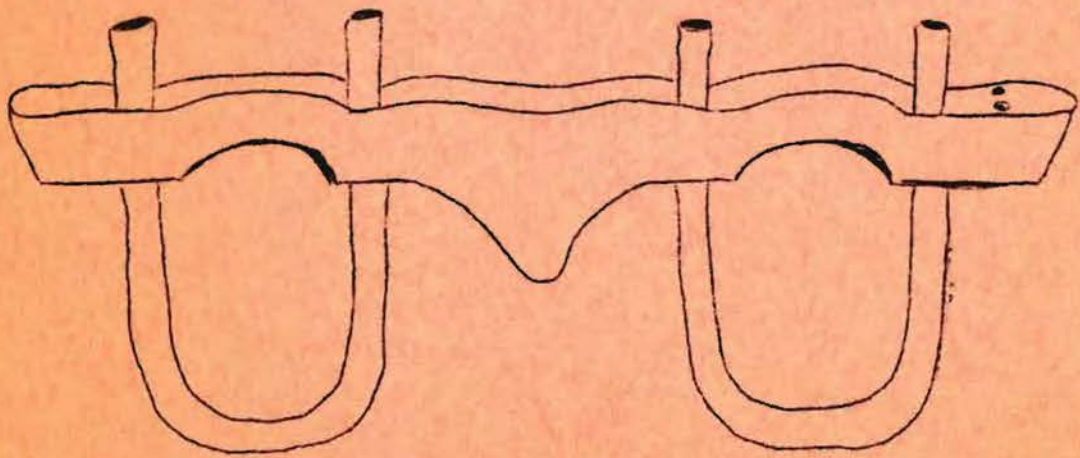


LOGGING  
WITH  
OXTEAMS  
AN EPOCH  
IN  
INGENUITY



LOGGING WITH OX TEAMS  
An Epoch in Ingenuity

TABLE OF CONTENTS

Terms used with Bull Team Logging Explained .....	1
Early Day Logging .....	9
How Bulls Were Broken .....	11
Redwood Trees .....	13
Bull Teams on the Garcia .....	14
Some of the Early Day Punchers .....	15

Published by the Mendocino County Historical Society

Proceeds of the sale of these articles: - for the benefit of the Museum Fund of  
our Society

The Mendocino County Historical Society assumes no responsibility for  
statements of facts or opinions expressed by contributors.

First Edition

## BULL TEAM LOGGING

The first hauling of logs was done by oxen or bulls. They hauled the logs in the early days from the woods to the mill, later from the woods to the landing or dump. A bull team was generally composed of from six to eight yoke of oxen. A yoke was two oxen joined by a wooden yoke.

Oxen were generally Brindle Durham, Durham, or Durham with Ayrshire, or some other breed, rarely if every mixed with Jersey. They ranged in weight from fourteen to eighteen hundred pounds. The Bull team averaged about two miles per hour both to and from the mill or landing.

They were fed hay and a cheap bran mixture. On Sundays, if pasture were available, they were put out; to graze; otherwise they spent the time in the Bull pens.

The vocabulary of Bull Team Logging is fast being lost to the world, so we will attempt to define and explain some of the terms, before going into further details.

### LEADER

The most important animals of the whole team were the leaders. They had to place the team in the position for working. They had to respond to the voice commands of the bull punch.

### WHEELER

This was the last yoke of oxen next to the load. This expression was common with both bull and horse teams. It was their duty to hold the logs or wagon back.

### GOAD

A goad was a small pole, usually of oak, live oak, or laurel, about an inch in diameter at the large end, and a half inch at the small end. It was about six feet long and in the smaller end it had a small nail driven into it, and filed to a point. It extended about a quarter of an inch.

This was used to prick the animal's tough hide, particularly during the training, and on a well-broken team, in case of an emergency, to make the animals move in a hurry to save their lives from a rolling log, or other possible disaster. Of course, this depended upon the individual Bull Puncher. Some were able to control their animals without the goad, and some used the goad very cruelly.

### NEAR SIDE

This was the right side of the team.

### OFF SIDE

This was the left side of the team.

### SNUBBING POST

A post to which a bull was pulled up short. The post was rounded and quite heavy. A rope was placed on the bull and he was encouraged to circle the post several times. As the rope was taken up the bull was securely "snubbed" and could be handled in any way desired.

### SHACKLE OR CLEVIS

A "U" shaped piece of iron, with a hole bored through open end, an iron pin inserted through one end then through a chain and into the other end and it was then closed with a cotter pin.

### DROVER

The Bull Punch or driver of the bullteam, was the highest paid man in the camp. He received equal pay with the foreman. A Bull Puncher had to know how to handle the bulls. It was not what he said, it was how well he said it that made the bulls

### HAW

When the Bull Punch yelled "Haw", he was ordering the team to turn left.

### GEE

"Gee" was the command for turning right.

#### IOA

A load depended entirely on the weight of the logs. This could range from five to twenty-five logs. ("here have been stories of as many as 35 logs, but this was not common.;1 P'VQ ••r\*\* -;• and the ability of the team had much to do with the size of the load. The logs in the load were arranged according to size, the largest first.

#### BRIDLE

The first logs were fastened with a bridle and if the logs were extremely large the two subsequent logs also had bridles. The lighter logs were fastened with a single chain and a "dog" at each end.

The bridle consisted of two lengths of chain three or four feet long with a ring connecting the two chains. Each chain had a "dog" at the end, which was driven into the log.

The bridle kept the log directly behind the team, prohibiting it from sheering to either side.

If the load was heavy the use of more bridles assured that the entire load would have an even pull.

#### DOG

This was a piece of iron with a ring in one end, and a bend, a little more than a right angle, which was driven into the log. It was about five inches long. The side that had the strain was flattened so that it could pull the log.

