

LUMBERING IN PENN'S WOODS

BY LEWIS EDWIN THEISS

I

SLEDGE, ROLLWAY AND LOG JAM

INEVITABLY, Pennsylvania's civilization was built of lumber. There was Penn's Woods, full of the finest timber in the world, and folks pushing into it who needed everything—houses, barns, mills, furniture, implements—all of which could be, and had to be, made of wood, if they were to come into being. Thus, when the Swedes arrived, about 1638, and began to construct log cabins, which Americans then knew nothing about; and when the Germans moved in, about 1710, and by sheer force of numbers popularized the log cabins they erected, the die was cast. The log cabin and the Pennsylvania rifle set a pattern for all America and conquered the wilderness. And although we can no longer afford to use whole logs in house construction, we still make most of our American homes out of wood—to say nothing of the things in them.

Between the log cabin of 1710 and the wooden house of 1951, however, there is a whole history—that of the development of the great Pennsylvania lumber industry. Perhaps one should say “the development of the American lumber industry.” That began at the very start. For boats that brought the earliest pioneers took back to England cargoes of wood.

In Penn's Woods the white pines were supposed not to be cut by the pioneers. They were reserved for the royal navy. This was a regulation that few obeyed. Nevertheless, Pennsylvania white pines went into the “King's navy,” and into ships of all other kinds. Oaks provided keel timbers; the decking was of white pine on oak cross members; spars and masts were of white pine. Getting out spars became a notable part of the great lumber industry that developed in the Keystone State.

Like everything else on the frontier, the Pennsylvania lumber



Lumber Camp.

Courtesy Dr. Lewis E. Theiss

industry was a gradual development that came about in connection with innumerable other developments in the growth of American civilization. It was like one gear in a chain of meshing gears. It depended upon other developments, and in turn gave rise to still others.

Every Pennsylvania pioneer was, in a sense, a lumberman. Before he could have a farm, he had to clear the land—chop down the giant trees, get them out of the way, usually by burning, and eventually pull the huge stumps. These pioneers at first had small market for lumber, as such. Yet they did an enormous business in *forest products*. Pioneers presently came to count upon paying for the clearing of their land by the proceeds from the sale of the ashes from their burned logs. And here we meet a meshing gear. Ashes could not be sold until there was adequate transportation. So early roads and canals played a part that we hardly appreciate today.

As lands were deforested along the seaboard, and population grew larger, there sprang up a very real demand for lumber at home as well as from abroad. Then the pioneer had something to sell besides grain—turned into whiskey. He cut his trees, made them into rafts, floated them to city markets. Without the city market.

lumbering would not have developed so greatly. And without lumber, the cities might not have grown so fast.

For a long time, however, lumbering was mostly an individual enterprise of men who wanted to clear their lands. Then sawmill owners began to push the sale of sawed lumber. Then men who had bought tracts of forest land began to capitalize on the timber. They hired lumbermen, set up mills, and began to supply timber. But it was a gradual development. As for the great Pennsylvania lumber industry, it did not reach its maximum development until the middle of the nineteenth century, when the Williamsport boom was built. Then the world saw a growth that was almost inconceivable. Never before had there been anything like the lumber industry that came into being with the Williamsport log boom.

That boom was merely a device for stopping logs as they floated downstream, and collecting them in the great basin thus formed, where they could be sorted out and floated to the mills of their owners or purchasers. As it was the largest boom ever made, and was in the heart of a region of tremendous forests, and was constructed at a time of enormous demand for timber, an unprecedented production of saleable lumber inevitably resulted. The Civil War, presently creating a still greater demand, added impetus. So here was another gear in the chain. Before we examine the Williamsport boom, however, let us see how the logs that filled it came into being.

The writer of this article is fortunate in that he came to central Pennsylvania as a college student early enough to see something of this great lumber business in Penn's Woods. So he speaks from first hand knowledge. Many week end trips to lumber camps and four voyages down the Susquehanna on log rafts gave him an accurate idea of the industry as it was in the days before the portable sawmill and the motor truck revolutionized it. One might even say, "before the romance went out of it."

One thing is sure: DANGER, spelled with capital letters, was a part of the daily life of the early lumbermen, be they wood choppers, sawyers, swampers, teamsters, raftmen, or what not.

