NON-FEDERAL IRRIGATION DEVELOPMENT IN THE YAKIMA RIVER BASIN PRIOR TO 1905

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INTRODUCTION

Irrigated agriculture in the Yakima River Basin is now so well established, so extensive, and has been in place for such a long period of time, that it is largely taken for granted. Extensive orchards produce apples, pears, cherries, peaches, and other fruit that is marketed around the world. Timothy hay is fed to Japanese dairy cows and race horses. Vineyards produce Concord grapes for national juice companies. The number of dairies is increasing, attracting new milk processing plants. Intermingled in the more noticeable crops are farms that produce a wide variety of vegetables, from corn to pumpkins, from asparagus to potatoes. The combination of rich soil, mild climate, and irrigation water provides the basis for the commercial production of over 70 crops, literally everything from apples to zucchini.

Most residents of the area know at least some of the dry statistics: Annual agricultural production in the Yakima Basin is

valued at over one-half billion dollars. The Yakima Basin is ranked at or near the top nationally in the production of apples, pears, cherries, hops, spearmint, and several other crops. But the statistics are not nearly as impressive as the carpet of apple blossoms across the valley in late April, or the visual banquet and pleasant aromas of the harvest season.

No one can deny that irrigation has transformed the Yakima Basin into one of the most agriculturally productive areas in the United States. But this transformation did not happen instantly, nor did it occur in isolation, unconnected to irrigation development throughout the western United States. And although many people are familiar with irrigation development after the Bureau of Reclamation initiated activities in the Yakima Basin in 1905, few are conversant with the its origins and early development.

And yet, like the unfolding story of most resource development, we can not fully understand the current status of irrigation development in the Yakima Basin without an appreciation of this early period, when the potential for irrigation was first realized, and then proven in practice by early settlers and their families. This early period of development is fairly brief, beginning with the end of the Civil War in 1865 and ending with the onset of activities by the Bureau of Reclamation in the Yakima Basin in 1905.

At the beginning of this period, irrigation was limited to a few gardens, irrigated by hand-dug ditches that diverted water from near-by small streams. By the end of the period, over 125,000 acres were being irrigated, and major canals were delivering water to areas located many miles from their headgates. Yakima Basin fruit and produce had by then entered national and international channels of commerce. And much of the planning had been laid for the expanded irrigation system that the Bureau of Reclamation was soon to commence constructing. It was indeed a breath-taking 40 years.

During this 40-year time period, there is only one natural division point-the completion of the Northern Pacific Railroad between the Yakima Basin and Western Washington. This development opened large markets and provided the means to rapidly ship perishable farm produce to these markets. It is hardly possible to over-estimate the impact that the railroad had on irrigation development in the basin.

BASIN DESCRIPTION

The Yakima Basin is located in south-central Washington and has an area of just over 6,100 square miles. The basin is bordered on the west by the crest of the Cascade Mountains, on the north by the Wenatchee Mountains, on the east by the Columbia River drainage,

and on the south by the Simcoe Mountains and the Horse Heaven Hills.

The major river in the Yakima Basin is the Yakima River, which originates near Snoqualmie Pass at the outlet of Keechelus Lake, at an elevation of 2,450 feet above mean sea level. It travels in a generally southeasterly direction for over 200 miles before contributing its flow to the Columbia River at Richland, Washington.

A number of larger streams drain portions of the basin before joining the Yakima River, including the Naches River, Cle Elum River, Kachess River, and Teanaway River. In addition, several smaller streams are important tributaries to the Yakima River, such as Taneum Creek, Manastash Creek, Wenas Creek, Ahtanum Creek, and Toppenish Creek.

The Yakima Basin is characterized by a number of valleys and east-west-tending anticlinal ridges. The valleys include the Kittitas Valley in the northern part of the basin, the Wenas Valley, the Naches Valley, the upper Yakima Valley, and the lower Yakima Valley. From north to south, the anticlinal ridges include Manastash, Umtanum, Yakima, and Ahtanum Ridges, as well as Rattlesnake Hills (7, p. 6). The Yakima River cuts through these ridges along the Ellensburg Canyon, Selah Gap, and Union Gap.

Precipitation is extremely uneven across the basin, ranging from approximately seven inches per year in the eastern portion of the basin, to over 140 inches per year along the western border near the crest of the Cascade Mountains (7, p. 5). Total runoff from the basin is approximately 3.5 million acre/feet per year.