In the front log, a bridle was used which consisted of a dog on each side of the log connected by a chain, with a ring in the middle. The pulling line was pulled into this ring. If the logs were large, f«e '-any as \*Hr\*%; bidles might be used. The lighter logs could be coupled together with a single chain, with a "dog" at each end. Generally on top, as every log should be put on its "ride".

#### RIDE

Every log has its "ride". A "ride" is the side on which the log settles itself, as it is pulled along. Even when the log is put in the mill pond it will still hold itself in the same position, that is, it will stay on its "ride".

The man who made up the load had to be able to recognize the "ride" of every log. Otherwise a load of logs would twist and turn, and probably uncouple the chain and pull out the "dogs."

#### SUGLAR

The suglar accompanied the road to the mill. He rode the first log and dropped the chain as needed. There was a peg on the log to hold the upper end of the chain. He also helped string the chains on the logs and connect the couplings. The chain that he handled was called the rough lock.

#### ROUGH LOCK

The rough lock was a heavy piece of chain. It generally had a trip link which held the chain in a circle. A rough lock was usually needed when the load started a steep down hill pull. Then it was dropped over the end of the first log to hold the logs so they would not run over the bulls. At the bottom of the hill, when it had accomplished its purpose the link was tripped and the loose end pulled from under the log. If it became fouled, they used a shovel to dig it out. (Shovels were always stored at the steep down grade area for this purpose.)

Some rough locks had no trip links and would have to be dug out from under the log. In this case the pulling chain would be unhooked from the bridle, the rough ." o lock thrown back on top of the log.

If this were the last steep place the rough lock would be left, to be picked up on the return trip. The pulling chain would be hooked back in the bridle and the team continued on its trip.

#### SNIPER

In each logging camp there was a sniper. He had a broadl double-bitted axe called' a sniping axe. It was usually at least eight inches wide. At the front end of each log he would make a forty five degree cut clear around the log. The purpose was to prevent it from catching the cross skids and pulling them out of their beds. At times, he assisted the barkers in removing limbs from the trees.

### SKID ROADS

Skid roads were not put in for the entire length of the haul, but used only where needed.

Often at the head of a very steep gulch and the bench beyond they would have "yarding" teams and they would pull the first log, just to where it would not go by itself. Then they would bring up the next log, and generally, with the third log, they would bump the other two logs, but not enough to start than moving. When the entire load was made up, they would generally find a place where they could place the team at one side of the logs and probably hook near the middle of the load and start it , just enough so that it would start down the incline by itself, and the hook would automatically come out. When the load got to the bottom they would be bunched together end to end, and that would be close to the skid road, where they would have some skids reverse to the road,; but parallel to the logs, to get them up on the road. The fact that they were bunched made it easy to get them on the skid road as they would move one at a time. If the logs were "stretched" ie the chain stretched tight between each log, it was difficult to start the load down the skid foad.

The broad axe was frequently used when the team would have to stop. Every chain would be stretched out tight, at a time like this. In this case, jack screws were absolutely necessary. The Suglar and the Water Slingers were usually expert jack-screw men. They could take the lead tog about three-fourths of the way back and lift it with the jack screws, with the slant toward the back. If this did not start the Jog back, they would use the peevey (it had a long iron spike in the end). It could be used as a bar at the front end of the log. This would generally move the log back eight or ten inches. This would be repeated once, and the second log would be handled in the same manner, but would not be moved as much. This would leave a little slack between the first and second logs. The third log might have to be moved once. This was just to be sure that there was a little slack between each log. As the logs were raised, the water slinger would throw an ample supply of water under the log. With this slack the water slingers would take their positions along the rest of the road. As the Bull Puncher started his team, they would throw water at the front end of each log.

On a real long skid road, any place that had a fairly good down grade, the bull punches would stop their teams for rest, even if their logs were "stretched". If they had a long level place to pull, the team would have a longer rest than on a down grade because a team was never stopped on level ground, unless there was an obstruction.

Contrary to most stories of bull teams, all skid roads were not down hill. At Garcia Mill, one of the skid roads logged down river from the mill, therefore the logs had to be pulled up hill to be dumper into the pond above the mill.

During the first threat of a storm, the slash or false dam, which was about sixteen feet above the regular dam, and extended the length of the pond about a mile and a quarter, was removed.

The up-hill logging was necessary at this time to keep the mill in logs, after the false dam was removed.

This same method of up-hill logging was used at Lee Gulch on the Garcia. -The 4M.',c -tad left the creek bed and took a gentle up-grade to get height to dump the logs into the river.

Rolling Brook, a tributary of the Garcia, had four skid roads. The main skid road had four branches on it. It ran back at least three or four miles, and it was probably the highest dump known. a

When there were several teams on/branch , like at Rolling Brook, the teams were timed so there was no blocking of any team.

There were very few sharp turns on a skid road, if there were, they were elevated by off-setting the skids. They would be elevated to the outside for an "outturn", with a sheering log to keep them from going over the bank. On an "in-turn^ the skid would be elevated to the inside with a sheer log to keep them from going into the bank.

Skid roads were used only where needed. If the road was only to be used for a few months, then any kind of wood was used, When the skid road was to be used for a long period of time, oak or madrone was frequently used; Redwood suckers hewed down to the heart, with all sap wood removed, if kept well greased, lasted for years.

On the skid roads the logs were laid three or four feet apart.

On river bottom flats, of only a few acres, skid roads were not used. The method used there was to make several turns of rope across the log, and have a yoke of oxen roll them to the river. Sometimes it was necessary to put a rope on the small end and pull it ahead, because of the tendency of the large end to travel faster.