A typical lumber camp was necessarily an isolated forest community, as comfortless as it was isolated. Originally built of logs, such a camp was later made of planks and rough boards. There were always a bunkhouse and a messhall. Sometimes these were

merely separate parts of one large structure. Bunks were merely wooden shelves, built one above another, and the loggers slept on straw ticks. The messhall contained a long plank table and plank seats. The kitchen might be at one end of the messhall, or it might be an adjoining structure. A cook and a "cookee" prepared the food. Often they were two men. Sometimes a man and his wife did the cooking. The fare was rough but wholesome, and the men consumed enormous quantities of it. Some accommodation was made for a gathering place. Here a round-bellied stove kept things piping hot. But in the main, lumbermen were too tired to talk long. They retired early. They had to be afoot by daylight.

In addition to the buildings mentioned, there was a stable, often a storehouse, and of course a blacksmith shop. Horses had to be shod, broken chains mended, canthooks sharpened, sled runners repaired, and so on. Water was often piped in from a near-by spring or clear stream.

The tasks of the cook and the cookee and the blacksmith are obvious. Choppers and sawyers were what their names imply. Once a tree was prostrate, it had to be shorn of its limbs. These either had to be sawed into logs or dragged out of the way—depending upon their size. All these tasks were dangerous. Falling trees often jumped from their stumps. As a tree started to topple, the sawyers yelled "Timber!" and woe betide the man who failed to heed the warning. Many a lumberman was crushed to death beneath a falling tree.

"Snaking" logs along the skidways to the streamside was also dangerous. But before this could be done, swampers made rude trails, removing obstructing rocks and roots, or bending the trail around them. Originally, oxen were used to haul logs. Later, horses furnished the motive power. But first of all, the trees had to be cut into log lengths. Sawing a tree to best advantage, the lumberman cut logs eight, ten, twelve, fourteen, sixteen and even twenty feet long. For special orders, very long logs would be cut.

Getting logs out of the forest was always dangerous. Sometimes the front end of a log was placed on a tiny but strong sledge. Usually, the front end of a log was beveled, and a chain fastened about it near the beveled end. Thus logs were prevented from suddenly digging into the ground, perhaps causing the chain to break and bringing team and driver to disaster. For a great log has

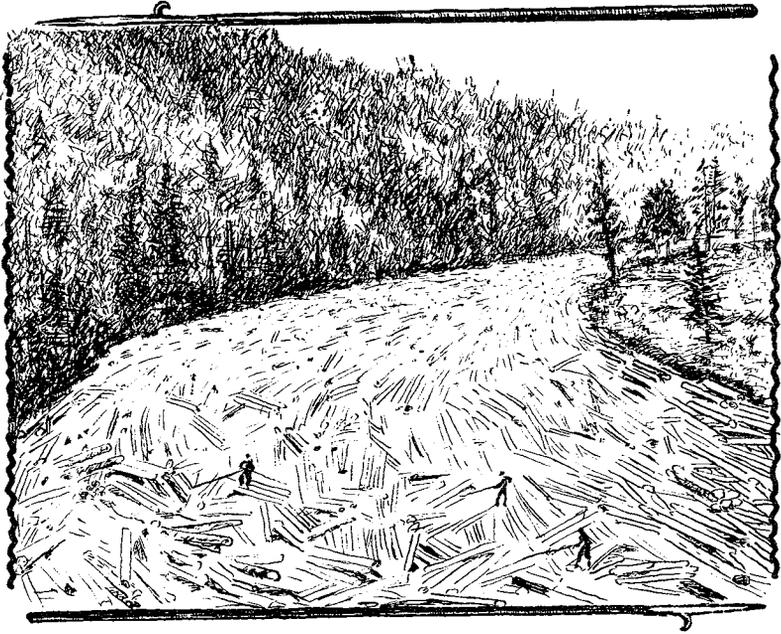
enormous weight, and the tension on the chain was terrific. If the chain snapped, the straining horses would inevitably plunge violently forward.

