The extraction of coal was a leading motivator in the development of the Seattle & Walla Walla. Coal deposits were discovered in Washington Territory in

¹³ Some of whom had substantial investment around Commencement Bay (such as Charles B. Wright).

1833, roughly 20 miles north of Kalama (Melder 1938). The first deposits of King County coal were sighted in 1853, along the Black River. As mentioned earlier, King County held the largest reserves of coal in the State of Washington. Unfortunately, the processing of this resource proved costly in the late 1860s, where transport from the coal-rich Newcastle mines involved multiple overland and water connections to transfer the coal to the wharf in Seattle (MacDonald 1959). This made exporting the coal to markets like San Francisco very difficult, where high coal prices meant few buyers. The coal available from the Mt. Diablo mines near San Francisco would be the city's choice until mines around Puget Sound could find a way of lowering the price of their coal (McDonald and McDonald 1987).

In 1870, the Seattle Coal & Transportation Company (SC&T) was created to organize a more efficient way of transporting Newcastle coal to the Seattle docks. Coal cars led by mules and horses, guided along three miles of wooden tramway, soon replaced this system (Figure 5) (Armbruster 1999). Then, the tram system was replaced by small gauge rail in late 1871, after San Francisco interests bought up the coal company. The coal cars would no longer have to rely on beasts of burden as a small steam locomotive named *Ant* was shipped to Seattle for the purpose of lugging coal from the Newcastle mines to Lake Washington. The implementation of tram, then rail, transport lowered prices and created a broader market for Newcastle coal beyond Puget Sound, which raised production (Figure 6) (though there is some disagreement among scholars as to when, exactly, this coal

was extracted efficiently enough to have welcome buyers in outside markets)¹⁴ (Webster 1973; Mac Donald 1959). The final goal for the S&WW was to reach Walla Walla, but it was the prospects for coal mining that helped to push the tracks eastward.

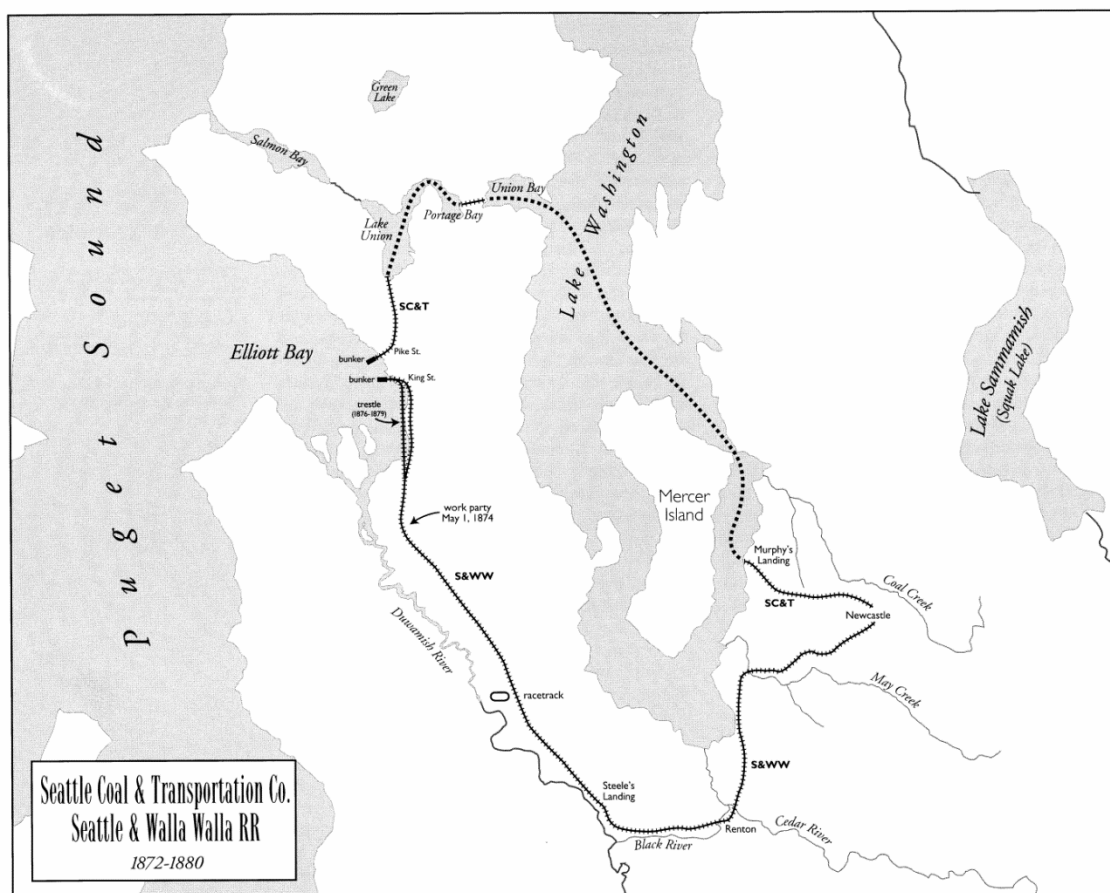


Figure 5. The Seattle Coal & Transportation Co. and the Seattle & Walla Walla Railroad (Source Armbruster 1999)

The first instance of what would eventually become known as “The Seattle Spirit” would occur in early May, 1874, when a large number of Seattle residents took it upon themselves to lay the grade for the S&WW’s right-of-way. By October,

¹⁴ Alexander Mac Donald claims that Newcastle coal became an attractive commodity for San Francisco buyers in 1871 after small gauge rail was installed. Janice Webster argues that Newcastle coal did not sell in high volume to San Francisco until after the Seattle & Walla Walla made a connection to the mine in 1877 (Mac Donald 1959; Webster 1973).

twelve miles had been graded (Cheever 1949). In spite of Seattleites' efforts, very little activity happened in the winter of 1874-75. The recession of 1873 was still affecting the prospects for growth, and only 1,000 of the railroad's 100,000 shares had been sold (mostly in exchange for land) (Armbruster 1999). Seattle business leader Arthur Denny made a trip to Washington D.C. in early 1875 to ask Congress for a land subsidy, which he was swiftly denied¹⁵. It also proved difficult to

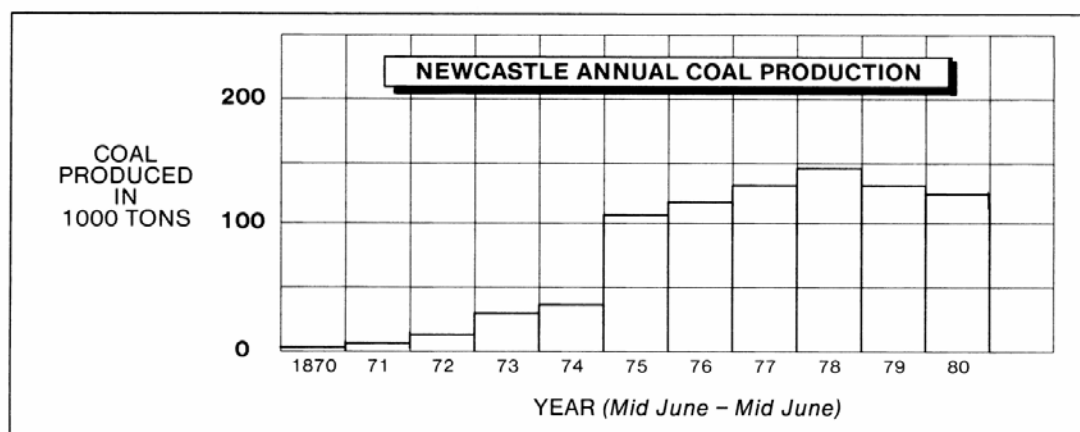


Figure 6. Newcastle Annual Coal Production, 1870-1880 (Source: McDonald and McDonald 1987)

organize funding for the eastern terminus because many eastern Washington business leaders supported Dr. Baker's Walla Walla & Columbia River Railroad, which was seen as a competitor to the Seattle & Walla Walla, because both rail lines aimed to occupy the same space in the Columbia Basin¹⁶. The small gauge railroad would continue to progress, in fits and starts from 1876 to 1879, first reaching

¹⁵ This government refusal occurred during a time when various scandals involving railroad corporations turned public sentiment against the funding of transcontinental railroads (Armbruster 1999).

¹⁶ Some farmers in the Palouse supported the S&WW. They were tired of the monopoly that Ben Holladay's Oregon Steam and Navigation Company had over the Columbia, but failed to offer up any substantial sum of money for the rail line (Armbruster 1999).

Renton, and then Newcastle¹⁷ in 1878. At this point, roughly 500 tons of coal were being sent to the Seattle port every day.

Boosters for the Seattle & Walla Walla had hoped that the coal production would catch the eye of East Coast investors, but unfortunately, it failed to do so (Bagley 1916a). Lack of funding kept the S&WW from reaching Snoqualmie Pass (Armbruster 1999). In the fall of 1880, Henry Villard's Oregon Improvement Company bought the S&WW Railroad and the SC&T's coal mines in Newcastle. The Seattle & Walla Walla was renamed to the Columbia & Puget Sound (C&PS). The railroad continued to transport tons of coal from the mines east of Seattle, providing valuable exports for the port. By the mid-1880s these mines were building a reputation for Washington Territory as "the Pennsylvania of the Pacific Coast" (McDonald and McDonald 1987, 33). The Newcastle mines were the leaders in output, producing 55 percent of the coal in Washington Territory and 22 percent of the Pacific Coast in 1883. Puget Sound's coal industry peaked right around 1900, which was due, in part, to the transcontinental railroads' ability to ship higher quality and less expensive coal from British Columbia and the Rocky Mountain states. Inexpensive California fuel oil also appeared on the market in the late 1890s, exacerbating this dip in demand for King County coal.

