FROM TIMBER TO TIDEWATER
Some Notes on Northwest Logging

NMRA NATIONAL CONVENTION
Vancouver, B.C.
1965

James W. Sabol
(Puget Sound & Big Skookum R.R.)

with illustrations liberally adapted from

Logging and Lumbering Textbook, Schenck

Logging Railroads of the West, Adams

Railroads in the Woods, Labbe & Goe

Young Iron Works, Seattle

. . . and a little personal experience

THE THREE STAGES OF TIMBER TRANSPORTATION

1. Loading (at the landing)
2. On Route (between landing and dump)
3. Unloading (at the dump)

THE THREE AGES OF TIMBER TRANSPORTATION
(with the usual dangers of pigeonholing history)

1. In the beginning 1830

2. Glory Days 1880

1880: 1st Lima built Shay
1882: 1st steam donkey by John Dolbeer
1888: 1st Climax lokey
1894: 1st Heisler lokey
1911: 1st automatic log bunks
1922: 1st Willamette Shay
1927: 1st Pacific Coast Shay
1930: Peak of lumber production at 8 billion board feet annually

mills no longer dependent on logs floated in once a year on spring highwater coming of transcontinental main lines to Northwest

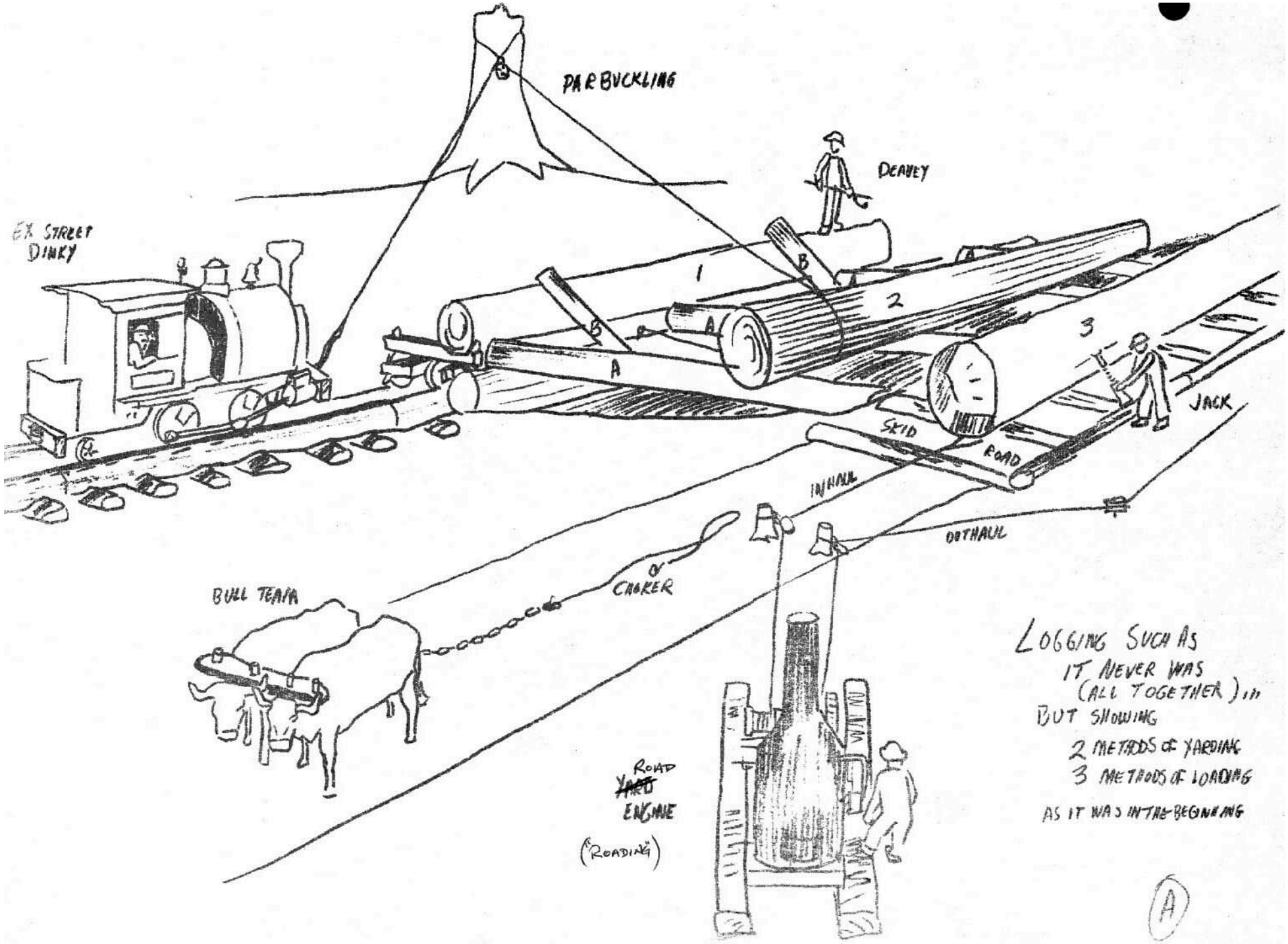
depression
high cost of construction with depletion of accessible timber
advent of power (chain) saws

3. Modern 1930

Success of diesel trucks and locos
beginning of selective cutting and tree farming

THE WHOLE ARRANGEMENT

STAGES	BEGINNING		GLORY DAYS		MODERN	
	Rail	Non-rail	Rail	Non-rail	Rail	Non-rail
1. Loading Systems	(A) rollway with peavey; rollway with jacks; parbuckling with bulls or lokies	same	(F-I) spar tree with steam donkey; (G-J) (H) log jammers; portable high lead rigs	same	spar tree with diesel donkey; (L) diesel-tractor cranes	truck-mounted spar
2. Transportation Systems	2nd hand main line lokies, dummies, flat cars; (B) wood rails, pole roads, trailing wooden disconnects	floating from water's edge skid roads; (C) high wheelers; (D) flumes, chutes	specially mfg'd lokies and cars inclines experiments with grip-wheels, gas lokies	gasoline, diesel trucks log rafts river drives flumes	6 axle diesel lokies rebuilt cars	extra-wide diesel trucks on private roads
3. Unloading Systems	gravity; (E) gin poles with donkey or lokey power	-----	(K) gin poles, A-frames, jill pokes	-----	(L) overhead cranes, banded logs	same



