The Great Northern Paper Company, Chapter 04: The Long Log Days

John E. McLeod
CHAPTER IV

THE LONG LOG DAYS

The products of Maine's forest land were used in almost every conceivable way before the advent of wood pulp. The most important activity in this field, by far, was of course the operation of sawmills. This was the lumber industry. Supplying the mills with logs was "lumbering".

For fifty years past, "pulpwood" in the State of Maine has meant four-foot sticks, and there has been a difference between lumbering and "cutting pulp", but when the pulp mills first began to appear, they used wood delivered as logs, twenty to twenty-four feet long, driven down the rivers, and lumbering operations were the same for both industries. As this is written, the trend is to bring pulpwood out of the woods in tree lengths. This is a much different operation from old-time lumbering. It would therefore seem appropriate to consider at least superficially what went on in connection with the cutting and delivery of wood in the old days, and incidentally to look at the forest products industries, particularly the lumber industry, which was still in full swing when the Great Northern Paper Company came into being, and with which it came into brief conflict.

Looking back at it, a lumbering operation when the Company came to the West Branch, or for that matter, any time up to World War I, was little different, in many respects, from an operation at the time Maine became a State. Change came slowly in the woods, and old practices persisted in some places long after new ones
were adopted in others. Some of the methods and even some of the terms used were not the same in all localities and in all periods. A great deal has been written about lumbering in Maine in the old days, and this chapter is not likely to contain any new information, nor is it intended to be a definitive description. Rather, it is an attempt to establish, in a short account, a general atmosphere for the place and time, and to provide a background for it.

The utilization of Maine forest products has gone through three time phases -- the period of individual action, from Colonial times to about 1820; the cooperative period, covering the next sixty years, and the corporation period beginning about 1880(1) It was in the second of these phases that Maine became world-famous for its lumber industry. As far as the West Branch of the Penboscot is concerned, the third phase came with the Great Northern Paper Company, which began its operations in the long log days.

Lumbering for the very early sawmills was usually a family affair, with the sawmill operator doing his own logging, going into the woods in the early winter and cutting as much timber as he figured he could drive to his mill the following spring and summer. His labor, when he employed any, was local, and returned to farming and fishing during the summer months. Shortly after the beginning of the 19th century, supplying logs to the sawmills became a separate activity, involving financing, the purchase of land or stumpage, the hiring and administration of labor and the cutting and delivery of logs, on contract or on a speculative basis. This industry, which started on the coast of New England
and spread across the continent to the Pacific, was one of the most colorful, and the most wasteful, in the nation's history.

The first step in any early lumbering operation was to make an "exploration". This was sometimes done by the lumberman himself, more often by a hired surveyor or "explorer", later called a "cruiser", to distinguish him from one who measured land. This man, sometime alone, more usually with a partner or guide, disappeared into the woods in the spring, generally traveling by boat or canoe, furnished with a light camping outfit and provisions consisting largely of flour, molasses and tea. He often traveled great distances in search of the right location. His purpose was not only to find a good stand of timber and estimate its quantity and quality, but to examine the lay of the land, locate drivable streams and determine the need for improvements to get out the logs. An early type of aerial survey was made by climbing a tall tree and counting all the pine tops in sight. (2) Later, more accurate methods of estimating, such as cruising on compass lines, came into use. The cruiser usually made a written report, which was highly valued by his principal.

Incidentally, the term "lumberman", while originally applied indiscriminately to everyone who worked in the woods, came, at some time after the Civil War, to mean the business head of the enterprise, and will so be used in this story. The professional woods worker, now generally referred to as a "woodsman", was variously called a "lumberer", "lumberman", "logger", and "lumberjack", the third term not being common in Maine and the last not used at all. The same individual, while working on the drive, would be called a "river-driver", or if he were particularly expert,
might be a "river-man".

Having his cruiser's report, the lumberman proceeded to obtain the right to cut the timber, either by buying the land or by purchasing stumpage -- the right to remove the timber without acquiring title to the land -- and arranged his financing. By September, he was ready to put in a small crew to cut a "tote road", over which supplies could be hauled to the operation. (3) This often started at a point on a river or lake to which supplies could be delivered by boat or hauled over the ice, and was a mere wide path, dodging around natural obstacles, avoiding hillsides where it might have to be timbered up, and steep grades against the load, wherever possible. This crew also built the camp, and although in early times logs were usually hauled to water by the shortest route, a path being cleared ahead of the team, a few roads might be "swamped" to heavy stands. This word derives from the very old days when the forest in general, for some reason, was "the swamp". The noun has disappeared, but the verb is in use to this day. A few improvements might also be made at this time in the stream on which the logs were to be driven, by removing some obstructions, and perhaps building a small dam for water storage.

Further preparation might be made by cutting and storing hay. Until well into the 20th century, this was the most bulky item of supply for a lumbering operation, and furnishing it to the lumbermen became a business in itself, with dealers buying from farmers and other producers. (4) "Stumpage" on wild hay could be bought from the owner of the land, or as often as not, it was cut without permission. Marsh or "saltwater" hay, was
sometimes put up on platforms, so that the whole stack could be moved bodily to the operation during the winter. (5) There were "hay farms" in a number of places along the Penobscot, even in remote areas. Baled hay came later, and huge loads of it were hauled during the Company's operations. Lumbermen who had more than one operation in an area usually built a "depot" camp, from which supplies were distributed. Sometimes several lumbermen cooperated in building a common tote road, which was used by all. The toting of supplies during the winter months, for large operations, was often contracted. By the time the Great Northern Paper Company began operations, the country was crisscrossed with tote roads, some dating back to the pine days.

With the preliminary work done, the lumberman sent in his main crew, with supplies and equipment, on the first snowfall, or even as soon as the ground was frozen, if he wanted an early start, and the operation got under way. Transportation was often by boat as far as a boat would go, and it was amazing where a skillful crew could take a batteau, even in very cold weather. Even hay was moved in boats. Any overland transportation was by sled, and if there was no snow, light loads were hauled over the frozen ground or on the ice -- a tricky business early in the winter, with the teams well spaced out and the ice cracking and buckling under them -- and a team, a load, or both sometimes lost. (6) During the winter, of course, further supplies had to be brought in all the way by tote teams.

The cutting of logs and delivering them to market was, and to a considerable degree still is, a process geared to Maine geography and the Maine climate. The actual felling and limbing
of trees and cutting them into logs was a relatively simple operation, transportation being the real problem. The lumberman took advantage of the Maine winter, which froze the ground and water surfaces and covered them with snow over which large loads could be moved, and which, melting in the spring, provided water to float the logs down the rivers.

In early operations, logs were hauled to water by the most direct route, one at a time, as fast as cut, and the waste in swamping was terrific. The ox was the usual draft animal, six oxen the usual team. Cutting and hauling continued right through the winter, and stumps have been found which appear to have been some six feet high because of deep snow. After the tree was felled, limbed and cut up, the butt of each log was rolled up a skid onto a short, heavy sled, to which it was chained, or it was levered up and the sled was backed under it, in which case the large end was "sniped" -- bevelled -- to facilitate the operation. In the days of the big logs, the bark was removed from the trailing end so that it would slide more easily over the snow. Later, when the logs were smaller, several were hauled together, at first being dragged as we have described. Later still, hauling was done over roads on double or "wagon" sleds. (7) These were made up of two separate sets of sled runners, one behind the other, each set having across it a heavy timber -- the "bunk" or "roll" -- the two sleds connected by side frames, and the front one pivoted so that it would swing in either direction, like the front wheels of a wagon.