The Seattle and Walla Walla failed to make it over the Cascades, though it did manage to reach important coal mining areas east of Seattle. MacDonald (1959) notes that the increase in mining activity boosted employment at Seattle's port,

¹⁷ The collapse of the SC&T's coal bunker gave impetus for the S&WW's track to be extended to Newcastle, in order to take over for the SC&T's coal transport duties.

where coal would have to be loaded onto steamships headed for San Francisco. These mines would also create the demand for wares associated with mining, and other extractive industries, that would provide more sales for local retailers and the possibility to increase the scale of their operations. While this rail managed to stimulate coal exports, if Seattle was to truly prosper, it would have to find a route over the Cascades and into the Inland Empire of the Columbia Plain.

Competition Breaks the Monopoly, 1886-1893

Two important rail lines would be built over the Cascade Mountain Range from the mid-1880s to the early 1890s. The first was the Cascade Line of the Northern Pacific, which would connect Tacoma with the Inland Empire and the eastern states. The second, and the one that had the greater influence on Seattle's development, was the Great Northern Railroad. These lines would break Portland's monopoly on the wheat trade of the Columbia Valley (MacDonald 1959). They would also create the rail network that would allow the lumber of the Pacific Northwest to reach eastern buyers, assuming that the price could be lowered to make the lumber marketable. Third, the arrival of the Union Pacific and, most significantly, the Great Northern to the Pacific Northwest broke the Northern Pacific's virtual monopoly over the communities of Puget Sound. Fourth, the transcontinental connection to Chicago and New York wholesalers would prove crucial in the Queen City's outfitting efforts during the Klondike Gold Rush.

Seattle elites would also attempt their second transcontinental rail project during this period with the Seattle Lake Shore & Eastern. A lack of investment

would trouble this project, and the rail would eventually be bought up by the NP, but its development would expand Seattle's rail connections to key areas to the north and east of the city. Key elements in Seattle's rail network were established during this period, giving rise to land-based trade relations between the city and its hinterland that overshadowed all other cities on the sound.

The Northern Pacific's Cascade Line

The Northern Pacific began work on the Cascade Line in 1886, a project which would establish a rail connection across the Cascades, connecting Tacoma with the Columbia Valley. Donald Meinig (1998) asserts that the NP was prompted to start the much-delayed construction of the line due to its loss of control over the OR&N route through the Columbia River Gorge (Figure 7). In the lead up to rail construction, Tacoma began to experience substantial growth, based on the future connection that the city would have with the eastern states (Quiett 1967). By 1887 the Cascade Line was complete, making a direct connection between Commencement Bay and the wheat fields of the Inland Empire.

Upon the completion of the Cascade Line, Tacoma was the epicenter of a speculative boom. Murray Morgan (1979) describes the setting: "Masonry replaced wood along Pacific Avenue. The business district climbed the hill. Streetcars, horse-drawn at first, then powered by steam, nosed into the woods, opening residential areas" (1979, 253). Over one hundred sailing ships and twenty-six steamers were in service from Tacoma to Alaska, and other ports (Quiett 1965). The Cascade Line also connected Tacoma to the coal-rich areas in the Kititas Valley, Roslyn and Cle

Elum (Armbruster 1999). Portland began to lose its monopoly on the wheat trade from the Columbia Plain as Puget Sound ports increased their wheat exports from 272,885 bushels in 1886 to 2,297,446 bushels in 1889 (Hedges 1967). The Puget Sound Flouring Mill was now grinding wheat carried over the Cascades from the rich Palouse country of the Columbia Plain (Morgan 1979).

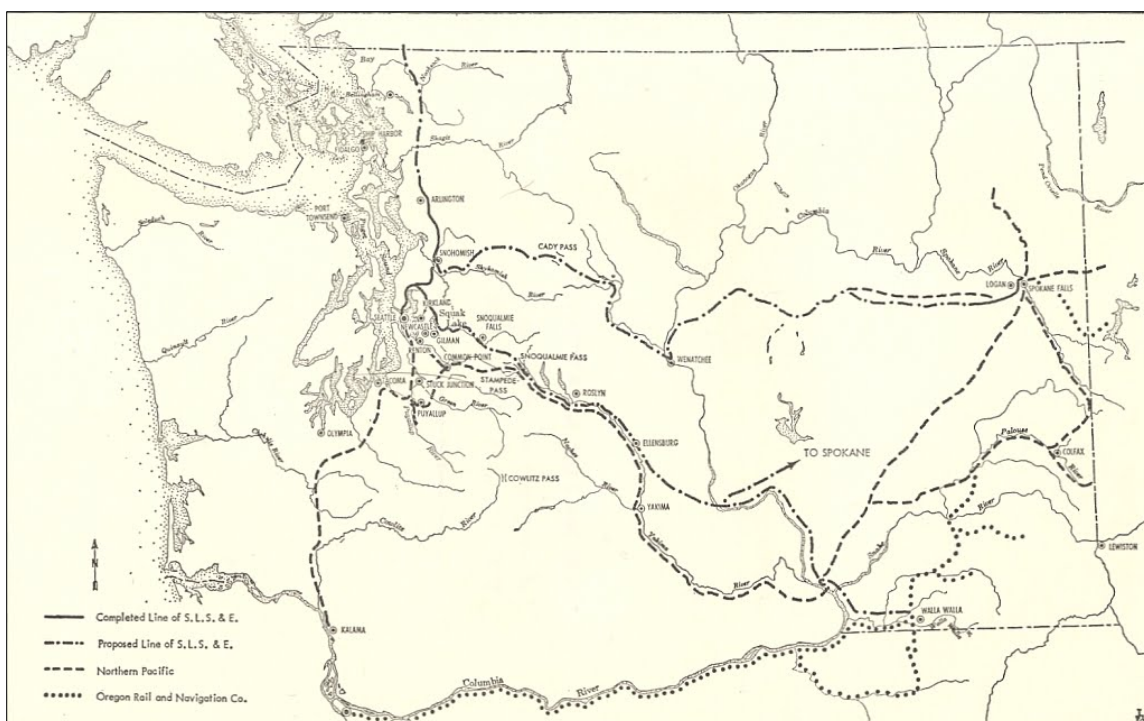


Figure 7. The Northern Pacific, the Oregon Rail and Navigation Co., and the Seattle Lake Shore & Eastern, Proposed and Completed Lines (Source: Big Bend Railroad History No Date)

The NP increased the speed and efficiency of goods coming into and leaving Tacoma, but it also played an important role in promoting the town. The railroad would publish pamphlets to attract easterners as well as foreigners to Commencement Bay (Schwantes and Ronda 2008). By 1890 the City of Destiny had significantly expanded its manufacturing base and was responsible for shipping seventy-five percent of the lumber, flour, and wheat of Puget Sound (McKean 1941). It was during this period of time that Tacoma went from being a town of 7,000

residents in 1885 to a bustling city of 36,000 by 1890, only 6,800 people short of Seattle (Port of Tacoma No Date). The Queen City was forced to continue tolerating the minimal service provided by the Orphan Road (PSS), isolated from Tacoma's boom economy.

In addition to low levels of service, there was also a fifty-cent, per ton, shipping differential on wheat between the two cities, effectively shutting Seattle out of the wheat trade of the Columbia Plains (MacDonald 1959). This differential became especially significant after the completion of the NP's Cascade Line in 1887, which connected the plains directly to Tacoma, bypassing Portland (Vance 1995; Webster, 1973). MacDonald (1959, 83) highlights the importance of this line by showing wheat exported from the sound jumping from 839,000 bushels in 1886-1887 to 2,297,000 bushels one year later. Meinig (1998) notes that the additional cost of sending the wheat over the Cascades was essentially equal to the additional cost of navigating the Columbia River. Thus, the Inland Empire was no longer solely Portland's hinterland, and Tacoma (and Seattle, to a lesser extent) sought to capitalize on this development.

Railroads and the Lumber Industry

The railroad began to change the lumber industry around the sound by the mid-1880s. The arrival of transcontinental rail required large amounts of lumber for railroad ties and bridge timbers. According to Cox (1974), mill owners may have increased their production capacity as much as twofold to supply the lumber demand of the railroads. The NP would often purchase lumber from new mills that

were built along the newly-laid track, as well as existing mills around the sound. This however, had only a temporary effect, as lumber demand dropped sharply after the Northern Pacific's tracks were completed, leading to a large wave of layoffs throughout the industry.

Rail soon became the primary means to transport timber to sawmills, increasing the speed and efficiency by which wood could be shipped to the mills for processing. Cohn (1954) explains:

As the forests, under the relentless assault of those early loggers, receded ever further from the water front, and the distance from logging camp to sawmill became too great to be bridged by animal transport, it became necessary to devise new methods of moving timber. The logging railroad provided the solution. (1954, 52)

These smaller logging railroads expanded into forested areas that previously too far from mills to make logging a profitable venture. Aided by the donkey engine, a powerful winch that was stationed at the end of a logging track, loggers could now pull felled logs over hills and rough terrain.

According to Cohn (1954), the logging railroads also altered the scale at which timber extraction occurred. Due to the initial capital investment required to lay track, and the inflexibility of route alteration due to a stationary track, large-scale companies began to dominate logging operations¹⁸. Around this time, the construction of ships specially designed to carry lumber became a dominant trend, as emerging markets along the Pacific Rim, South America, and Australia increased overseas demand (Morgan 1979). As supplies of timber began to diminish in the

¹⁸ The immobile nature of the donkey engine contributed to this tendency as well.