While the valleys contain rich soil of volcanic origin, precipitation in these areas is insufficient to produce agricultural crops. In addition, the majority of precipitation both in the valleys and in the mountainous areas of the basin occurs between October and March, which is, of course, the non-growing season.

IRRIGATION DEVELOPMENT PRIOR TO THE ARRIVAL OF THE RAILROAD

Irrigation in the Yakima Basin did not commence in isolation, separate from settlement activities in the region. By the early 1860's, immigration into portions of the Pacific Northwest, such as the Willamette Valley and Puget Sound, had been underway for over 20 years. Yet the interior of Washington Territory had generated little interest with respect to permanent settlement, due to more attractive destinations elsewhere, the perception that the interior was a "desert", relatively poor transportation routs, and the continuing threat of hostile action by local Indian Tribes.

But by the beginning of the Civil War, development activity in the interior of Washington Territory began to increase, prompted by the cessation of hostilities with the Yakima Indians and the establishment of the Yakima Indian Reservation, and the lure of growing markets for beef, first in the Okanogan mining district of British Columbia, and then across the Cascade Mountains in Puget Sound (1, p. 13). Cattle ranching, supported by the abundant supply of bunch grass in many parts of the Yakima Basin, was the first wide-spread agricultural activity in the Yakima Basin.

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the result of overstocking of the range and subsequent lowering of the carrying capacity, large loses of cattle due to severe winters, and the gradual encroachment of homesteaders on the range (1, p. 14).

But even as cattle production enjoyed its moment in the sun, water was being diverted to provide fresh vegetables and produce for winter use. Small, primitive ditches, formed by shovel and hoe, guided water from small streams to waiting seeds. Cattle ranchers, and their families, benefitted from the bountiful harvest of these gardens.

Kamiakin is generally credited with the first irrigation in the Yakima Basin, diverting water from Ahtanum Creek to irrigate his garden beginning in 1853 (4, p. 352). Although there were probably earlier instances of non-Indian irrigation of small garden plots, the first recorded irrigation diversion was by N. T. Goodwin, who in 1867 diverted water from the Naches River through a small ditch to his five acre wheat field. (Highsmith, p. 14, credits the beginning of this ditch to George Nelson.) The yield from this irrigated grain field was so remarkable that the following year, a group of farmers, including Goodwin, Stooloop, Vaughn, Mayberry, and Simmons, began work on the first cooperative ditch in the Yakima Basin This ditch was later enlarged and developed into the Union Canal (3, p. 67).

The record undoubtedly does not include all of the early attempts by settlers to irrigate gardens or small plots of grain or hay. Many of these small, single farm, diversions were developed along tributary streams, where irrigable land was located close to the stream (2, p. 18). Small scale, early irrigation occurred along Ahtanum Creek, Wenas Creek, Manastash Creek, and Taneum Creek (1, p. 15).

As the decade of the 1870's dawned, the Yakima Basin was on the brink of significant development. Meinig notes that:

> After several years of slow infiltration, settlement in the Yakima Valley had recently increased and begun to develop a focus. Ranchers were scattered through the whole axis of the main valley, but the principal concentration was along Ahtanum Creek and around the main water gap. At the latter point the first store was opened in 1869, a second was added the next year and, dignified with the name Yakima City, the site became the county seat...Almost nothing had been attempted in the way of agriculture as yet...(5, p. 252).

The first really significant irrigation diversion ditch was begun in 1871 and 1872 by Charles and Joseph Schanno and Sebastian Lauber. This ditch, completed in 1875, was eighteen feet wide at the bottom and 1.5 feet deep, and diverted water from the Naches River to the vicinity of old Yakima City, now Union Gap. If there were any lingering doubts about the feasibility of large-scale irrigation in the Yakima Basin, the Schanno Ditch appears to have put them to rest (1, p. 41).

Several other irrigation projects of note were undertaken during the 1870's. In 1872, as the Schanno brothers were making their own plans, Judge John Beck dug a ditch to divert water from the Yakima River to his property just north of what became North Yakima. William Lince constructed a ditch from Ahtanum Creek to his farm. In the vicinity of Prosser, J. M. Baxter and Mr. Lockwood constructed a small irrigation ditch on the south side of the Yakima River. And in another example of fairly substantial ditch construction, the Ahtanum and Wide Hollow Canal diverted water from Ahtanum Creek for ten miles in the direction of North Yakima (10, p. 41).