These horses, trained as carefully as is a modern football player, were marvels of intelligence. Team and driver cooperated astonishingly in handling logs. In cold weather the runways often became icy, adding greatly to the danger. For, as lumbering was done mostly among the mountains, the runways led down to the streams, and often the slopes were considerable. So the runways had to be laid out with judgment; for, if the slope was too steep, a log might suddenly shoot ahead, crushing driver and horses. When the trails became icy, the danger increased many fold. On very steep hillsides, logs were allowed to slide down the slope by themselves. When these logs became lodged, the lumberman had a dangerous job to pry them loose.

When lumbering proceeded high on a hillside far from a stream, a trough was built of logs or light timbers supported on trestles and made practically water tight. A brook was turned into it, and the chute itself became a rushing stream. Logs rolled into it charged threateningly down the trough. In winter, these chutes became troughs of ice. Then a log, charging down this icy chute, was indeed a fearsome thing. It would, and often did, jump out of the trough, to go smashing and crashing down the mountain-side, endangering everything in its path. Sometimes dry dirt was used in the chute and a special spike called a slide-spike was set, to reduce the speed. But no matter how it was done, getting logs to the rollways was a dangerous business.

Through the winter months the lumbermen rolled logs higher and higher in mountainous piles, like piles of lead pencils. One enormous heap of logs butted against another, all along the stream-side. Rolling up the logs was dangerous, too, for should a cant-hook let go, or a lumberman slip, the great stick he was helping to roll up on its fellows might roll back on him, bringing instant death. By springtime, the piles of logs were enormous. They stretched endlessly along the streamsides.

Another dangerous job was that of rolling the logs into the stream when the spring freshet came. By the time the rollways were *empty*, the stream was *full*, literally full. Streams would be filled solidly from bank to bank. Driven violently ahead by the



rushing waters, this mass of logs gained incredible momentum. At turns and curves in the stream, or where rocks or tree stumps thrust up, logs would often pile high, one log plunging under another or shooting up on another. Presently the stream was completely blocked by these jammed logs. From the very bottom of the stream they often extended upward many feet above the surface. Soon an enormous body of water was backed up, that pressed against the logs with a force incalculable.

Some one had to break this jam. Frightfully dangerous though the task was, men would attempt it. Taking his stand on the downstream side of the jam, a lumberman studied the mass, found the key log that held the other logs back, then set to work. It was like playing a game of jackstraws with tree trunks. Calmly the lumberman worked with his canthook, pulling, pushing, sliding the key log until he released it. The mountain of logs quivered, shook, then leaped wildly forward. And if, in that instant of time, the lumberman had not reached shore, it was the end of him. When it proved to be impossible to break a log jam, dynamite was used.

In the central Pennsylvania mountains every stream that was big enough to float logs successfully was filled with them every

spring. Surging out into the Susquehanna, these countless logs from innumerable streams soon filled *that* watercourse. It was a sight past comprehension or belief. Statistics, of course, are often meaningless to readers. But lumber came down the Susquehanna, not in millions of board feet, but literally in *hundreds of millions*. Meginness points out that when the Williamsport boom burst in 1889, 300,000,000 board feet of lumber went rushing out of that boom toward the Chesapeake. But that was the amount of lumber in the boom *at the moment*. How much more had come down the river in the preceding spring months and been sawed up probably no one knows.

II

THE WILLIAMSPORT LUMBER BOOM

The Williamsport boom was the thing that made Williamsport the lumber capital of the world. Men had been producing lumber in the Susquehanna Valley for years, in the North Branch as well as in the West Branch Valley. According to Meginness' *History of Lycoming County*, Roland Hall had a sawmill about four miles up Lycoming Creek as early as 1792. Lycoming Creek is the stream that empties into the Susquehanna at Williamsport. Samuel Torbet had another, on Bottle Run. There were many early sawmills along the river. But it was not until forty years after Hall built his mill that one was erected within the limits of present Williamsport.

Then Philadelphia men, under the firm name of Cochran, Biers and Co., built the "Big Water Mill," which stood on a massive timber framework that projected out over the river at the foot of Locust Street. This mill had its ups and downs, but when, after a failure, it was bought by Major James H. Perkins, a man from Maine, history was about to be made. For Perkins did more than find partners to add more capital, and to install modern gangsaws and improved machinery. Perkins was the father of the Williamsport boom. He really originated the Susquehanna Boom Company. This was composed of local capitalists. The boom cost for construction and upkeep more than \$1,500,000. The company made its profits by charging log owners one dollar per thousand feet for handling their logs.