Midwest, moneyed interests in Chicago and the Twin Cities began to look to the Pacific Northwest for virgin forests. Two groups from St. Paul traveled to Tacoma with capital stock amounting to \$1,500,000 to build the largest sawmill in the world: the St. Paul and Tacoma Lumber Company. The company built its mills out on the tideflats and bought up timbered land from the NP and laid down six miles of railroad track to haul lumber (eventually to reach 120 miles of track). Other large mills began to appear around the sound, in Everett, Bellingham Bay, Grays Harbor, and Port Blakely. Tacoma was at the center of a booming timber industry that played an important role in propelling the city towards regional dominance. Soon enough, however, Seattle merchants would reap the benefits of a large extractive industry to which they could supply necessary goods and materials.

The Seattle Lake Shore & Eastern

The second attempt at establishing a transcontinental connection between Seattle and the eastern states was carried out in the mid-1880s, under the looming threat of the completion of the NP's Cascade Line. This railroad was incorporated in the spring of 1885 as the Seattle Lake Shore & Eastern (SLS&E) (Armbruster 1999). The SLS&E was initially intended to cross the Cascades through Snoqualmie Pass and make a connection with Walla Walla, Spokane, and an eastern trunk line¹⁹ (Figure 7). Two Seattle capitalists are credited as the driving force behind the rail project: Daniel Gilman and Judge Thomas Burke. Unlike the Seattle & Walla Walla, whose early funding was largely sought from local sources, the Seattle Lake Shore &

¹⁹ Armbruster (1999) suggests this eastern connection would likely be the Union Pacific, because it was the Northern Pacific's primary competition in the northwestern states.

Eastern looked to eastern capital for financial support. Burke and Gilman were adamant about maintaining a level of local autonomy in the decisions affecting the railroad, regardless of eastern funding. Gilman was responsible for persuading eastern businessmen to fund the SLS&E. After months of prodding, enough interest was generated amongst New York elites that investment had begun to be secured, with the understanding that the SLS&E would include a line northward, connecting to Canada.

After funding was secured, construction on the SLS&E began in April 1887, but the railroad experienced financial hardships from underestimated costs²⁰ and a lack of revenues. A year after construction started, the SLS&E had lost a majority of its financial backing, halting the railroad's progress. By late 1889, Burke, Gilman, and other primary investors had all withdrawn financial support and sold their stake in the struggling railroad. In July of 1890, it was announced that the Northern Pacific had purchased majority stock in the SLS&E²¹, and funded the remaining track needed to reach the Canadian border.

Despite its financial troubles, the Seattle Lake Shore & Eastern connected Seattle to important areas where trade relations were established. In 1888, the SLS&E's eastern branch reached Gilman (present-day Issaquah), and the miners began to send railcars of coal over to the Seattle waterfront (Armbruster 1999). Lumber and shingle production sprouted up all along the northern route of the road

²⁰ The initial estimates were \$14,425 per mile, but the real costs ranged from \$15,000 to \$20,000 per mile.

²¹ This takeover was seen as an effort on the NP's part to obstruct James Hill's incoming Great Northern Railroad.

in the early 1890s. As the rail extended northward, it connected Seattle to the rich agriculture areas of Skagit and Snohomish counties²² (Inter-state Publishing Co. 1906). The railroad completed its connection to Sumas in April of 1891, connecting the SLS&E to the Canadian Pacific Railroad and opening up international trade between Seattle and its northern neighbors, though the crash of 1893 forced the SLS&E into receivership (Armbruster 1999). Like the Seattle & Walla Walla, this local rail also failed to traverse the Cascades, and was eventually bought out by a larger railroad entity. Nevertheless, the SLS&E made important connections for Seattle: coal mines to the east, farms and timberland to the north, and a connection to Canada.

The Great Northern

The construction of the Great Northern Railway marked a new and different approach to building a transcontinental. Started in 1889 by James J. Hill, the rail that would become known as the Great Northern (GN) faced a different set of challenges from the early transcontinentals (Martin 1976). These challenges related to westward expansion, as the railroad would connect St. Paul, Minnesota with Puget Sound (Figure 8). For one, the large land grants that the government had offered during the first phase of transcontinental rail development had now dried up. Vance mentions a second factor, that of the “natural territory”, or areas of influence, that had already been carved up by the existing continentals (1995, 210-211). In order to create a successful railroad, Hill would have to rely on the profits

²² The La Conner Flat district in Skagit County was one of the highest yield-per-acre areas in the region for oat cultivation (Lewis and Miller 1923).

generated from shipping and the development of economies along the rail. In order to compete with the other transcontinentals, he would also have to find the shortest, most efficient route across the west (Quiett 1965). This meant building across the lowest possible passes in the mountain regions to avoid steep grades that would eat

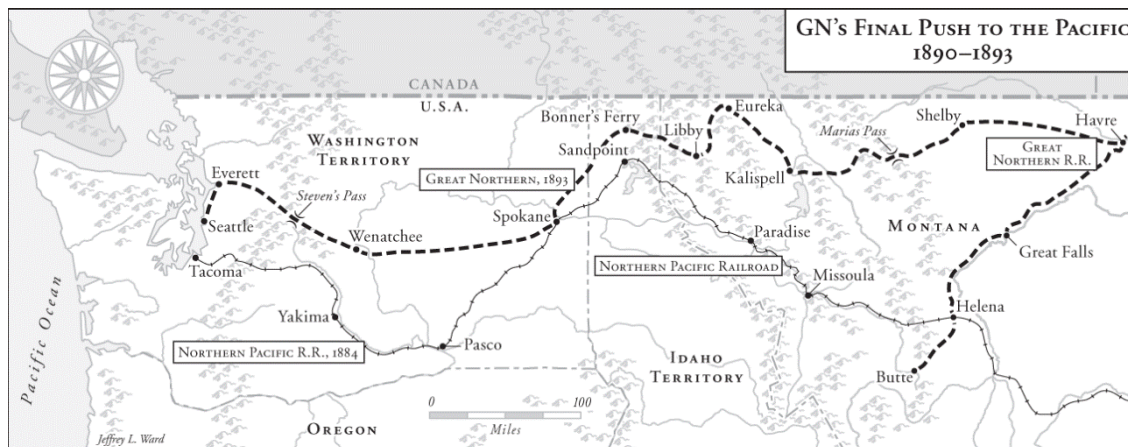


Figure 8. The Great Northern Railroad (Source: Manvel 2011)

into the rail company's profits, with less use of extra engines and faster shipping times. To traverse the Rocky Mountains, the GN crossed through the Marias Pass, the lowest-grade pass through the mountain system. This gave the Great Northern its first natural advantage over the Northern Pacific and Union Pacific. Smaller grades and straighter rail lines meant faster rail service and lower fuel costs. These savings could then be applied to offering lower haulage rates.

Hill started his rail project by promoting and profiting from the rich agricultural region of the Red River Valley in western Minnesota and eastern North Dakota. James Hill played a substantial role in developing irrigation and crop diversification in the Columbia Plain as well (Strom 2003). As the railroad rapidly progressed westward, Hill continued to promote development along the line, using the profits to fund the next length of tracks. This practice of developing rail towns

with strong farming communities across the GN's path would make the rail much stronger financially than the earlier trancontinentals, which relied heavily on land speculation to spur development along their tracks (Vance 1995). When the Great Depression of 1893 hit, Hill's Great Northern was able to weather the collapse far better than its counterparts, the Northern Pacific and the Union Pacific, both of which fell into receivership (Armbruster 1999). "The Hill formula—low rates, low train-miles, maximum tonnage—had paid handsome dividends, abetted by a record Dakota wheat crop and helped by the declining costs of labor and materials," Armbruster (1999) explains. This relative resilience towards economic depression would, in turn, prove to be a crucial advantage to Seattle in the early and mid-1890, whereas Tacoma was pulled down by the NP's bankruptcy (Sale 1976).

The next major obstacle in the Great Northern's path was the Cascade Mountain Range. Rather than deal with the risks of entering the Northern Pacific's natural territory along the Stampede Pass, the GN chose to lay track over Stevens Pass to the north. According to Vance (1995), despite the steeper grade of Stevens Pass, the path provided a shorter, more direct route to the sound. Passing through Wenatchee, the GN also had more development opportunities than if it were to have gone south to Pasco and competed with the NP along the Stampede Pass. This would mean the addition of a rich fruit-growing agricultural area to Seattle's hinterland, particularly well-known for its apple production (Lewis and Miller 1923; Shaw 1954). Quiett (1965) notes that the distance from Seattle to St. Paul on the NP was 1,931 miles, while it was only 1,816 miles on the GN. This distance may be somewhat negligible, but factored in with smaller track grades, Hill's GN could save

on fuel costs and undercut the NP's haulage rates. The northern branch of the GN, also known as the Seattle & Montana²³, would supply another connection between Seattle and Canada at Blaine, WA, six months after the SLS&E made its connection at Sumas (Armbruster 1999). This track would also traverse some of the same rich farmland and mining communities that the SLS&E was servicing.

As the Great Northern approached the sound, there was still a question as to which port Hill would choose as his terminus. He invested in land around Bellingham Bay, which set off a speculative frenzy in the community (Armbruster 1999). There was also talk of Hill stopping short and making the town of Everett the terminus (Sale 1976). Roger Sale notes:

Hill had built his way across the plains slowly, ruthlessly, and thoroughly. He did not build one section until the previous one had been completed, towns established, and immigrants brought in. He thus did not have to commit himself to his western terminus until he was practically there, so he could play towns off against each other, looking for the best possible deal (64-65).

In this bidding war for the Great Northern, Judge Thomas Burke was the primary agent for Seattle's terminus efforts (Quiett 1965). Burke was successful at getting Hill sixty feet of width (enough for two rights-of-way) along the newly created Railroad Avenue, as well as an agreement from state and local government that they would not interfere with his business affairs (Nesbit 1961). Hill eventually settled on the Queen City, and the GN would officially terminate at Seattle in 1893.

²³ This line was technically owned independently from the Great Northern in an attempt to avoid any local litigation that may tie up the GN's construction. This was a regular practice of Hill when constructing rails to and from urban centers. (Hidy, et al 1988, Armbruster 1999).

