

THE FLOOD OF NOVEMBER 1906

Chapter Two

The Price of Taming a River: The Decline of Puget Sound's Duwamish/Green Waterway

Mike Sato

Mountaineer Press, 1997

Copyright: Mike Sato

No part of this chapter may be reproduced in any form, or by any electronic, mechanical, or other means, without permission in writing from the author.

NINETY-ONE YEARS AGO, unseasonably warm southwesterly winds brought heavy rains to Northwest Washington in November.

For the first two weeks, over six inches fell in the hills and high mountains between Mount Rainier and Seattle. The Chinook winds gusted to 40 miles per hour, and snow that had fallen in late October melted in the mountains under temperatures reaching the high 50s.

By dusk on November 13, 1906, the barometer had dropped nearly half an inch, bringing 35-mile-an-hour winds and two and a half inches of rain in 24 hours.

"We have had heavier rainfall in a 12-day period during November," remarked U.S. Weather Observer G.N. Salisbury after the rivers began to flood, "but never so heavy at this particular period."

"The velocity of the wind has much to do with the rapidity with which snow can be melted," said Salisbury. "This month has seen 40 percent more wind than normal. The temperature of 57 degrees is almost unprecedented for this time of year. All the conditions this month have been conducive of excessively high water."

And excessively high water it was.

The Green River's headwaters are in the Snoqualmie National Forest at Green Pass, elevation 4,300 feet, in the morning shade of Blowout Mountain. Waters draining to the east of the pass begin a long journey to the Columbia River and flow into the Pacific Ocean at Astoria. To the west, the journey is shorter: waters flow down the Green River to reach Puget Sound as the Duwamish River.

The Green River at its headwaters is fed by rain, runoff, and snowmelt from Tacoma, Pioneer, Twin Camp, Sawmill, and Sunday Creeks and picks up speed as it drops for 13 miles westward through a narrow gorge of bedrock and boulders. Emerging from the gorge, the river is joined by Newaukum Creek, draining the Enumclaw Plateau, and Big Soos Creek, draining the Black Diamond to Kent Plateau before hitting the valley floor at the city of Auburn. Once in the valley, the river

follows a gentle meander northward for 20 miles along a fertile alluvial plain. Reaching the south edge of the city of Seattle, the Green River becomes the Duwamish River, and its waters flow another 12 miles to empty into Elliott Bay and Puget Sound.

Ninety-one years ago, the Green River ran free at its headwaters and Elliott Bay received the drainage from over 1,400 square miles extending north from Mount Rainier to south of Everett. Water from the Cedar River, Lake Sammamish, and Lake Washington watersheds found its way to Puget Sound through the Black River, which flowed into the Green River near Tukwila. To the south, drainage from the northeast slope of Mount Rainier flowed into the White River, which joined forces with the Green River at Auburn, and flowed north to Puget Sound.

The prevailing southwest winds bring clouds that drop 75 percent of the area's yearly precipitation from October through April, most of it in the form of snow at the higher reaches of the Cascades. Near the Green River's headwaters at Lester, snowfall averages about 80 inches and at the higher elevations has topped 500 inches, compared to the lowland average of about 7 inches a year. In the valley, about 30 inches of rain falls in a year.

The combination of heavy rains and melting snow swells the rivers that flow to the valley floor. From each square mile of the watershed, about 40 cubic feet per second of river water flows. At flood, 7,000 cubic feet per second of water rushes down the Cedar River, much of it absorbed and stored by Lake Washington. But the Cedar River's flood strength is paltry compared to the 15,000 cubic feet per second of water rushing down the Green River before it reaches Auburn, and the White River's rate of 20,000 cubic feet per second.

The valley floor from Kent north to where the river valley narrows before reaching Puget Sound is the lowest point in the drainage basin. On that November day in 1906, waters rising from north of Mount Rainier to south of Everett rushed to widen the river at the lowest point on the valley floor to a two-mile wide torrent 24 feet deep in places.

The water cut off transportation along the Interurban rail line that ran south from Seattle and Renton to Auburn. Telegraph lines were drowned. Logs and driftwood rammed into bridges, threatening to sweep them away. They jammed at the dike built at Neely's Cut northwest of Kent, and when they were dynamited, the mass swirled downstream with a roar.

