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The Lombard Log Loader was a tracked vehicle for hauling logs and sleds on snow. It was steam powered and used a Shay engine.

Cutting trees in the woods

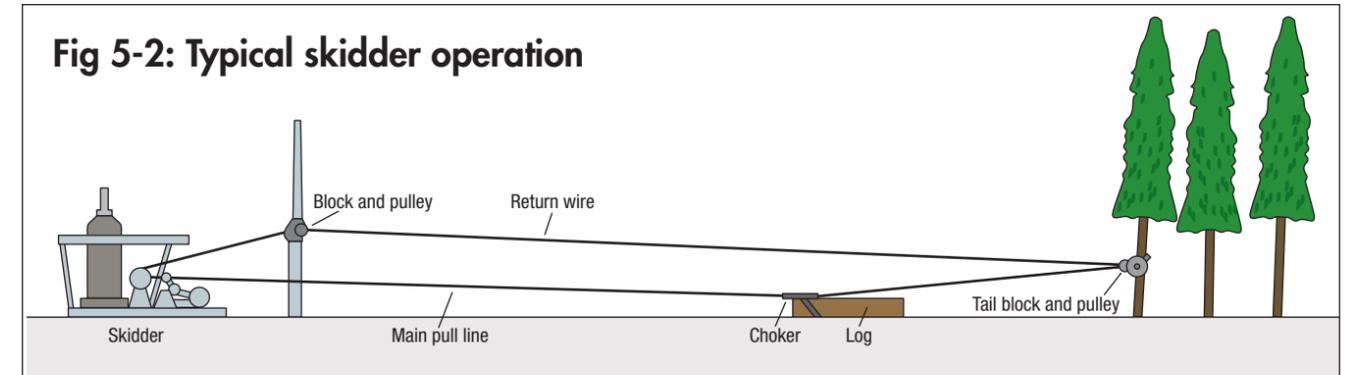
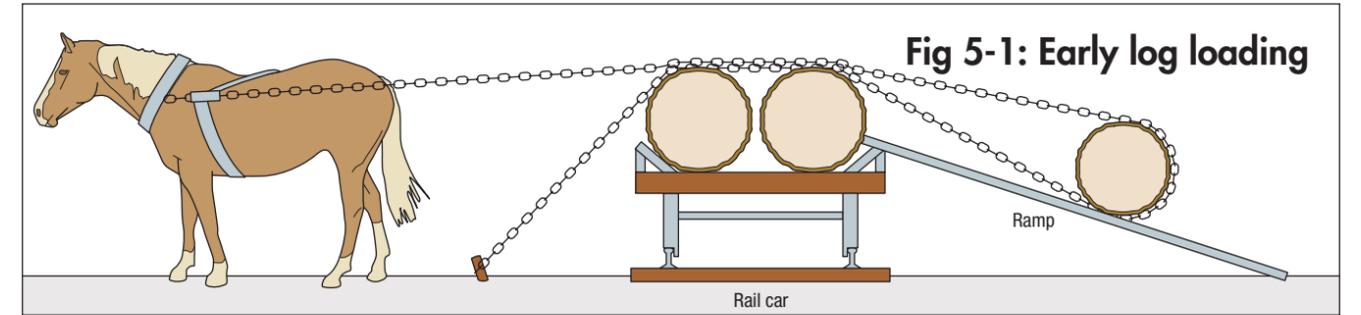
The first loggers in North America were here long before the Europeans arrived. Native Americans used the forest as a resource for building materials – the lodgepole pine was named because of its use in the structures of the Pacific Northwest. Harvesting techniques were simple – some trees were cut down with stone axes, but most were felled by controlled burning

around the base until it could be pulled over.

The arrival of Europeans in North America immediately changed forest harvesting. Early settlers first felled trees to clear land for farms and to build houses and furniture. The axe was the primary tool for 17th century colonists, but saws – double-handled almost from the start – quickly came into use. Trees were

felled close to where they were needed, with teams of horses or oxen moving them if needed.