While Hill may have seriously considered other locations to terminate the Great Northern, Seattle was the only port that could provide the railroad with the ready-made infrastructure that could make the GN function efficiently and profitably. The factors that gave rise to Seattle's early trade dominance²⁴ most likely played a large role in Hill's choice to terminate the GN at Seattle. MacDonald expresses a similar sentiment when he argues that "Seattleites played a negligible role in bringing the Great Northern to the city" (1959, 91). He proceeds to list four reasons why Seattle was the best choice for the GN: 1) it had a population of over 50,000 2) built a well-established jobbing and trading center; 3) its central location as a water-shipping city; and 4) its extensive local rail network that linked it to all of the major population centers in the region. Sale (1976) echoes a similar sentiment, claiming that Hill could have moved the terminus to Everett or Bellingham Bay, but these were not realistic choices for a transcontinental railroad. He explains that Seattle had the population and the facilities; all Hill would have to supply would be the cars, tracks, and the immigrants. Seattle's development through the previous two decades led it to be the ideal port city for the GN to locate its terminal facilities.

The arrival of The Great Northern Railroad had a pronounced effect on the development of Seattle. Quiett (1965) asserts that James Hill was the most important person in relation to the city's transportation network during the years of rapid growth. This move equalized Seattle's shipping rates with Tacoma, ending the latter's ten-year rail advantage. Hill was also largely responsible for making

²⁴ Early start as a community, central location, strong maritime trade, and proximity to large coal deposits.

Northwest lumber marketable to the eastern states. By lowering the rate of lumber from as high as 90 cents down to 40 cents per one hundred pounds, he was able to make lumber from around the sound competitive with white pine from Wisconsin and Minnesota, as well as yellow pine from the southern states (MacDonald 1959; Speidel 1967). Hill's rate reduction also forced the Union Pacific and Northern Pacific to lower their rates in order to stay competitive with the GN. This line was responsible for significantly increasing lumber and shingle shipments (Table 1).

Table 1. Washington's Railroad Shipments of Lumber and Shingles, 1892-1897 (Source: MacDonald 1959)

Year	Lumber (carloads)	Shingles	Total
1892	6,750	6,341	12,091
1893	5,365	6,153	11,418
1894	4,283	10,975	15,258
1895	7,039	12,710	19,749
1896	6,486	14,195	20,681
1897	7,737	17,873	25,610

MacDonald acknowledges that the Panic of 1893 certainly had a negative impact on lumber sales for years afterward, though he suggests that there is still a noticeable increase in shipments after the GN lowered its lumber shipping rates. He accounts for the spike in cedar shingle shipments by describing their importance as a specialty item that was rarely found outside of the Pacific Northwest. The increase in lumber sales to eastern markets would provide a boost to Seattle's economy, but it is highly likely that it also drove demand for goods and light manufactures that were required of the logging industry. It could be speculated that this rise in demand would be a positive factor for Seattle's merchants in the retail and

wholesaling businesses that outfitted logging companies with the products that they needed.

After the Northern Pacific went into receivership in 1893, Hill assumed control of the line in 1901 and worked to make it efficient enough to produce a profit (Vance 1995). Hill also sold off 900,000 forested acres of the NP's federal land grant at less \$6 an acre to Frederick Weyerhaeuser, who went on to build the world's largest sawmill in Everett (Sale 1976; Hidy, et al 1988). The lumber dealings with Weyerhaeuser allowed Hill to ship carloads of lumber east to Minneapolis on the NP, eliminating his concern for the rail's two decade legacy of empty eastbound rail cars (Martin 1976). Vance (1995) notes that the Great Northern's operations were so efficient that the railroad served as an example to newer and older lines, prompting winding lines to be shortened and steep grades reduced. The Great Northern was the final addition to Seattle's rail network that had a marked influence on the city (Figures 9, 10). Beyond 1893, changes in the rail pattern did not alter the urban fabric of Puget Sound to a significant degree.

The Chicago, Milwaukee, St. Paul & Pacific

After 1893, there was only one other transcontinental to make its way to the Pacific Northwest. Promoted by William A. Rockefeller and Edward Harriman²⁵, the Chicago, Milwaukee, St. Paul & Pacific Railroad (otherwise known as the "Milwaukee Road") completed its westward extension to Seattle in 1909 (Vance 1995). According to Vance, once the line drew west of St. Paul it did not have significant

²⁵ James Hill's early 1900s rival, of Union Pacific fame.

communities along its right-of-way to stimulate business. The majority of vibrant communities it crossed were already within the natural territory of one or more railways. Vance describes the railway as a “striking case of a misappraisal of the market” (1995, 219). MacDonald (1959) notes that by 1893, Seattle already had connections to the Great Northern, the Northern Pacific, the Union Pacific, and Canadian Pacific Railway. Despite making Seattle its steamship terminal, the arrival of the Milwaukee Road did little to alter Seattle’s previously established transportation network (Quiett 1965).

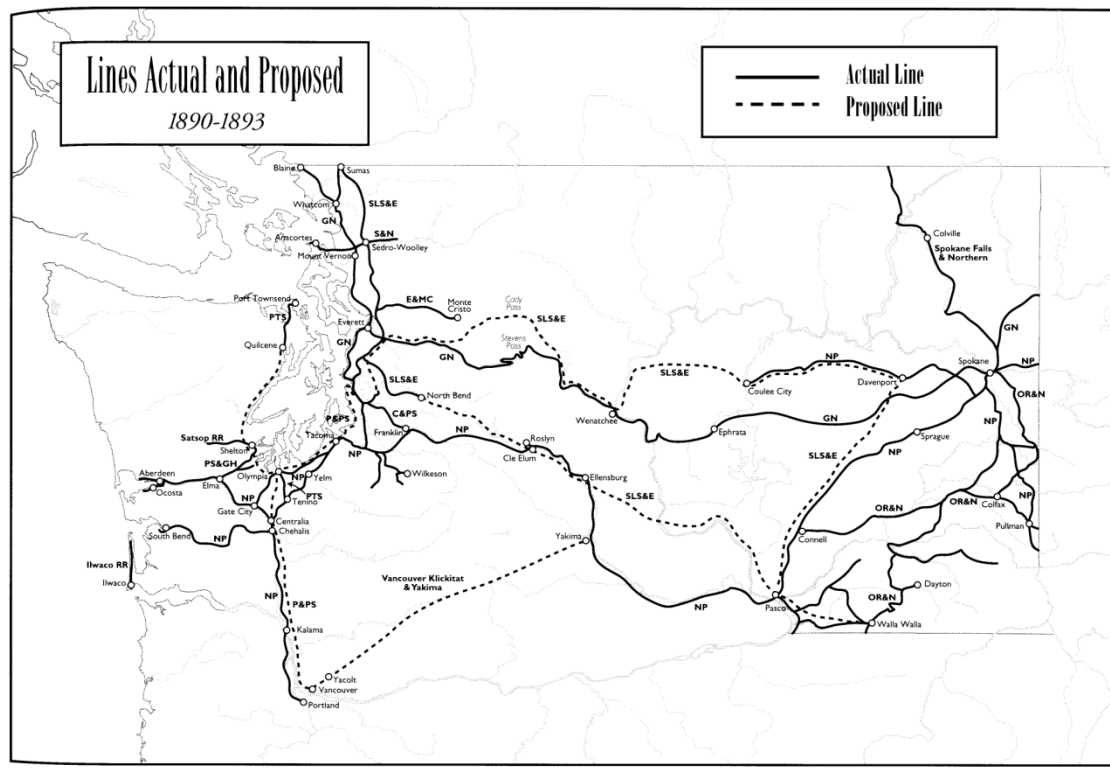


Figure 9. Washington State's Rail Network, 1893 (Source: Armbruster 1999)