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Horses gradually replaced oxen, although some cattle were used up into the early 1900's -- at least as late as 1910, and perhaps during the entire span of the long log days. In the early days of horse hauling, the usual team was four horses, but in later years two horse teams were more common, and they could pull a tremendous load over a well-prepared road. The combination of horses, smaller logs, stands of timber further from water and more conservative cutting practices produced some changes. The cutting season started a little earlier and ended with deep snow, so that stumps could be kept down to the swell of the roots. Yarding became general practice, logs being dragged or "twitched" out of the woods, one or two at a time, on "twitch-paths" or "trails". Yards of considerable size were made along prepared hauling roads, and this allowed hauling to continue after cutting had stopped. Yarding, and the fact that horses had more braking power than oxen, made it possible to haul bigger loads on double sleds as methods of preparing better roads by rolling, plowing and icing were developed. Putting up one of these loads was a hard and dangerous job. The logs were rolled up onto the sleds on skids, the lower tiers being handled by men with cant-dogs. The outside bottom logs were chained down, and the upper tiers, gradually narrowing, were parbuckled up, using horses for power, and the whole load was chained. Moving these loads was also a dangerous business. Roads were always laid out so that the haul was downhill. Bad grades were always avoided when possible. Steeper pitches on the road would be covered with hay or stable refuse, the coarse marsh grass making good road hay. On really bad hills, chains were wrapped around the sled runners, or a snubbing cable was used, at first simply wrapped a few turns around a conveni-
ent tree or stump and paid out by hand, later controlled by pins and levers attached to the snubbing post, and eventually by a mechanical snubber with a number of drums. Some good stands of timber were considered inaccessible in the horse hauling days, either because roads could not be made to reach them without impossible grades, or because they could not be laid out without an uphill pull. These woods roads were not as we know them. They were just lanes through the woods, with stumps cut low, a boulder removed here and there and perhaps some "corduroy" -- logs laid side by side to fill up low or wet spots -- and side logs where there was a sharp drop-off, ice and snow being depended upon to level them out. However, particularly good logs could sometimes be got out of precipitous country either by rolling them from one pitch to another, or by chaining them to a "drag" -- another log with limbs cut off a few feet from the trunk, clearing a path and letting them slide to where a team could reach them. (8)

The steam log hauler came to the Maine woods in the season of 1900-1901. This machine, invented by Alvin Lombard, of Waterville, Maine and built in Waterville, represented the first practical application of the crawler tread. (9) With it came a new era in woods transportation. The first unit was extremely crude, but as improvements were made, it became quite widely used. There will be more on the log haulers in another section of this story. Their use allowed of hauling much bigger loads on sled trains over much greater distances, but did not affect lumbering practices to any extent, as it was still necessary to yard and horse haul to get the logs out to the tractor roads. Logging
railroads were not built in the part of Maine in which we are interested until the time of four-foot wood.

The "landings", where the logs were delivered to water, might be on the ice of a pond, lake or other still water, but when the wood was hauled to a stream it had to be piled on the banks. In the days of dragging the huge pine sticks to water, they were probably rolled off the sleds and laid out along the shore to be levered into the stream. However, when the logs got smaller and were hauled in sled-loads, and this was by 1850, things were different. Unloading a sled was a ticklish job. Most of the load generally slid off when the chains were let go, but if it did not, it had to be started, and this was treacherous. The landings in those days and in all the rest of the time of long logs, were put up with cant-dog and parbuckle in high tiers parallel to the shore, on sloping skids extending down to the water. The logs in each tier were held back by one at the bottom, notched into the skids, against which, at each end of the tier, was an upright, wedged into the bank. When these were chopped away, the greater part of the tier slid into the water by itself. Breaking down a landing was another dangerous job, but it did not take long to get logs put up in this manner into the water. When there were several operations on the same stream, all breaking landings at the same time, with no means of communication except by messenger, things sometimes got a little out of hand, as we will note further on.

Every log cut was supposed to be marked with a "log mark" -- a design cut with an axe -- to distinguish it from those owned by
other lumbermen when it was put into the drive. One operator might have several marks, to identify logs cut from different locations, by different subcontractors, or in different seasons. These marks were cut through the bark at each end of the stick, and on very long logs were also cut near the middle, so that no enterprising woodsman could remove them by chopping off the ends. Unmarked, or "prize" logs generally got to be the property of the first party who noticed the omission. In the cooperative and later corporation days, log marks were registered with the driving association. On the Penobscot, there were hundreds of ingenious symbols and combinations of letters and symbols, all made with straight axe cuts. Buyers from the sawmills commonly visited the operations in the spring, before the drives were started, to inspect and purchase logs on the landings, and the marks identified their timber as it was sorted at various points along the river, or in the booms above Bangor.

The driving of logs down the rivers of Maine is a story in itself, and can be touched upon only superficially. Short wood is still being driven to some mills, notably on the Kennebec, in 1974, but this is not likely to continue for long. As this is written, there are as far as we know, no long logs being driven and this fascinating chapter of Maine's history is about at an end.

In the early years, the cutting crew stayed right through and brought out the drive. Later, it became the custom for the crew to come out of the woods after hauling had been completed, and a new one was sent in for the drive. Most of the river-drivers would be men who had worked in the camps during the win-
The logs landed on the ice floated free on the spring thaw, sometimes with the help of explosives. The landings on the smaller streams and along the banks of the river were broken and the logs were rolled into the water. Driving the smaller streams was difficult and full of hazards for the driving crew. On the West Branch of the Penobscot, Sourdnahunk and Pollywog Streams were considered particularly dangerous. Little "splash dams", ponding up water which could be let out to flush logs downstream were built all over the country, often for just one drive. "Roll" dams, with no gates and a sort of ramp on the upstream side, were constructed in places to flow out some particularly troublesome obstruction. "Runarounds" -- low dams to close off a poor channel and give more draft of water in a better one; "abutments", and booms to shear logs around projections on the banks, or to keep them out of the swamps and "logans" (backwaters), and the removal of boulders and ledge from the stream bed were common improvements. Bigger and more permanent dams were built on the rivers and larger streams, providing flowages in which logs could be held to even out the quantity in the stream at any time, and storing water to be let out under control as needed. These were almost always put at the head of a falls, rather than at the foot. Logs had to be sluiced through these dams, which were built with sluices twenty to twenty-five feet wide. Wind had a great effect on logs floating in a flowage or deadwater, and often it was necessary to tow them. On the smaller water areas they were usually "rafted" -- tied together in bunches and towed with boats to the dam, where they were "tied down", if necessary, by a boom run behind them, and men went out on the Long Log Days - 11
logs to pole them down to the sluice. On the larger bodies of water, the logs were towed in booms, and this operation will be described later.

Once the logs were put into the stream, from the landings or through the dams, they were shortly strung out over several miles of river, and immediately began to lodge on the shores, and on rocks and ledges in the stream bed. The drive had three parts -- the "head", the "main drive", "middle" or "body", and the "rear". This last term had several meanings, according to how it was used; all the logs collectively that would have to be moved out into the channel in one way or another after the main body of the drive had gone by -- and this might be "floating" or "dry" rear, depending upon whether the logs were in eddies or deadwaters or were stranded; the logs at the tail-end of the drive; logs left behind entirely, or the point furthest upstream where there were floating or stranded logs. The progress of the drive was measured by the location of the rear in this last sense. The crew was spread out along the drive as conditions required. There would always be some men at the head, to keep it moving along. The bulk of the crew would be "taking" or "picking" the rear, pushing, pulling or rolling stranded logs into the channel and leaving the banks "clean", although under some conditions some logs might be left on the shores and a crew would be sent back later to bring them down. Moving stranded stray logs off the shores of a lake or other large body of water would also be included in "taking the rear". The driving crew worked until it was too dark to see, and the men were out on the logs again before daybreak.