The effort required to move a large log was enormous, and colonists who specialized in wood harvesting began using water to float logs whenever possible. In eastern Canada and New England, the use of water for transporting logs began well before the use of railroads. Many logs were cut in



the summer and not moved until winter when the snow pack, combined with sled runners placed under logs, allowed easier movement.

The use of horse, oxen, and mule teams in the woods began early. Loggers learned to trim branches and cut a bevel on the bottom side of the butt of the log to reduce drag as the log was dragged through the forest. Even so, few logs were moved more than a thousand yards from where

they were felled to where they were hand sawn into timber.

By the end of the 1700s, as the trees nearest the coast were harvested and replaced with farms and buildings, the solid timber industry moved inland. The use of water power for sawmills began in the early 1800s, with the use of an artificial pond upstream to provide a constant supply of water for the mill's waterwheel. This pond also proved to be an ideal place to keep logs. They could be

moved more easily than on land, and they wouldn't catch fire. With proper mill design, logs could be moved by mechanical power – provided by the water wheel – to the saw blade, which was also powered by the wheel.

With this step, the modern sawmill was born. What was missing was an efficient way to move logs to the pond. The railroad would provide that answer, but with it came the need for better ways to cut the timber



The skidder operator hauls back the line from the road donkey to the yarding donkey (left). The fir log eventually arrives at the yarding donkey (right). Two photos: Darius Kinsey, Library of Congress



The Hull-Oakes "wigwam" sawdust burner could be found at most Western sawmills through the mid-1900s. The conveyor carried sawdust to the burner from the vacuum blowers at the head rig. Steve Austin



Prior to 1900, teams of horses and oxen often pulled logs on iced sledways in the winter. This scene was photographed in Michigan around 1900. Library of Congress

and move it to the railroad.

A logging scene in the early 1800s would feature all animal power. Logs would be pulled by yoked teams of oxen, horses, or mules, with the forward end of each log beveled to provide a better shape for dragging. Beveling of logs continued as long as logs were pulled through the woods, even with giant steam donkeys and yarders.

The loggers in this early scene would all have double-bit axes (one edge used in the morning, the other in the afternoon) The loggers would also have double-handled saws, ropes, wooden block tackle for moving trees, and several wagons for moving their equipment. Living accommodations would be tents or very rough shelters with a cooking area. As time went on, accommodations improved but never lost their overall simplicity.

The loading operation usually



A team of 10 oxen skids a massive Douglas fir through a forest in Washington state around 1900. *Courtesy of the Weyerhaeuser Collection*

involved two teams of animals that pulled on parallel ropes running under the log, which was rolled up a ramp of several logs onto the log car (fig. 5-1). This method was used in all areas of

the country until the era of the steam skidder and spar tree or the self-contained McGiffert and Barnhardt loaders. For small operations, this method of rolling logs up ramps and onto rail-