In the Kittitas Valley, 1872 also marked the advent of major irrigation diversions, with the start of the Manastash Canal, built by farmers to divert water from Manastash Creek. The following year, work commenced on the Taneum Ditch, which was placed in operation during 1874 and incorporated in 1879. This ditch diverted 90 cubic feet per second (cfs) and was over 7 miles in length (9, p. 22). (The construction of a ditch of this magnitude was a considerable accomplishment, when we remember that standard equipment was shovels and horse-drawn Fresnoes.)

Along with increasing acreage brought under irrigation, farmers were determining the practicability of growing various crops in the Yakima Basin. It was determined with the earliest irrigation that

hay, grain, pasture, and garden produce could be produced in abundance. But how about fruit? Today, it almost seems a foregone conclusion, as if mandated by destiny. But such is not the case; as with any human enterprise, someone had to try it.

In 1866, Alfred Hansen planted an orchard on bottom lands which began bearing when they were 9 years old, in 1875. Judge John Beck set out fifty apple trees and fifty peach trees near Yakima City in 1870. Other farmers were obviously doing the same, for by 1879 the fruit sold or consumed in the Yakima Valley was valued at $5,500, not a small sum at that time (3, p. 51).

Hops are another crop that has become very important for the Yakima Valley. The first plantings of hops occurred about 1877, and by 1879, over 57,000 pounds were produced (3, p. 45).

A review of some statistics clearly indicate the growth that had taken place in the Yakima Basin between 1870 and 1880. Non-Indian population in the Yakima Valley had increased from 410 in 1870 to 2,811 in 1880 (10, p. 42). But the statistics concerning agricultural production are more impressive. In 1880, in addition to the fruit and hops listed above, Yakima County produced 16,000 bushels of barley, 49,000 bushels of oats, and 72,000 bushels of wheat, along with 8,100 tons of alfalfa hay. There were 2,070 diary cows, which produced over 57,000 pounds of butter and 3,700

pounds of cheese. Cattle were still important, with over 21,000 going to market, but they were joined by almost 2,000 pigs and 5,000 sheep. Even laying hens were busy, producing over 12,000 dozens of eggs (3, pp. 116-120).

There were 226 farms in Yakima County, of which the vast majority, 201, contained between 100 and 500 acres. These 226 farms totaled over 48,000 acres, of which over 25,000 acres were irrigated (3, p. 121).

As the 1880's began, irrigation development in the Yakima Basin was clearly no longer an experiment, or confined to gardens and other small-scale enterprises. Apply water to the land in any of the valleys and you could grow almost any crop. As more settlers moved into the area, additional canals were dug and more land was placed under irrigation.

In 1880, the Konnewock Ditch was begun by a group of farmers from the Parker area, just below what is now Union Gap. Lands in the Moxee area were placed under irrigation 1884 by a ditch begun in 1880 by C. V. Fowler. The Moxee Ditch Company irrigated 4,000 acres in the Moxee Valley by a ditch they constructed during 1880-82. On the Naches River, the Naches-Cowiche Ditch, Hubbard Ditch, Wapatox Ditch, and Taylor Ditch were all constructed and placed in operation during the early 1880's (10, p. 41).

In the Kittitas Valley, the first large ditch was constructed to divert water from the Yakima River in 1885. This was the Ellensburg Town Ditch, which diverts water from the north side of the Yakima River several miles northwest of Ellensburg (9, p. 22).

Although new ditches were being constructed and additional lands placed under irrigation, by the middle of the 1880's two problems were apparent to those interested in expanding irrigation in the Yakima Basin: (1) Transportation of produce to markets outside the basin was expensive and not conducive to shipping highly perishable commodities. (2) Construction of larger canals required more capital than was locally available.

But before we hop the first freight through the Yakima Valley, it is appropriate to make another check on the extent of agriculture prior to the changes brought about by the parallel steel ribbons. In 1890, there were over 25,000 acres under irrigation in Kittitas County, and over 15,000 acres in Yakima County (6, p. 286).