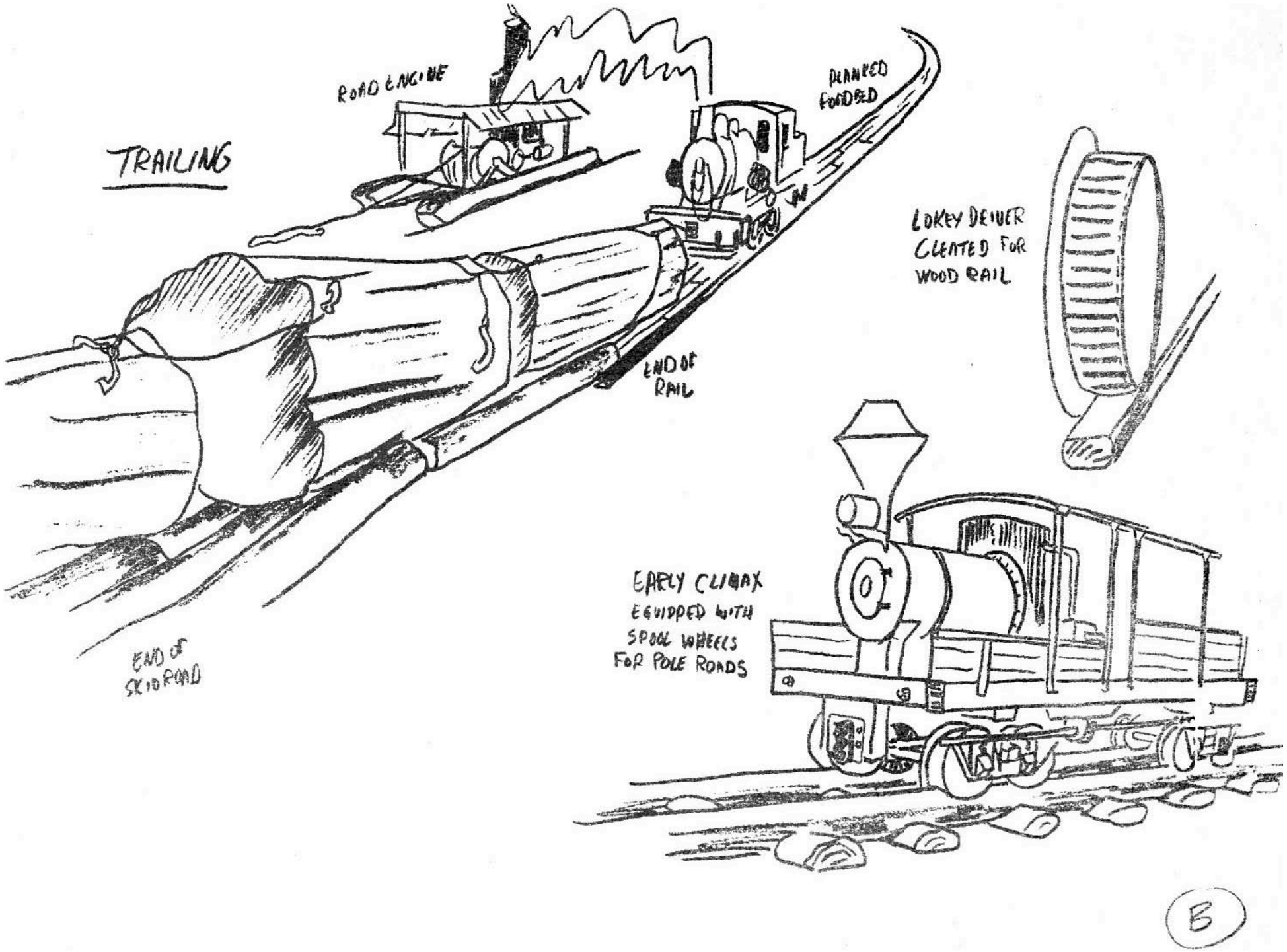
LOGGING SUCH AS IT NEVER WAS (ALL TOGETHER) ... BUT SHOWING

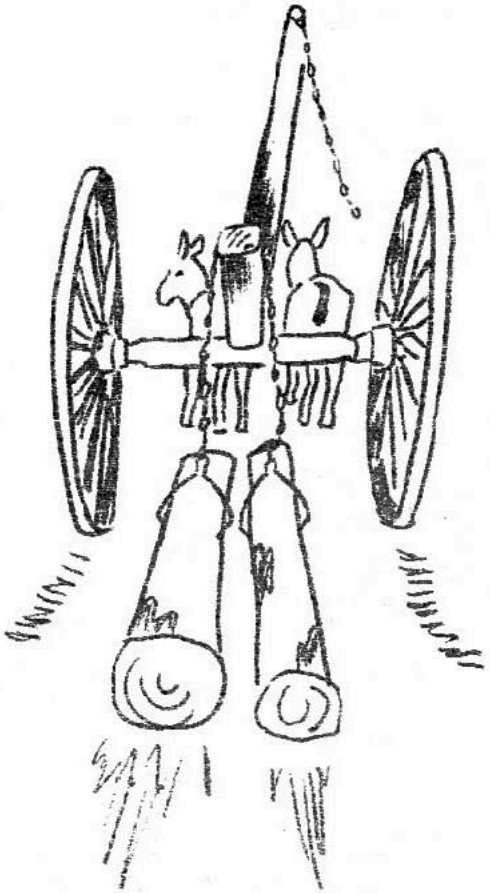
2 METHODS OF YARDING

3 METHODS OF LOADING

AS IT WAS IN THE BEGINNING

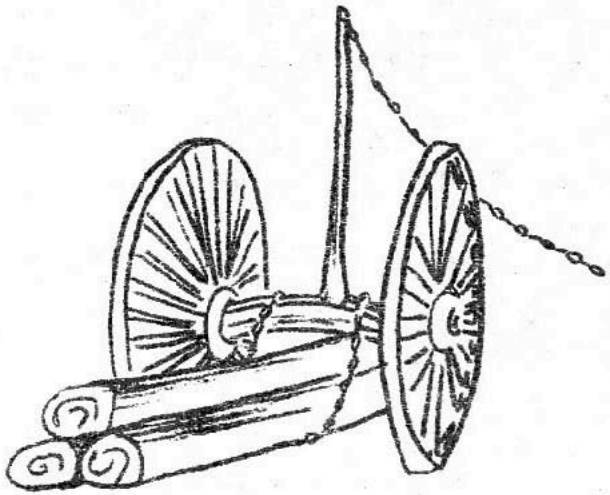
(A)


TRAILING
ROAD ENGINE
PLANKED ROADBED
END OF RAIL
END OF SKID ROAD
LOKEY DEIVER CLEATED FOR WOOD RAIL
EARLY CLIMAX EQUIPPED WITH SPOOL WHEELS FOR POLE ROADS
B