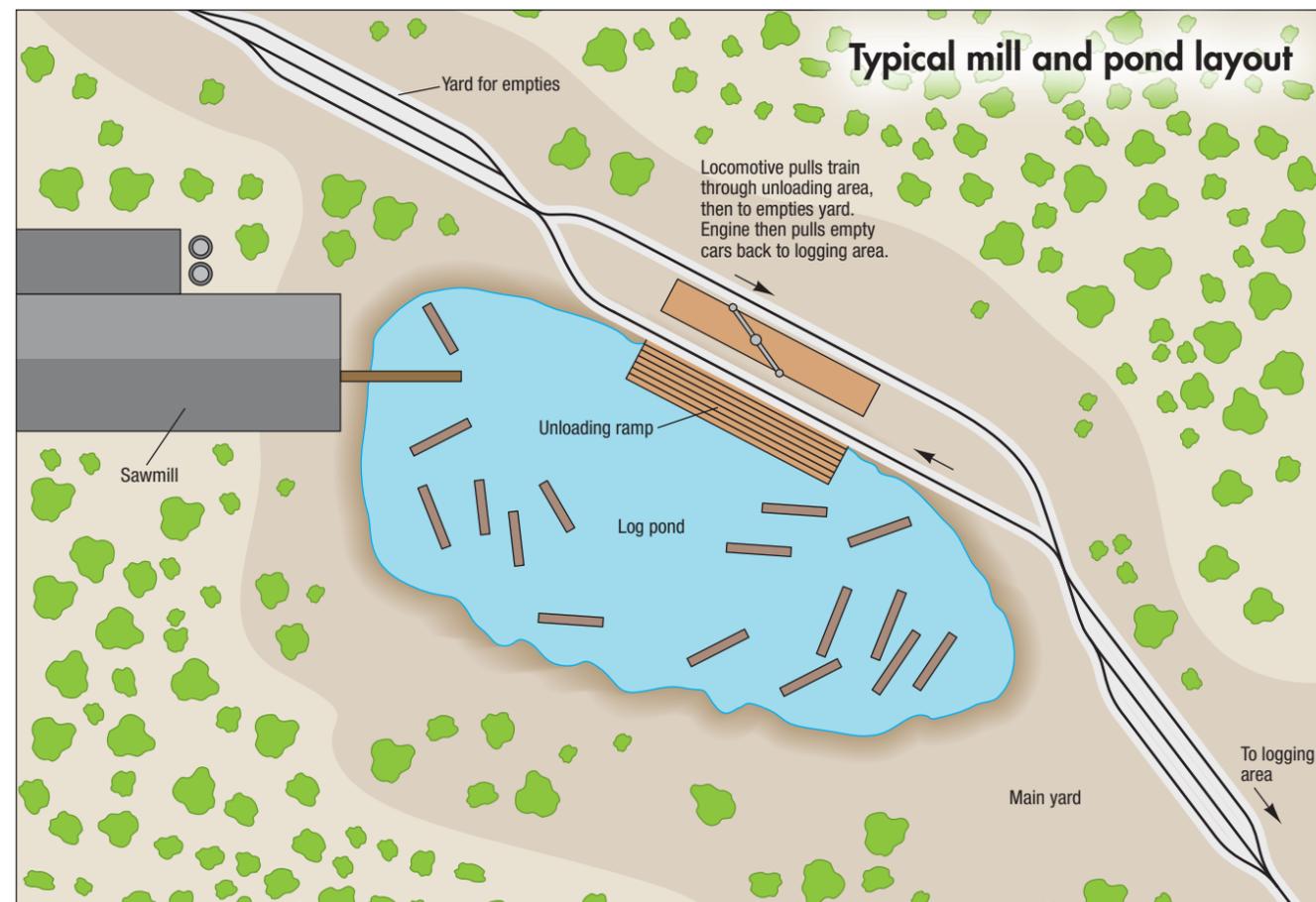
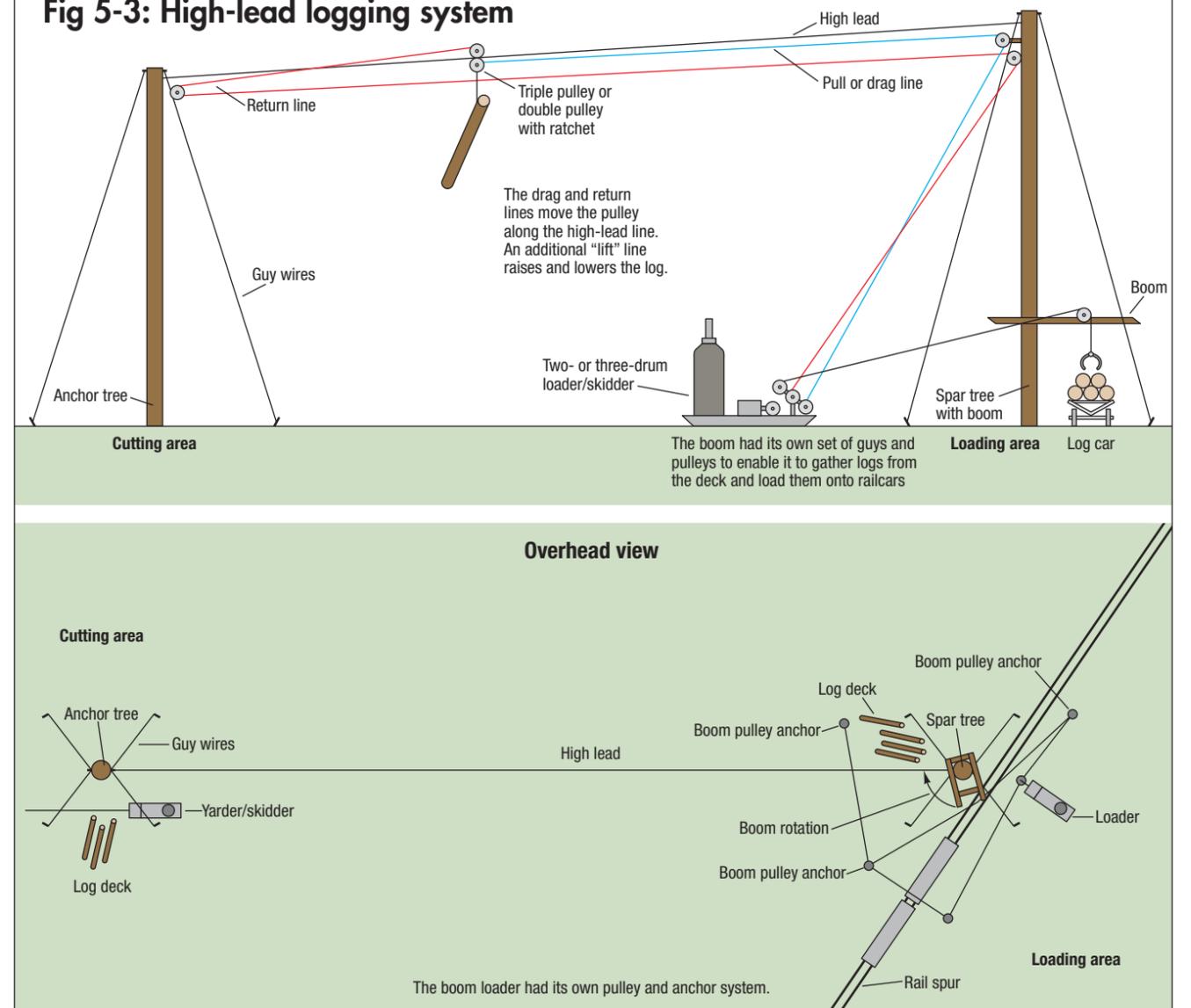