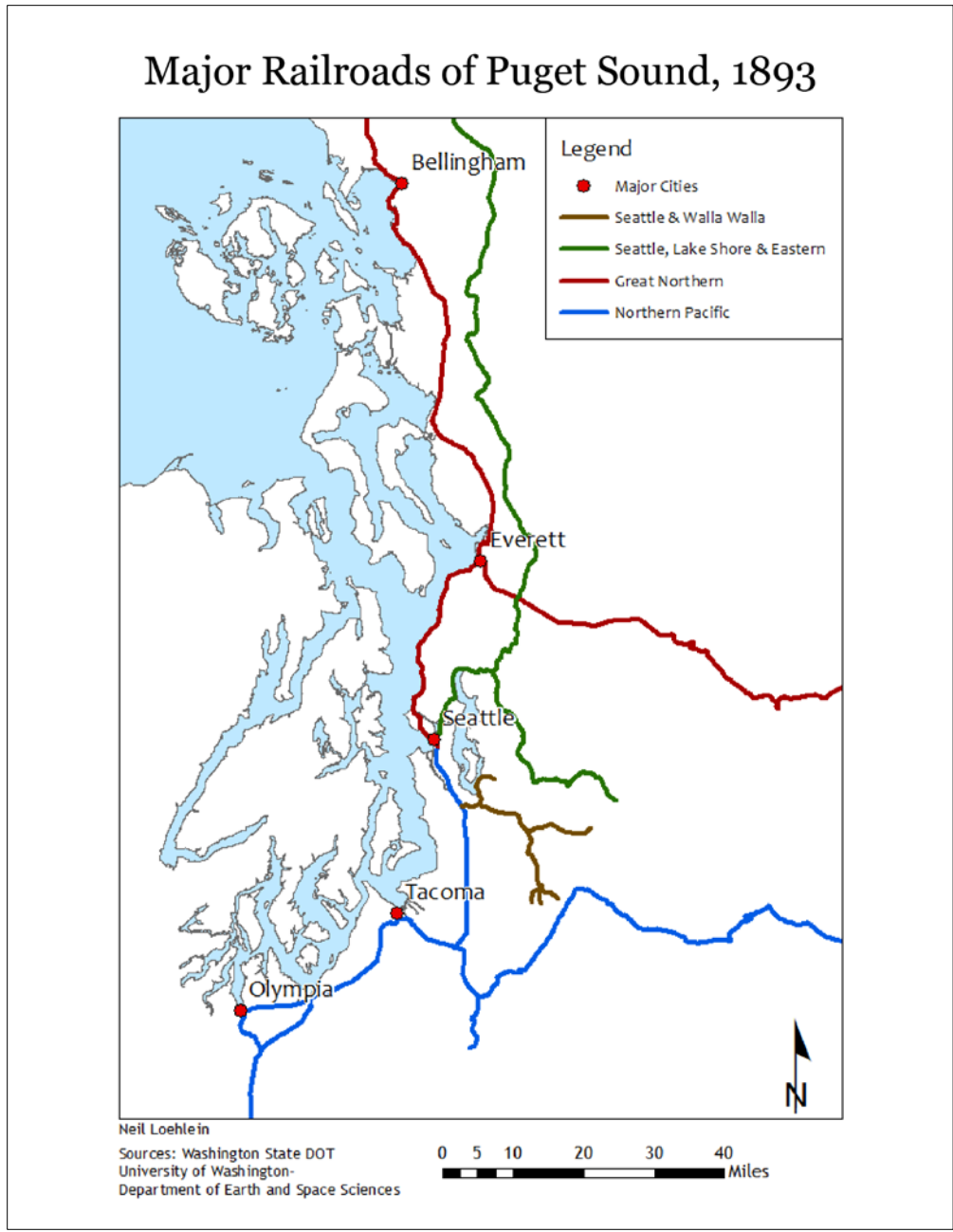


Figure 10. Major Railroads of Puget Sound 1893 (Source: Author 2013)

Competition and the Railroad Pattern

As with most capitalist enterprises, the railroads sought to maintain a monopoly over the urban centers to which they connected. Laying track was an expensive business, so the rail companies only sought to expand their network to

the most essential centers of trade. Unless their market share was in jeopardy, rail companies would not make connections that they felt lacked the potential to achieve a high level of profitability and haulage. Competition between railroads would alter this pattern of monopoly and sparse rail networks. In his study of rail towns along the North Dakota plains, John C. Hudson (1985) describes the phenomenon where competition between railroad companies drives the expansion of rail networks. "Because towns were a railroad's point of access to the local agricultural economy, they multiplied in number most rapidly when two or more companies were battling to sustain or increase their share of local business" (1985, 55).

This phenomenon can be seen in the Pacific Northwest as well. The early period of rail development was marked by the creation of small railroads in the region, including the Oregon Railroad & Navigation Company and the Walla Walla & Columbia River Railroad. The arrival of the Northern Pacific signaled the beginning of a monopoly period, where Henry Villard bought up the OR&N and held controlling interest in the NP (Hedges 1967). This period would see the rail magnates protecting their respective interests in Portland, and later, Tacoma. News of Seattle's SLS&E generated competition from the Columbia & Puget Sound (previously the Seattle & Walla Walla), as well as the Northern Pacific, though neither of these competitors proved willing or able to materialize their plans to reach Snoqualmie pass before the new railroad (Armbruster 1999). As noted earlier, the Northern Pacific's monopoly over the broader region was effectively broken after the company lost control of the OR&N and the railway was later purchased by interests in the Union Pacific, prompting the NP to start laying track

for their Cascade Line (Meinig 1998). Bruce Cheever (1949) notes that Canadian Pacific Railway's (CPR) entrance into the Pacific Northwest spurred the development of a rail line connecting Bellingham Bay with the CPR at Sumas. Likewise, the arrival of the Great Northern would break the Northern Pacific's ability to isolate Seattle. After acquiring a controlling interest in the OR&N in 1887, the Union Pacific looked to make inroads around Puget Sound. Though the Union Pacific would not establish a terminal in Seattle until 1909, they began running trains over NP track in the early 1890s, generating competition with the latter (Armbruster 1999). There was also an attempt by the UP to build a line connecting Seattle to Tacoma and Portland, which would bypass the NP tracks. This line, the Portland & Puget Sound (P&PS), never came to fruition, but it signaled the future of competition from other rail lines that would not seek to isolate the Queen City. Thus, the Northern Pacific was forced to grant Seattle terminus status on their line, lest they be left out on Seattle's development in the 1890s (MacDonald 1959). Part of this may have been the result of the NP's purchase of the Seattle Lake Shore & Eastern (a move most-likely made in attempt to block or retard the GN's entrance to Seattle), a move that would see the NP developing a vested interest, however minor, in Seattle, via the SLS&E²⁶. After the NP's effective monopoly gave way to railroad competition, the rail network around Seattle became more extensive, further cementing its position as the regional trade hub. Even the once-dubbed Orphan Road, the Puget Sound Shore Railroad proved to be an important connection with the agricultural areas of the White River Valley, as passenger and commodities

²⁶ The NP also controlled the Seattle & Walla Walla at this point, though through a subsidiary: the Oregon Improvement Company.

traffic increased (MacDonald 1959; Armbruster 1999). A more extensive rail network created the possibility for Seattle to develop more trade relations with communities around the sound, as well as beyond the region, boosting the demand for its merchants.

The Klondike Gold Rush 1897-99

Capturing the market for the Klondike gold rushes was a pivotal moment in Seattle's early development. The Queen City would not establish the necessary magnitude of extra-regional connections for it to be considered a network city in this period (Abbott 1992). However, Seattle would become the clear economic power of Puget Sound and establish the first of its significant extra-regional trade relations with Alaska. This section surveys the developments and relationships that gave Seattle a relative advantage over other cities in the Pacific Northwest in dominating the market for the Yukon gold rushes. It also discusses the effects of the gold rush on Seattle's growth, as well as surveys the arguments as to the extent to which the gold rush played in the city's development.

Seattle's loss of the Northern Pacific's terminus status had been a devastating blow. However, the city maintained a level of growth and local trade, and actually began to outpace Tacoma in the mid-1890s. How did Seattle continue to grow after its southern rival was awarded the spoils of a transcontinental rail? MacDonald (1959) suggests that by 1880, Seattle was just one of many port towns on Puget Sound that specialized in the extraction and processing of timber. It was the proximity to coal mines and a strong, early maritime trade network that served as

Seattle's early natural advantage over the other deep water harbors of Puget Sound. Also, Seattle's isolation from the Northern Pacific would actually prove to be beneficial when the Panic of 1893 hit the port economies of the sound (Sale 1976). These factors would help Seattle's economy to weather the dismal years of isolation from a transcontinental rail line.

The Connection to Coal

In addition to having an early start as a settlement, and therefore an edge in population over other ports of the sound, Seattle was able to diversify its economy with coal extraction. Coal extraction started in Gilman (Issaquah) in 1864 and expanded to places east of Seattle like Renton, Newcastle, and Black Diamond in the 1870s and 1880s (McDonald and McDonald 1987; Cory 1894). This was in large part due to the construction of the Seattle & Walla Walla and the efficiency in transportation that it provided for the mines. Seattle capitalists (the likes of Thomas Burke and Henry Yesler) even managed to convince Henry Villard and the Northern Pacific to buy up the Seattle & Walla Walla and extend it to the Green River coal fields (Franklin and Black Diamond) for a paltry sum of \$150,000 (Nesbit 1961). The boom that followed helped the Queen City go from a town of 3,600 in 1880 to a small, bustling city of 8,000 in 1884. Seattle's proximity to the largest coal deposits in Washington proved an important factor in its early standing as one of the dominant ports on Puget Sound.

The connection to coal also paved Seattle's way to becoming the local supplier of mining, farming, fishing, and logging industries, according to MacDonald

(1959). He explains that Seattle stood as the exception to most of the ports on Puget Sound, which exported high quantities of lumber through companies with non-local investors. The Queen City, on the other hand, utilized its extensive rail and steamboat network to supply mining operators, farms, lumber companies, and small mills with the machinery and goods that they needed to carry on with their work.

Roger Sale explains that the inverse was true for Tacoma for the years 1890-1990:

While the industries directly connected with the railroad and the harbor held their own, all the others for the manufacturing establishment or the general citizenry, were either less available or expensively imported. Very obviously, everything that Tacoma was less able to do for itself Seattle would benefit from if it could be the source of the supply (1976, 51).

Sale (1974) adds that, during this time, Seattle began to offer goods and services that had never been previously available in the territory or state—products like mattresses, awnings, paving services, and roasted coffee. While Tacoma's non-timber manufacturing languished in the last decade of the 19th Century, Seattle's prospered and expanded.

MacDonald argues that Seattle's light manufacturing and trade were based around the sound's primary coal, timber, and agricultural industries, producing and selling machinery and wares for the companies and farmers of the city and its hinterland. He notes that significant diversification in manufacturing and retailing was established through the 1870s and 1880s; these businesses were but one degree away from the timber and coal industry that depended upon them. Sale (1976) and MacDonald (1959) agree that the extensive rail and steamboat networks and the town's central location on the sound helped to solidify Seattle's role as a

local supplier of materials. Seattle's exports of lumber were actually quite small in comparison, claiming only 5% of the 160,000,000 feet of lumber that the State of Washington exported in 1878. Even in years when Seattle mills produced high quantities of lumber, the majority of it was used locally (often to supply the city's own building needs, as it grew throughout the late 1800s).

