

THE INCREDIBLE TWO-SLED

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Beginning in the 1860's when the horse replaced the ox as the primary draft animal during the transition from the era of the white pine (*"the whale of the forest"*¹) through the reign of king Spruce, into the immediate post World War Two era, sleds were the primary means of moving veritable mountains of logs and pulpwood from the cuttings to landings. For over eight decades the heavy logging sled was as common in the north woods as beans and biscuits were to the lumberman's diet.



For over 80 years the "Two-Sled" rig was the primary means of hauling logs from the cuttings to the landings.

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By 1900, time and experience had refined the logging sleds used throughout New England, the Great lakes region and eastern Canada into an efficient design with but a few differing details to accommodate regional conditions and preferences – size, runner design, etc. Whatever those differences were, the basic design had to meet the following criteria: ease of hauling, maximize load capacity, and minimize unloaded weight while maintaining great strength and efficient in loading and unloading. To emphasize the reliance on sleds, as late as 1925, when tractors had made significant inroads into the

hauling of timber, it was estimated that 90% of the timber harvested in Northern New England was moved by sled.²



Loading a sled was a backbreaking and dangerous job. Corner chains bind the bottom outside logs to the bunk with deck chains holding the stakes firm against the load. One or two wrapper chains secure the upper logs to the lower logs - often using a spring-pole to tighten the chain.

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A typical logging operation used several different methods and styles of sleds. For instance "snaking" or "draying" was usually the first step in moving timber from the cutting. Snaking was simply using a horse or more common a team of horses to drag individual logs using skidding chains.

Drying used a single sled or "bob" consisting of two short runners connected by a bunk, with one end of the logs supported by the sled, and the other end dragging on the ground. A dray or yarding sled could be nothing more than a crude home-made affair. But it had to be light enough for the sled tender to easily

¹ Springer, John S. *"Forest Life and Forest Trees"*, New Hampshire Publishing Company, 1971, pp 35

² Koroleff, Alexander M. & Bryant, Ralph C. , Bulletin No. 13, Yale University, School of Forestry 1925, pp 43

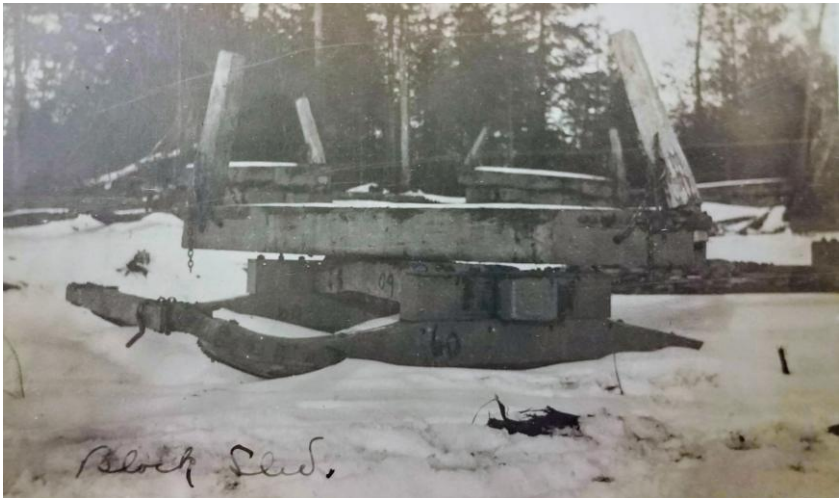
manhandle around in tight quarters. A typical dray could carry approximately 300 - 600 board feet. Snaking worked well where the distance to the log yard was short – usually not more than 600 feet. Draying was more efficient when longer distances were involved – up to 1 mile however the average was usually much shorter. ^{ibid}

Though draying and snaking were important along with the Go-devil and Jumper (which we won't go into detail about) the queen of the woods was the two-sled rig. Able to carry a load that would be considered adequate for a rail flatcar of the era (4,000 – 6,000 bd. Ft. or up to 7 tons) yet weighing less than 10% of its total load capacity - it was both efficient and durable. A typical two sled rig consisted of two sets (Bob's) of short runners. Each set of runners supports an end of the load which was securely fastened to the bunks by corner chains. Crossed chains (or reach poles for heavy tractor sleds) inter connected each set of runners and provided a crude but effective form of articulated steering – each set of runners following exactly the path of the preceding runner.