Fig 5-3: High-lead logging system



cars continued into the 1950s, albeit with a tractor or bulldozer instead of animals.

A late-1800s improvement to animal power were Michigan high wheels. These consisted of a large pair of wheels with a tongue for the draft animals and a heavy crossbar with a block for a wire rope or choker chain that would lift the lead end of a log off the ground. High wheels improved the ability of animal power to move heavy logs so well that they remained in service in many areas even after steam power came to the woods. Variations were used all over the United States.

By the late 19th century, the era of running logs down a river was over, but on the West Coast the movement of large rafts of logs via the sea was just beginning. This reached a peak in the 1920s and continued for some mills into the 1950s.

By the turn of the 20th century, most larger logging operations took advantage of steam power of some sort. The first of these steam-powered machines was the West Coast's famous Dolbeer Donkey. The Dolbeer and later varieties of steam donkeys were often referred to by their use, such as skidders, hoists, and yarders. In its most

basic form, a donkey comprised a vertical steam boiler powering a single-piston steam engine with a single-drum winch (all taken from merchant ship technology of the 1880s), all mounted on a substantial wooden skid.

At first, animals (horses, mules or oxen) were still used for local log moving and for loading logs onto railcars. Every single-drum winch used as a skidder required some method to get the choker (the loop of chain or cable that was put around the log to pull it) back to where the cut logs were waiting. Usually a horse or a mule was used (oxen were too slow) to