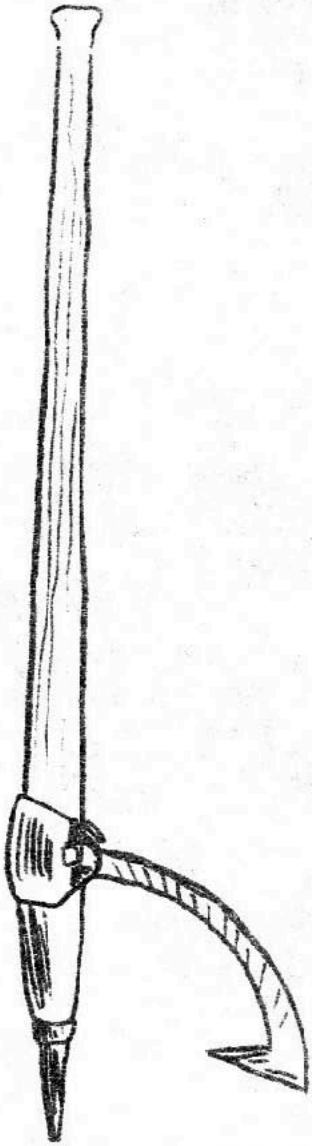


HIGH WHEELERS

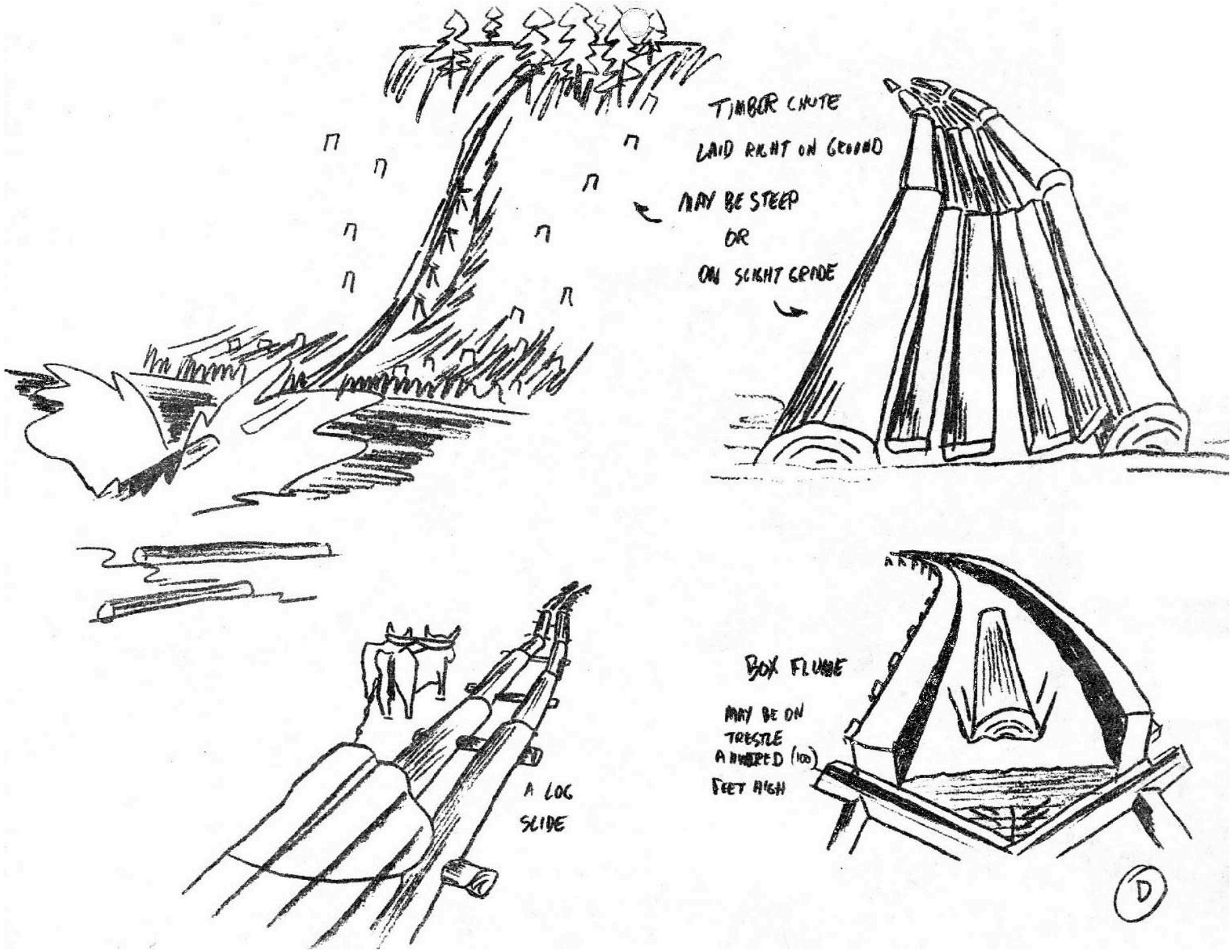
FOR SMALL STUFF OR PINE COUNTRY

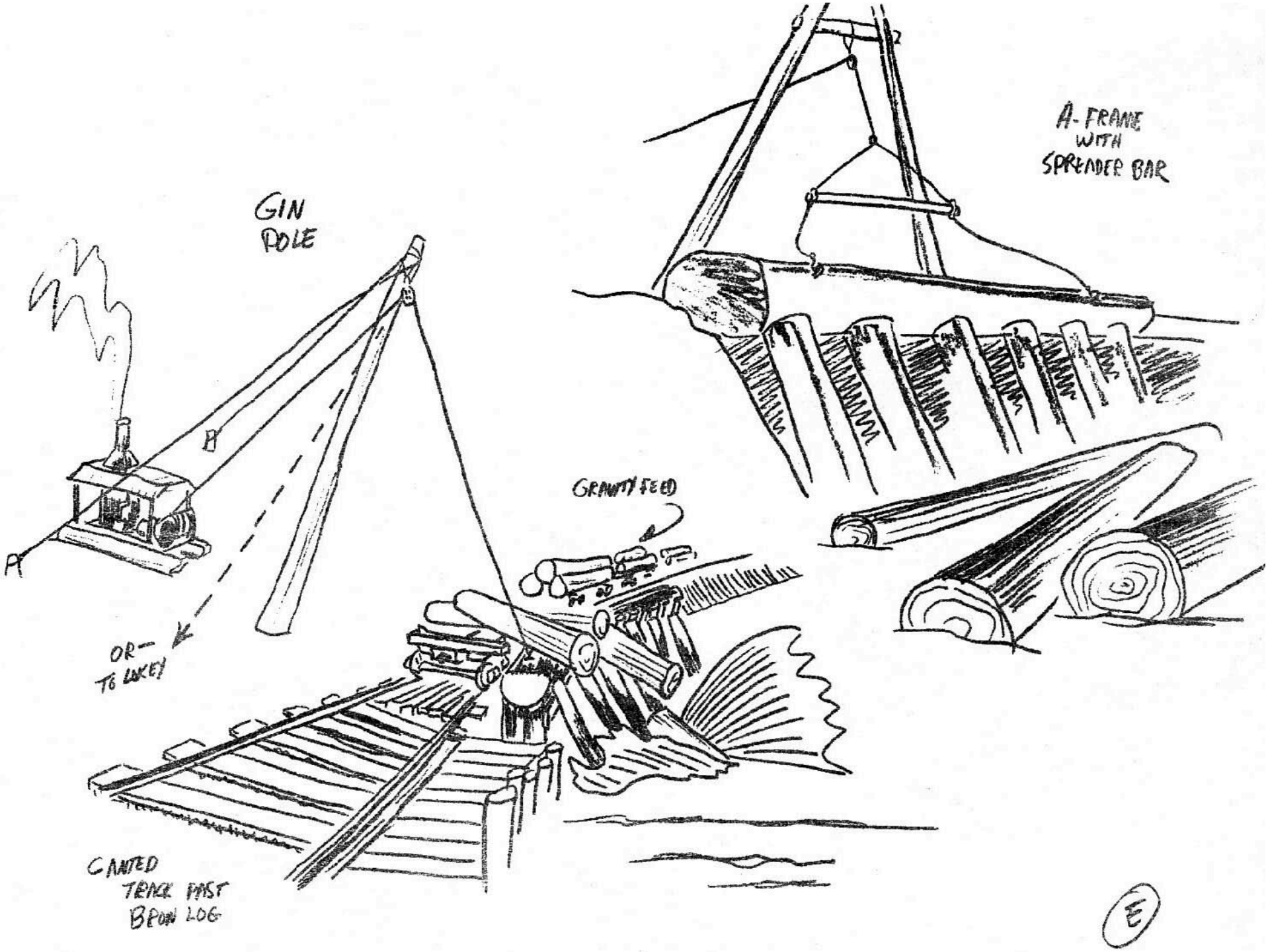


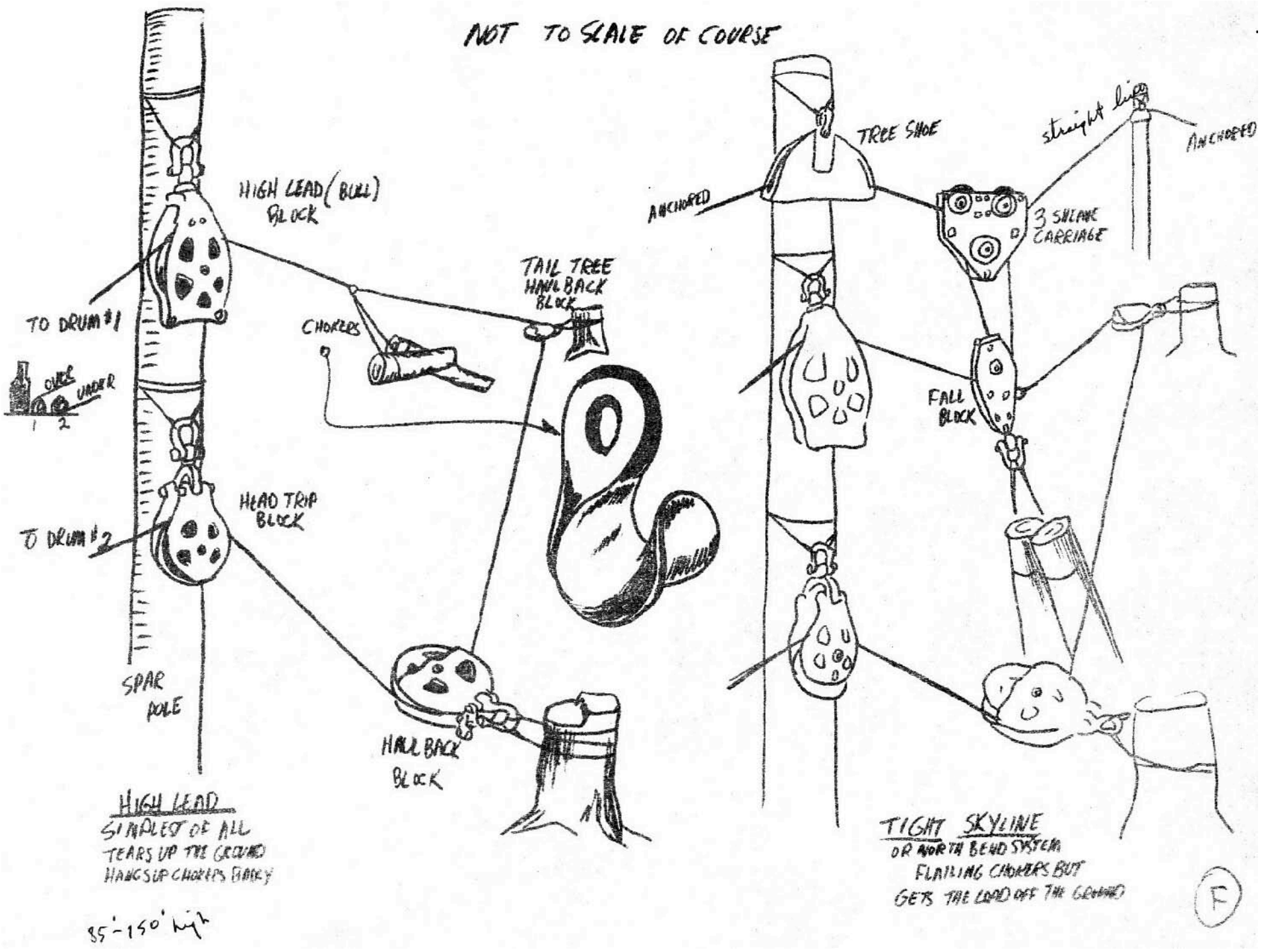
PEAVY

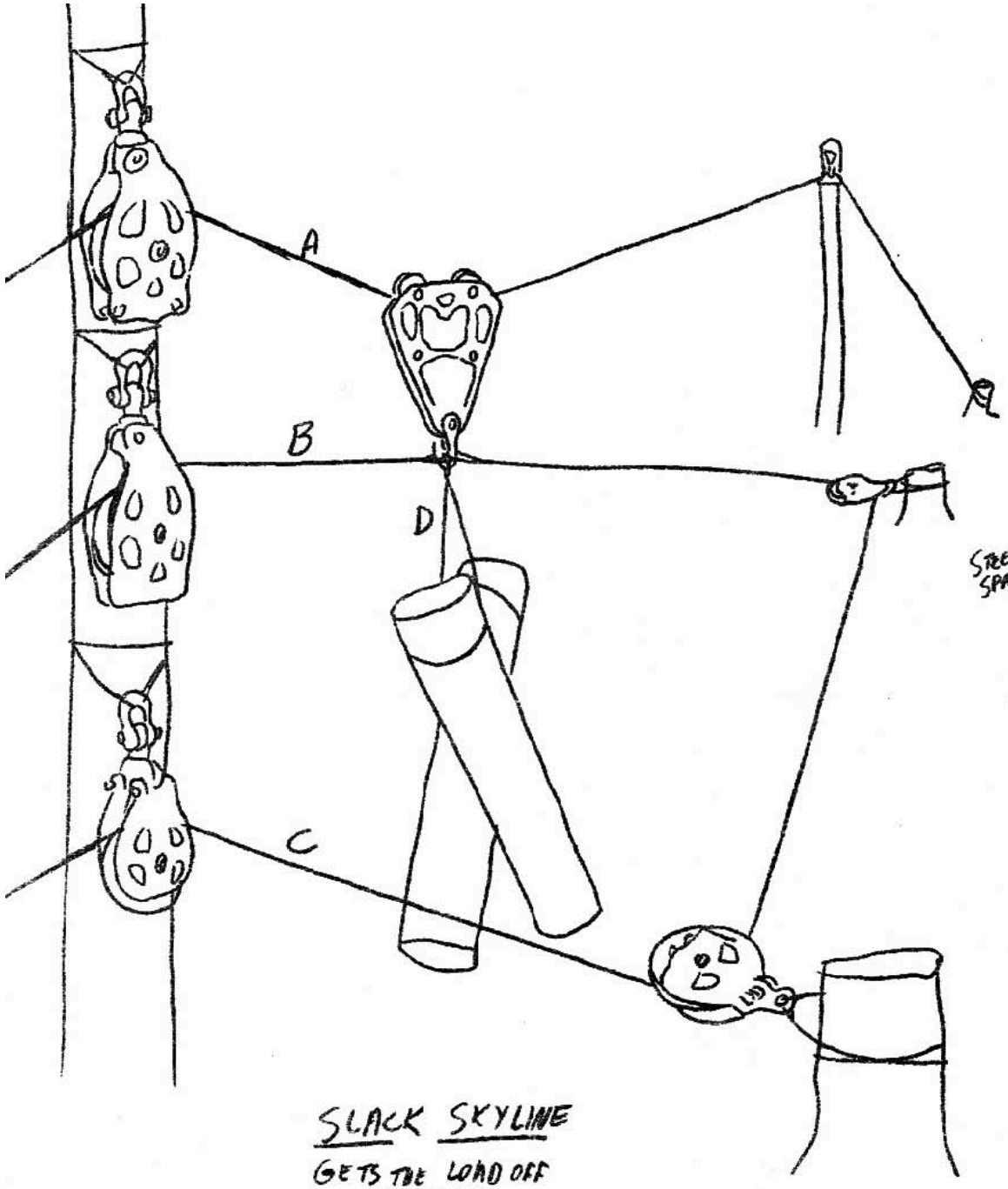


C


TIMBER CHUTE
LAID RIGHT ON GROUND
MAY BE STEEP
OR
ON SLIGHT GRADE
A LOG
SLIDE
BOX FLUME
MAY BE ON
TRESTLE
RAISED (100)
FEET HIGH
D


GIN POLE
A-FRAME WITH SPREADER BAR
GRAVITY FEED
OR- TO LAKE
CANTED TRACK PAST BROW LOG
E


NOT TO SCALE OF COURSE
HIGH LEAD (BULL) BLOCK
TO DRUM #1
OVER
UNDER
1 2
CHOKERS
TAIL TREE HAUL BACK BLOCK
HEAD TRIP BLOCK
TO DRUM #2
SPAR POLE
HAUL BACK BLOCK
HIGH LEAD
SIMPLEST OF ALL
TEARS UP THE GROUND
HANGS UP CHOKERS BADLY
85'-150' high
TREE SHOE
ANCHORED
straight line
ANCHORED
3 SHEAVE CARRIAGE
FALL BLOCK
TIGHT SKYLINE
OR NORTH BEND SYSTEM
FLAILING CHOKERS BUT
GETS THE LOAD OFF THE GROUND
F