Seattle's Maritime Trade

Seattle's fleet of steamboats played an important role in the city's rise as the dominant port on the sound. Before Seattle had a rail network to speak of, this collection of steam vessels, known as the "Mosquito Fleet" provided an essential connection between the communities of Puget Sound and those along the Pacific Coast (MacDonald 1959; Nesbit 1961, 10). Maritime commerce around the sound initially lacked the monopolistic dominance that Oregon Steam and Navigation Company imposed on the Columbia River. The Mosquito Fleet was primarily composed of small and medium-sized shipping companies, though some companies, like the Puget Sound Navigation Company, would rise to dominate the waters of the sound (Hitchman 1990). This company, along with Seattle Tug and Barge and the Alaska Steamship Company would eventually be headquartered in the Queen City. In 1892 the North American Trade & Transportation Company established Seattle as its West Coast headquarters, while the Pacific Coast Steamship Company moved its operations north from Portland to Seattle in the same year (MacDonald 1968). The establishment of the Alaska Steamship Company in 1894 added a direct steamship

line connection between Seattle and Alaska²⁷ (Morse 2003). According to Katheryn Morse (2003), these developments were important, because they allowed Seattle to compete with San Francisco for Alaskan trade. In the early 1890s the savings that steamship companies could offer Alaskan traders gave these companies the incentive to move to the sound. Seattle's maritime fleet was largely responsible for the city's early role as trading hub of the sound. Nesbit credits the Mosquito Fleet with creating the conditions whereby "Seattle had made itself 'the general supply depot of the Sound region'" (1961, 10-11). MacDonald (1959) echoes the importance that this band of small- and medium-sized sea craft played in the development of Seattle. He notes that by 1876, the city had the largest fleet on the sound. MacDonald proceeds to list two major factors in these merchant captains' decision to base their operations out of Seattle: 1) Seattle's early start as a community, and therefore, its large population (relative to the other communities on the sound) and 2) its central location on the sound. According to MacDonald:

Port Townsend was better situated for serving the northern part of the Sound, while Olympia was the logical depot for the south, but, whether the merchant or captain wished to cater to Whidbey Island, the Olympic Peninsula, Chehalis Valley or Snohomish county [*sic*], they were all within easy striking distance of Seattle. Hence it was a logical point for boat owners to center their operations (1959, 32).

The development of an extensive rail network around the sound superceded the steamships' dominance in local trade and reduced their role to a secondary status. Nonetheless, the Mosquito Fleet proved crucial in the development of Seattle's local trade with regional communities and helped to pave the way for the city's

²⁷ Seattle did have regular steamship service to Alaska, starting in 1886 (Morse 2003).

development as the regionally dominant urban center that it would become by the end of the mid-1890s. Seattle's maritime dominance would be a key factor in its ability to transport gold miners north and to supply the Klondike merchants.

Weathering the Depression

Another advantage for Seattle was its relative resilience throughout the depression years, thanks to the city's economic autonomy from the Northern Pacific. Roger Sale (1976) suggests that the dominance of the NP over Tacoma's economy, and the speculative urban growth that resulted from it, left the City of Destiny at a much greater risk of bear markets than Seattle. The Panic of 1893 led to the closing of all but one Tacoma bank, while Seattle capitalists proved more resilient by pooling their resources. As stated earlier, the Great Northern's relative strength during the 1893 crash also played into Seattle's favor (Armbruster 1999). Because Seattle was able to recover more quickly from the 1893 depression, it was in a much better position to take advantage of the Klondike Gold Rush in 1897.

The Gold Rush

Seattle's ability to capitalize on the Klondike Gold Rush in the late 1890s boosted the city's economy and growth, while strengthening its extra-regional ties with Alaska. Alaska²⁸ was the primary station where most American prospectors landed before traveling into the Canadian Yukon Territory (Figure 11) (Morse 2003). Pre-1892, Alaska had been largely a part of San Francisco's hinterland (MacDonald 1959). Nesbit (1961) illustrates San Francisco's trade dominance with

²⁸ Dyea, Skagway, and St. Michael, were the most popular ports for the arrival of American miners.

figures from the 1890 census indicating that Puget Sound had 800 tons of total trade with Alaska, while San Francisco's trade amounted to 49,357 tons. This balance of power would soon be disrupted in favor of Seattle by the mid-1890s. Seattle's capture of Alaskan markets was important, in that it established a regular pattern of trade and passenger traffic that would prove invaluable to Seattle's aspirations to dominate the gold rush market for the Klondike.

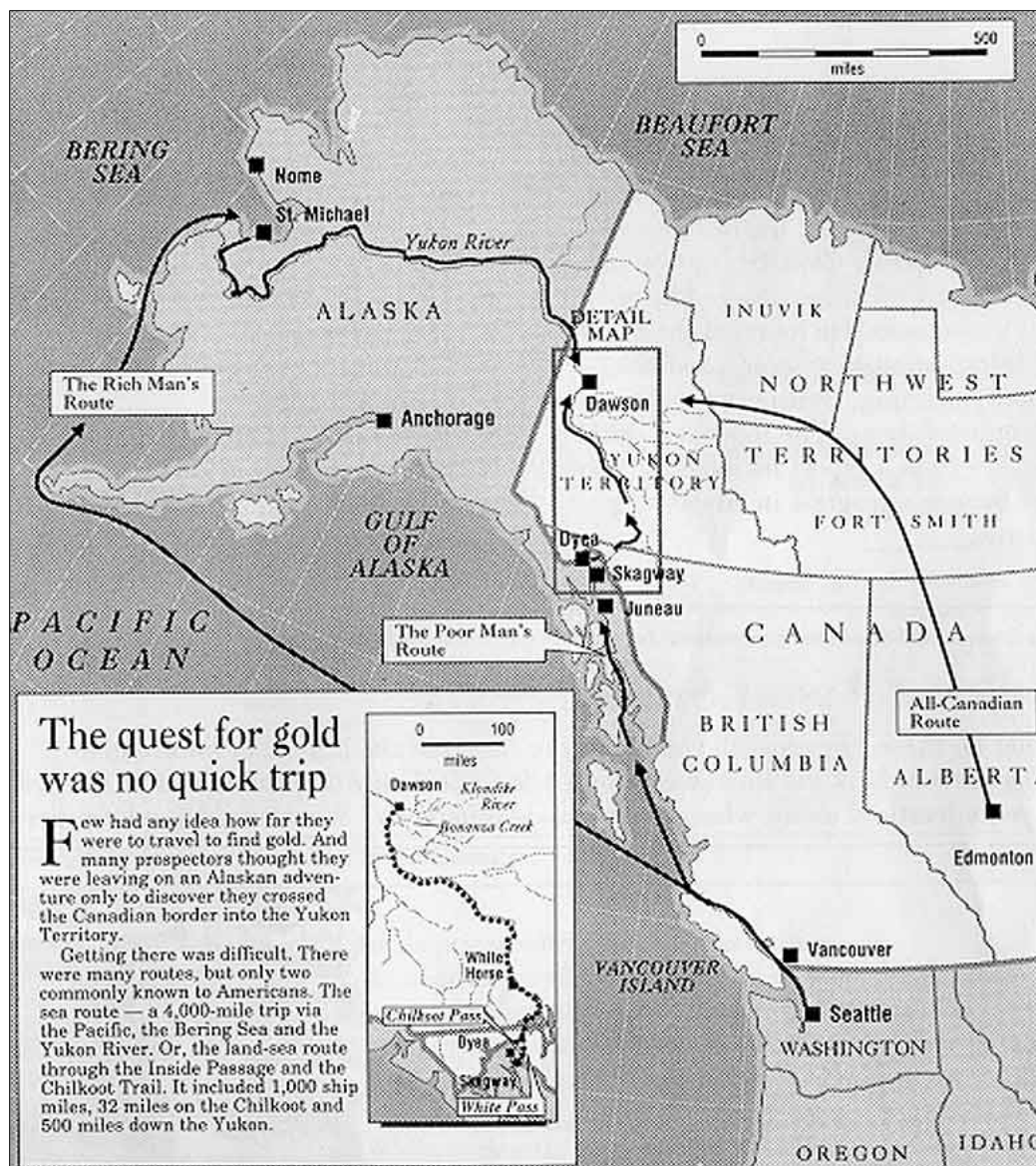


Figure 11. Routes to the Klondike, 1897-1898 (Source: Bauer No Date)

The efforts of select locals played an important role in generating the image of Seattle as the primary outfitter for the Klondike Gold Rush. Erastus Brainerd (a Seattle publicist) and the Seattle Chamber of Commerce worked with newspapers, journals, magazines, and other paper media to promote Seattle as the primary gold rush outfitter, publishing thousands of advertisements geared toward convincing prospectors to start their Yukon quest in the Queen City (Quiett 1965; Mighetto and Montgomery 2002). This massive advertising campaign was an important factor in establishing Seattle as the natural supplier of the Yukon gold rushes (Morse 2003). MacDonald (1968) offers that Seattle out-advertised each of its major competitors (Vancouver, Tacoma, Portland, and San Francisco) by nearly a 5-fold margin. The Great Northern and the Northern Pacific were both credited with carrying thousands of prospective gold miners to Seattle to outfit themselves before heading to Alaska²⁹. The Chamber of Commerce also successfully petitioned the U.S. Congress for an assay office (where gold could be validated according to its purity) for miners fresh from the Klondike. Katheryn Morse (2003) explains the importance of the assay office, as miners returning from Alaska could trade in their heavy gold for paper and coin money. This allowed for the possibility that successful miners could spend some of their earnings in Seattle, boosting the city's economy. Without the assay office, miners would have to travel to San Francisco to have their gold traded into currency, denying the Queen City this stimulus.

²⁹ Katheryn Morse (2003) notes that on March 11, 1898, the GN and NP brought 800 passengers to Seattle on that day alone.

