



Logs decked, waiting to be transported to the mill. Fourth of July Canyon, circa 1918. Oscar Hand, "Bean Belly Thornton and Ray Stacel. Log-2-27

How Did They Get Those Logs Out of the Woods?

Excerpts from "A Cultural Resource Overview for the Colville and Idaho Panhandle National Forests and the Bureau of Land Management – Spokane and Coeur d'Alene Districts - Northeastern Washington/Northern Idaho," Volume 1, Cultural Resource Narrative compiled by Lorelea Hudson, Sharon Boswell, Caroline D. Carley, Wayne Choquette, Christian Miss, David H. Chance and Michael A. Stamper of Cultural Resource Consultants, Inc. Sandpoint, Idaho, Sept. 1981. The full document with references is on file at the Museum of North Idaho.

Acquisition of Timber Lands

Before the turn of the century, the use of lumber in northern Idaho and northeastern Washington was limited to domestic and mining needs. Fur traders,

missionaries, and early settlers built structures and fences. When placer camps were established, cabins were built on claims and buildings for commerce were constructed in towns. Mining operations used lumber for flumes, sluice boxes and rockets.

At the turn of the century, a shortage of good white pine in the Great Lakes states, sometimes resulting in the shutdown of mills, turned the attention of the logging industry to the west. The white pines of Idaho and the abundant growth of trees in the northern part of the state attracted loggers and lumber companies. A number of developments made the timberlands both attractive and accessible to individuals and logging companies.

Railroad lines were quickly opening up the west.



Ray Mooney skidding logs with a team of horses for Ohio Match Co., Coeur d'Alene National Forest, summer 1932. Log-3-13

Northern Pacific Railroad, connecting the west coast and Inland Empire with the eastern and mid-western markets, reached Spokane in 1881. During the early 1890s, Great Northern Railroad completed its trans-continental line that also crossed northern Idaho, and the Milwaukee Railroad was to follow in 1909. A number of local railroad lines further opened the area, including the Milwaukee's main line down the St. Joe and a branch line from St. Maries to Elk River. Corbin's narrow gauge to Wallace, Mullan and Burke in 1888,, and the Oregon Railroad and Navigation Company's line around the southern end of Lake Coeur d'Alene to Wallace in 1891 also improved accessibility to the area.

A number of markets for lumber were also expanding. Agriculture and fruit-growing industries required lumber for shipping, harvesting and storing products. Mining required vast amounts of timber and future railroad construction needed lumber in the for railroad ties.

Logging has been described as preeminently and fundamentally a problem of transportation, one of moving a bulky and heavy product from the stump to the mill for further conversion with the least possible financial outlay. Logging operations involving the problem of transportation are (1) skidding or the minor transportation involving the movement of logs from stumps to where they can be transported further by water, animal or rail and (2) log transportation involving the major transportation of hauling logs from skid ways, landings or log decks to their destination. Skidding or movement of logs involved such opera-

tions as hand-logging, horse-logging, steam donkeys and, later, tractors. Chutes often assisted in getting the logs to an area where they could be transported further by flumes, log drives, forest railroads and, later, trucks.

Horse-logging, chutes and river drives were often used in conjunction with one another early in the century and tractors with railroads or trucks were used later. The combination of methods of moving and transporting logs varied greatly with terrain, availability of timber and time period.

Animal-Logging

Animal-logging, the transportation of logs with animals without the use of vehicles was called snaking and was practiced in many parts of the country either "to take logs from stump to a skid way or to transport them for longer distances to a stream, railroad, chute, or other form of long-distance transport". Logs were taken over crude trails for short distances or skid roads for longer distances by teams of horses, mules or oxen. The number of animals depended on the weight of the timber handled and the condition and grade of the path. Skid roads built for animal snaking in the Northwest were carefully located, stumps removed, cuts and fills made and the roadbed leveled so that a desirable grade was secured. Skids, 10 feet long and 10 to 14 inches in diameter, were laid across the completed grade at 10-foot intervals and partially buried in the ground so the horses could step over them easily. By 1913, long-distance snaking was being replaced by road engines and railroads, largely because animal draft proved to be more expensive as a system of transport for distances of three-quarters of a mile or more. Animals were used to a limited extent at this time for short hauls or small operations.