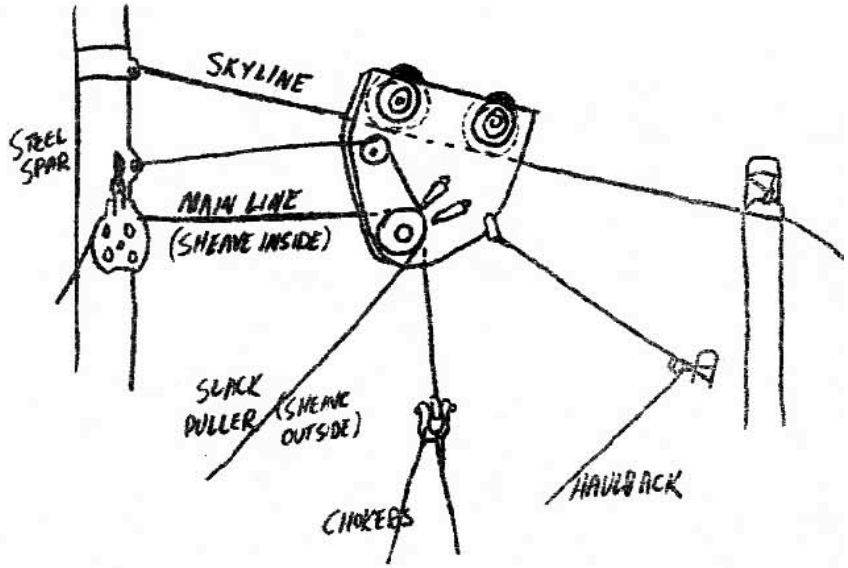


SLACK SKYLINE

GETS THE LOAD OFF THE GROUND
GOOD CONTROL OF CHOKERS

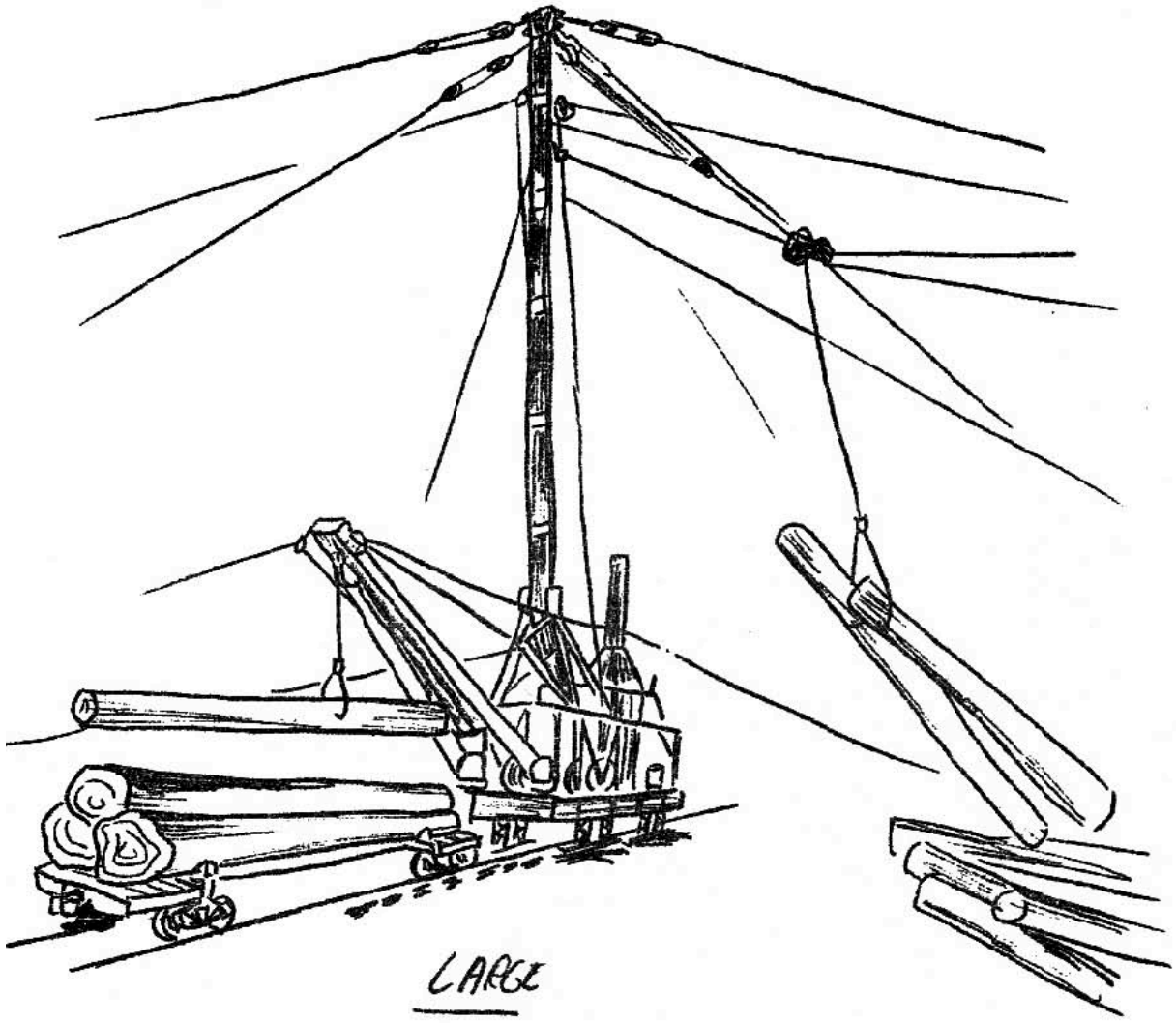
TYPICAL WIRE ROPE SIZES

A	SKYLINE	1½" to 2"
B	MAIN LINE (SKIDDER)	1⅛" to 1½"
C	HAULBACK	½" to ⅞"
D	CHOKERS	⅞" to 1¼"



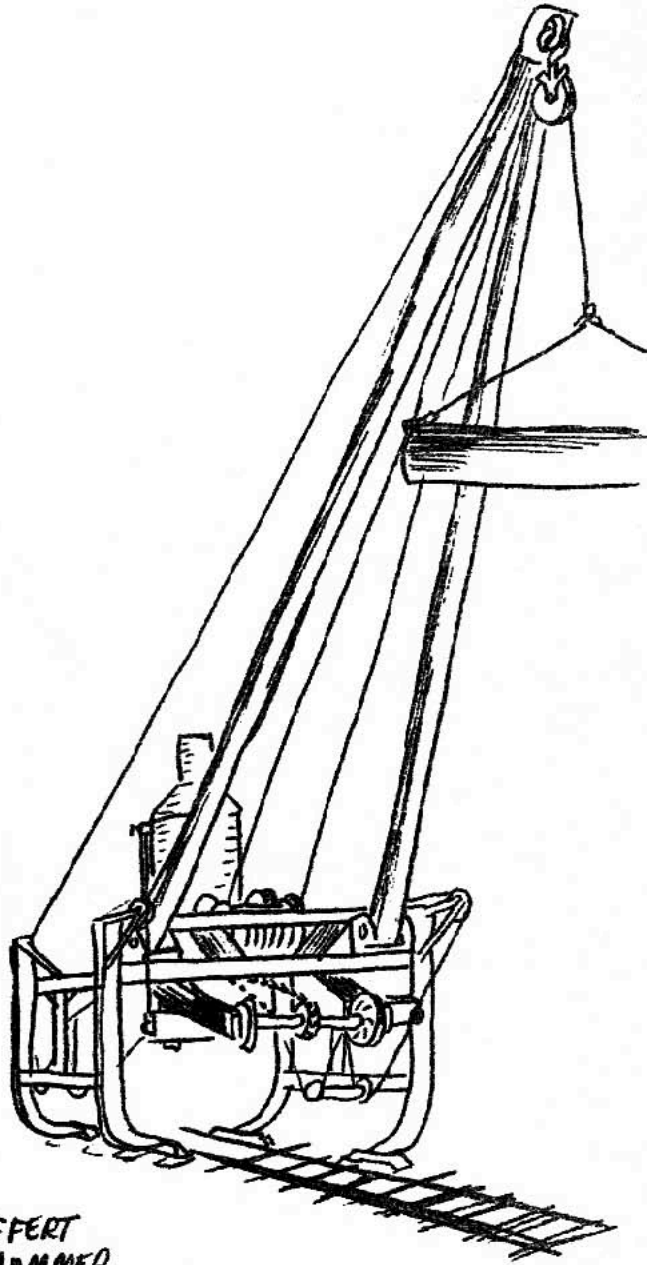
LIDGERWOOD CARRIAGE

CAN DROP CHOKERS ON A DIME
COMPRESSION ROLLERS HOLD MAIN LINE TO ITS SHEAVE SO ANY MOTION IN SLACK PULLER LINE CAUSES SIMILAR MOTION IN MAIN LINE & ITS CHOKERS



LARGE

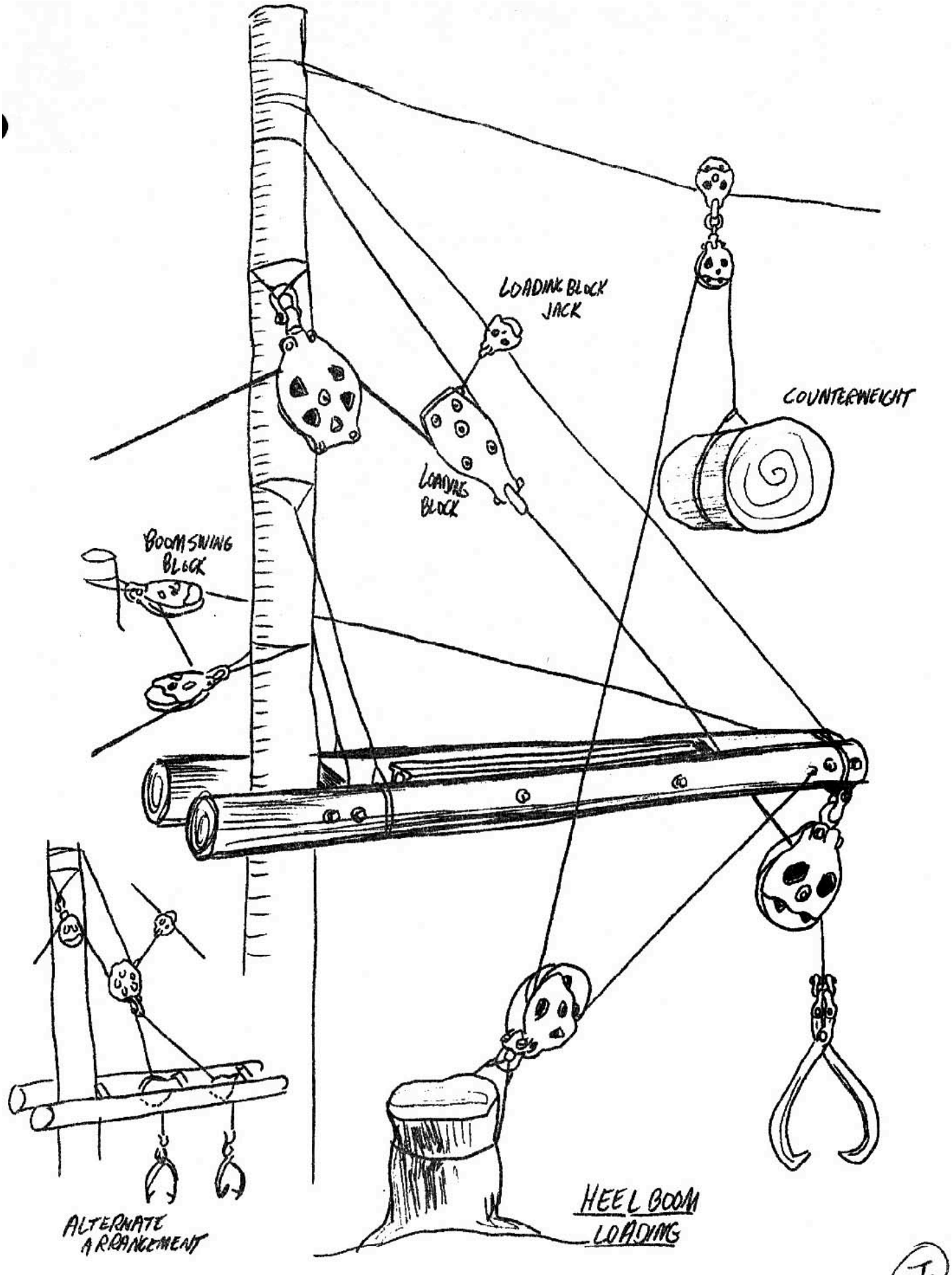
LIDGERWOOD SKIDDER
& LOADER
MOST TREMENDOUS MACHINE IN THE WOODS
UP TO 308 TONS
ALSO MFG'D BY WILLAMETTE WASH. IRON WORKS
A DIESEL POWERED ONE WEIGHED 400 TONS!