While the efforts of Brainerd, the Chamber of Commerce, and other publicists were important in branding Seattle as the launch point for the Alaskan gold rushes, there are also structural factors to consider. These factors are crucial to Seattle's ability to operate as a supplier of miners heading to the Klondike. MacDonald asserts:

Consequently although Victoria, Vancouver, Everett and Bellingham were all nearer the Yukon, though Portland and Tacoma could provide much the same material at similar prices, and though San Francisco had a larger and more diversified stock of goods than Seattle, none of these communities combined the nearness to the Yukon, adequate size, along with terminal facilities, business contacts, experience, and operating steamship lines, that were available in Seattle in the summer of 1897 (1959, 137).

He proceeds to note that Seattle supplied Alaska with raw materials (such as lumber, coal, and food), as well as manufactured goods (rubber boots, hydraulic pumps, hoisting engines, and suction hoses). Katheryn Morse (2003) explains that the transcontinental railroads played a pivotal role in the development in Seattle's grocery supply sector, connecting the city's jobbers³⁰ to eastern suppliers.

Morse also describes the trading ties between Seattle and Alaska that had been developing before 1897, establishing Seattle as the gateway to Alaska pre-gold rush. In 1891, three of Seattle's largest wholesalers³¹ sent representatives to Alaska to look for buyers (MacDonald 1968). The rates for shipping a ton of freight in this year were \$13 from San Francisco, \$11 from Portland, and \$10 from Seattle, giving

³⁰ "Jobber" is a term for a wholesale buyer (Morse 2003, 181).

³¹ These companies included McDougall & Southwick, Fisher & MacDonald, and the Seattle Hardware Company.

the Queen City the clear advantage in shipping. Seattle firms were also able to secure a government contract for mail delivery to Alaska. As mentioned earlier, a number of key steamship connections from Seattle to Alaska were established between 1892 and 1894. Morse suggests that the sale of hardware, animals, lumber, and food to Alaska during two minor gold rushes in 1896 served as “dry runs” for Seattle’s merchants (2003, 180).

Reaping the Klondike Boom

The Klondike Gold Rush was a boon to Seattle’s economy, especially for its merchants. Seattle suppliers sold \$325,000 in one month during the summer of 1897 (Webster 1973). The trading relationships between Seattle and Alaska were strengthened through this period, as shops in Nome, Dyea, Dawson, and Skagway sold goods to miners that were purchased from Seattle wholesalers (Morse 2003). In fact, it was a product of the Alaskan gold rushes that many of Seattle’s largest grocers and retailers increased their economy of scale to become wholesalers; Schwabacher Brothers and Fischer Brothers are two of the most notable examples. Both of these companies relied heavily on goods purchased from Chicago and New York, and sent westward via the transcontinentals.

Seattle’s ship building industry also boomed during the gold rushes, as shipyards increased their production of vessels bound for Alaska. New steamship companies emerged during the gold rush, with names associating themselves with the Yukon and funding from eastern and midwestern cities (Morse 2003). The gold rush stoked demand for marine transport of people and goods between the sound

and Alaska, which in turn generated a strong demand for new steamships. At one point, Moran Brothers (Seattle's largest shipyard) were building 12 Yukon sternwheelers at the same time. According to Bagley (1916b), in 1898 Seattle constructed 74 ships in the first seven months alone. Katheryn Morse explains that, "Such intense demands transformed Seattle's waterfront from a gateway entrepôt into an industrial production site" (2003, 184). Seattle emerged from this period as the dominant shipbuilding city on the sound.

According to Abbott (1992) the Klondike Gold Rush had a profound effect on ending the economic malaise left over from 1893 and propelling Seattle into its new position as the undisputed regional power of Puget Sound, while extending its extra-regional hinterland. Morse (2003) adds supporting evidence to this claim, stating that by 1900, Seattle was trading wheat, flour, and lumber to Chile, Peru, the United Kingdom, Tahiti, Hawaii, and Japan, while exporting salmon and shingles to Chicago, as well as Australia and South Africa. At the start of the 20th Century, Seattle had clear dominance over Puget Sound, indicated by its 80,671 population, which was more than double its closest competitor, Tacoma (Figure 12) (Caldbeck 2010). In 1909 Seattle held the Alaska-Yukon-Pacific Exposition which showcased the relationship that the two parties had developed over the last 12 years. This event brought in 700,000 more attendees than Portland's Lewis and Clark Exposition in 1905, indicating Seattle's new position in the region (Robbins and Barber 2011).

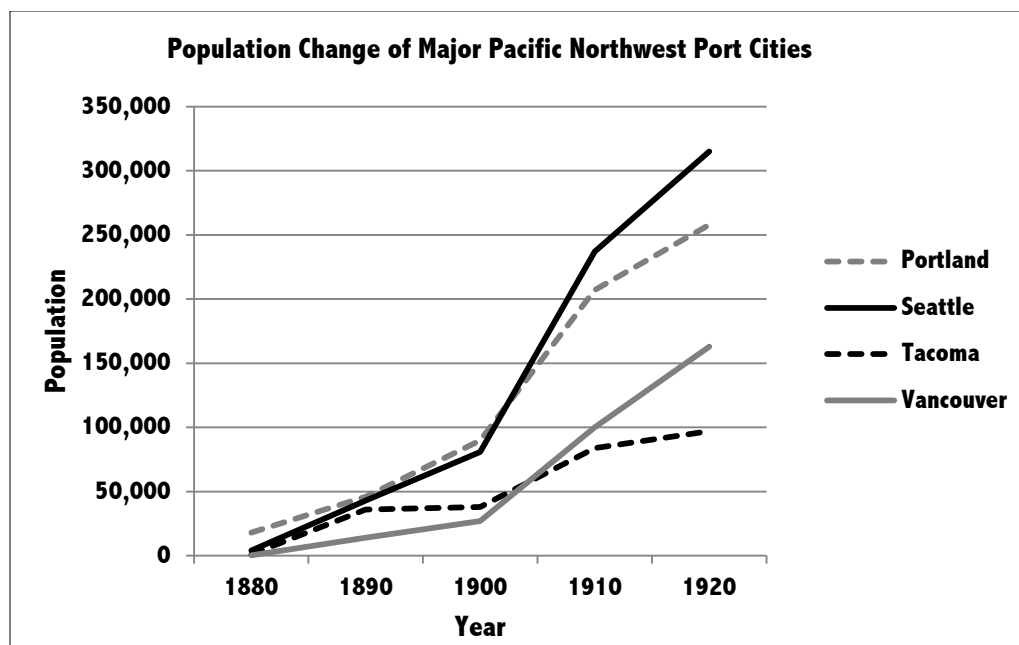


Figure 12. Population Change of Major Pacific Northwest Port Cities, 1880-1920
(Sources: MacDonald 1970; Caldbick 2010a/2010b/2010c/2010d/2010e)

How Crucial was the Klondike Gold Rush?

There is a lack of consensus among scholars as to the importance of the Yukon gold rushes were to Seattle's development in the late 1890s. Mighetto and Montgomery (2002) provide a useful survey of the interpretations of the Klondike events and their effects on Seattle's growth. They group the analyses of the gold rushes chronologically into "Early Interpretations," "Mid-Twentieth Century Interpretations," and "Modern Interpretations" (2002, 77-83). According to the Mighetto and Montgomery (2002), the early interpretations (Meany 1910; Beaton 1914; Bagley 1916a; Nichols 1922) of the Klondike events displayed a substantial diversity in viewpoints, with some scholars placing great importance on the gold rushes, while others attributing very little influence. The mid-Twentieth Century interpretations (Binns 1941; MacDonald 1959; Morgan 1960) tended to be more

uniform and stressed the importance of the Yukon trade, while the modern interpretations (Pomeroy 1965; Johansen and Gates 1967; Spiedel 1967; Clarridge and Clarridge 1972; Jones 1972; Sale 1976) have continued to focus on the stimulus that the gold stampede generated.

One of the modern perspectives, that of Roger Sale (1976), takes a unique perspective on the Klondike gold rushes. Sale asserts that the Yukon trade did not play a crucial role in Seattle's economic development during the late 1890s. Sale stresses the city's rail and steamship trade networks as the prime movers in Seattle's growth during this period, arguing that if the Klondike trade were truly a significant stimulus, there should have been a marked decline in the city's growth after the gold rushes had reached their climax. While this argument may seem logical at first glance, it ignores the possibility that the economic stimulus generated by Seattle's domination over the Yukon market could provide secondary stimuli that would continue to spur economic growth for the city beyond the initial gold rush-induced boom (Mighetto and Montgomery 2002), some of which are listed above.

Tacoma's growth nearly stagnated in comparison to Seattle's during this period, indicated by the Tacoma growing by a mere 1,708 residents compared to Seattle's 37,834 person population boom. If regional economic growth is seen through the lens of central place theory, as a zero-sum scenario between competing urban centers, then part of Seattle's massive growth was directly related to Tacoma's stagnation. Had Tacoma been able to corner the market on the Klondike stampede, Seattle may have been the city to experience economic malaise through

this period, being demoted to a secondary status as a regional urban hub. Sale's argument does not take this competitive factor into account. His analysis also fails to make the link between Seattle's development of extra-regional trade networks during the Klondike stampede and its later rise as a hub of international trade and commerce, as Abbott (1992) asserts. To ignore this continuum, though it is separated by over 50 years, is to fail to grasp the dynamic of Seattle's rise as a network city.

The stimulating effects of the Yukon Gold Rush did have their limits for the Queen City, and the events in the Klondike were not the only factor in the city's development at the time. In fact, Seattle was not the only city on the West Coast, or within the Pacific Northwest, to experience a boom during the Klondike Gold Rush. MacDonald (1968) explains that Portland and Vancouver, neither of which challenged Seattle's dominance over the Yukon trade, both experienced higher population growth rates than the Queen City³². He also offers that cities with minimal to no connection with the Klondike trade also grew, using Spokane and Los Angeles as examples. So, while the Klondike trade was an important factor in Seattle's rise to dominance on the sound, the factors for Seattle's growth put forth by Sale (1976) are also important to understanding the complex dynamics of the late 1890s between the development of Tacoma and Seattle.