"All houses in the valley at Riverton, Garden Station, Foster, Renton Junction, Orillia, O'Brien, and Kent are surrounded by water," observed reporter Robert Kelsey in the *Seattle Post-Intelligencer*. People fled to higher ground; cows were left stranded on little islands in the middle of rising waters.

"The valley has lost all aspects of one of the richest farming districts in the state and is as a huge river, with two narrow threads through waste of waters, the Northern Pacific and Interurban railway lines," he mourned.

Two miles south of Kent, the small town of Thomas disappeared completely under water.

By midnight, the rain was falling even harder.

“The flood was too unexpected to give us a chance to take precautions,” explained Board of County Commissioners Chairman Charles Baker. “It is now impossible to do anything in the present condition of the valley.”

The river overflowed at Auburn and turned Main Street into a small river. Low-lying homes like the Hemphill’s house on the north side of town were flooded and Indian Mary’s house was swept away. But Auburn was relatively undamaged, and farmers from the upper valley to the east began arriving in town seeking safety. Parts of the upper valley were more than 10 feet under water, and the raging floodwaters swept heavy log booms and driftwood downstream, destroying bridges, and cutting off roads. At Bloomquist Logging Camp, two loggers drowned while working to save a raft of logs.

Auburn was safe for now, but a mile and a half upstream from where the White River joined forces with the Green River, 3 million board feet of logs and driftwood had formed a barrier blocking the north main channel of the White. As the White River’s rush of water and debris slammed into the drift jam, it began overflowing and spreading out, spilling into its south channel, the Stuck River.

When the White River was flowing in its main channel, it wound around the high gravel bluff formed by the Osceola mudflow that marked the western edge of the Muckleshoot Indian Reservation. The White split into two channels flowing north along the Interurban rail line through Auburn and then became one channel again near the cemetery and joined the Green River at 15th Street. When overflowing south into the Stuck River, the White River’s water continued south to empty into the Puyallup River and onto the tideflats of Tacoma’s Commencement Bay,

Which way the White River flowed had been an old argument among neighbors. For 20 years, King County and Pierce County settlers, sometimes armed with shotguns and dynamite, had changed the channels of the White River back and forth to reduce their flood damage at the expense of the other. Pierce County farmers had accused King County of dynamiting the gravel bluff on the Muckleshoot Indian Reservation and changing the course of the river southward with a massive landslide.

King County in 1900 had attempted to make the flow of the White River into the Puyallup River drainage permanent by erecting an embankment barrier; Pierce County sued and won an injunction against King County. Later, some King County farmers extended an olive branch to their neighbors to the south and proposed equally dividing the flow of the White River north and south.

King County, however, on that November day in 1906, got rid of the White River for good. Seeking a new channel around the drift jam, the White River cut

through a narrow strip of land separating it from the Stuck River and threw its 20,000 cubic feet per second flood flow down the Stuck River Valley into the Puyallup River, flooding the valley to Tacoma with a force of 33,600 cubic feet per second.

The Puyallup was clocked at slowing 12 miles per hour, overflowing its banks and flooding its lower valley and the city of Tacoma under 6 feet of water. It carried driftwood, lumber, parts of houses, and household furniture out into Commencement Bay.

As the floodwaters receded by year's end, about 300 property owners and interested parties in the valley turned out for a flood meeting to discuss various plans for control of the river, "all without acrimony or hard words," reported the *Auburn Argus*. The group established a flood committee and commissioned Major Hiram Chittenden, U.S. Army Corps of Engineers, to study the flood problem and outline remedies.

The following May, the major made his report. First of all, the White River belonged to King County. There were 20 million cubic yards more river deposit on the river's northern flood plain than on its southern course. The Stuck River Valley was a low, swampy basin with no evidence of alluvial deposits from the White River, nor was there any evidence of a well-defined channel in the basin from the White River. There had been "a good deal of interference by citizens of both counties with natural conditions" of the river's course, leading to major erosion in 1898 of a high bluff on its north bank which slid into the river and shifted its course south. The river regained its former course northward "from natural and artificial causes" until the flood of 1906.

"Whether this last change would, if left alone, be permanent, is idle to speculate," the major said. "But the change itself is a most complete one and not a drop of water now flows down the old White River channel."