Horses had replaced oxen in the Northwest by 1910, largely because they could haul logs faster. The use of horses persisted longer in the Inland Empire than elsewhere in the Northwest. They continued to be used for pulling logs, supplies, wagons, sleighs, go-devils and pole cars until the 1920s and 1930s. In the Coeur d'Alene country, horse logging was discontinued in the late 1930s, while in the Kaniksu National Forest, Diamond Match was the last to discontinue their horse teams during World War II.

Steam Donkeys

Another method of skidding was attaching cables to logs and hauling them by power of steam donkeys out of the woods onto landings for further transport. Steam donkeys were used sometime after 1880 when the first patent for a steam donkey was submitted to the U.S. patent agency. The advantages of the steam donkeys were greater power was concentrated in one place, freedom from the influence of ground condi-

tions and no loss of power hauling logs up adverse gradients.

In the Marble Creek area, steam donkeys were used along with horses until 1927 in order to haul logs up steep inclines.

Chutes

Chutes were often employed on the Pacific Coast at the terminus of a skid or pole road dumping the logs into a stream, pond or other body of water. They were used as an intermediate method of log transportation or as a connecting link between the skidding operation and some other form of major transportation. They were used in steep topography with small or medium-sized timber. Chutes were used only when no other means of transport was feasible for, even under the most favorable operating conditions, many logs were broken or damaged. Chutes were constructed in three different parts: the head, cross-skidded like a skid road; the chute proper; and the terminus or apron. The chute would often have side poles serving as fenders to keep the logs in the chute. The apron or terminus extended out over the water to prevent logs from striking bottom. Though chutes were costly to build and dangerous to use in the Inland Empire, an

annual average of 250 miles of chutes were built. As of 1936, tractors and trucks were replacing chutes. By 1940, no chutes were in use in the Coeur d'Alenes.

Tractors

By the middle of the twentieth century, tractors were used in the movement of logs to a point of transport. They were often used along with logging railroads in place of spurs or in the logging of scattered stands or pockets of timber where elaborate transport methods were not feasible.

Tractors were first made in the 1880s, and the first gasoline engine was used in 1905. During World War I, tractors had been used for transporting supplies and equipment to the front. They soon became popular in the woods, replacing animal power. As of 1936, thousands of tractors were used in forest operations. They had greater speed and power than animals and were able to log rougher terrain and steeper slopes, as well as skid larger, longer, and heavier timber and worked in extreme heat and cold.

Tractors were introduced into the Potlatch area as early as 1916, but did not become common until after 1930, when they were used along with horse logging.



Winton Logging camp on the Skookum Creek sale. In the foreground men are rolling logs into the chute. Horses were used to move the logs along. The flume on the right cost \$9,000. Coeur d'Alene National Forest, 1924. Log-1-10

Flumes and Sluices

Log and lumber flumes and log sluices were built to transport lumber, cross ties, shingle bolts, cordwood, pulpwood, mine timbers and saw logs from the forest to mills, railroads, or drive-able streams to carry products from the mill to market or to rail transport. Flume routes were located by engineers who specialized in logging work. One of two types of flumes, V-shaped flume or box flume, and sluice boxes were then constructed.

Logs were transported when water was released from ponds or branch flumes at the head of the main flume and from feed-

ers located at numerous points along the route. These feeders ran from the main stream or some of its branches. Logs were rolled in from skid ways, floated in from artificial storage ponds or elevated by log loaders. The use of ponds was the simplest and cheapest method as the use of a log loader was more expensive

Flumes were used to some extent in every forest region but were considered especially practical where stream transportation was not available and the topography rendered railroad construction too costly. In the Coeur d'Alene area, 150 miles of 35 flume projects required a quarter-million or more feet of lumber.

Advantages of log flumes over logging railroads in rough regions were: they could be carried across gulches on fairly light trestles, could be operated on steeper grades, occupied less space than a railroad by requiring smaller cuts and tunnels and could be located in canyons too narrow for railroads. Disadvantages were: transport of long and crooked logs was difficult, light construction rendered them subject to damage by windstorms, fires, floods, falling timber and other natural disasters, they usually offered no means of transporting supplies from the railroad to the mill or forest, and transporting lumber roughened the surface of planed material and battered the ends of boards.