Before jack-screws were available along the Mendocino Coast, the above method was used for moving logs.

The skid roads were later used by "Bull Donkeys with a mile and a quarter line. The only thing that they had to add was a vertical spool on the curves. These were a little lower than the skids so that if the cable ran to one side they could get into the spools and not damage the line. The back line was hooked on the main line and ran along side the log. When unloaded it would pull the main line back up the skid road, but the loose end of line was directly straight from the Bull Donkey to the end of the skid road. On any raise in the ground it was laid in the spool in reverse (horizontal) to keep it off the ground. The "Bull Donkey" could start a greater load than it could finish because at the start the drum would be almost empty with a very small diameter to wrap on, but as it came nearer, the bigger the pile up on the drum and cut down the advantage.

On a real long skid road, any place fairly good down grade, the bull punchers would stop their teams for rest, even if their logs were "stretched". If they had a long level place to pull, the team would have a longer rest than on a down grade.

If the chain was stretched out tight, when they stopped, the jack screws were absolutely necessary to start again. The Sugler and the Water slingers were generally expert jack-screw men. They could take the lead log about 3/4 of the way back and lift it with the jack screws, with the slant toward the back. If this did not start the log back, they would use the peavey (it had a long iron spike in the end). It could be used as a bar at the front end of the log. This would generally move the log back eight or ten inches. This would be repeated once, and then the second log would be handled in the same manner, but would not be moved as much. It would leave a little slack between the first and second logs. The third log might be moved once. This was just to have a little slack between each log. As the logs were raised, one water sling would throw an ample supply of water under the log. With this slack the water slingers would take their positions along the road and as the Bull Puncher started his team, they would alternately throw water at the front end of each log. After the logs were started again, the team was not stopped unless there was an obstruction in the road,

Water boys were generally Chinese^ "they accompanied the load to the mill, throwing water ahead of the skids to make the logs slide easier. He carried a long pole across his shoulders, with a five gallon coal oil can attached to each end, The carried a dipper in each hand and alternately, threw a dipper of water on the skids. On level land, toward the end of the road they had to get a little the water they could on the road, as level land was the most difficult to negotiate,

Water barrels were located at convenient spots so that he could refill his "buckets". There were times when grease was used in place of water, but this was rare because grease was not as cheap as water.

On the return trip, the water boys went ahead and refilled any barrels that needed to be refilled. Many of the barrels, had water piped to them from nearby creeks.

#### GREASE BOY

The grease boy on the skids with a swab when water was unavailable. Mutton tallow was generally used, but bear grease was used, if it were available,

#### BROOM BOY

The broom boy swept dust, chips, rocks etc. from the skid roads.



### JACK SCREW.

The earliest jack screw frames were made of hardwood, with an iron band around the bottom and 2 sharp brads to stick into the log or bore into hard ground. The brad was about an inch square and ran to a point. Mechanically, it was the same as the improved jack screw with the same ratic - <>ears and a safety dog.

The jack screw was one of the most valuable pieces of equipment in the logging world. It varied in height, but was usually about two and a half feet high. The bar and gear were made of tool steel, with a frame of heavy piping, ie the improved jack screw.

It was much faster than a screw jack, A screw jack had a worm screw\* Tt: was very slow and almost impossible to use in logging. The jack screw was a piece of heavy pipe with a base like an inverted saucer. A bar with cogs in it, ran through the pipe. At the upper end of the bar was a "dog" on a swivel. This "dog" at the outer end of the bar was elevated slightly and very sharp, so as pressure was put on it, it would sink into the log.

At right angles to the bar, were the gears, which fit into the cogs of the bar. The first gear was four to one plus the length of the handle; this went into a second gear that was about six to one plus the handle. With a man turning the jack screw, this rati would be equal to the lifting power of forty men.

On the outside of the gear frame was a notched dog, that could lock the jack, so that you could leave it with any amount of weight on it for an indefinite period of time.

Just above the handle was an important safety device. This was a pin with notches. In case the logger slipped or accidentally let go of the handle, the pin fell into the notch and prevented the handle from flying around uncontrolled. A flying handle could cut a man in two, or severely injure him, to say the least.

Jack screws were used in all phases of logging. When logs were unloaded at the landing there would be two men, each with a jack screw. When a leg was to be moved into the dump, a jack screw would be placed beside the log, the log quickly raised, and then the second man would place his jack screw and continue to assist the log in moving. The two men working alternately, would quickly move the log any place that they wished the log to go. This was the general method for using a jack screw. When the oxen was pulling a load and a log was fouled in any way, a jack screw or two would be used by the suglar, assisted by one or both water slingers, if necessary.

### GLUTS

These were made of seasoned live oak, shaped like a wedge, slightly higher in the middle, than at either edge, about eighteen to thirty inches in length, These were generally used by tie makers, but could be used in emergencies to raise a log, if it were caught on the skid road.

### FITH CHAIN

This chain had a hook on each end, which was hooked into the ring under the center of the lead yoke and was then passed back and hooked into the ring of the second yoke and so on for each yoke so that they worked as one team.

### SWAMPER

Built roads and cut brush to clear the way to get logs down to the skid road.

### SNATCH BLOCK

This was an all steel frame with a pulley and hook. When a logger wanted to use it, he bent the hook over and that uncoupled the side and he could throw his line out in just a few seconds. It was used in many ways. If a log got off the side of the road, and the logger had a Molly Hogan in his boat, he threw it over a stump and attached his block to the Molly Hogan. With a short piece of cable, with an eye in one end and a hook in the other, the log could easily be pulled back on the road. These were also used on logging locomotives, to put cars back on the track, or to reload a log.

### MOLLY HOGAN

This was an endless piece of cable (about three-fourths or seven-eighths of an inch cable) that you could throw over any stump. It was of no value in working with trees, because you couldn't get it over a tree.