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On the rapids and fast water, men were positioned to guide the logs away from obstructions where they might hang up. Along the body of the drive, others would be working on the "wings", the masses of logs piled up along the edge of the channel at bends and ledges, although in some spots, where the wing had in effect made a sluiceway through which other logs would run smoothly, it was left until the rear came down. The rear might be light or heavy, depending largely upon the "pitch" of water. With too little water, it was a fight all the way; with too much, the logs got back into the woods and had to be dragged out to the water. A drop in water level which could not be restored had the same effect. Under these conditions, horses were used to some extent along the shores, especially on the gravel bars and low banks of the lower river.

On the falls and pitches below the dam or landing, where the logs should run through, but sometimes did not, watchers were posted on "stations" to note any change in the rate at which the logs were coming down, indicating trouble somewhere. These men were usually in sight of each other, and could pass up the line messages or signals to stop or start putting in logs, to put on more water or shut water off, and so on. Later, before the telephone, putting up or taking down flags -- pieces of rag tied to a pole -- in some places along the drive signalled such changes, or indicated the conditions at different points.

Every so often, and it was fairly often, in spite of all precautions, a jam would form, or "make", on some obstruction, and the logs piled up in a tangle from bank to bank. This could happen anywhere, not just at the head of the drive. When a jam
formed, signals were sent back to stop sluicing or putting in, if this seemed necessary, and the crew started down from the rear to break it. Sometimes this could be done by putting on extra water. If not, it had to be dug out, one way or another. While some jams could be broken quite readily, the work took judgment, skill and courage, often requiring that logs be pried or chopped out of the very bottom of the mass. The face of a log jam was not a healthy place to be when it let go -- when it "hauled". they would have said.

There were paths along the banks of the streams, but much of the movement of men and supplies was by boat, and a good deal of the work itself was done from boats. The batteau, a sort of overgrown fisherman's dory, with overhanging bows and stern, became the favorite craft. Short oars, setting-poles and paddles were used for propulsion. The man in charge of a boat's crew was an expert river-man, who knew every rock and cross-current at every pitch of water. The batteau could and did negotiate very rough water, but there were a lot of places where it was necessary to carry. This was a rugged job, one of these big boats like the Maynard model used on the Penobscot weighing nearly half a ton. (10) Later boats on the Penobscot river were of a smaller, lighter type, the so-called Kennebec model.

At the head of each lake or other large body of water encountered in the course of the drive, piers and booms were built to hold logs, with other piers for "booming-out" purposes, and a separate crew was stationed there to build booms and to assist in this process. A boom-house, with a cook room and living quar-
ters, was usually located at the "booming-out place". At those handling large amounts of logs, there might be other facilities, such as a blacksmith shop, and in some places, as at the head of Chesuncook, permanent settlements grew up.

The two ends of a long "bag boom" were attached to piers separated by a gap through which the logs were poled to fill it. In early times, the boom logs were overlapped at the ends and fastened together by "thoroughshots" -- hardwood pins with a head at one end and a hole for a wooden cotter-pin at the other -- but short boom-chains to connect the boom logs end to end took the place of these a long time ago. When filled, the ends of the boom were joined, and it was "let go", to be towed down the lake. In the old days, moving logs from one end of a large body of water to the other involved incredible labor. For sixty years or more after lumbering began on the West Branch, the booms were towed using a "headworks" -- a heavy raft, on which was mounted a capstan, a primitive affair, made out of a log, with holes for bars, but without any ratchet or pawls. The entire headworks outfit consisted of the raft and capstan, a small anchor, a rowboat, a long booming warp (cable), short snubbing hawser and ten or twelve strong men. In operation, the anchor was boated out ahead to the length of the booming warp and was dropped overboard; all hands manned the capstan bars and walked the raft, towing the boom, to which it was attached by the snubbing hawser, up to the anchor. Then the anchor was lifted, and the process was repeated. Two or three miles was all that could be gained in twelve hours of heavy toil, with a fair wind, (11) and Chesuncook Lake, for example, was nearly twenty miles long. In
the old days, they towed all night, but in later years, after
the towboats came, it was quite usual to tie the boom up to the
shore at night, or in bad weather. Even a steamboat could not
move one of these booms against the wind. After it had been emp-
tied or "turned in" at the foot of the lake, the boom, or another
like it, along with the headworks raft, had to be towed back to
the booming-out place for another trip. One supposes that on the
large lakes there would have been several headworks outfits in
use at the same time. Headworks capstans were sometimes located
on shore, to warp booms around points of land, and these were
usually worked by horses. A horse was sometimes used on the
headworks raft, but this was not common. Steamboats eventually
took over the towing on the lakes, but there was no towboat any-
where on the West Branch until 1890.

Records were kept of each day's progress on the drive, and
there is excitement and drama in these then prosaic journals,
which mention almost every situation and use almost every term
found in the foregoing. The writer is unable to resist an attempt
to recreate some of this by excerpts from the records.

These are in two groups. The first is from Company records
of the drives on Alder Brook and the South Branch, through Se-
boomook Dam, in the spring of 1904. The Company was technically
in charge of the drive that year, but other lumbermen had crews
working in the same area. These are only bits and pieces,
broadly in chronological order, with a few dates for relativity.
They show only a corner of the picture. There were drives
coming in from the whole area around the head of Chesuncook,
and 20 booms had already been towed down the lake by the last date. The complete record of the drive of that year from the head of Chesuncook through North Twin Dam is in existence. The second covers the drive over the rapids below Shad Pond made by the Penobscot Log Driving Company in 1906. Most of the places named in these accounts are now under water. The old Canada Falls dam was several miles above the present one, had only a small flowage, and is now flowed out. The falls below Shad Pond are now under the waters of Dolby Pond or in the backwater from the East Millinocket dam.

"Crew went to work. Worked 2/3 day breaking through landings, blowing ice and stringing boom..." "25 men working, blowing ice, stringing boom and doing some rafting..." "Began driving today under good head of water from Sandy Bay dam. Took off several of our landings...GNP Co. had small crew at same work (blasting ice) in morning, but as ice and old logs were forming jam further down river took them off and sent them to their various stations...." "Landings going off fast above Little Canada Falls"..."Fifty-one of Kelley's men worked two lunches of a day on landings..." "Flags set at Roll Dam 1 P.M...." "Logs running freely at Roll Dam all day...GNP Co.'s rear at trip above storehouse. Large jam formed from Alder Ground to High Landing seven miles below Roll Dam (May 4)"..."No logs running today account of jam at Alder Ground below Roll Dam. J.E.Kelley told C.E.Gilbert & Wm. Nugent, after accusing them of placing boom across brook that he would cut any boom & also cut off the
man's head that placed it (May 6)"..."Sent 19 men to Canada Falls this A.M. Commenced sluicing Canada Falls this A.M. Sent 22 men to Canada Falls this P.M. ...
"Crew on Alder Brook all on rear today. 20 men on falls, 9 men sluicing, 11 men in deadwater above dam, 22 men at work on jam...jam hauled at 10 A.M."..."Came from Pittston Farm this A.M. Came by path and found men on their stations and all awake..." "Harry Haley was drowned today while working on a jam on Canada Falls. While trying to throw off a log with two others the current struck the end of log and twisting it knocked all three men down, Haley falling into water and was swept under wing..."..."Winding Ledges, Canada Falls. This afternoon, after picking out wing making narrow channel, Fred Hodges, foreman for GNP Co. advised Geo. Pula (Pooler) Kelley's foreman not to sluice any logs, as they would not run. Pula paid no attention to the advice and let logs go and formed a jam that will take two days to pick out...When signal was sent to stop sluicing when second jam formed it went to Grand Pitch all right which is as far as GNP men were stationed...signal did not reach dam until 6 o'clock P.M. ...(May 12) "Moved jam on Canada Falls at 11:30 A.M....(May 13) jam hauled, leaving heavy rear on both sides..." "Sent 9 men and wangan to Seboomook deadwater. Had 19 men on rear, 6 men rolling rear at foot of falls, 19 men below farm rolling dry rear..." "Hoist-ed gates at Seboomook Dam this A.M. 2 o'clock. Com- menced sluicing at 9 A.M. (May 17)" "Small jam below
Big Eddy. Hauled 7 A.M. Signal for another jam 1:30 below Big Eddy (May 21)"..."Rear cleared dam 2:25 P.M. (May 24)"..."Started for Chesuncook Lake. Arrived at head of jam in deadwater 1:30 P.M. (June 8)"...Left Chesuncook Lake 5:30 A.M. Strong No. East wind blowing. (June 11)".