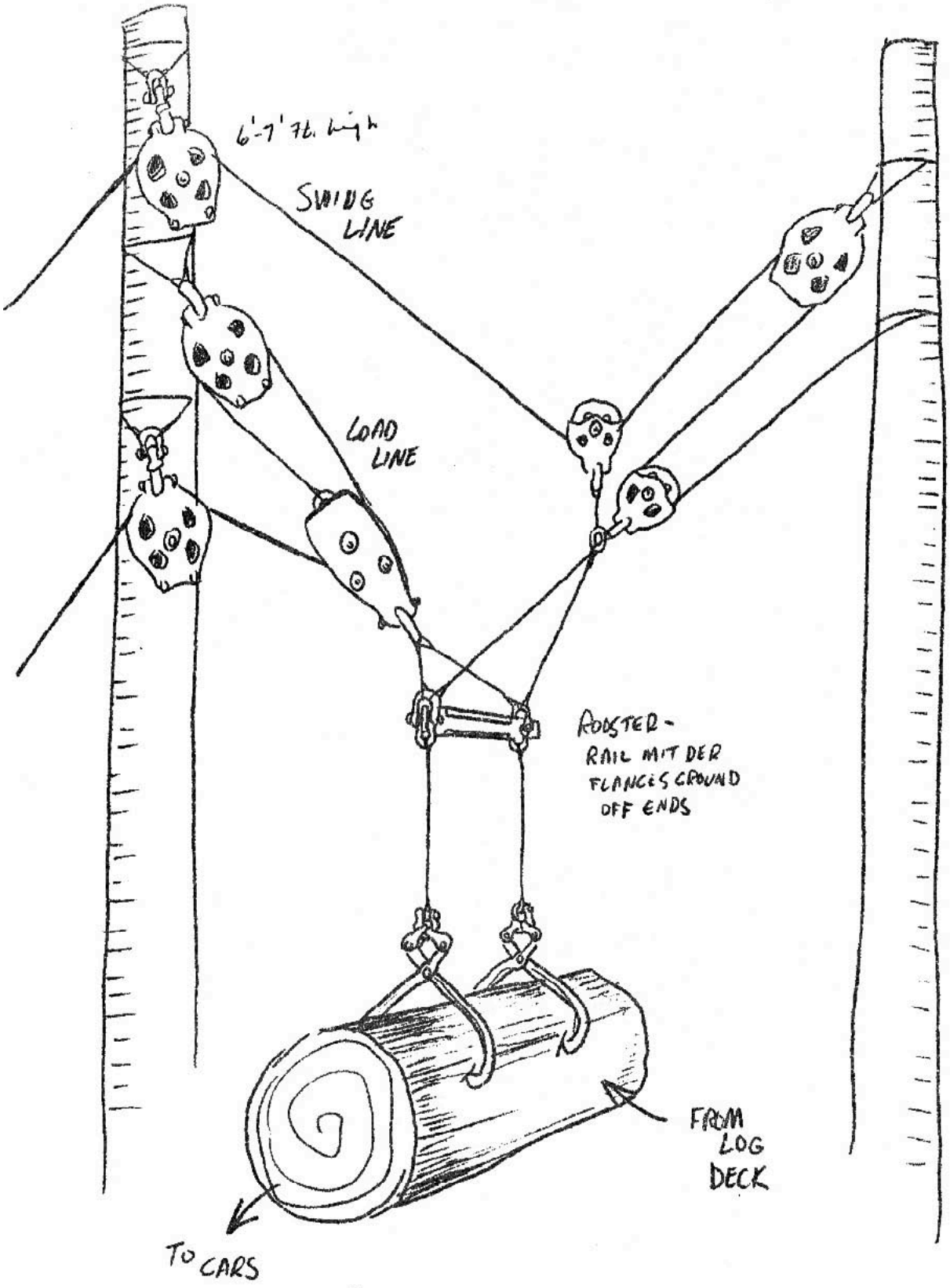
SMALL

McGIFFERT
LOG JAMMER
(PINE COUNTRY)

(H)


LOADING BLOCK JACK
COUNTERWEIGHT
LOADING BLOCK
BOOM SWING BLOCK
ALTERNATE ARRANGEMENT
HEEL BOOM LOADING

I

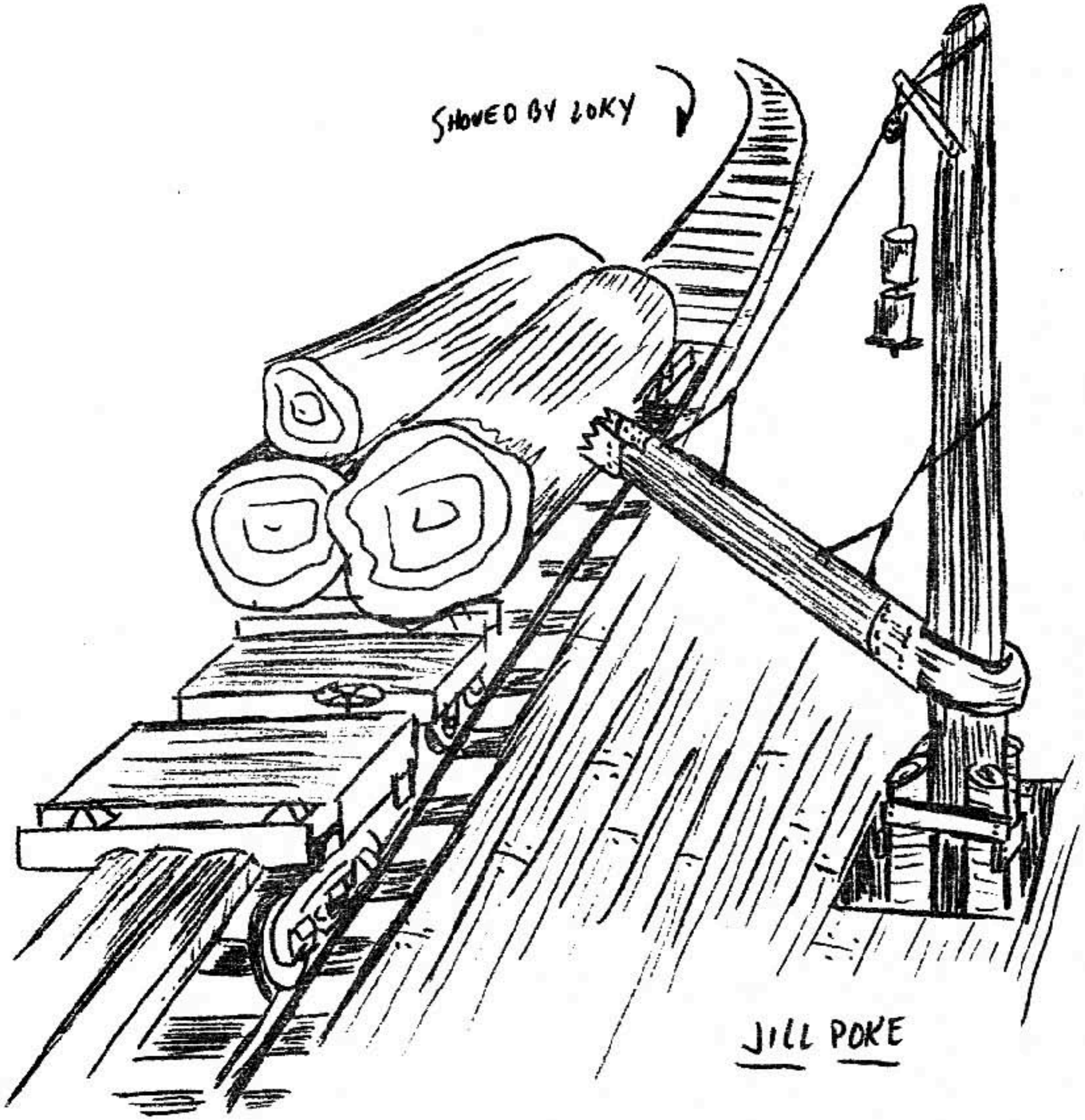


CROTCH LINE LOADING

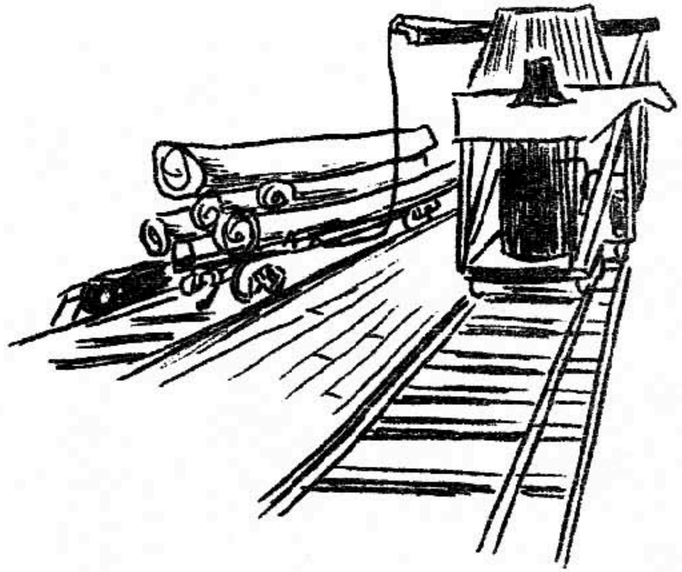
KEEPS LOAD PARALLEL TO CAR

FASTER THAN HEEL BOOM LOADING

(J)