Log Drives

Log drives were an important means of transporting timber for decades on a number of rivers in the Idaho Panhandle, including Priest, the Little North Fork of the Coeur d'Alene and St. Joe.

Logs were skidded and chuted to landings near flumes and driven into the rivers to join log jams which had accumulated through the winter. Log drive crews assembled during the first of April to guide, snake and blast the logs down river in the spring run-off.

Logs were transported on the rivers to various sorting gaps where individual logs were separated by sorters according to the company bark marks stamped on the side of each log. The logs from each company were sorted into bundles known as booms to be attached to steam tugboats and transported to company mills.

Horse logging and log drives often went hand in hand. Log drives continued in the Idaho Panhandle area from the early 1900s through World War II. The last log drive on the Little North Fork of the Coeur d'Alene River was in 1937. Log drives were sporadically used on the Priest River until the early 1960s.

Forest Railroads

Forest railroads were often used in connection with existing carriers such as flumes, chutes,

tractors and motor trucks. The introduction and increasing installation of large capacity sawmills necessitated a continuous large, reliable flow of logs daily. These conditions made the logging railroad the most important single medium of major transportation. This method of transport was especially adapted to long hauls and large tracts of land. The first railroads were crude pole roads eventually improving to narrow, then standard gauge steel rails.

Lumbermen used pole roads because the material for construction could be secured on the spot at no expense except for labor and stumpage. These roads were primitive in character and quickly became obsolete, except for an occasional small operation where sawed wooden rails or steel rails could not be secured at reasonable cost. Animals could be used as draft power, although on downgrades, the cars could descend by gravity under control of a brakeman. Pole roads were seldom built for distances greater than from 2 to 2.5 miles. On one Idaho pole tram 1.5 miles in length, two horses hauled from 7,500 to 9,500 feet of logs daily, each carload containing approximately 1,600 feet.

The successful use of steel-rail logging roads began in 1876, when a logger in southern Michigan, Scott Gerish, built a railroad for transporting logs from Lake George to the Muskegon River, down which they were driven to the mill. The number of logging railroads increased rapidly and, by 1881, there were 71 in operation in Michigan and five in Wisconsin. By 1880, there were two-dozen railroads along the west coast and, by 1910, there were approximately 2,000 logging railroads with about 30,000 miles of track in operation in the entire United States.



Burnt Cabin Creek. Heisler engine #1, circa 1920. Log-8-37

When logging railroads were built, they were merely substitutes for a precarious water supply and generally followed the paths of least resistance during construction creating some haphazard roads. Ideally, the location of the main line of a logging railroad was to be determined by an engineer. In rolling or rough country, especially in the West, location presented difficult problems because roads had to be confined chiefly to natural drainages. Often the only means of access to timber was over a route requiring heavy cuts and fills, and expensive bridge and trestle construction. The location of logging railroads in a rough region should be done by a location engineer who is an expert logger. Spur lines are located with less care than the main lines for they are shorter and of cheaper construction since they are meant to be used only for a short period and a limited amount of timber. They should follow natural drainage.

The earliest logging locomotives were wood burners. Labor to keep them supplied was costly, as four to five cords of wood were needed for less than 100 miles. Coal was sometimes available. By 1930, oil burners, consuming a barrel of oil an hour, had replaced other kinds of burners.

Railroad transportation demonstrated a number of advantages over other kinds of log transport: making large areas of timber accessible where streams for floating logs were lacking, and they were considered independent of climatic conditions so they could be operated throughout the year. Also, the use of railroad transport did not force the manufacturer to anticipate market conditions months ahead of time. Logs could be cut and hauled to the mill on short notice and special requirements for long timbers could readily be met. Furthermore, logs arrived clean and not damaged.

More than 20 logging railroad systems with 300 miles of track were built and used in the Coeur d'Alenes. Two especially ambitious railroad systems were the Burnt Cabin Railroad in the Burnt Cabin Creek area and Rutledge's Incline Railroad from Clarkia over the Elk Basin Divide into Upper Marble Creek.

Trucks

Railroad logging was expensive, often up to 40 percent of the cost of logging, and the Depression of the 1930s saw many operations fold. Trucks soon replaced the railroad as a cheaper means of transport. Furthermore, bulldozers arrived and chutes, flumes and forest railroads faded altogether as roads were built into logging areas for trucks.