#### BULL. WHEEL

The Bull wheel was used like a capstan, in early logging days. It had iron bottom.

One place it was used was Mill Creek at Dixon Flat. First the bulls pulled the wheel around (later horses were used). The wheel was bolted to a stump that had been sawed off even with the ground--fastened or chained to another stump. The oxen (or later horses) had to step over the chain, also over the brace of chains. As the wheel turned, the log was pulled out of the gulch or off the hill. It was used where it was muddy or where they didn't want to make a skid road for a small layout. The bulls went around with the wheel winding the ropes and pulling in logs,

#### BECKET

A hook on the end of a line.

#### TOMMY MOORE

This was a huge block weighing several hundred pounds. It was fastened to something substantial, like a stump. The Donkey pulled the choker through the Tommy Moore. The Whistle Punk blew the whistle to stop the donkey engine. When the engine stopped, it created slack in the line, the choker was unhooked from the pulling line and put on the outside of the Tommy Moore and back on the pulling line, leaving the back line in the block. On the return, the back line, choker and everything could go right through it. These were generally used to maneuver logs around obstacles.

#### GYPSY DRUM or GYPSY

A small drum on the extension of one of the shafts of the donkey, not moveable.

Early donkeys did most of the work with the gypsy. With this you could swing your donkey in any direction. There was no line with it, when you wanted to use it, the spool tender would take a line and put four or five wraps around the spool, and move the donkey.

Later this was used to handle the straw line,

#### STRAW LINE

A straw line was a short line used to move the donkey or other objects a short distance,

#### THE BOAT

The boat was a hollowed tree about twelve feet long, split through the center and flattened on the rounded side. Both ends were higher so that the equipment could not fall out either end. It carried a variety of things, including many cold shuts, or lap links, one or two steel blocks. Three or more cant hooks or peavies, three or four different lengths of Molly Hogans, which are strong pieces of steel cable with both ends spliced together. They were used to throw over a stump to attach block quickly, A couple of jack screws, several lengths of steel chains with dogs attached. A bridle and a sharp, double-bitted axe. This was necessary for " often a wind-blown snag would be across the track and the team would have to stop to get the log out of the way,

#### AXES

The axes used in California had to be developed for the big trees. They were not used elsewhere. They were a double bitted axe, that had to have a big off-set in the handle. One blade took the snipe and then the ax was turned over to make the cut in the bottom. The off-set in the handle was required to prevent the hands from being skinned as the cut was made. It worked on the principal of the broad axe, which had an off-set in the handle, but because the broad axe was beveled, it was limited in the types of work for which it could be used. For instance, in hewing a railroad tie, the tie had to be turned three times to complete the hewing.

Poleaxes were single bitted and were all purpose axes. It was an ax with a hammer face opposite the cutting edge or blade. The word pole does not relate to the handle but to the edge opposite the blade. The Poleax had many purposes such as driving small pickets, pegs, spikes, etc. The handle of a poleax ranged in length from twenty-six to thirty-six inches, while a double-bitted ax handle ranged in length from thirty to forty-eight inches in length.

Swamping and sniping axes were both broadbitted axes and were short from bit to



#### AXES (continued)

bit, but were wider than a falling axe, the width averaging six to eight inches.

Billing axes were narrow and quite long from bit to bit, averaged twelve inches, while the average width was around four inches. The handles were from three to four feet long.

The swamping ax was used to clear out brush, for a road or path, perhaps to a landing, or by a survey crew going through a wilderness area. It was also used to cut the limbs off trees after they were felled. The thinness of the blade of the felling ax would cause the blade to chip, if it were used for removing limbs.

The sniping axe was used only for bevelling the front end of logs for the skid road,

#### CANT HOOK

This was a lever, five feet or over in length, with a moveable iron hook on the end. At the tip it had an iron ring which was battered down so it would stick a log.

The cant hook was used to turn or move or lean small logs against something. These were used on small logs in place of the jack screws.

#### PEAVEY

A peavey was an improvement on the Cant hook. It had a heavier and longer handle. It had the same moveable iron hook, but on the end of the peavey, instead of the slight catch edge provided by the ring on the cant hook, it had an iron brad in the end of the handle, which was sharp and would stick into the log.

The name peavey was given to this, supposedly from the tuan who patented it.

#### ROLLING LOGS

Rolling logs was a matter of moving or placing them in a specific spot or place. The general methods of rolling logs were:

With oxen.

With jack screw

Parbuckling--this was wrapping a line, with a hook on the end of it, two or more times, depending upon the distance it is to be rolled, and pulling the line away from the log, and the log rolls into position.

By hooking a becket around and through the bit of the line, over or around the log.

The last two methods were used with a Donkey.

#### DONKEY

' ' \*d .si« spool upright and a side spool. In the early days this was a great aid when lines were pulled by hand.

#### SKIDDOE

A skidder has two drums one for the main line and one for the back line. The skidders pulled the logs down a gulch to the landings. This was the reason why the roads were called skid roads. Skidders were usually on landings. There would be four or five pullers in a crew. Skidders were narrow, carried line up to .i\*«!tforj

#### YARDER

A yarder had three drums with two spools for a back line and a main line. One of the three drums was for the main line another for the back line, and the third for the haul back. The haul back is a little line about four inch li>vi. . .

A yarder was larger and faster than a skidder. The main reason they were preferred over the skidder was their speed.

#### CHOKER

A loop of wire used for yarding. A choker was heavier than the pulling line. It had a hook in one end and probably an eye in the other. It circled the log, to be moved, and the choker tightened on the log as it was pulled and hence moved the log, where they wanted it to be. The chokers were generally made about forty feet long.