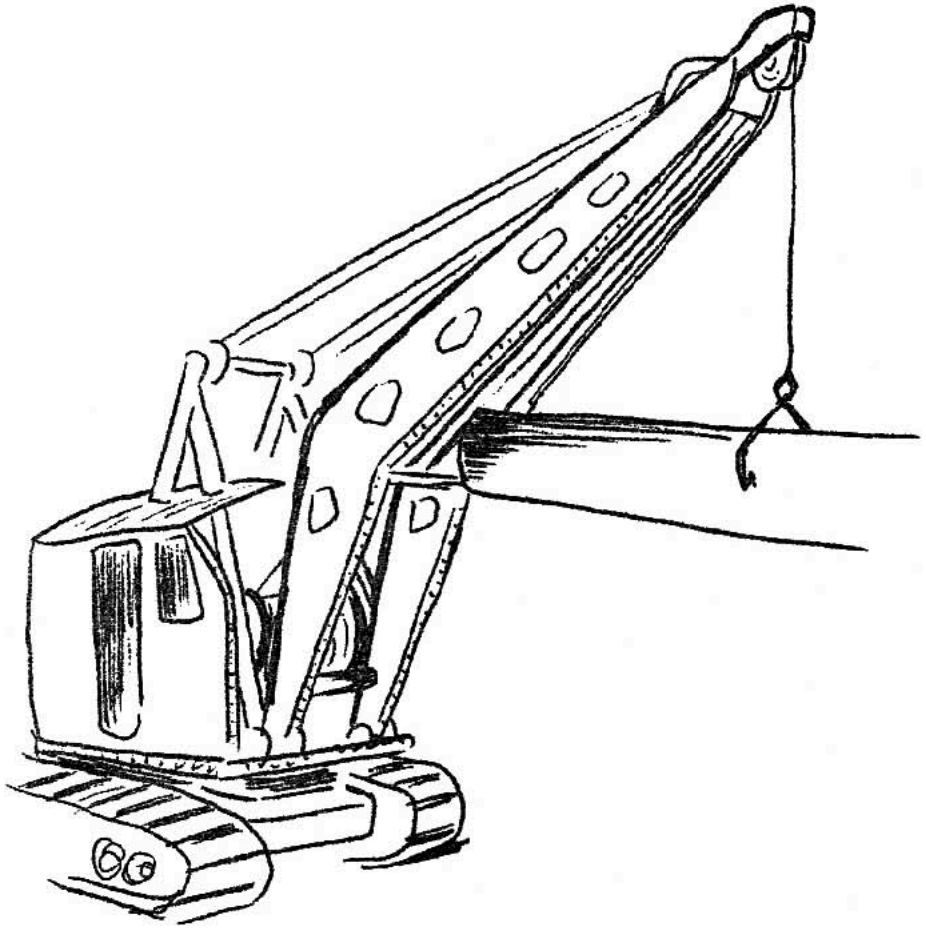
JILL POKE



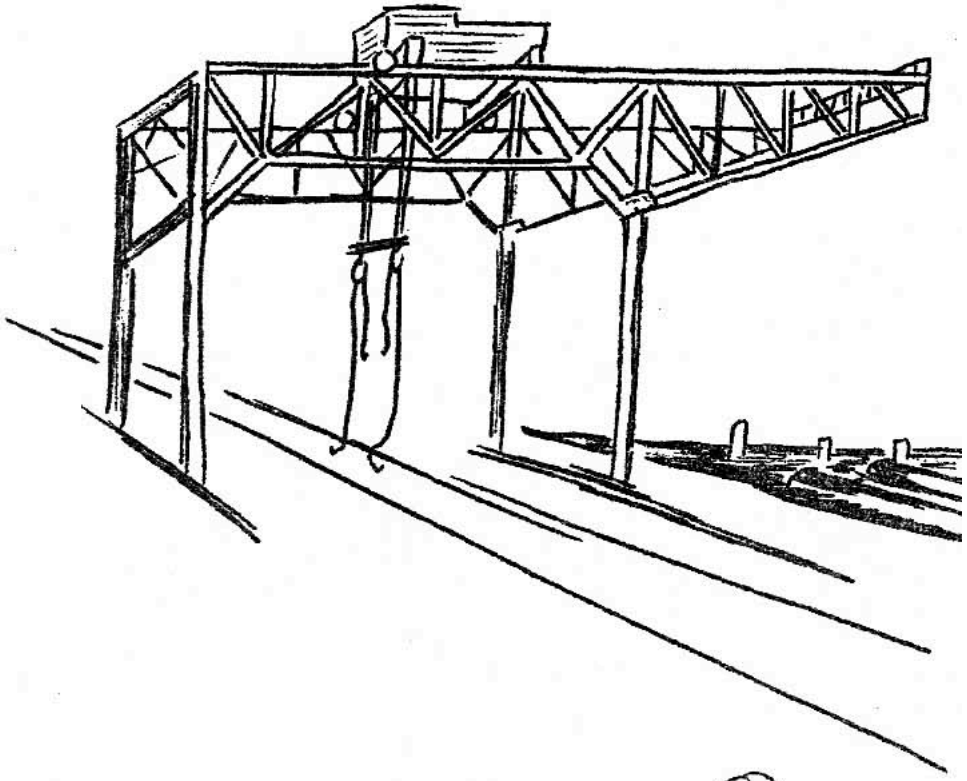
MOVEABLE GIN POLE

Bunks patnd. 1911

K



TRACTOR - CRANE LOADER



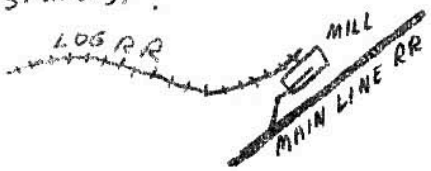
OVERHEAD CRANE UNLOADER

L

IT IS WISE NOT TO HOLD PRECONCEIVED NOTIONS OF LOGGING PIKE ARRANGEMENTS

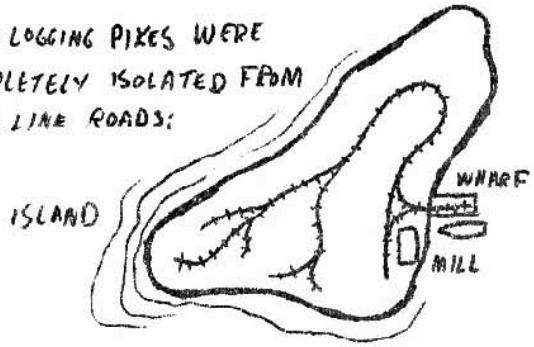
HERE ARE A FEW I HAVE SEEN —

① SIMPLEST !

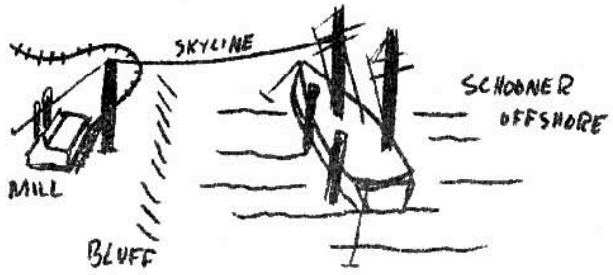


② BUT FEW ROADS WERE SIMPLY A STRAIGHT LINE – MOST HAD A LARGE NUMBER OF SPURS IN THE WOODS :

③ SOME LOGGING PIKES WERE COMPLETELY ISOLATED FROM MAIN LINE ROADS:

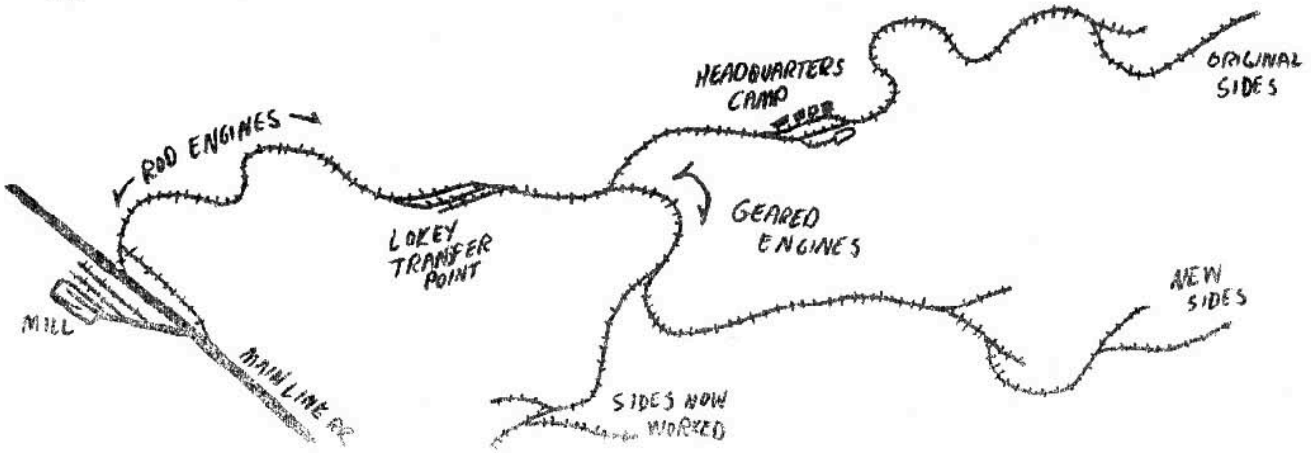


④ SOME EVEN HAD NO WHARF :



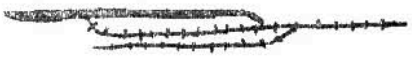
⑤ A LOGGING PIKE COULD SPREAD IN MANY DIRECTIONS OVER MANY KINDS OF TERRAIN

7% Gr average
Up to 15% possible



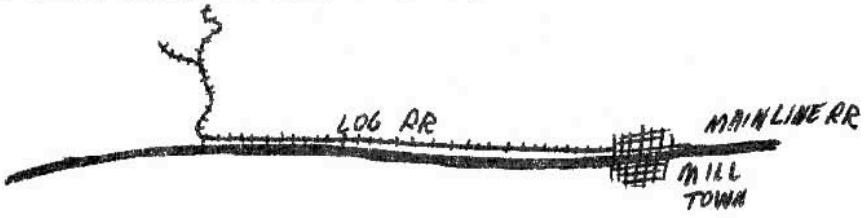
(6) SOMETIMES THE MILL WAS NOWHERE NEAR THE LOGGING PIKE

THE LOGGER COULD THEN MEET A MAINLINE RR LIKE THIS!



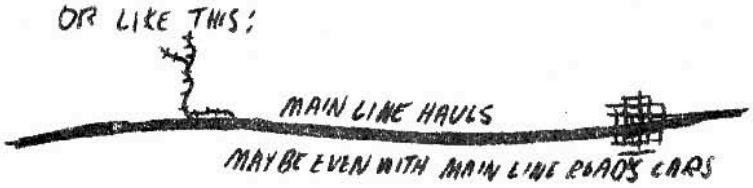
OR SIMPLY LIKE THIS!

(7) THE LOGS COULD REACH THE MILL LIKE THIS!

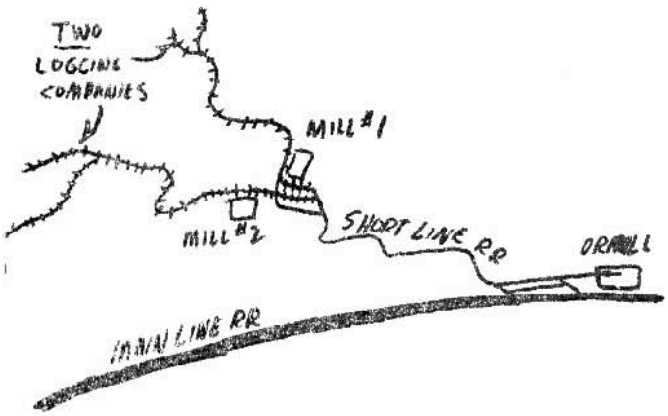


OR LIKE THIS!

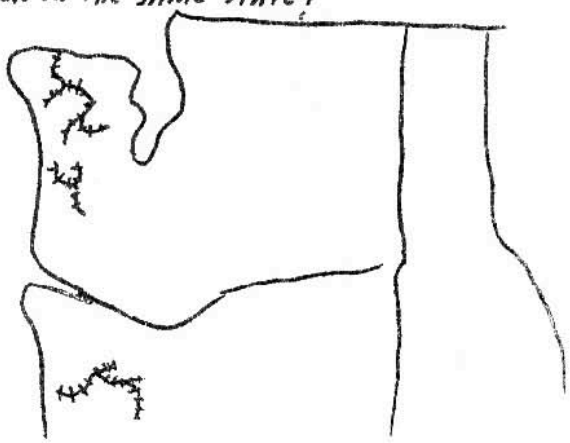
OR LIKE THIS!