When Perkins came to the Susquehanna, apparently nobody in Williamsport had ever heard of a boom. Folks were sceptical. Perkins showed the lumbermen how to build one. The point about a boom was this: With an open river, it was extremely costly and difficult to catch and secure all the logs that came rushing down the stream. As Meginness points out, men in boats had to watch the Susquehanna day and night, and try to secure every log that came along. The captured logs were hastily formed into crude rafts, which could be fastened to the shore. At night, huge fires had to be maintained on the river bank to enable the log catchers to see the logs. Flatboats were anchored in midstream, with men stationed there and at other advantageous points to catch logs. It was hard and dangerous work, and in times of great floods ineffective, for quantities of logs were swept down stream.

The boom was an arrangement of log cribs, built log-cabin fashion, that rested on the river bottom and were filled with tons and tons of rocks. Between these cribs chains or logs were fastened. They were like necklaces of pencils. Each log was fastened to its neighbor by tremendously strong iron couplings. The boom was six miles long, stretching diagonally from one shore of the river to the other. At one end it was possible to unhook the log chain and let logs or rafts proceed on down stream. All other timber was brought to a standstill, until the boom became solidly filled with magnificent saw logs. These passed out of the lower end of the boom through a sort of double gate, where "boom rats," armed with long pikepoles and wearing boots with sharp calks, were stationed to identify and shunt out the logs belonging to different owners. Identification was possible because each log was branded on each end with the owner's brand. A heavy sledgehammer, bearing on its striking surface, cameo fashion, the owner's brand, was swung against the ends of each log at the time of "landing at water," thus indenting the brand in the log ends. Some 700 different brands were registered in Williamsport during the heyday of the lumber era.

Of course, there were other booms. There was one at Jersey Shore, built in 1868 but gone by 1892. The flood of 1861 broke the Lock Haven boom, and the logs released came charging down on the Williamsport boom, breaking that also. In 1866 a boom was

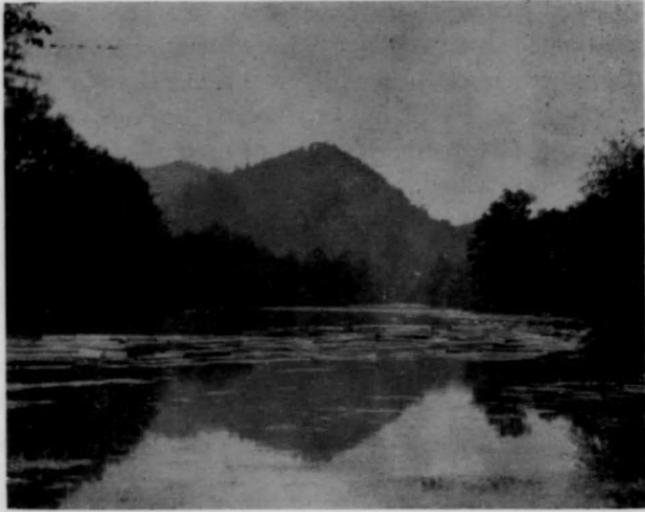
built at Linden. Learning by experience, the boom owners gradually strengthened their booms. Many new cribs or piers were erected, thus shortening the length of the log chains. A boom was built just below the Williamsport boom. It was erected by the Loyalsock Boom Company. It also suffered disaster. In 1857 or 1858 the company asked the legislature for permission to consolidate with the Williamsport boom. Indeed, at different points along both branches of the Susquehanna and even in tributary streams, booms for catching logs were created. But the giant of them all was the Williamsport boom.

When the flood of 1889 broke that boom, as has been stated, 300,000,000 board feet of lumber went whirling down the river toward the Chesapeake. More than half of this timber was recovered, the owners paying 25 cents a log to rivermen who caught them. Temporary mills were set up along the river to turn these captured logs into boards.

Meginness says that in 1862, 196,953 logs went through the Williamsport boom. These produced 87,863,621 board feet of lumber. Now notice the effect of the Civil War. By 1869, the logs numbered 1,060,511, and the lumber sawed totaled 223,060,065 board feet. The top year, apparently, was 1885. Then 1,850,951 logs went through the boom, and the lumber sawed totaled 225,847,555 board feet. From that time onward, production steadily declined, as it did throughout all of Pennsylvania.