Now for the P.L.D. notes, which are much more detailed than those for the above stream drives, and are for our purposes quite heavily excised.

"Thurs. Aug. 2. 12 M Rear left by GNP Co., below the mouth of Nolsemut (Nollesemic) Stream. Boat's crew of P.L.D.'s men waiting to start rear through Shad Pond....4:30 P.M. rear out of Shad Pond and on Pond Pitch. Counted 9 boats and 71 men..."

"Friday Aug. 3. 6:40 A.M. Rear ½ mile above Jerry Brook Rips....Counted 96 men in all at work with cant dogs....59 men working wing on west shore. Coming easy. 32 men working a wing below the rips. Men working with spirit but many poor drivers among them. 12 M Rear clear of Jerry Rips....Wangan gone below....Began work on large wing at the high landing formed 2/3 across river....Using dynamite freely and coming rather slow and hard...."

"Sat. Aug. 4. 6:45 A.M. Rear about ½ mile above Charlie Powers Field. Counted 96 men at work on center formed above Ledge Falls. Jam laying hard and coming off slowly. Full of bark and driftwood and obliged to
use dynamite freely. Men working slow many of them to poor advantage....9 A.M. cleared center and crew lunched on the east shore....Worked on wing steady up to second lunch. Picked two holes through it leaving two bad centers on the brow of the falls that took a long while to clear with men afraid and working slow....Cleared the center at 4 P.M....Counted 18 men on the west shore, 118 men on the east....Wangan tonight on Charlie Powers flat, same place as last night...."

"Sunday Aug. 5 Rear on Dolby Rips this morning. One large jam on first pitch of the rips and a light wing on the east shore. 1 Boat's crew sacking rear on each shore and 38 men on the center....Center working slow and hard. Shelling off lower and west side. (Center) cleared at 2 P.M. 3 Boat's crews working rear on Dolby lower pitch....Rest of the crew working on head of Rocky Rips. A heavy wing formed there on east shore. Logs piled high and laying hard. Wangan run below to high bank at the head of Burntland and men lugged lunch back to crew....a good mile....Rear not moved tonight. Rips winged up heavy all the way to Burntland. Logs crossed badly and laying hard."

"Monday, August 6. 5:15 A.M. Logs running well by Burntland. Rear still on head of Rocky Rips....Cleared the wing at noon....All the crew except three boat's crews run below to the big wing formed on the middle pitch of Rocky Rips just above the high landing...."
"Tuesday, August 7. Rear on the same big wing as yesterday....Worked steady on the wing until second lunch....Picked a hole up through near the west side....Large crew needed to tend out and logs jamming badly as they went through....Men work slow and with poor spirit. Used dynamite freely on the front of the wing, getting some small hauls, but nearly every log has to be picked out....At second lunch counted 154 men. New men coming in every day and some beginning to leave....Wing cleared at 6:30 and men moved down opposite the wangan...."

"Thursday, August 9. Rear on big wing at head of Waite Rips. Logs lay on easy ....Counted 134 men at first lunch, except two boats' crews on the wing below....52 men working on point of wing, 16 tending out in the dry way, 54 shelling off to dry way, 10 men picking hole through at the head of the falls. Hauled through at 10:45, giving good flood in the dry way....3:00 P.M. 77 men started on big wing at Rockybeemie. Rest of crew cleared floating rear on both shores and dropped down onto the wing one at a time. Done good work. The wing lays easy. Not piled high. 64 men working on lower side, showing more spirit than any time yet...."

"Saturday, August 11. Rear this morning on the gravel at the mouth of the West Branch. Logs laying easy on the gravel....Cleared the gravel at mouth of West Branch at first lunch. Crew working rapidly below....Saw them working two horses hauling off gravel at the mouth of the Mattawamkeag River....One boat's crew discharged
....opposite Reed's Farm because they refused to row going down stream....Wangan on Wangan Ground at Salmon Stream...."

This was a normal drive, with good water conditions -- "a good driving pitch" reported all the way. It will be noted that it took ten days to bring the rear from Shad Pond to Salmon Stream; about a mile a day. From this point on, the going was easier, and this drive was into the boom at Sugar Island, just above Milford, on September 6th. This was another 50 miles therabouts, so that for the rest of the drive they most have averaged nearly two miles a day. The September date was early. Some time in October would have been normal. It is probable that this was the last drive over the rapids above Burntland, as at this time construction of the dam at what became East Millinocket had been started.

As the number of operations on the rivers grew, and the logs of many owners were being put into the water at the same time, clashes of interest were unavoidable. Each crew worked independently, and there were many disputes, physical and legal. Violence and the threat of violence was common. As the drives reached the lower parts of the rivers, with several crews working at once, conditions became chaotic. Various pieces of legislation governing river driving were passed as soon as Maine became a State, but they were hard to enforce. In 1831, all previous laws were scrapped, and provision was made for the regulation of the rivers. (12) Early efforts were in the form of associations, in which all the owners of logs on the river banded together to employ a "master driver" to coordinate the drives,
the cost of his services being pro-rated among them. Provision was also made by the Legislature whereby individuals could obtain the right to build dams and make other improvements at strategic points and to charge tolls for the use of these conveniences. While this concept was opposed by many, it was probably not unfair, as tolls were fixed on a basis that would provide a reasonable return and amortize the cost over a period of years, after which they were reduced to cover operating expense and repairs only. Very early, it became the practice to establish some sort of collective booming and sorting operation at the end of the drive, in order to get the logs of the various owners separated. (13) Further information on driving the Penobscot River will be found in other chapters of this story.

Returning now to the woods operation. The woods camp, or lumber camp, of the days when the first timber was cut on the West Branch, was a crude affair, but many of its features were preserved for a hundred years. We will attempt to describe the earliest camps, from information derived from a number of difference sources, and to trace later changes sketchily.

There were usually three buildings making up the early camp. These were made of rough logs, cut on the spot, or nearby, to the lengths required, laid in horizontal courses, the side and end logs notched at the corners to fit fairly close together, the gaps between them "chinked" with moss or mud or both. They had no windows. The roofs were not boarded, but were covered sometimes with sheets of bark, more often with "splints", a sort
of shingle split from blocks of pine or cedar three or four feet long, laid on log purlins. There was no iron in these camps, the splints not being nailed, but held down where they overlapped by small poles, lashed at each end to wooden pegs. A covering of brush was laid over the roof to hold snow, which provided insulation.