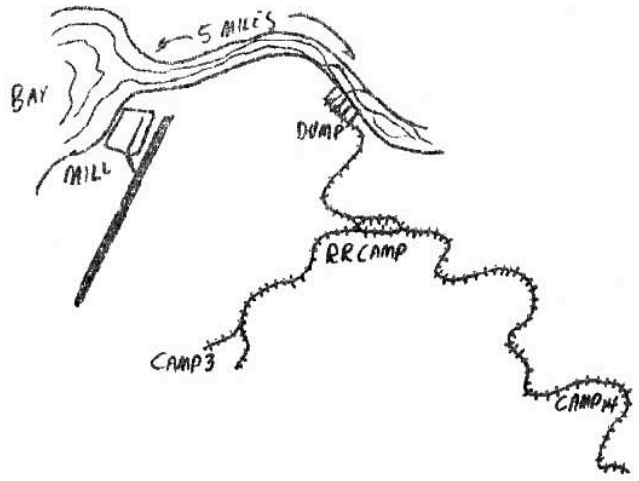
(8) SOMETIMES MORE THAN ONE ROAD GOT INTO THE ACT

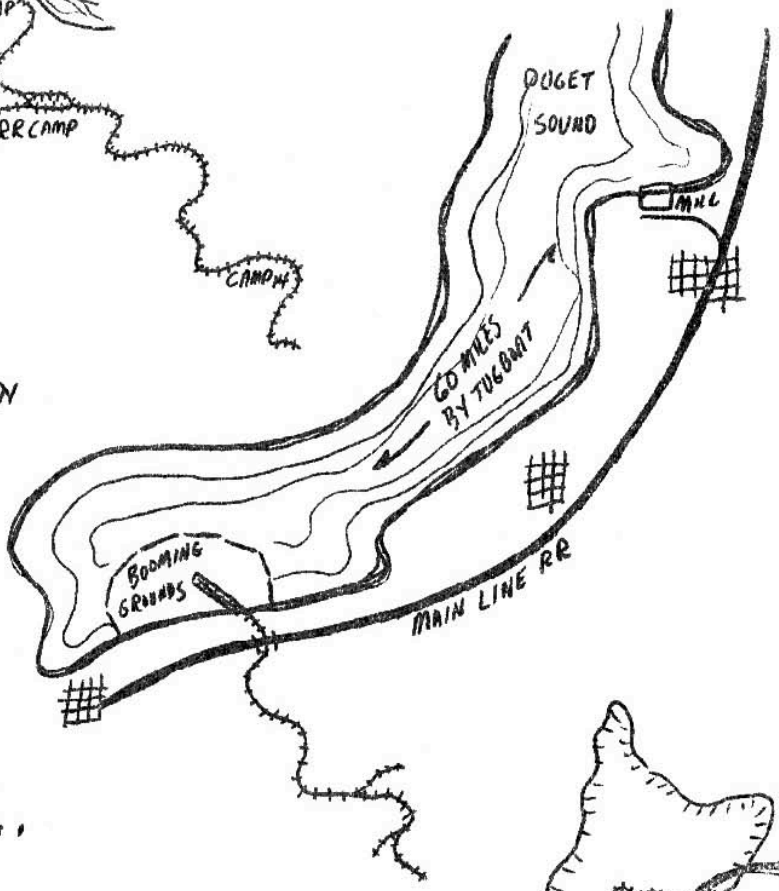


(9) SOME LOGGING COMPANIES HAD 2 OR MORE DIVISIONS NOT CONNECTED — MAY BE NOT EVEN IN THE SAME STATE!



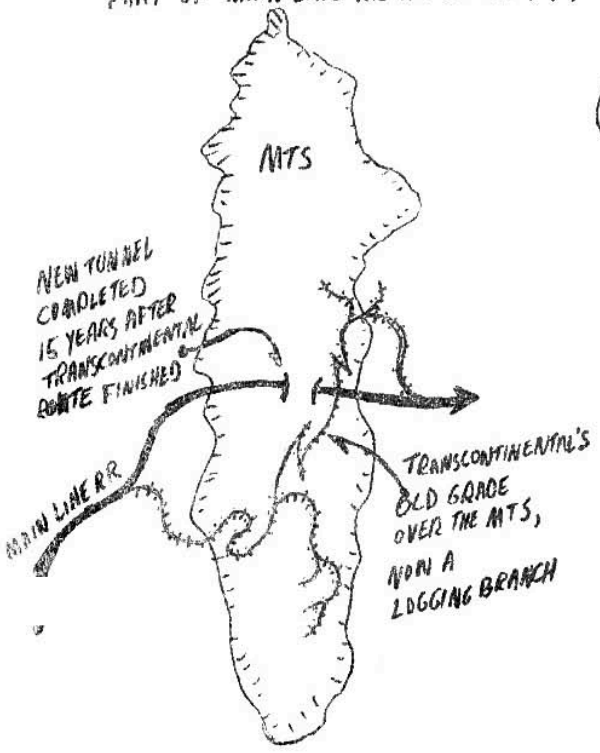
(10) SOME ROADS FLOATED LOGS DOWN RIVER IF THE MILL WERE DISTANT AND NO MAIN LINE WERE HANDY ;



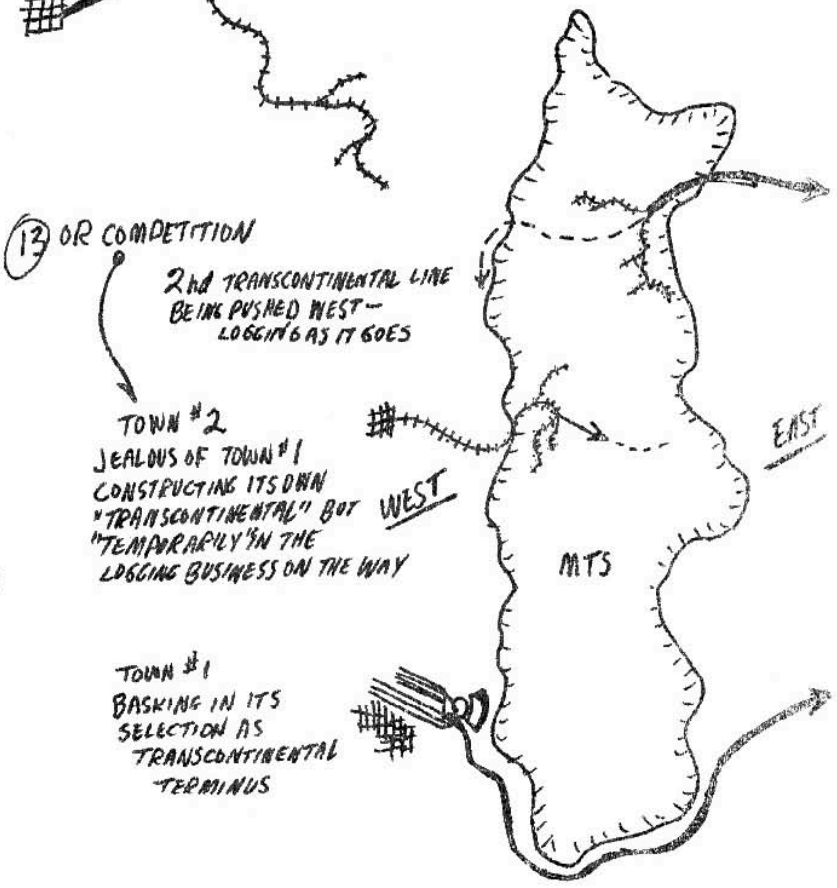


(11) SOME ROADS, EVEN WITH A HANDY MAIN LINE, TOOK TO THE WATER

(12) SOME LOGGING PIKES WERE PART OF MAIN LINE RR HORSEPLAY . . .



(13) OR COMPETITION



PRACTICES

A Dozen Operating Procedures Usually Found on Logging Railroads

1. The average speed of loaded log trains is 8 mph.

2. Log lokies in the woods seldom turn around, but stay headed uphill--pulling empties up, pulling loads down--to insure water over the crownsheet.

   The reason a loky heads an up-train is that log cars do not push well uphill. Commonly a piece of brush is stuck in the last coupler of the last car of an up-train to provide visual evidence that the train is intact.

   The reason that a loky heads a down-train is to provide an extra measure of safety against runaways. Should the runaway train push the loky off the rails--and it probably would--a wrecked train and loky are cheaper than the damage to lives and property that would be caused by a runaway train roaring unchecked down the pike.

3. On a logging pike longer than a few miles and with more reasonable grades on the lower end, geared lokies and low-wheeled rod engines from thewoods commonly turn their trains over to a faster rod engine for the run to the mill.

   If the grade is not over 7 or 8 per cent in the woods, low-wheeled saddle tank rod engines can go just about anywhere a geared loky can go, and faster, provided the track is in reasonably good shape and there is not a lot of switching to do at the upper end.

   If the grade is reasonable on the entire line, not over 3 to 5 per cent, a road may use rod engines exclusively, probably saddle tank mallets.

   The lighter and poorer the track & the more switching required on steep grades, the more likely a road is to use geared power.

4. Western logging roads commonly use oil, seldom wood, nevercoal for loky fuel. Same for donkey engines.

5. Loading is too time-consuming a process on which to waste expensive lokies. Log trains are commonly brought to a landing by gravity, the loky having shoved them up the grade past the spar tree and letting the loading crew drop them down a car at a time by hand brake.

   Unloading, which can be accomplished more quickly, commonly requires the services of a loky at the dump; for certain with jill pokes, perhapsnot with gin poles.

6. If a loaded log train is made of disconnects, the train crew must switch the loads at the landing so that any small or weak loads are at the rear of the train. A lightly loaded set of disconnects will simply pull apart under heavy strain.

7. Disconnects must ride the rails so that all brake wheels are on the same side of the track and in pairs.

8. Build wood bridges on spur lines. With an abundance of timber available and for seldom permanent roadbed, there is little reason for steel construction. Where ground is very rough, timber cribbing is frequently cheaper than grading. In short, if there's a roadbed problem in the woods, solve it with timber. Where a tunnel seems logical, use swithbacks.

8. Main line railroad freight trains will not pass under loaded, moving log trains unless the logs are banded or chained. Main line passenger trains will not pass under loaded, moving log trains in any circumstances.

9. Trains in the woods commonly operate without crummies because the brakemen have little time for leisure. Trains in the woods commonly operate with 4-man crews, no conductor.

Trains on logging railroad main lines commonly operate with crummies.

10. Log trains commonly "double the hill" if necessary rather than doublehead.

11. Logging roads use more rolling stock than is commonly known. 2nd hand passenger coaches or interurban cars are used to carry loggers into the woods from camp, are parked on a spur near the landing during the working day. Heavy duty, steel-decked flat cars, perhaps with six-wheel trucks, are used for moving heavy equipment. Tank cars with pumps are used for fire protection. Box cars are used for tool, fire-fighting equipment carrying. Flat cars are used to carry fuel drums. Gondolas are used to carry track parts. Wedge plows are used to clear snow. Topless box cars are used to move sawdust and wood chips for pulp.

This equipment is commonly second hand or home made from whatever parts are handy, is virtually unrecognizeable as main line RR equipment.