³² Portland had a 95% increase in population, while Vancouver's increase was 97%. This was compared to Seattle's 88% population increase.

After the Boom

Though Seattle's growth was not as rapid after 1910, the war economy of 1914-1918 would soon create a massive industrial stimulus for Seattle and the entire Pacific Northwest. Robbins and Barber (2011) note that the city's manufacturing workforce expanded more than threefold, from 12,429 in 1914 to 40,843 in 1919. The demand for lumber and agricultural goods increased, prompting Seattle and its hinterlands to ramp up production of the needed products. Buoyed by government subsidies, shipbuilding was the city's largest industry at the time with 30,000 workers employed at the shipyards. According to Quiett (1965), while the Suez Canal was closed during the war, international trade was forced along routes directed to the Pacific. In this period the Port of Seattle's level of commerce would grow to be the second largest in the U.S., after New York City's port. When the war concluded, however, the entire Northwest would fall into an economic depression. A large number of factories and shipyards along the Duwamish and Elliot Bay went out of business following the end of the war (Klinge 2007). Roger Sale (1976) asserts that the wartime boom did not diversify Seattle's economy, but actually saw it rigidify and fall back on the extractive industries that buoyed the city's growth in the previous period. The combination of high consumer prices, and a battle over wages in the shipping industry, led to a strike in the Seattle and Tacoma shipyards, culminating into the Seattle General Strike in February of 1919 (O'Connor 2009).

In the early part of the U.S.'s involvement in the war, the railroads had difficulty keeping up with the demands of the wartime economy. Schwantes and Ronda (2008) note that in the fall of 1917, the rail companies were not successful at matching their available freight cars to the needs of the shippers. In November of 1917 there was an estimated 158,000 freight car shortfall, illustrating that the rail companies could not meet the expectations put to them. President Wilson placed the railroads under federal control in December to alleviate the situation. Though they were more effectively run under federal control, the railroads did not fare well with regard to profitability. In particular, operating costs for the Great Northern increased while passenger and freight rates were not regularly raised (Hidy et al 1988). This discrepancy caused GN profits to sink to less than half of the 1915-1917 yearly average. The railroad companies would have to wait until 1920 for the railways to be returned to private control.

The Decline of Rail

While rail experienced its heyday in the late 1800s and early 1900s, around the early 1920s railroads were starting to lose their centrality in shaping urban and rural development patterns. Schwantes and Ronda write:

By the 1920s, automobiles had become a serious competitive threat to passenger trains. By the end of the 1920s, far more vacationers traveled by car than by train, and that never changed (2003, 140).

Lewis and Miller (1923) add two competitive factors that had a detrimental effect on U.S. railroads in the Northwest. The first of these is competition from the Canadian Pacific Rail, which by the early 1920s was able to offer lower rates than

railroads in the United States. The second (and decisive) factor was the opening of the Panama Canal in 1914. The canal renewed competition between east-west maritime trade and the transcontinental rail rates, lowering shipping rates to coastal termini³³. As a result of these variables, a noticeable decline in rail construction occurred in the late 1910s and this was followed by a retrenchment in rail lines (Jones 1980). It is also important to note that by 1900, most of the urban centers of the U.S. were connected by rail, so it is highly doubtful that any further expansion of the rail network would yield significant returns. Jones (1980) reveals that between 1900 and 1913 there was but one year where rail development fell below 3,000 miles. By 1918 the mileage of track laid declined to 721, followed by outputs that were slightly over 300 miles for the early 1920s. In the decade to follow, close to 15,000 miles of track were decommissioned and ripped out, primarily in the western states. As the U.S. switched to automobile and air transportation, this trend continued.

The 1920s to the 1990s

From the 1920s onward, Seattle's railroad network served a less significant role in shaping the city's fortunes. The early development of a national highway system and, somewhat later, a transcontinental air passenger service would alter the patterns of urban growth as well as economic relations (Meinig 2004). Seattle would endure two difficult decades of economic stagnation, only to experience a

³³ The result of this competition was actually a positive development for coastal jobbers, as inland shipping rates were higher than those to coastal destinations. This differential was so pronounced that it was oftentimes less expensive to ship eastern goods to western ports, and then ship them back east to the interior mountain states. Coastal jobbers took advantage of this differential to wholesale to the inland states.

boom from the government demand for aircraft in WWII, making Boeing the city's number one industrial employer (Sale 1976). The Queen City would make a set of key decisions in the public sector, during 1950s and 1960s, that would serve to expand its international trade connections and lead it to economic growth and diversification (Abbott 1992). These include the expansion of the University of Washington, upgrades of their port facilities for containerization³⁴, and the development of Seattle's airport into a hub for international travel. By the 1980s, Seattle was poised to host a booming high tech sector and an unchallenged position as the dominant hub of commerce and trade in the Pacific Northwest.

Modern Seattle

In the last 25 years, high-tech service industries (e.g., computers systems design, software publishing, and engineering) have gradually outstripped manufacturing-based high-tech employment (e.g., aerospace) in Seattle (Beyer 2011). The Microsoft Corporation is the best known company in this sector, but the city is host to a large collection of smaller firms as well. E-commerce (such as Amazon.com) and biotech (Dendreon) also have developed a notable presence in the city in the last two decades. The international connections that Seattle has developed throughout the 20th Century have been an important factor in attracting high-tech businesses to the area. These businesses, in turn, help to diversify the Queen City's economy beyond the extractive industries that it was known for a century ago.

³⁴ Containerization is the use of steel boxes, the size of railroad cars, for intermodal transportation (Moody 2007). These containers are unloaded from and loaded to trains and boats at ports with large cranes, as opposed to gangs of longshore workers.

Remarks

This paper has shown that the railroad played a crucial role in shaping Seattle's development into the dominant trading hub for the Klondike Gold Rush. Without its local rail network and the transcontinentals stretching across the Cascades, the Queen City would have been doomed to isolation in the very years when it began to expand its hinterland and trade networks. Seattle's rail network was responsible for connecting it to key areas based around the extractive industries and agricultural areas of the region. The pattern established by the rail network connected the city to critical points in its hinterland, strengthening the city's status as the regional supplier of manufactured goods. This was essential to the growth of the city's jobbers and wholesalers, who supplied Klondike prospectors with the necessary goods for the gold rush (MacDonald 1959). The Great Northern and the Northern Pacific railroads connected Seattle to eastern supply hubs in the lead up to the Klondike gold rushes. The competitive shipping and passenger rates offered by the transcontinentals brought miners and the products that they needed to test their luck in the Yukon Territory. Seattle was also shaped by four other factors that played a role in both the city's growth and trade relations as well as the specific pattern that the railroad network developed leading up to 1893. These factors included: Seattle's early start as a community, its central location on Puget Sound, its strong maritime trade network, and its proximity to large coal deposits. The growth that Seattle achieved during the glory years of rail transit laid the groundwork for the city's later transformation into the dominant U.S. port in the Northwest. Once Seattle could extend its hinterland to Alaska, it was well-poised

for future expansion. By the 1950s Seattle had undergone the necessary stages of growth and trade network development to effectively launch itself into the role as the preeminent U.S. port in the Pacific Northwest.

The role of the railroads in Seattle's development provides rich explanatory material for understanding how transportation can affect the development of urban patterns in a region. This research has provided a new viewpoint on the factors primacy on the development of the railroad network in establishing the city as the principal outfitter of the Klondike Gold Rush. The history of Seattle's economic development alongside the expansion of rail transportation can also present helpful parallels to research of modern transportation networks and their respective urban fabric. Of course, modern transit is very different from the railroads and locomotives of the time period discussed to draw any direct comparisons. However, the basic concepts of how new forms of faster and more efficient transportation technology shape the world can serve as guidepost for understanding changes in urban patterns.

A study of the urban morphology of Seattle during the Rail Age is a possible avenue for further research. While substantial research has already been focused on the morphology of Seattle's physical environment (Carlson 1950; Klinge 2005; Klinge 2006), a study of the built environment could contribute valuable insight into the city's history. Events in the city's early industrial history would be particularly interesting to study, such as the development of the city's downtown after the Seattle Fire of 1889, the establishment of Railroad Avenue as the main rail

thoroughfare (and the ensuing battle over right-of-ways between the railroad companies), as well as the suburban development patterns resulting from local rail creation.

Another possibility for further research would be a regional comparison between the resource-led growth in California and the Pacific Northwest. In his study of California's early development, Richard Walker (2001) explains that the state was able to rely on the exploitation of natural resources up until the mid-20th Century, while continuing to generate steady growth. Roger Sale (1976) notes that after World War I, Seattle could no longer rely on its natural advantage (that of being in the center of a resource-rich region) to continue to generate growth. He argues that in order to continue to generate growth, Seattle would have to diversify its economy. Was Seattle's situation capable of being generalized to a regional phenomenon? If so, what made it possible for California to generate growth through resource extraction, while the Pacific Northwest languished at times? One possible difference is the relative value of each region's resources. Where coal and lumber eventually became relatively low-value resources, California was able to tap into the high-value output of its rich oilfields.

Though the railroads' heyday has long since passed, media establishments and journalists from the *New York Times'* Paul Krugman (2013, 23 July) to the *Wall Street Journal* are declaring a "revival of the Railroad Age" (Morris 2013, 26 March). With \$14 billion in infrastructure investment in 2013 alone, rail transport may prove to be competitive in an age of high fuel prices and freeway congestion. It

remains to be seen whether the railroad is truly on the ascendant and semi-trailer truck is becoming an object of the past. However, this development, if it does come to fruition, could have significant consequences for the future of Seattle and the urban fabric around Puget Sound.

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