The men's camp was one large room, with no floor except the bare earth, the duff on top being scraped away. Up until about the 1860's it had no bunks. The bed-place was marked off by a log laid on the floor seven feet or so from one of the long walls, and this space was filled with hay or with fir and hemlock boughs, on which the men slept in their blankets, side by side, heads to the wall. Along the bed-log was the deacon-seat, a bench made of a split log with stubs of limbs left on it for legs. In the middle of the camp was the hearth, merely a square of good-sized logs, in which a fire fed by six-foot sticks, burned day and night. This served for both heating and cooking, a hole in the roof letting out at least some of the smoke.

Food supplies were stored in a corner, marked off by other logs laid on the floor. A few cooking utensils, including a number of huge frying-pans, with covers, were provided, and one corner of the hearth was reserved for the "bean-hole" where beans were baked in an iron pot buried in hot ashes and covered with earth. There was no cook, the men taking turns at this chore. A few rough stools completed the furniture. The deacon-seat was used as a table, the men eating right out of the big frying-pans such food as was prepared or placed in them. (14) Overhead, malodorous clothing was hung up to dry. One man was told off
at night to keep the fire up and to serve as a fire watch. Some of the early camps were of the shed type. The front wall some eight feet high, and the rear one three or four, but the "double camp", with gable ends, was more common. Incidentally, the construction of the roof allowed of pushing part of it off from the inside to provide for escape in case of fire. (15)

The "hovel", as a camp stable was called as long as there were draft animals in the woods, was built the same way, but it had a floor of poles hewed flat on one side -- the hooves of oxen and horses had to be off the ground when they were standing in. A third building was for storage of hay.

By the 1850's, the hearth had been moved to one end or one side of the camps, and was built with a back of stones or heavy logs. (16) A Cook was hired, and a table, tin cup and plates and eating utensils were provided. A chimney of small logs plastered with mud was put over the smoke-hole. Starting in the 1860's the camps began to improve considerably. Windows were added and floors of hewed poles were put in, a few pieces being left loose, to be lifted so that litter could be swept into the space beneath. The shed-type building had pretty much disappeared, and splints were nailed on the roof. The bed-place had been replaced by a long raised bunk, its "springs" the ubiquitous flattened poles spread with boughs. As crews became larger, these bunks were built on more than one side of the camp, and were double-tiered. It is said that in some camps men sewed their own blankets together to make one long one to cover them, and the lumbermen began to provide "spreads", great quilts some
some 20 feet long, filled with cotton batting.

Until after the Civil War, everyone on the operation lived and slept in the same room, but about that time things began to change. Wood stoves were introduced for heating and cooking. The men's camp became two sections, one the cook-shack, which contained the kitchen and dining room and sleeping quarters for the cook and his helpers, together with a food storage room -- the "dingle"; the other the bunk-house. The two parts were usually butted end to end, or were joined by a sort of partly open porch, also called the dingle, and used for storage, but were sometimes separated. Camp buildings continued to be built of logs, but boards were hauled in for roofs and floors. Tar paper took the place of the old splints for roof covering, but the loose board in the floor remained a fixture. By the latter part of the 19th century, the boss was provided with his own little camp so that he might live apart from the men, who could then feel free to damn their employer to their hearts' content, and thus relieved, sleep the sleep of the just and awake refreshed for another good day's work. (17) It also became the practice to employ a clerk to keep the records, and he also had a small separate building wherein he lived and kept the "wangan", the preferred Company spelling -- also spelled "wangun" "wanigan" and "wangin" -- the little general store, from which the men could buy articles of clothing, tobacco and the like. Sanitary conditions were always primitive -- a four or five hole privy for the crew, and a smaller one for the overhead. There were metal hand-basins for washing, but hot water was available only
as it could be heated on the stove. Light, in the later days, was furnished by kerosene lamps and lanterns. This type of camp was common with the Great Northern Paper Company when it began operations, with the addition of other small buildings for the use of the scalers, saw filer, and blacksmith.

Anticipating a little, then was not much change in the camp buildings themselves for another forty years. By the 1920's, they were sometimes stockaded -- built with the logs standing on end -- or with the lower courses horizontal, surmounted by four-foot sticks stockaded to the plate, and some were built of peeled instead of rough logs. In the 1920's, the old bunks began to be replaced by individual double-tiered units, each for two men, arranged "shotgun" fashion, heads to the walls, with spaces between, and the "deacon seat" became a number of loose benches. The long bunks and spreads, however, did not entirely disappear from Company camps until after 1929. Oilcoth table covers appeared; the cooks and cookees began to wear white aprons and the windows were screened, but otherwise there was not a great deal of change until the late 1930's.

The organization of the very early woods crew consisted of the boss; we do not know exactly what his title may have been in the woods vernacular; the choppers, one a master chopper; the swampers, who cut the roads, one a master swamper; the barkers and loaders; and the teamsters, who also acted as the stable men. (18) As time went on, and prior to 1900, the barker, the master chopper and the master swamper had disappeared, and cooks, cookees, a bull cook or handyman, a saw filer, a feeder, who looked after the horses, and a blacksmith were added. Also,
as the operations began to have more than one camp, the head of the operation became the superintendent or "walking boss" -- "the walker" to the men -- and the choppers had become sawyers.

The axe was the only tool used to fell the trees and cut them into logs in the early days, but while the axe was still used for felling, crosscut saws were employed for cutting the trees into logs perhaps as early as 1840. (19) By around 1890, trees were being felled with crosscut saws, but the axe continued to be used for undercutting and limbing right up to the chain saw era. Bucksaws were not used in the long log days.

The cook was lord of his domain. He and the cookees, as has been noted, lived in their own quarters in the cook-shack, apart from the men. (20) To facilitate his work, the cook made certain camp rules, some of which have been forgotten, but one of which, at least, that of silence at the tables during meals, has been observed right up until very recent times, and may even be still observed in some camps. Some cynics claim that the rule of silence was imposed by capitalist bosses who begrudged the men the time it took to eat. (21) Some say it was to avoid arguments and fights, but the truth probably is that the cook wanted the meal finished as fast as possible. The cook was also the waker-upper, who aroused the crew by hammering on a piece of metal, with appropriate comment. Long working hours were the rule. From the earliest times up to fairly recent years, 4:30 or 5:00 A.M. was the usual time to start the day, and work continued until it was too dark to see -- twelve or fourteen hours. (22) Sunday in the woods was a day of rest, and the men used it for
washing and mending, hunting, visiting nearby camps, making axe handles or gathering spruce gum. Occasionally a clergyman visited a camp and held services, but there were no regular religious observances in Maine woods camps until after 1890, and we use the word "regular" loosely.