With all this timber flowing into the Williamsport boom, sawmills naturally increased in number, and mill owners were constantly bringing in more effective machinery. Roland Hall's mill contained one or more up-and-down saws that, at best, could produce only a handful of sawed lumber each day. But as mills increased in number, and gangsaws came into use, the lumber output was incredible. At the peak, there were twenty-five great sawmills in Williamsport, which often operated night and day.

Here we come to another gear in the cog—the planing mills. Naturally, they sprang up next door. Machinery for making doors, sashes, shelving, and so on was installed as fast as it was devised. Nowhere else in all the world had so much lumber ever been seen. For miles along the river bank sawed lumber of all dimensions was piled mountain high. And near-by arose other mountains of manufactured wooden items, like doors and sashes. It was past belief.



Logs in Pine Creek.

Courtesy Dr. Lewis E. Theiss

Yet not all the lumber that was cut along the upper West Branch was sawed up or manufactured in Williamsport. An additional cog in the gears was the furniture factory. All along the river such factories arose—at Lock Haven, Montoursville, Muncy, Montgomery, Watsonstown, Lewisburg, and elsewhere. And in Lewisburg a boat building business arose, to supply craft for the Pennsylvania Canal. Many other towns also made boats. All of these towns had to buy lumber. Largely it came to them in the form of log rafts.

III

RAFTMAN AND PILOT

Log rafts were made at different places along the river. Lock Haven, being near the source of supply, was a flourishing market where lumber operators bought logs and formed them into rafts to be floated down the river to distant markets—Lewisburg, Harrisburg, Marietta, Baltimore, Camden, N. J., etc. The log raft was, in itself, both boat and cargo. To be sure, it was a very crude boat, yet it did carry merchantable material; its main cargo was spars.

Here and there, in Penn's Woods, were outstandingly magnificent white pine trees. They were truly fit for the royal navy—or any

other. They were such enormous sticks that four or five of them, had they been sawed up, would have yielded enough lumber to build any ordinary house. Many such sticks contained 5,000 board feet or more. Often they towered to a height of 150 or 175 feet. Some may even have been higher. Of course, these particular trees were the very sticks for masts. But they were solitary growths, rising here and there, often at widely separated locations. And, as nature would have it, the best of them seemed to grow in the rumpled forest areas of the Sinnemahoning, where the ground was exceedingly wrinkled and the streams relatively small. Yet grow where they would, lumbermen sought them. For one of these spars, delivered at the seaboard, brought a large price.

The largest spar of which we have record is said to have been 120 feet long.¹ It was almost two feet in diameter at the point where the top of it had been cut off. How much higher the tree rose no man can say; but obviously it towered many feet above the upper end of the spar. George William Huntley, Jr., tells about it in his book, "The Story of the Sinnemahone." Spars like this were preferably cut when the snow lay deep, for the snow cushioned their fall and helped to keep them from breaking.

The handling of these spars was an especially dangerous and difficult task. Often they grew on slopes. Frequently woodroads were mere shelves dug into the sides of the hills. When these enormous trees grew in areas where the earth was much wrinkled, the spars had to be hauled up and down over the uneven highways. Three teams, at least, were required to budge such enormous sticks.² Only the most experienced drivers were employed. At steep slopes, additional teams had to be added to get the spar to the crest. The pinch came on the downward slope. If the road was snowy or icy—as it almost always was in winter—the huge trunk could suddenly shoot down the slope, crushing men and horses to death. More than once this happened. So methods were devised to control a big stick. Most effective was the use of a great hawser, tied to the rear end of a stick, then wound round a tree, to be paid out gradually, thus snubbing the spar down the slope. On occasion these hawsers snapped, the spar shot forward,

¹ This is a common story on the Sinnemahoning. A standard spar was ninety feet in length. Top diameter measurement determined value.

² Vincent Tonkin of Cherry Tree handled one spar, cut on Chest Creek, requiring twelve specially trained spar teams.

and tragedy followed. On occasion, too, a spar would leap side-wise into the woods. To get it back on the road was a job past describing here.