#### CHOKERMAN

The duty of the chokerman was to set the choker around the log. Unless he was told of a particular place to put the choke, he placed it according to his judgment.

YARDING

Yarding is placing a log in a particular spot.

BULL WHACKER

A bull whacker differed from a bull puncher in that a whacker used a bull whip while a puncher used a goad stick. Bull whackers were more common to Humboldt and Del Norte Counties than they were to Mendocino County.

BULL WHIP

This was a whip about ix feet long, with a series of straps (at least three or four) that would make #snapping sound, when the whip was flicked. The handle was long and braided.

COOPER

A barrel maker,

PEELER

A person who removes bark from a tree or log. It is used for both tan bark, and logs for lumber.

"JAY-HAWKING"

When the bark is removed from a tan oak by ringing the tree as high as they can reach. The tree is left standing.

"FREE" WHARF

A privately owned wharf. One not owned by a Lumber Company or a special mill.

CITY

This refers to San Francisco.

WHARFAGE

A fee charged to individuals wishing to ship tan bark, cord wood, ties, etc. that belonged to him, and which he wished to sell in the City or which he had already sold.

CHOPPERS

Choppers chopped an undercut and "backcut" in the tree to fall it. The axe was used for the undercut. The saw was used to complete the operation, including the back or upper-cut.

UNDER CUT

The under cut was used to guide the tree to the spot or lay out on which it was to fall.

UPPER OR BACK CUT

This was sawed on the opposite side of the tree a little higher than the under cut. The upper cut came to within a few inches of the distance of the under cut. The distance between the two cuts depended upon the lay out upon which the tree was to follow. The skill of placing one of these huge Redwoods upon the lay-out without the tree being broken was important, because a broken tree made less lumber.

BUCKER

A man who sawed logs into lengths. Directions for buckers were laid down by Camp Boss, who announced what lengths were wanted. He also stated the rules such as where to cut in the vicinity of branches, also that crooked trees were to be cut in the middle of crooked portion.

BARKER

A peeler.

LAY OUT

A heavy mat of brush and limbs to make a bed on which to fall the tree.

### EARLY DAY LOGGING

The trees of the greatest commercial value, common to the coastal area were, from the beginning, Redwood, Tan Oak, Douglas Fir, and a smattering of Sugar Pine, around Point Arena and Gualala, and Spruce. The Spruce was most useful to coopers.

Redwood was used extensively for lumber, fence posts and rails. In the early days there was a tremendous demand from the San Joaquin Valley for Redwood fence posts. Of course, lumber was shipped to many areas, San Francisco as a result of its frequent fires in the 1850\*s was constantly in need of lumber, but many shipments from the Mendocino Coast were sent to the west coast of South America.

When the price of Douglas fir was unsatisfactory, it was left and the Redwood was logged.

Previous to the Redwood logging, the general practice was to send in peelers to peel the tan bark and get it out of the way before the logging operations began. When the swamper, bailers, and buckers of Redwood began their work, the bark would have been destroyed.

Tan bark was an industry in itself in the early days, tan oak contained more tannic acid than the bark of any other tree. In the early days tannic acid was essential for the tanning of leather.

Greenwood was the only operation that had its own plant to grind and extract the acid from the tan bark. They shipped the acid to San Francisco and Benicia. The other operations along the coast shipped the tan bark direct to the City and Benicia by boat\*

In San Francisco, the largest tannery, and the one to which most of the tan bark was shipped was at the foot of Army Street.

Tan bark camps were not connected with the logging camps. The camps were planned to open around the first of April. If the weather was cold, the opening of the camps was delayed until the weather was warmer. There was usually /about three to four and a half months of good peeling weather. Peeling is only possible while the sap is coming up in the trees, so the peeler's work is limited by the flow of the sap. The sap dries from the top, when the sap when the sap gets down to the last ring on the bottom the peeler's work is ended, A ring of bark is four feet wide.

A tree with only two rings of bark, had the rings of bark removed, and the tree left standing. This was called "jay-hawking". If no fire got into the area, these trees would heal over, and a new set of bark would grow. In about ten years, these trees would be large enough to cut down, and you would get as many as five good .. rings of bark from them.

The tan bark was packed out of the canyons by pack mules to a landing. Here it would be loaded on wagons and hauled to the coastal wharves or chutes.

Point Arena was a "free wharf". Most of the wharves and chutes were "Company owned" and only those selling to the Company could use it. At Point Arena and other free ports, one paid "wharfage" and could use the wharf to ship to the City themselves.

If the tanbark was good, average bark it was purchased by measurement, but if it were light, they would be apt to take it by weight. A cord of bark was purchased by the long ton. About 1914, the buyers became very particular, and would cull the bark so drastically that loading became difficult and the fan bark industry begin to decline.

After the tan bark crew had removed the tan bark from an area, the choppers came in. Sometimes, there were just chopping camps, that came in ahead of the regular logging crew. They would chop and saw.

The choppers or fallers worked in pairs. The head chopper plan .ad the lay out for a tree. If there was a question in his mind concerning the conditions, he would call in the Chopping Boss. If the ground was uniform felling a tree was no problem, but if the terrain was uneven, many times the low places would have to be filled in and high places graded down.

If there was a hollow near a big tree, on the uphill side of a big tree, on a steep hillside, the tree was chopped so that it would not fall from the stump. If the tree was to be felled on the ground, the undercut was sniped up, and the tree would slip off the stump. The choppers had to know which was best for each tree.

Trees up to ten feet in diameter could be handled by most choppers in a long day, but over that diameter, it would take more than a day.