For the major, the White River, although naturally flowing to the Duwamish, was best left permanently flowing to Tacoma. The question for him was whether the entire White River should be carried down the Duwamish Valley or down the Puyallup Valley, or be divided so that approximately one-half would flow in each direction.

As an engineer, he saw a simple answer: "The distance to the sea by the Duwamish route is about 40 miles; that by the Puyallup is only 20 miles. The slope by the shorter route is much greater than by the longer and the same quantity of water can be carried in a smaller channel."

According to the major, the flooding caused by waters of the Black River that drained the Lake Washington and Cedar River basins would be eliminated after the Lake Washington locks and ship canal were built and the lake level was lowered. That 580-square mile drainage would be diverted entirely to Lake Washington and the channel of the Black River would be abandoned.

The major recommended levees or dikes as the cheapest and most effective way of keeping the river in the valley where it should be. Build the side slopes twice as wide as tall, plant them with a strong turflike Bermuda grass, and keep the banks bare. "All drift heaps and dense willow or other growth should be removed from the channel as to leave it free and open," he advised.

Establish a system of policing the river, he recommended, and every summer burn up drift heaps, cut up trees fallen into the river, and last large stumps so that the debris will flow down the river when the waters rise in the fall and winter.

With the Black River and the White Rivers diverted elsewhere, when dikes and levees in the valley were build and when the river channels were kept clear of vegetation and driftwood jams, the Duwamish River flood stage would only the 15,300 cubic feet per second flow of the Green River to carry.

In fact, the stretch of river from Auburn to Tukwila would no longer be called the White River but the Green River, and the valley of its meander would be the Green River Valley from Auburn north to the southern edge of Seattle's Duwamish River Valley.

As for the Duwamish, its dredging and rechanneling would begin in a few short years, and the silt from the river once deposited on its delta would move swiftly into the bay.

"The interference of man with these processes is wholly in the line of arresting overflow," the major proclaimed. "When this has been fully accomplished and all the sediment is forced out into tide water, delta extension will be accelerated and land building in the valley will cease altogether."

The Green River proved that the major was wrong. Giving the White River to Tacoma, sending Lake Washington and the Cedar River out through the Chittenden Locks in 1916, and starting the rechanneling of the Duwamish River in 1912 wasn't enough to tame the river. Almost every two years, the Green River, now reduced to draining only a 474-square-mile watershed, flooded the farmland and residences form Auburn to Kent to Orillia, Allentown, and South Park.

The floods of 1917, 1933, and 1946 were especially severe, with the water in 1933 putting Orillia and Renton under almost 10 feet of water. In all, 11,600 acres of valley farmland were flooded, and damage was estimated at \$1.75 million for 1933. In 1946, 12,000 acres were flooded at a loss of \$1.3 million.

Proposed solutions abounded. By the 1930s, the talk was definitely centered on building a reservoir to hold the winter storm waters of the Green River. Earlier, Seattle engineers had proposed and abandoned digging a canal from Kent to Lake Washington to divert the flow and floods of the Green River. A proposal to divert the winter flow of the Green River to the Cedar River unfortunately would make the Cedar River Valley a floodway. Constructing a two-mile tunnel from Kent to Puget Sound to drain the river and the valley was definitely too expensive. Building up the

levees farmers had placed north of Kent around the turn of the century and diking the rest of the valley to handle a flood like that of 1906 would require a channel and right-of-way 700 feet wide and dikes 20 feet high at a cost of \$24 million.

The most reasonable solution, then, was a reservoir created by a dam on the river, and its advocate for the next 25 years was Colonel Howard Hanson, King County chief civil deputy attorney and chairman of the Seattle Chamber of Commerce's Rivers and Harbors Subcommittee.

"Whether it be for a home, a city, or an expanded metropolitan area, there must be a site, a locale, suited to the purpose by nature or made so by man's efforts," wrote Hanson in the 1957 *Pacific Northwest Quarterly* article, "More Land For Industry."

With a dam built and the Duwamish waterway extended to Tukwila, Hanson believed that "Old Man River, from Elliott Bay to Auburn, will be under control and the entire valley available for its highest and best use."

The major vision and the colonel's perseverance were the driving forces that would tame the river to serve its people. And when it was tamed, the face of its waters, the land of its valleys, and the hearts of its people were changed in a way that the major and the colonel could scarcely have imagined.

-end-