Agricultural production in 1890 included 350,000 pounds of hops, 20,000 bushels of potatoes, and 16,000 tons of alfalfa hay. Fruit production included 10,000 bushels of apples, 3,000 bushels of peaches, and 1,100 bushels of plums and prunes. And the laying hens were busy producing 62,000 dozens of eggs (3, p. 118-120).

IRRIGATION DEVELOPMENT AFTER THE ARRIVAL OF THE RAILROAD

The construction of the rail line through the Yakima Valley by the Northern Pacific Railroad Company immediately and dramatically altered the ability of farmers to transport their produce to the large markets in Puget Sound and Portland. The rail line reached North Yakima in 1884, and service to Seattle commenced four years later, in 1888 (4, p. 338).

The problem of financing larger irrigation canals was never satisfactorily solved until the appearance of the Bureau of Reclamation in 1905 made available federal funding, although, here, too, the railroad played a pivotal role over the next 15 years.

The arrival of the railroad started a boom in the Yakima Valley. Vandemere states: "Consequently, the first boom, an all-Yakima explosion, which extended from 1885-1895, took place..." (10, p. 46).

Kuhler also took note of the expanding development:

> The agricultural development of the Yakima Valley increased with great rapidity from that time...The influx of population is noted by the fact that in 1884 North Yakima did not exist, but by 1890 it had a population of close to three thousand...(3, p. 32).

With the completion of the railroad across the Cascade Mountains, irrigation development in the Yakima Basin over the next 20 years

followed two basic paths. The first path is the one that existed before the railroad entered the basin; private corporations made up largely of farmers who wanted to bring water to their land.

Several major private canals were completed between 1890 and 1905. These include the Kennewick Ditch, which was built in 1892-1893, and delivered water from the Yakima River to the Kennewick area (4, p. 355).

In the Kittitas Valley, the West Side Canal was constructed in 1889, taking water from the south side of the Yakima River a few miles above Thorpe. In 1903, the largest private canal in the Kittitas Valley was completed, this being the Cascade Canal, which diverts water from the north side of the Yakima River several miles above the Ellensburg Town Canal (9, p. 23).

The second path that irrigation development took after completion of the rail line was that of large cooperate involvement, with financing provided largely by outside investors. An example of this is the Selah Valley Ditch, which was constructed in 1888 to divert water from the Naches River for irrigation in the Naches and Selah Valleys. This canal was financed by business interests from Tacoma (10, p. 45)

Other examples of outside financial backing for Yakima Basin

irrigation development include the Moxee Canal, completed in 1889, and the Congdon Canal, completed in 1894 (10, p. 46).

By 1890, plans (dreams?) to irrigate vast acreage in the Yakima Basin were being discussed in many offices, both in the basin and places like Seattle, Portland, and Minneapolis. Plans to irrigate large sections of the Kittitas Valley had been discussed in 1885 (9, p. 24). It was in the pursuit of these plans for large-scale irrigation in the Yakima Basin that irrigation development and the Northern Pacific Railroad become intertwined.

Given the nature of railroads, it might seem natural for them to become involved in irrigation development. A railroad was always trying to increase revenues. Irrigation development attracted settlers and their families, who now traveled to the area by railroad. Additional irrigation increased agricultural production, which was shipped to distant markets by rail. And the farmers had to be supplied with machinery and other goods, ~~which were~~ also transported by rail. It would seem a straight line relationship- more irrigation equaled increased business for the railroad.

And then there was the small matter of the hundreds of thousands of acres granted to the railroad along its route across Central Washington. What would they do with all that bunch grass?

But in spite of the apparent obvious advantages to the railroad of increased irrigation, railroads did not normally become directly involved in irrigation development. Pisani states:

> On rare occasions, railroads undertook irrigation projects on their own, as in the Yakima Valley...In 1890, the railroad's land department formed the Northern Pacific, Yakima and Kittitas Irrigation Company. Railroad officials intended to water the entire Yakima Valley by building a canal in Kittitas County, two canals in Yakima County, and an extensive system of natural and artificial reservoirs at the headwaters of the Yakima River in the Cascades (8, p. 86).

In 1889, Walter Granger formed the Yakima Canal and Land Company, with plans to build a canal 100 miles long. Within months, the Northern Pacific Railroad had gained controlling interest in the company, which was renamed the Northern Pacific and Yakima Irrigation Company, but this was shortly changed to the Northern Pacific, Yakima and Kittitas Irrigation Company (10, p 49).