12. A logging show is commonly self-sufficient. A headquarters camp might contain these portable buildings mounted on RR trucks: bunk cars, commissary car, saw filer's car; and these permanent buildings: dispatcher's office, engine shed with complete tool shop for work from wheel-turning to retubing, complete blacksmith's shop, water and fuel facilities.

TERMS

The attempt is made here to avoid terms that are merely part of logging "color" used more by latter day aficionados than by loggers, and to concentrate on those terms actually in common use in those parts of logging operations near or affecting the railroad. The order of terms is approximately the order of operation.

Timber cruiser	One who determines where to log next, how many board feet of lumber to expect from a stand of timber.
Faller	One who makes vertical trees horizontal.
Springboard	Board a faller inserts 4 to 10 feet off the ground into a tree to stand on when he swings his ax, gets him up out of the brush, away from thick bark and gummy wood in the butt.
Bucker	One who saws fallen trees into manageable lengths.
Misery whip Swedish fiddle	Bucker's long saw.
Snipe	To bevel a log to be trailed so it won't catch obstructions.
Trailing	Old method of dragging logs down the track.
Landing	Place where logs are hauled to out of the woods to be loaded onto cars.
Spar tree	Very tall tree at the landing rigged with lines (cables) to pull logs out of the woods.
Main line	Heavy line rigged from spar tree out to woods on which a carriage rides.
Tail tree	Tree out in woods to anchor other end of mainline on.
Skidding line	Line rigged from spar tree through carriage on main line to be lowered and attached to the logs.
High rigger	One who attaches the lines to spar trees.
Turn	A group of logs brought out of the woods as a unit.
Block	A steel casing to hold a sheave, with eye for hanging from spar, tail trees.
Sheave	Pulley wheel encased in block.
Donkey	Steam powered drum (winch) to provide the muscle for pulling in the skidding line.
Donkey puncher	Donkey operator.
Whistle punk	One who signals from the woods instructions to the donkey puncher by waving a small line attached to the donkey's whistle cord.

Road engine	A donkey used to skid logs on the ground to the landing.
Yard engine	A donkey used to bring logs by means of a spar to the landing.
Skidder	A combination yarder and loader mounted on trucks equipped to work with a spar tree or with its own steel spar.
Side	Immediate area of logging operation.
Show	An entire logging operation.
Loky	A logging locomotive.
Engine	Any logging machine, donkey, etc.
Bunk	Part of car log rests on.
Cheese block	Retractable steel wedge on bunk to keep logs from rolling off car. Other cars used stakes.
Rooster	Piece of rail with flanges ground off ends, inserted and pinned in couplers between disconnects to keep them from pulling apart.
Car frog	Rerailing frog.
Hole	Place between two cars where brake wheel on each car can be reached. Hmmm. That's not too clear. Say you arrange the cars so that standing on the end of one car you can reach not only that car's brakewheel but also the next car's; saves hopping the next car to get its brakewheel. Get it?
Booming grounds	Subdivision of homes near jet airport. Also area in water where logs are dumped and arranged into sections or log booms.
Brow log	As a car is dumped, the log by the edge of track the loaded car's logs bounce off of. Can I end a sentence with a preposition? Why did you bring that book I didn't want to be read to out of up for?
Cold deck	Stack of stored logs.
Reload	Place where log trucks transfer their loads to RR cars.
Scaler	Government employee who measures board feet of timber in a loaded log train, often in transit.
Stump ranch	Logged over land sold to farmers, before tree farms.
Dog	Eye-bolt hammered into log end so it can be attached to other logs, for trailing or forming log booms.
Bolt	Section of log cut to correct length for shingle mill.

Some Books You Should Ask Your Librarian To See

Glory Days of Logging, Ralph W. Andrews, Superior Publishing Co., Seattle, 1956.

This Was Logging, Ralph W. Andrews, Superior Publishing Co., Seattle, 1954, reprinted 1965.

Rayonier Inc., Adolph Gutohrlein, Railway Historical Quarterly, Vol. 1, No. 2; April, 1964, Trans-Anglo Books, Los Angeles.

Logging Railroads of the West, Kramer A. Adams, Superior Publishing Co., Seattle, 1961.

Last of the 3 Foot Loggers, Allan Krieg, Pacific Railway Publications, San Marino, 1962.

Railroads in the Woods, John T. Labbe and Vernon Goe, Howell-North Publishing Co., Berkeley, 1961.

Pacific Coast Shay, Dan Ranger, Jr., Pacific Railroad Publications, San Marino, 1964.

Climax, An Unusual Steam Locomotive, Thomas T. Taber and Walter Casler, Railroadians of America, Rahway, 1960.

Lima Locomotives (Baldwin Reprint of 1911), Pacific Railway Publications, San Marino, 1960, (Pac Ry Journal, Vol. 2, No. 10)

Lumber Railroads of the Weyerhaeuser Timber Company, (Baldwin Reprint of 1935, Pacific Railway Journal, Vol 2, No. 1 , San Marino, 1951.

Articles

Barret E. Snyder, "Building a Sawmill," Model Railroader, August, 1956.

Charles W. Swanberg, "Modeler's Notes for Western Sawmill," Model Railroader, November, 1961.

Other Sources

Logging textbooks. Ask your librarian.

West Coast Lumbermen's Association, 1410 S.W. Morrison Street, Portland 5, Oregon.

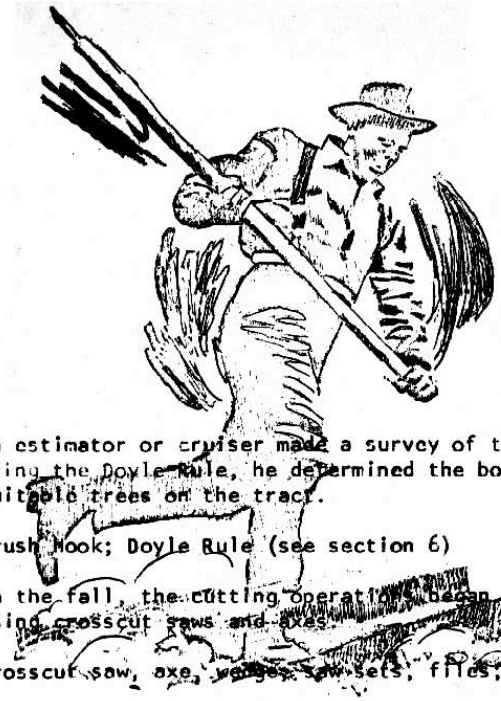
Various issues of The Western Railroader, San Mateo.

Various issues of The Short Line Railroader, Susquehanna, Pennsylvania.

Weyerhaeuser Timber Company, Tacoma, Washington

Western Washington Forest Industries Museum, P.O. Box 364, Tacoma, Washington 98402.

LOGGING OPERATIONS



1. SURVEYING — An estimator or cruiser made a survey of the company's land tract. Using the Doyle Rule, he determined the board foot yield of the suitable trees on the tract.

   Tools: Brush hook; Doyle Rule (see section 6)

2. FELLING — In the fall, the cutting operations began. The men worked in pairs, using crosscut saws and axes.

   Tools: Crosscut saw, axe, wedges, saw sets, files, chain saw (used later).

3. BUCKING — The bucking crew cut the fallen trees into logs of desirable length. They also trimmed them of any branches or knots. Some of these men also were responsible for removing stumps from the land.

   Tools: Buck saw or swede saw, one man saw; chain saw (used later); swamp hook, brush hook.

4. SKIDDING — A teamster snaked the logs from the place where the trees had fallen to a yarding point, called a skidway. Tongs were fastened into the log to be dragged by the horses. The use of animals did the least damage to the remaining young trees since the animals could be guided around them. Later, the skidders also had to roll the logs around onto sleighs to be taken to a riverbank. A crew of loaders, called cant-hook men, used a cant-hook to flip the logs. These men had to have good balance and a sure sense of timing. A "skyloader" stood on top of the sleigh load and directed the movements of the rolling logs. This was a dangerous job because the logs were always shifting.

   Tools: skidding tongs, double-tree, picaroon, pulp hooks, cant-hook.

5. SCALING — This process of measuring and branding the company's logs was done on the skidways commencing the beginning of January. Log marks were driven deep into the ends of each log. The purpose of branding the logs was to show company ownership since more than one lumber company might use the same river for a log drive.

   Tools: Scaling hammer, tally board, log rules.

6. LOG DRIVE — The branded logs were stacked in tiers along a riverbank. They stayed there for the winter, bound together by ice. With the spring break-up the log drive was on. The logs were floated down the river to a sawmill or to a lake where they were gathered and held together by storm booms. Often a stream had to be deepened in places and this was done by building splash dams.

   Tools: Peavey; storm boom chain, storm boom auger, dog, temporary log boom end tips.

7. SAWMILL — The logs which were gathered at the end of the log drive were gathered into large rafts and pulled to a mill by a tug. Some logs, needed for immediate use in the Bush Camp, were sawed manually into lumber with the use of a vertical lumber saw. This was a tricky operation since one man had to stand on top of the log to saw, while another worked from the bottom.

   Tools: Vertical lumber saw, circular saw.

NOTE: The "Logging Operations" display is found in only one half of the museum. You will also find displays of the equipment used by the Lumber Camp's Blacksmith, Carpenter, and the Shanty Cook. These latter displays are only small indications of what you will find in the authentic Bush Camp just down the road.

LAYING OUT THE LUMBER CAMP

Addenda
From Timber to Tidewater

The first lumberjacks to enter a forest wilderness were the Timber Cruisers. These men were expert woodsmen who explored unknown forests to find good tracts of trees. When a Cruiser found a good timber tract, he raced to find a Government Land Office, and he recorded the tract in the name of his employer, usually a lumber company such as "Current River Land and Lumber Company." The lumber company made plans to build a camp and bring in lumberjacks. The camp was usually built near the centre of the tract. In late summer or early fall, other types of lumberjacks came to put up the "city" (build a camp). This crew included a foreman (bull of the woods), carpenters, (wood butchers), and blacksmiths (iron burners). Lumberjacks made up a language of their own. The lumber camps or logging camps were needed until the trees were cut; therefore, they were practical, not pretty.

In laying out a lumber camp, the foreman and the carpenter remembered old lumberjack superstitions. All trees leaning towards the camp should be cut. Nothing must be built from the wood of the poplar tree, which was considered unlucky.

The camp buildings were made of logs. The main building was the bunkhouse, also called the shanty. Small windows at each end and a skylight let in air and light. The long side halls were needed for the bunks. Other camp buildings were the cook shanty, a crude carpenter shop, a blacksmith shop, a barn and a stable. A special building doubled as the camp office and supply store.

While some of the men put up the buildings, others made the roads. Tote roads were needed so that teams could tote or bring in supplies. A main logging road was needed to take the logs from the forest to the river. A network of smaller trails led to the main logging road.

By the end of September, the camp buzzed with loud noises and bustled with workers. The carpenters and blacksmiths began building huge sleighs, teamsters toted in supplies of all kinds. By the first snowfall, the camp came to full life and the main crew of lumberjacks swaggered into camp.

The Cook Shanty is an authentic replica of that which was located in the bush camps in the 1900's.