In the early days of logging, the logs were taken to the landings by bull teams, and then from the landings pushed into the creek or river and sluiced to the mill. All trees to be sluiced down the streams were cut very high, at least fourteen or fifteen feet from the base. This was because the butt was very heavy and would sink. The first log off a tree, cut in this manner would be called a "bobber". They were good logs to have because they would bob along, and would never get out of the river bank, frequently get behind the main drive. Where the booster dam had to be used, the "bobber" was often left behind.

In order to cut a tree fourteen or fifteen feet above the ground was a problem. At first a scaffolding was built around the tree to the height that they wanted to make the first cut. The choppers mounted the scaffolding and worked around the tree. This method was found to be too slow, and some one developed the use of a "spring board".

A spring board was generally a two by eight foot board about five feet long, and about two and a half inches at the outside and, tapered co about an inch or inch and a half where it entered the tree. The tapered end had a horseshoe shaped iron, slightly raised, bolted to it. A hole was cut in the tree to fit the tapered end of the spring board and when a man\*s weight was on there it was impossible for the spring board to come out. There would be a spring board on each side of the tree, on which a chopper stood to make both his undercut and back cut. A hopper could move his spring board as he worked without getting off his spring board. He would put one foot under the board, and jump in the direction in which he wished to move his board, at the same time pulling with the foot which was under the board.

The spring board was undoubtedly the product of the Redwood country, because of the size of the trees. The use of the spring board was so important in this work, that it became the practice of Falling Bosses to refuse to hire a chopper who could not go, at least, three spring boards high.

When the log was down, the Buckers and Barkers came in to work. Generally, the choppers were through with the immediate area when the Buckers and Barkers came in, because of the danger from the falling trees.

Either the Buckers or Barkers, depending on the immediate situation, would remove the limbs from the trees.

In the earliest days, Buckers worked in pairs but eventually they preferred to work alone. It was found that a man, working alone, could accomplish more in the long run than a pair. Probably, because he set his own pace and did not have to wait each time for his partner to return the saw (across the log).

An eight foot cross-cut saw was used. The butt end of the tree was slower cutting than toward the top of the tree.

When the log was cut into saw logs, the Barkers started to peel the logs, one barker or peeler, to a log. If the sap was "up" the log peeled easily, if it were not, the bark would have to be chipped off.

The peeler bar was a steel bar from four to five feet in length and about an inch with a wide bit of the finest tool steel which was welded on to the bar, which was common steel. The bar bit had to be razor sharp in order to be efficient in this work. Many serious accidents occurred, if a bar slipped.

After the log was barked, the sniper sniped the log and it was placed on the skid road in proper position, depending upon size and became a part of the lead to be hauled by the ox team to the landing to be sluiced to the mill to be made into lumber.

#### HOW BULLS WERE BROKEN

Steers were never used as work oxen as their necks were too thin and they could not stand the pressure of the yoke on their necks under pulling conditions.

The most important animals of the whole team were the leaders. Upon the leaders depended the driver's ability to place his team in the necessary position to do the work; controlled only by the driver's voice, giving directions, assisted by the judicial use, but not abuse of the goad stick. Where the leaders went, the rest of the team had to follow. So it behooved the driver to have a perfectly controlled pair of leaders, which took plenty of time and patience to accomplish.

The yoke, to which the bull must be broken, depends upon the size of the bull and the work that he was to do in the team. The largest hulls were used to make up the swing and wheelers of the team.

A yoke consisted of a piece of timber about eight by twenty-four inches and about five feet long, according to the size of the animal to be used. The lighter the animal the lighter the yoke and vice versa.

The best timber for yokes was found to be Dull (Bishop)- Pine, It was not straight grained like pine or fir, and did not split easily, dried fairly light. The pitch it contained preserved it and kept the yokes from rotting out easily in the winter slack season. The pitch in the wood had a toughening effect on the bull's neck and helped prevent gall sores. Probably the pine tar had a therapeutic effect. The timbers for the yokes were mill-sawed. Then heavy iron eye bolts and rings were put through the center of each yoke.

The block of • wood is cut out on a curve near each end and very carefully smoothed to fit over the animal's neck; hoes are bored through the yoke on the end of each curve about : tie to one and a half inches in diameter to accommodate a U shaped piece of wood called a bow, which was made of second-growth ash, which was steam bent and fitted. The curved portion of the yoke is placed on the animal's neck, then the bow is shoved up from the bottom holes in the yoke and pins of wood are inserted through holes in the bow, above the yoke to keep them from falling down and off. The yokes were generally hoisted up on a block and tackle and dropped down on be Mi animals' necks at the same time, and pinned into position.

The easiest method of breaking oxen was to use a broken ox for the first leader. Then it was easier to break your range bull for the "off" side, when looking at the team from the rear. The range bull was snubbed close to the snubbing post in the corral. Then a hole was punched through his nostrils and a bull ring was inserted. The halter chain was snapped on the bull ring to control him. It was remarkable to see what control a man could have over a fairly mean bull, by pulling on the tender nostril tissue. It didn't take long for them to learn that it was less painful to behave than it was to fight the ring.

The animal was then roped and thrown. It often took three men and a boy to accomplish this, He was then "hog tied" and the yoke was placed on his neck and the bow put in position and well secured to the yoke. He was then led into position and his end of the yoke was secured to him.

Previously, an old stump had been prepared, to which had been spiked a young ash sapling to be used as a pole, about four inches in diameter, at the smallest end through which was attached a ring bolt to be connected to another ring bolt which was down through the center of the yoke between the two animals. This was dragged with a team "chain up" parallel to the creature's body and attached by a shackle to the yoke.

Then the broken ox was yoked up to the "wild" one and their tails securely fastened together with baling wire, so that he could not move his rear end away from the tongue or pole, in which case he would have snapped the bow like a match stick and would have been free of the yoke.