On the drive, advantage had to be taken of high water while it lasted, and the crews often worked days on end with little rest. The building of permanent dams, improvements in the rivers and the introduction of towboats gradually lightened the load, but river-driving was back breaking labor, which only a strong man could endure. River-drivers were "athletic men", says the Commissioner of Labor & Industry Statistics in 1899. There was no Sunday on the drive, except on the Kennebec River, where they traditionally drove on Sunday only when it was necessary -- but it was usually "necessary". (23)

Food supplies had to be transported long distances, and there was no refrigeration. In the very early days of professional logging, the fare consisted almost entirely of sour-dough bread, flapjacks, beans, salt pork and tea. There was gradual improvement, but it came slowly. In the 1850's, an outfit which had the reputation of feeding its men well offered for breakfast, hot biscuit, gingerbread, boiled potatoes and tea. Standards had risen somewhat further by the time of the Civil War. By 1860, some of the lumbermen had farms on which they grew hay and grain, potatoes and vegetables. (24) Many of the camps kept pigs. For the next forty years, up to the time the Company began to conduct operations, there was more improvement, although the menus, by modern standards, remained pretty
grim. On the drive, the cook's outfit, also referred to as the wangan, was carried in a boat and was moved along as the drive progressed, along with a few tents for him and the crew. Meals ran heavily to beans on the drive, and there were usually four -- breakfast at 5:00 A.M., first lunch at 10:00, second lunch at 2:00 and supper at 8:00 P.M. (25) In the woods camps, the men walked in for a noon meal -- lunch -- if they were working nearby. If not, it was carried out to them by one of the cookees; was usually cold by the time it got there, and the cookee would start a little fire to warm it up. Men generally came in for meals on the drive.

There are many records of the wages paid to woodsmen, but they vary considerably from one locality to another. In 1820, a teamster was paid $12.00 a month. In the 1830's, wages in the woods ran from $12.00 to $20.00 a month. They were apparently not much higher at the beginning of the Civil War, but had increased some by the time the Company began operating. The 13th Annual Report of the Bureau of Industrial and Labor Statistics, 1900, quoting an old time Maine lumberman says:

"Men who work in the woods are better fed and better paid than when I began business and up to the time of the Civil War, when all wages were raised. Then the swampers worked for $10.00 or $12.00 a month, and the highest wages paid to any of the men was $20.00, while the head man's pay ranged from $25.00 to $40.00. Now the swampers receive from $12.00 to $15.00 a month; choppers and teamsters from $20.00 to $26.00 and the head man's pay ranges from $30.00 to $40.00, while the cookee gets only $10.00 or $12.00 a month."
The Bangor Daily News of February 14, 1900 reported that there were 2,160 men and 700 horses at work in the woods on the West Branch that winter, and that the average wages were $24.00 a month. Wages on the drive were higher. A figure of $2.00 a day for river-men is noted in 1858. The Bangor Daily News of April 13, 1900 says that wages of $2.75 to $3.00 per day were being offered at Greenville for river-drivers. At the same time $2.00 to $2.50 per day was being offered at Bangor, but it was expected that the rate would go to $3.00.

While various forms of transportation pushed up along the river valleys as the frontier receded, men walked long distances from rail-head or boat landing to get to the camps or to the drive. Well up into the 1900's it was a common sight in the late fall in the small northern towns to see a crew of men starting out for the woods, walking behind a horse-drawn sled on which was piled their belongings. In the early days, men usually stayed on the job right through the drive, or in later years through the hauling, but as the nature of the work force changed, late in the log log days, there were times when an operation would have "one crew going out, one crew working and one crew coming in". Anyway, going or coming, they walked. It might be supposed that under the conditions a man might save most of his earnings, but quite often, by the time his debt to the wangan was satisfied, he had little to show for his winter's work. However, he usually had money when he came off the drive.

Scant attention was paid to safety in woods operations. A woodsman was supposed to know how to take care of himself. First
aid equipment was rudimentary. In the camps of the old days, the cook was the medic, and later this duty fell to the clerk. Accidents were frequent and often fatal, with more fatalities on the drive than in the "choppings". Woodsmen were a healthy lot, but serious epidemics of disease occasionally struck the camps. Men who died or were killed in the woods or drowned on the drive in the early days were often buried on the spot, and their graves were soon forgotten. There are many such on the West Branch. In later years, however, things got more civilized, and bodies were sent home, if a home could be located, or at least were sent out of the woods, for Christian burial. There was no Workman's Compensation Law in Maine until 1915, and even then it did not apply to woods labor. Early employers made no provision for injured men, but collections were frequently taken up for their benefit by fellow workers.

By 1899, nearly three generations of men had followed the woodsman's trade, and it had become a way of life; a rough one, but growing in the amenities as time went on and employers became aware of the necessity of giving more recognition to the man who did the work. The early woodsmen were, as we have seen, family men, local people, often related to each other, and usually with another trade or occupation, and throughout the whole long log period there were men working in the camps and on the drive who had other occupations between seasons. However, the emergence of lumbering as an activity separate from running a sawmill produced the professional woods worker, who went into the forest in the fall, cut down the trees, hauled the logs to the water and drove them down the river to the mills. An English
writer, E. A. Kendall, in his "Travels Through the Northern Parts of the United States", written in 1809, took a dim view of the woodsman of his day. He says:

"His habits in the forest and his voyages for the sale of his lumber break up the system of perservering industry and substitute one of alternate toil and indolence, hardship and debauch, and in the alternation, indolence and debauch will inevitably be indulged in the greatest possible proportion. Nor is this all. The lumberer is nurtured in dishonesty no less than in idleness and intemperance and he is nurtured not only in the habits of idleness, intemperance and dishonesty, but in the habits of an outlaw and desperado. The strength and execution of his arm almost exceed belief. He fells the forest with at least as much activity as others plow the soil. Meanwhile, it is often amid cold and wet that all his labor is performed. It is often in marshes that he employs his axe whole days together. Sickness is the consequence of this mode of life. To ward off damps and chills he drinks spirituous liquors. The spirituous liquors weaken his system and place him in more danger than before. Intermittents attack him, his strength leaves him, and his poverty reaches its last point". (26)

Timothy Dwight -- "Travels in New England and New York" (1821) did not find him any better:

"....those who are mere lumbermen (woodsmen) are almost necessarily poor. Their course of life seduces them to prodigality, thoughtlessness of future wants,
profaneness, irreligion, immoderate drinking and other
ruinous habits". (27)

In 1856, C. Lanman -- "Adventure in the Wilds of the
United States" wrote a description of the woodsman of that day:

"They are a young a powerfully built race of men,
mostly New Englanders, generally unmarried, and though rude
in manner and intemperate, they are quite intelligent. They
seem to have a passion for their wild and toilsome life,
and judging from their dresses I should think possess a
fine eye for the comic and fantastic. The entire apparel
of an individual consists of a pair of gray pantaloons and
two red flannel shirts, a pair of long boots and a woolen
covering for the head. All these things are worn at one
and the same time." (28)

A.S. Wasson -- "A survey of Hancock County" (1878) says:

"While lumbering is classified as an industry, it is
one which creates not a distributed but a centralized
wealth in which but one in thirty shares while the other
twenty-nine are pursued by hard times." (29)

The frequency of reference to immoderate drinking indicates
that the consumption of alcohol was high on the job as well as
off, and this was apparently true not only of woodsmen, but of
related labor. Of a sawmill built at Lincoln in 1825 an histori-
ian says: "They got the mill up the first of the winter, and
used two puncheons and one barrel of New England rum and had not
enough to finish raising and completing the mill." (30) However,
the use of liquor in the camps was gradually discouraged, and
well before the time our story starts, a man who had worked in the woods all winter, or who had just come off the drive, was usually pretty well dried up inside, although he might have been continually wet outside for months past.

Many are the tales of the wild doings of the woodsman out of his native haunts. The frolics of men coming out of the camps were somewhat dispersed, but when several hundred river-drivers hit town all at once, with money in their pockets and having been separated from wine, women and song for a long time, something had to give. Policemen travelled in pairs, and a flying squad was always ready for action. Saloons jammed; extra female talent was imported or came in of its own accord, and amateurs and professionals alike used every means to separate the woodsman from his pay as quickly as possible. Bangor, East Machias, Calais, Fort Kent, Greenville, Waterville, Rumford and Augusta were all wide open towns when the drive came in.