The story of what became the Sunnyside Canal is too well known to need more than an outline here. Construction was started in 1890, and the first water was delivered in 1892. The canal was eight feet deep and thirty feet wide at the bottom. It was the largest irrigation water project in the Pacific Northwest. By 1902, the Northern Pacific Railroad had spent over $1 million on this irrigation project (8, p. 87).

Irrigation development, of course, needs people, and to help entice them to come to the Yakima Basin the railroad now took a direct

interest:

> Between 1890 and 1900 a more organized effort was made to induce settlers to move into the region and settle. This was largely in the hand of the Northern Pacific Railroad Company, the irrigation companies, and the North Yakima Commercial Club (3, p. 36).

Although the 1890's witnessed significant irrigation development in the Yakima Basin, it was also a troubled decade. The panic of 1893 forced a number of irrigation companies into receivership, including the Yakima Investment Company, which had assumed the interests of the Northern Pacific, Yakima, and Kittitas Irrigation Company. In 1900, the Washington Irrigation Company took over the assets of the Yakima Investment Company (3, p. 27).

A second problem that appeared on the scene during the 1890's was the adequacy of water. As more and more water was diverted from the various streams, the total flow of some streams was consumed, and disputes over water rights irrupted, not exactly a unique situation in the West. It was so bad that: "Under present conditions no man knows what his rights are..."(11, p. 20).

Indeed, the courts did begin to determine water rights to water on a number of tributary streams, and by 1904 decrees had been issued for several creeks, including Wenas, Nanem, Manastash, Swauk, Coleman, Wilson and Ahtanum Creeks (11, p. 7).

Besides the question of water rights for those farmers who were already diverting water, claims had been filed by 1900 for far more water than could be supplied by the entire Yakima Basin: "The total filings in Yakima and Kittitas Counties aggregate many times the flood capacities of the streams (11, p. 22). This situation, naturally, resulted in the growing demand for the construction of storage reservoirs, which had been proposed since at least the mid-1880's.

The situation in the Yakima Basin with respect to water rights and the need for water storage also played a not insignificant part in the movement for federal reclamation legislation.

Despite these problems, the decade of the 1890's had been a decade of amazing growth in irrigation development in the Yakima Basin. Over 125,000 acres were now being irrigated in the Yakima Basin and agricultural production was now beyond the wildest dreams of only 10 years before. Even the dry numbers are impressive: 57,000 bushels of apples, 2,000 bushels of cherries, 14,000 bushels of peaches, 10,000 bushels of pears, 41,000 bushels of plums and prunes, and 195,000 pounds of grapes. Other crop production included 105,000 pounds of honey, 3 million pounds of hops, 225,000 bushels of potatoes, and 83,000 tons of hay. And, yes, the laying hens were very busy, producing 299,000 dozens of eggs (3, p. 118-120). Clearly, the ability to transport produce to large markets

had stimulated substantial, one could almost say massive, expansive of irrigation in the Yakima Basin.

CONCLUSION

By 1905, private irrigation development in the Yakima Basin had reached the limits of what private interests could accomplish. By the summer of that year, the entire flow of the Yakima River had been diverted. Without the development of storage reservoirs, additional lands could not be supplied with a reliable supply of irrigation water. However, the construction of such facilities was clearly beyond the ability of private companies to finance.

In addition, the question ~~of~~ water rights presented a jumble of competing claims ~~which~~ in total far exceeded the amount of water available in the Yakima Basin. If these had to be sorted out by the courts, it would take decades, and irrigation development would probably be brought to a halt.

This is the stage that the Bureau of Reclamation confidently entered in 1905. It is not an accident that the first actions taken by the BOR was to obtain Limiting Agreements from the existing diverters and to begin the design of storage reservoirs. These two actions were crucial to further irrigation development in the Yakima Basin.

During the 40-year period from 1865 to 1905, the Yakima Basin had been transformed from a by-passed region to a thriving center of agricultural production. Bunch grass had been replaced by apple orchards and hay fields. Farm houses were sprinkled over the entire basin, from the small tributaries such as Ahtanum and Wenas Creeks to the broad lower Yakima Valley. The stage had been set for the large expansion that would shortly take place under federal sponsorship. This was the basic legacy of private irrigation development in the Yakima Basin.

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