When everything was in readiness the untamed bull was untied, allowed to get up and then the fun began. Quite a long piece of rope was attached to the chain that connected to the ring in his nose. This was to keep him from crowding the "broken" bull into the barn. If the "near" bull was a wise one this was not necessary. In this situation a smart bull would stand, and all that the "off" bull could do, would be to go around the "near" bull, in a circle to the left, -jest circling

the stump round and round. He could not go to the right because the "near" bull would stand still, and the poor "untamed" bull could not pull both the bull and the stump. They were tied together and left for the rest of the day. By night, there was little fight left in the "off" bull. This procedure went on, with the addition of a drover, who began to train the bull to turn left when told to "haw", assisted by a boy who pulled on the nose ring rope, and the prodding by the drover with his goad stick. Every trainer had his own method, of course. Many broke the oxen when they were very young, and it was the opinion of many that they learned easier at a younger age.

After a "gentling" period, the real teaching began. The drover would stay on the right side and the boy on the left of the near ox, holding the nose ring rope in his hand, as well as a switch to use on the tame bull, in the other hand.

First, the team was taught to pull straight ahead, the trainer using his voice to start them. The helper's duty was to see that the "near" oxen moved along even with the one being trained. At a signal from the trainer, the helper would pull on the rope, as the trainer called "Haw", he would prod the young ox with the goad and the team would turn left.

Then at the right time the assistant would prod the old ox and yell "gee". He would start to the right and force his partner to turn right, too. This was kept up for hours at a time, until at last it was not necessary to pull on the neophyte's rope at the drover's "haw". He would turn left and force his teammate over to the left, as long as he could hear "haw" until he could turn the team entirely around and head for home. The "broken" ox would execute the right turn on the drover's "gee" forcing the young ox to turn also. The stump was no load for two bulls but it was something to pull and get them use to pulling, as well as use to the feel of a load on their necks.

This procedure was the one commonly used. Of course, the position of the "broken" bull could be changed to the "off" side to train a bull for the "near" side. Before the lead pulls were put on a regular team they would be used for minor chores to get used to working together. Bulls were always matched for size and weight, to work as team mates. As bull after bull was gentled with the experienced ox, they were yoked together, and became yoke mates, always without fail working in the same position under the yoke. It was much less work to break the swing teams than it was the lead team, because they did not need to be taught "gee" and "haw". The leaders responded to those signals and the swings and wheelers simply followed them.

As soon as the first swing of bulls were gentle enough to be yoked together, a chain, commonly called a fifth chain, with a hook on each end, was hooked into the ring under the center of the lead yoke and was passed back and hooked into the ring of the second yoke and the four bulls were worked as one team. All of this time the leaders were getting better and better trained until it was amazing where they could be driven and how close they could be positioned simply by voice.

Before the oxen could be worked, they had to be shod as their feet would not hold up under the working conditions. To shoe an ox was a difficult proceeding. They were frequently shod in pairs. The pull-puncher and the blacksmith would urge the animal into a heavy crib, and the heavy end was battened down securely, to insure them remaining in position. The with a hoist or block and tackle, the animal was hoisted up until its feet were off the ground.

The inside of the hoof was cleaned with a sharp knife to remove any rocks. As is commonly known, cattle have cloven feet. Therefore a bull shoe came in two halves, right and left to match the right and left halves of the cloven foot. The blacksmith heated the iron shoe at the forge and pounded it in shape upon the anvil to fit the hoof. The shoes came flat and the blacksmith shaped it and made the toe and heel caxx to fit each ox. The shoe covered the entire half of the cloven hoof, not just the outer rim as a horse's shoe. It should never extend beyond the outer rim of the hoof, but was generally about a sixteenth of an inch smaller than the hoof. This gave the blacksmith a chance to nail the shoe to the half shell of the hoof on the outside only, from the center to the back of the heel of the foot. The nail holes were pre-cut in the shoes, the nails were cut off and crimped and the shell was rasped down to fit the shoe.

Because the ox shoe could only be nailed on the outside of the hoof it required

many nails ( which were smaller than horse shoe nails).

Halves were frequently lost, which required a substitute ox while the shoe was replaced.

\*\*\*\*\*

#### REDWOOD TREES

There are two species of Redwood trees the Sequoia sempervirens and the Sequoia gigantea. The ones common to our coast is the Sequoia sempervirens.

These trees, the world's largest, were named after one of the outstanding Indian characters of America, Sequoyah, son of a Cherokee woman and a German colonist. He became the progressive leader of his people, inventing a Cherokee alphabet, which made it possible to print the Bible in Cherokee. He was honored by the State of Oklahoma, having his statue placed in the capitol rotunda in Washington, D.C,

The tree Sequoia itself, immortalized the memory of Sequoyah. The Indians were protectors of the forest. Their wants were few: dead sticks for their camp, fires sufficed. They burnt the grass, the frequent fires controlled by them, safe-guarded the trees, prevented the accumulation of debris, which might have caused devastating conflagrations.

The most remarkable characteristic-of the Redwood is it bark, which may be from one to two feet in thickness. If it is stripped of its bark, (ie a ring or circle) the tree dies. The bark contains a mysterious chemical that wards off every and all manner of insect attacks. It also makes the tree fire resistant.

The sap keeps the tree virile and guards against disease. It has been said that no Redwood tree has ever been known to die of old age or of disease, nor has it ever been laid low by the ravages of insects.

Its only enemies are snow, storm, fire and man.

They have been felled by a storm and their tops struck by lightening.

The natural way for a Sequoia to die is by falling down. Changes in ground structure undermine the balance of the tree which will lean more and more, over a long period of time, until it finally crashes.

It is the tallest tree on earth and the nearest living thing to immortality.