During the long log days, most of the professional woods-men were drawn from the farms, not only of Maine, but of the neighboring provinces of Canada, to the detriment of farming. Indeed, lumbering was claimed to have been the reason why Maine did not develop agriculture to a greater degree. (31) The woodsman who cut and drove long logs for the Great Northern Paper Company was not quite as wild and wooly as his predecessors, but he was still pretty salty. He had to be. His work was to only a small degree less difficult and dangerous, and he lived under conditions which today would be intolerable. The natives had long been joined by the "Rorys and Anguses" -- Irish and Scots from New Brunswick and Prince Edward Island -- a few
Indians, and some French Canadians. There had been an influx of Canadian French in the 1870's and 1880's. This had declined in the 1890's, but developed again a few years later. (32) All these different elements absorbed the traditions of the native Maine woodsman. The ubiquitous red shirt, however, was now of many colors, functional outer clothing was being worn and the "long boots" had given way to oil-tanned "shoe-pacs", or "lar rigans" and the laced caulked boots of the river-driver. These men who "seemed to have a passion for their wild and toilsome life" had their own code of ethics. They were devoted to what they considered to be their duty, and very loyal to their employers, some of whom, like John Ross, operated on the West Branch for some forty years. Witness the plight of the young woodsman, torn between love and duty, in the poem by Dan Golden, written about 1894:

"Now the night that I was married, oh, and laid on marriage bed, Up stept John Ross and Cyrus Hewes And stood at my bed-head. Oh, rise; oh, rise, young married man, And come along with me, To the lonesome hills of 'Suncook To swamp those trees for me." (33)

Fanny Hardy Eckstorm, in "Penobscot Man" (1904), describing the river-drivers of a few years before, quotes an old-time river-man: "There was all those logs to be taken care of, and it seemed as if a man ought to do the best he could. Everybody in those days did the best he could;" and says:

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"...with them the fireside moralities were often lacking; but over against their most shocking breaches of morals balance the magnificent morale of more than two hundred men...who were living up to this high ideal of duty."

So, in 1899 they were not much different, after all, from the men who laid the first axe to a West Branch tree seventy years before. With the coming of the corporation, things began to change, and these colorful characters began to disappear, but there were quite a few of them around all through the long log days, and even up into the 1930's.

Now to the mill end of the lumber industry. The early Maine sawmills were of course very small affairs, many of them tide-mills which ran but a few hours a day. In the middle of the 18th century, laws were passed which allowed the building of dams on any non-navigable stream, upon payment of damages to the owner of any land which might be flowed. This legislation was re-enacted after Maine separated from Massachusetts, and became known as the "Mill Act". A tract of 200 acres of land was granted to any man who erected a sawmill in any town within three years of the settlement thereof. Financing was not always easy for an individual, and many early mills were owned in shares. Sawmills were built as cheaply as possible. In 1820, tax valuations on mills on the Penobscot ran from $80 to $190. (34) Sixteen years later, the Niles Register, quoting the Springfield Republican, said:

"Bangor derives its importance from the lumber manu-
facture which is perhaps not equalled in any extent in any equal space in the world. There is now in operation within a few miles of Bangor, principally within the limits of Orono, more than 200 saws for boards and a proportionate number of laths, shingles and clapboards, manufacturing considerably more than 1,500,000 feet of lumber daily. This is cutting up lumber on a scale which no one who has never been "down east" can have any adequate conception of."

At that time, a common valuation of the usual Maine sawmill was around $2,000. (35)

The sawmill which was common during the boom days of the lumber industry was by our standards incredibly crude. Usually driven by water power, it ran only during the spring, summer and fall, or when water was available. The buildings were almost always of wood, and were located on or below a dam, or on a short canal through which water was taken. Logs were hauled into the mill from the river or the mill pond by a cable wound around a drum, later by a haul-up with conveyor chains. The water-wheel in the early mills was of the "flutter-wheel" undershot type, made entirely of wood, and taking water from a diversion dam which created little if any head. Later mills used much more sophisticated and efficient wheels of various kinds, and had semi-permanent dams. The first steam mill in Maine was built at Bath in 1821, and there was in 1835 a steam mill in Hampden. (36) Fires were common, in both steam and water powered mills, and almost every major Maine mill burned at least once. In the declining years of the industry, many mills burned and were not replaced. Floods also took their toll. In the great freshet of
1846, all the mills at Basin Mills and Veazie washed away, and a jam of logs, lumber and the wreckage of mills blocked the river for four miles above Bangor, where the streets were flooded and bridges destroyed. (37)

Until 1850, the principal mill saws were the reciprocating type. Very early "up and down" equipment represented merely the application of power to the old pit saw used by the colonists. The type of saw used almost universally in Maine during the boom days of lumbering was the "gate" saw, a ponderous affair, consisting of a relatively thin sawblade, tightly stretched between the top and bottom bars of a rectangular gate, or frame of heavy timber, which worked up and down between vertical guides, driven by an arm connected to a crank on the water wheel shaft. The guides in early saws were of hardwood, heavily greased. The carriage consisted of two long side timbers, connected by head and tail blocks, the latter securely bolted to the side timbers, the former arranged so that is could be moved along the side timbers to accommodate logs of different lengths, and recessed for the saw. This assembly sat on ways which were also made of hardwood in the early mills, and was moved forward by a ratchet wheel, which was turned, notch by notch, by a "finger bar", translating this motion to a pinion engaging a rack on the frame. The saw cut only on the downstroke, and it is said that a man might eat his lunch while the saw was cutting the length of one log. The log was held on the carriage by two iron dogs at the head block, and by a "bail dog" which went over the log at the tail block. A trip was provided on the feed to prevent the saw cutting through the bail dog as it neared the end of the log. (38)
This left about four inches of log unsawed, and the board had to be forced off, leaving a split, rough surface, and "stub shot", at one end, which was removed by an axe or adze (39) or was just left there. Such boards may still be found in old buildings. The gate saw was an extremely inefficient arrangement, much of the power generated by the prime mover being used in overcoming the weight of the gate and the friction of the ways. Good performance, with a crew of two men, was 500 one-inch boards between sunrise and sunset. Before 1850, there was an improvement in the early up and down saw by the invention of the mulay or muley saw, a stiff-bladed saw, each end of which was attached to a block sliding between vertical metal ways. This type required much less power, and could be run at some 300 strokes per minute -- about twice as fast as the gate saw. However, the thick blade was wasteful of wood. It was not widely used in the Maine mills. Circular or "rotary" saws were first used as mill saws in 1850, although they had been used for edging before that time. The bandsaw did not come into use until after the Civil War. Early saws were single saws, taking off one board at a time. The boards were then piled together again and edged on the same saw. The edging table, using a rotary saw, came into use as early as 1825. The term "gang saw" did not apply to any particular type, but to a series of saws of any kind, up to thirty or more, arranged to cut the whole log into boards at one time. It was a logical development of the "slabbing gang", a Maine invention which took the slabs off both sides of a log at the same time, and was made possible by improved sources of power. Both "round" and "flat" gangs were used. The former simply sawed the whole log into boards, which were then trimmed on
edging saws. In the flat gang, the log was first slabbed on single saws or a slabbing gang, and then was laid on one of its flat sides on the saw-carriage. The boards thus produced were all of one width, and required no edging, but the process was very wasteful. (40) From the "tail end" of the mill, the sawed lumber was usually dumped back into the water, where it was made into rafts, board being piled on board until the greater part of the raft was under water. These rafts were then towed to tidewater for loading on ships. In some places, as at Bangor and Calais, where the lumber had to be brought down over fast water, wooden sluices were used.