The truck had been in the woods since 1913, and World War I had demonstrated its usefulness and stimulated the manufacture of more powerful models. Early log-



Logging trucks, circa 1930. Log-14-47

ging trucks with gasoline motors often required plank roads and some had to be hauled up and down hills due to lack of power or brakes. However, by 1930, diesel and gas trucks were hauling six percent of the logs reaching mills at a lower cost than railroads. The motor truck required a less expensive motor bed and a lower initial expense and could negotiate sharper curves and enter rougher country than a railroad.

Trucks were being used in the Coeur d'Alene forest areas as early as 1928. In other areas, such as the Little North Fork, they were absent until the 1940s. The first trucks with solid rubber tires hauled logs along pole and plank roads. In the 1930s, bulldozers came into use to construct roads and skid logs. Soon, major roads were built and trucks became the means of transporting logs.

Summary

Logging methods and techniques varied a great deal over time and throughout the area, depending largely on terrain, accessibility of timberland and size of logging operations. Chronologically, the general trend was a movement from the use of horses, steam donkeys, chutes and flumes with log drives. Railroads led toward the increasing mechanization of logging and the introduction of the tractor, bulldozer and truck. In many areas, use of horses, chutes and log drives persisted until the middle of the twentieth century. In other areas, the use of the railroad in logging took root immediately but, with the expense and difficulty of access, soon gave way to truck logging.

It is obvious that there is no absolutely concrete pattern that readily emerges as the method of logging used in all areas through time. According to historical documents, a number of combinations of methods could be used. Horse logging could coincide with railroad logging, flumes could be used for either movement or transport of logs, and steam donkeys could move logs for log drives and railroad transport.

From the Board President

Another season is knocking at our door, and it is time to close the museum exhibits but not stop the work that is accomplished year-round. Board meetings, planning meetings, archiving, book publishing, storage concerns, outreach programs, etc. take on our earnest attention. Our board is an active group which has chosen to meet monthly in order to provide the necessary attention to what is on the horizon.

Your support whether as an annual dues paying member (is yours up-to-date?), as a volunteer staffing the Museum store or working with collections, as a board member or as a consultant to name a few, is an intrinsic part of the Museum of North Idaho. THANK YOU!

The Museum of North Idaho Board of Trustees contracted with Jim Faucher, of Faucher Fundraising Consulting of Coeur d'Alene, to do a Feasibility Study. "The study was conducted to help determine the Museum of North Idaho's capacity to raise capital funds for the construction of a new museum building or remodel of an existing building, potential locations for the facility, evaluation of the community's willingness and ability to support a campaign, and a view of the image of the museum and staff. Results were acquired from personal interviews, meetings, research and other relevant materials. The process helped to clarify the campaign case, identified funding opportunities and potential campaign leaders and created the structure required to conduct a successful campaign."

As the board and staff develops plans for selecting a location for a new facility and expanding programming, we need your input.

*Connie McGee, President
Museum of North Idaho Board*

Serve on the Board

The Museum of North Idaho's nominating committee is seeking applicants to fill positions on its nine-member nonprofit Board. There is one immediate opening with four positions opening for the April election.

For more information please contact the Museum at 664-3448 or email dd@museumni.org for a packet. Interviews for potential board members will take place after the first of the year. Board members are elected by the membership in April.

Contribute to the Endowment

The Museum provides the public with the resources to understand and appreciate the area's rich cultural heritage. Understanding the past enhances community pride and enriches our lives.

A donation to the Museum's endowment fund is an investment in the future of our community. The interest provides operating funds that will ensure the future preservation of our heritage.

Continue the legacy by including the Museum in your giving and estate planning. The Museum is a nonprofit organization and donations are tax deductible. In Idaho, you can claim the credit for your contribution as an educational entity deduction. Please consult with your attorney or accountant for more information.

Donations to the endowment can be sent to the Museum of North Idaho, PO Box 812, CdA, ID 83816-0812.

Cash Donations

Frank Darlington for the endowment, building and operating funds.