The makeup of a sled was fairly simple. Each pair of runners was connected by a cross-beam - a stout timber spanning crossways between the runners. A roller (light piece of timber) connected the front of the runners. The bunks could be up to 12 feet long and rested on top of the cross-beam and pivoted around the king bolt (a large iron pin) which allowed each set of runners to pivot under the bunk as the sled negotiated corners. "Knees", which connected the cross-beam to the runners, were essential. They could be a simple wooden block knee or the very effective McLaren patent knee assembled from castings sold by the Minneapolis Iron Store Company³ among others, or the "Rave Knee" made up of strap iron fittings or the heavy iron castings used in the Lombard patent logging sleds. Regardless, the slight flexibility provided by the knee made *"hauling easier, increased the strength and durability of the sled and save[d] the road."*⁴

With a well maintained and iced road a two-sled rig could indeed haul impressive loads very efficiently. In 1893 Michigan Loggers loaded up a sled with 36,055 Ft. of White Pine logs weighing 144 tons and then proceeded to pull it with a single team of horses to the nearest rail siding. Nine flatcars were required to move the load to Chicago for display at the Worlds Columbian Exposition.⁵

The arrival of mechanical traction in the form of Lombard Log Haulers and early crawler tractors such as Holt, Best and Cletrac did not spell the end of the two-sled rig. It just required some adaptation. A Lombard Log Hauler, whether steam or gasoline powered, had far more horse power than a team of horses and could haul some impressive long trains of sleds. The problem was how to interconnect several if not a dozen two-sled rigs to take advantage of all that horse power. During trials of his first log hauler in 1901 Alvin Lombard learned that trying to tow a train of sleds with the



One of 64 heavy duty block knee type sleds used with Lombard log haulers by the Bangor Timberland Co. in Township 9-14.(circa 1909) Built on site, each sled (two runners, crossbeam, roller, bunk & stakes) cost \$54.02

Vaughn Jones – Terence F. Harper Collection

³ "Farm Implements", Nov. 30, 1916, pp 73

⁴ Koroleff, Alexander M. & Bryant, Ralph C. , Bulletin No. 13, Yale University, School of Forestry 1925, pp 51

⁵ "Scientific America", July, 29, 1893, pp 70

tongue of the following sled hooked to the cross-beam of the preceding sled simply didn't work. It was like towing a slinky with sleds slithering all over the place.

The solution was a stout timber A-frame drawbar connected to the nose castings of the first set of runners. Crossed reach-poles connected from the cross-beam of the preceding sled to the nose castings of the following sled – a pattern repeated throughout the entire length of the sled train - whether only a couple of sleds or a dozen or more. Like the crossed chains of the lighter horse drawn sleds, the reach-poles provided articulated steering the whole length of the assembly and prevented the sleds from telescoping and “breaking out” i.e. breaking through the iced shoulder of the winter haul road and heading for the puckerbrush. A sled so connected could even be backed-up to a fair degree. (fair being a relative term – I have tried it with mixed results!)

To aid in starting a heavy train of sleds, all the reach-pole fittings including those on the drawbar were slotted. As the tractor moved forward and the “slack” taken up, each “bob” (pair of runners) started moving - if only by a fraction of an inch, before the following set. Thus the tractor was in fact only starting one set at a time. It was a simple and very effective solution. In addition, since the runners generated friction they had a nasty habit of freezing in when stationary. Whether hauling with a team or a tractor the technique was to pull at an angle thus breaking out one runner at a time.

In early 1937, Jack Pickett, driving a 10 ton diesel powered Lombard tractor for Great Northern Paper Co., arrived at the Big Bog landing on the upper reaches of the Penobscot River in north western Maine with 22 sleds in tow carrying a scaled 108-1/2 cords of pulpwood totaling an estimated 298 tons⁶ - a fitting tribute, in the waning days of its dominance, to the incredible two-sled rig.



A 10 ton Lombard Tractor-Truck with a set of Lombard patent logging sleds illustrating the method of hooking multiple sleds together using crossed reach-poles.
Herb Crosby, Maine Forest & Logging Museum 2022

⁶ “Lewiston Journal”, Feb. 21, 1948