The wide pine board was the aristocrat of Maine forest products, but there were many others, less celebrated. The shingle industry began at an early date, the product being made from pine or cedar blocks, split by hand. They were available without cost to anyone handy with an axe and a "frow", since the wood itself was generally obtained by trespass. Shingles paid for necessities for many a settler, and were at one time bartered even in Bangor. (41) The advent of machinery for making shingles and clapboards put the industry on a new basis, as these items could be made from waste lumber from the sawmills. Sacarappa, near Westbrook, a long-lumber center of the early days, became the leading producer of box shooks for shipment to the West Indies. (42) Staves and heads for barrels and hogsheads, casks for the lime industry, masts, spars, ship timbers and ship's knees, hewed from the root and lower trunk of hackmatack trees; all went to swell the volume of Maine forest product exports. Hardwood was the principal household fuel in rural areas until
the early 20th century. The cutting of cordwood for the lime kilns in the Rockland and Rockport area denuded the entire coast of wood. Products of the hardwood sawmills were used for a great many articles manufactured in the state; carriages and sleighs; shovel, rake and tool handles; bobbins and spools; boxes, furniture, boats; spokes and hubs for wheels; tubs, kegs, oars, clothespins, churns and excelsior were all among the items made from Maine wood, and some of them still are. Immense quantities of hardwood were burned to produce potash. (43) Hemlock bark was used in great amounts by the tanneries which sprang up all across Maine in the natural hemlock belt, a strip about 60 miles wide and 200 miles long. In 1840, Maine had no fewer than 395 tanneries. In the early days of this industry, the bark was stripped from the felled hemlock trees, and the logs were left to rot. Later, in the spruce sawlog era, the peeled hemlock logs were hauled and driven the year after peeling, and provided the splintery materials for countless barns and rough floors. By the early 1900's the tanneries were practically gone. (44) There was a tannery in Medway, and there were the remains of bark piles in the woods in that area in the 1920's. Spruce gum was another forest product of the lumbering and early pulpwood days, and was mostly gathered by woodsmen as a side-line. In the 1870's, about 150 tons of spruce gum were brought to market each year. (45)

The greater part of the products of Maine's lumber industry was exported from the state even as are those of the paper industry. Heavy timbers were sent to Europe in great quantities. Massachusetts and Rhode Island provided a market for Maine lumber throughout the history of the industry, and there was an ex-
tensive trade with the West Indies and Caribbean ports in light lumber, box shooks and barrel staves. Comfortable fortunes were made in the shipping trade with cargoes of lumber and fish to the West Indies and South America, returning with molasses, sugar and rum, or nitrates and copper ore. Trade was opened with California at the time of the gold rush, but was not very successful, as Maine lumbermen took sawmills to the west coast, and began to cut the big trees there. There was brisk trade in lumber with Argentina and Australia before the Civil War. At the peak of the lumbering activities in the state practically every town at or near the mouth of a river of any size was exporting lumber. Portland, Bath, Ellsworth, Machias and Calais were leading ports, with Bangor the greatest of all. Kennebunk, Wiscasset, Waldoboro, Belfast, Castine, Cherryfield, Columbia Falls and Whitneyville were all sawmill towns and lumber ports, and all declined as the timber was cut off.

All of these activities were conducted with a minimum of consideration for conservation, a twentieth-century word. The early settlers attacked the forest as if it were an enemy, as from their point of view it was. The lumberman was no more farsighted. In the pine days, only the best was cut at first, and the pine areas were cut over again for smaller growth as the supply declined. The methods of making roads for hauling the large logs to the water resulted in tremendous waste of young growth and inferior species. No consideration was given to the requirements of reproduction or the hazards of improper cutting such as blowdown. Wastage in tops, in order to obtain a maximum amount of clear lumber, would horrify a modern lumber-
Samuel L. Boardman "Lumber Industry in the State of Maine", about 1897, says:

"It is safe to say that no product of the soil in any central civilized region is subject to the waste in harvesting that the timber of the State has suffered in the methods of cutting, both in regard to the percentage of wood in the trunk of the tree cut down, which is suitable for some purpose and is left to rot in the woods, and in the method of cutting young growth unnecessarily in getting out logs."

Forest fires caused great damage. The "Great Fire" of 1825 was a major disaster. This fire, started by settlers burning to clear land, raged from Moosehead Lake eastward to the Penobscot, destroying 150,000 acres of timber. Ten years later, another great fire, started near Sebois by the burning of meadow hay to prevent theft by trespassers, jumped the Penobscot River and burned north as far as Patten and east to the East Branch. Not until 1855 were laws passed against building fires on the land of others. (46) Waste in the mills was excessive. Rivers were choked with sawdust, edgings and slabs, and had to be dredged to permit ships to enter for loading. (47) Booms of logs and rafts of lumber were lost and went out to sea. Few were the voices raised in warning, even when the end was in sight.

The Third Report of the Forest Commissioner of Maine (1896) says:

"The men who went into the spruce business were considered little better than crazy, for that kind of lumber was despised in the old piney days." (48)

However, there was no other choice than to go crazy or move
out, as many did. Commercial spruce logging began in Maine about the middle of the 19th century, when the pine industry had already begun to move west led by Maine lumbermen. The first spruce was cut in the Penobscot valley in 1845 on the Mattawamkeag River. The first commercial spruce cut on the Kennebec was in 1850, and thirty years later pine represented only 20 percent of the lumber being cut on that river. It was the same all over the state. The pine being gone, spruce had to serve, and the whole north country was logged over again, spruce and hemlock being mixed with the remaining pine in ever-increasing proportions. As a matter of fact, while Maine was no longer the major lumber producer, the peak of lumbering in the state was reached in 1909, (49) with a cut of over one billion feet, long after the big pine was gone. Spruce sawlog operations were carried on with little more regard for the future, and although fewer mills were sawing more lumber with less waste, the size of the logs coming down the rivers gradually grew smaller.

The Commissioner of Industrial Statistics, commenting on the year 1900, says"

"The cutting and manufacture of lumber has always been an important factor in the development of the State; in fact it has been one of its leading industries from the days of the early settlements until the present time, and bids fair to so continue for an indefinite period."

In spite of this optimism, by the time the story of the Great Northern Paper Company opens, the handwriting was already on the wall for the great lumber industry of Maine as it had been.
APPENDIX I
NOTES - CHAPTER IV

(1) Wood
(2) Ibid
(3) Ibid
(4) Ibid
(5) Ibid
(6) Springer
(7) Boardman
(8) Springer
(9) Howard
(10) Eckstorm
(11) Ibid
(12) Wood
(13) Ibid
(14) Ibid
(15) Springer
(16) Ibid
(17) Rich
(18) Wood
(19) Springer
(20) Rich
(21) Holbrook
(22) Ibid
(23) Wood
(24) Ibid
(26) Ibid
(27) Ibid
(28) Ibid
(29) Ibid
(30) Boardman
(31) Wood
(32) Holbrook
(33) Eckstorm and Smyth
(34) Wood
(35) Ibid
(36) Ibid
(37) Boardman
(38) Hotchkiss
(39) Wood
(40) Ibid
(41) Ibid
(42) Ibid
(43) Ibid
(44) Ibid
(45) Ibid
(47) Holbrook
(48) Wood
(49) Ibid
APPENDIX II
REFERENCE BIBLIOGRAPHY - CHAPTER IV


Fanny Hardy Eckstorm and Mary W. Smyth "Minstrelsy of Maine". Houghton Mifflin, Springfield, Mass. 1927