Deidre Chadderdon for school field trips

John Sahlin

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Artifact Donations Since August

Leonard Brant: Book "Kootenai Indians of the Columbia Plateau" by Leonard Brant.

Anne Miles: Post cards.

Darleen Sheldon: Photos of the Richel farm near Worley.

Mary Swendig: Photo of Wardner, 1904.

Vernon Wagner: Photos of the Dudley family that settled in Dudley.

Linda Hackbarth: Book "Bayview and the Farragut Story" by Linda Hackbarth.

Maurice Johnson: Framed towel with a cartoon given as a wedding gift for Jessie and Selmar Molstead in the 1920s. A man in the Harrison area made these "towels". Does anyone remember his name?

Jim Shepperd: Coeur d'Alene Mill record books. Warren T. Shepperd was the treasurer of the mill.

Julia Armstrong and Nola Kotow: Julia Stacel diaries from 1937 to 1939 telling about life in Clarkia and French Gulch.

Frank Darlington: Two photos of the Coeur d'Alene Stud Mill.

Bonner County Historical Society: Lois Land-Albrecht scrapbook

Museum Store Manager Needed

Do you have experience in retail? Would you enjoy selecting and arranging merchandise to appeal to museum visitors? This volunteer position is seasonal from March to early November. The store opens April 1 and closes October 31. Time commitment ranges from a few hours a week to more if you want it to. Tasks include receiving, pricing and displaying merchandise, and maintaining the inventory.

We thank Kathy Arneson for managing the store since 2008.

Idaho: Wilderness to Statehood

Robert Singletary will present his last presentation this year on Nov. 12 at 7 pm at the Coeur d'Alene Library. The Museum of North Idaho and the Coeur d'Alene Public Library sponsored the series.

Early Map Presentation

Will Stettner, of the U.S. Geological Survey (USGS), will present "Early History of Map Engraving and Printing at the U.S. Geological Survey," Thursday Nov. 19, at 7:00 pm at the University of Idaho Harbor Center, Coeur d'Alene, in room 241. Admission is free.

The presentation will feature cop-

Memorials

- For Ellene Scott from Ray & Betty Capaul and Ralph Capaul
- For Roy Schenkenberger from Mel & Jackie Schmidt

All memorial donations go into the Endowment Fund. The endowment is important to the financial health of the Museum. Your help in building the endowment will ensure the Museum's future.

To make a memorial donation, use the form on the back of the newsletter.

per plate engravings that were used to reproduce USGS topographic maps. The engravings, acquired recently from the USGS by the University of Idaho Library, measure approximately 17 x 21 inches and weigh 12.5 pounds. Engraved by hand around the turn of the last century, they show the cultural features, elevation contours and water features of the Coeur d'Alene area. A map produced from the engravings was first published in 1903, based on survey work done in the years 1899 and 1901.

The Latah County Library district, Coeur d'Alene Library and Museum of North Idaho are collaborating with the University of Idaho to facilitate Stettner's presentations. Contact Bruce Godfrey (bgodfrey@uidaho.edu, 208-292-1407) for more information.

Chapel Update

All that is remaining to complete the restroom is for Steiners Quality Roofing to finish installing the wooden shingles.

It took some time to find historically appropriate wooden shingles to meet the Heritage Trust specifications. In 2016, we plan to replace the roof on the Chapel and want the buildings to match. The project will cost \$33,600. We have applied to the Idaho Heritage Trust for a portion of the funding. The Museum will match their funds with cash.

The Chapel Preservation Fund holds all income from and donations to the Chapel. It is used to support ongoing costs, preservation and maintenance. In 2011, the Ace Walden Estate made a substantial donation to the fund allowing us to do the work we are doing this year. To ensure the Chapel will be preserved for future generations, we need to grow the fund.



The final work is for Steiners Quality Roofing to finish the shingles and Crist and Sons to paint the columns. The porta potty to the left of the Chapel will be gone soon. Oct. 29, 2015

Please contribute to the Chapel Preservation Fund. You can also use the form on the back of this newsletter. For more information call 208-664-3448 or email: dd@museumni.org

Thanks To:

- Scott Cranston, Architect
- Crist and Sons Painting
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The Museum of North Idaho collects, preserves and interprets the history of the Coeur d'Alene Region to foster appreciation of the area's heritage.

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