### BULL TEAMS ON THE GARCIA

The L. E. White Lumber Company was still logging Lee Gulch, a tributary of the Garcia River in 1890. Although my father had been a bull team driver at Gualala, I was too young to have gone where he worked.

After a few days on the ranch, I asked my mother's permission to go down to look at the little creek, Lee Gulch. She gave her consent because we had lived on Pepperwood Creek, a tributary of the Gualala, and she knew that I was a cautious youngster. I walked up creek along the bank until I arrived at a short low bridge, which I crossed. About fifty feet further on was a great clump of second growth of redwood around a huge stump, when I passed these bushes, I found myself in the path of what I thought was two of the largest bulls that ever existed. I glanced behind them and saw what looked like a never ending line of bulls. At a glance I saw a very high but climbable stump, and was on top in no time\* I stood there watching the team slowly pass. The bull puncher called to me and told me not to be afraid, for the bulls were very tame.

I remember the first log behind the bulls, it was very large, those that followed were almost as large, with the smallest of the group at the end, followed by the boat, which carried all of the necessary equipment.

The boat was generally made of hard Douglas Fir, a hollow tree sawn about twelve feet in. length, then split through the center, and the round side flattened. The sides were hewn down considerably, but both ends were kept a little higher so '•'. that the equipment could not slide off either end. When it was finished it looked like a wide, low boat, only both ends were the same, as the boat was never turned around. In the boat was carried a variety of things, including many cold shuts or lap links, so if a chain broke it could be quickly repaired. A length of steel cable, also one or two steel blocks, called snatch blocks. Three or more cant hooks or peevies, three or four different lengths of Molly Hogans, which are strong pieces of steel cable with both ends spliced together. Their purpose was to throw them over a stump in order to quickly attach a block. (They are still in use today, by some loggers.) After they were once put to a heavy strain the circle was gone so they did not take up much room in the boat. It also carried two jack screws, several lengths of steel chains with dogs or hooks attached. Also what was called a • bridle, which consisted of two pieces of chain with a ring in the center and a dog at each end. The main reason for the boat was for the return of all of the coupling chains and dogs. If the bull team had a long load of small logs (twenty or more) the boat would be well loaded on the return trip.

I think that the thing that impressed me the most on my first encounter with a bull team was the Chinese water boys, as they were called, with their long queues flying as they hurried, to keep water on the skids, as this, I learned later, was an unusually heavy load.

The number of logs to a load depended on the size of the logs, the grade and the weather. On a rainy day it was easy to keep plenty of water on the skids, while on a hot day, it was almost impossible to keep enough water on the skids. If a team stopped, it was a real job to start again.

The Company had logged out Lee Gulch by the next summer and then moved up river to a larger creek called Rolling Brook. I believe that it was probably the last, and largest camp on the Garcia.

I later learned that the first team that I had seen on the Garcia was an eight yoke or sixteen oxen team, the Company had had two teams on this road. When the bulls left our place, the Company used the camp as a tie camp, where they kept many men making railroad ties.

The driver of the tie team was John Balfour. His sons, Chester and Elvin were well-known in Point Arena and Fort Bragg. Chester was later mill boss for the Union Lumber Company.

Contributed by Thomas O. Mounovan

SOME OF THE EARLY DAY PUNCHERS ON THE MENDOCINO COAST  
1866 and following

John Reilly—Navarro  
Matt Reilly---Navarro  
Homer Barton—Greenwood, Navarro, Salmon Creek, Albion  
Emory Flood---Greenwood, Navarro, Big River, Noyo  
Henry Flood---Greenwood, Albion, Big River  
James Wynne--Navarro Ben Severance—Navarro  
Haskett Severance---Navarro  
Ed Boyle---Gualala, Greenwood  
Wm. Hargreaves--Entire coast  
Jack Pollard---Salmon Creek  
Jack McLean---Gualala, Albion  
Charles Perkins--Little River  
Fred Perkins—Little River, Big River  
John Huff--Big River  
Byron Huff--Big River, Salmon Creek, Navarro  
Fred Bryant---Gualala, Big River, Salmon Creek  
Wm. Cavanaugh---Big River, Usal, Rockport  
Frank Mendosa—Caspar  
Peter Klinke       Gualala, Big River  
George Daniels--Big River John Daniels---Caspar  
? MadNider---Salmon Creek, Little River  
Wm. Lewis---Albion, Little River, Noyo, Rockport, Hardy Creek  
Dave Vickery---Salmon Creek  
John Sutherland---Big River, Albion, Salmon Creek, Noyo  
Angus Sutherland---North Coast  
Lafe Hall---Albion, Big River, Pudding Creek, and North Coast  
William Badger---Salmon Creek, Noyo, Howard Creek, De Haven  
Angus McDonald---North Coast S.D. Nolan--Russian River  
Dan Waldron---Salmon Creek, Noyo, North Coast  
Gene Hal---Pudding Creek James Doyle--Big River  
Emerson Waldron---Salmon Creek, Noyo, North Coast  
Andrew McDonald---Albion  
Ed Hatch---Big River  
William Ross---Gualala (Not William Ross of Cleone)  
Ed Caspar---Gualala, Big River, Salmon Creek, Noyo  
Pitt Hargreaves---Caspar  
Henry Wheeler---?  
Al Johnston---?  
Bob Cropley---?  
Lans McFaul---McFaul and Keene's  
Mike Mougovan---Gualala  
Stevenson---took McFaul's place when he became Woods Boss at Bridgeport  
Leonard Putman Dodge was one of the three pull punchers who started with Miller at  
    Rockport. He was from Maine, went to sea at nine years of age, at eleven years  
    of age he jumped ship. Later he married a Weott Indian woman  
John Kunzler---Garcia