Even when a spar was eventually gotten to a stream the difficulty was not at an end. Many of the neighboring streams were too small to float such a log successfully. The bends were too sharp, the reaches often too short. Men were drowned in trying to work spars around these difficult places. Somehow, with typical American ingenuity, the lumbermen got the spars to Cameron (a few miles below Emporium), which was the beginning of headwaters navigation for ship spar rafts on the Sinnemahoning, or to Keating on the main river. Then they were rolled up on log rafts for carriage to the seaboard. Certainly they were worth all they cost the purchaser. For getting them on a log raft was not the end of the difficulty in getting them to market.

A typical log raft was made of logs placed side by side in sections, with several sections placed end to end. To visualize such a raft, imagine fifteen lead pencils laid side by side and held together by two wires, one crosswise near each end of the section, stapled to each log. Then imagine several such sections laid end to end, and the whole fastened together. In effect, such was a log raft. As log rafts had to go through several chutes in the canal dams, their width was thereby limited. They were commonly twenty-eight feet wide, to fit the width of the chutes they must run—and 150 to 200 feet long. Two rafts were usually tied side by side, and were separated when they approached a chute, so that each could pass through by itself. Then they were reunited. The total area of such a pair or "Fleet" of rafts might be 56 x 240 feet. That is the size of an ordinary town lot. Some rafts were longer.

To hold the several sections of a raft together, a few logs projected from each section into adjoining sections. Poles laid crosswise of the raft were fastened to each log by tough U-shaped staples of green wood driven into holes bored in the logs, and fastened with wooden pegs. Becoming wet, these pegs swelled and held the staples as though they were riveted.

At either end of a raft was mounted a heavy block of wood. A strong, vertical wooden pin was driven into this. This pin thrust up through the shaft of the oar. The oar shaft was a small tree trunk, thinned at the inner end so that men could grasp it. The

blade of the oar was a twelve inch tapered plank twelve to fourteen feet long. The oar was tremendously strong. It had to be. And it was just as heavy.

Rowing a raft was similar to rowing a footboat. But there was this difference. The raftsman had to be on his feet, and the oar, when held level, was less than two feet above the tide. To dip the blade, the oarsman had to raise the handle high above his head. To lift the blade above water, he had to depress the handle to a level below his knees. To row with the oar, he walked across the raft, his hands high above his head, the terrific strain of the push falling on the small of his back. Then he had to turn, depress the handle, walk back across the deck, and again elevate the handle and once more push. It was an exhausting effort that could not be sustained very long. In the narrower reaches of the river, there were three men to each oar, front and rear.

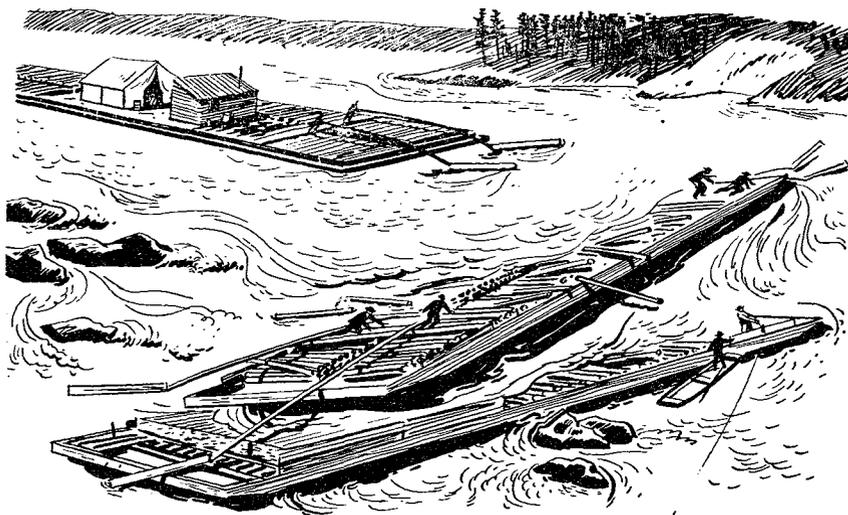
Mention has been made of the fact that lumbering was always dangerous. Rafting was no exception. In a single trip down the Susquehanna the writer had occasion to witness two trying situations. These personal experiences are used here because the writer knows the details exactly. Without doubt there were hundreds of similar or even more stirring experiences on Susquehanna log rafts. And sometimes the outcome was sheer tragedy.

When our raft was nearing Greene's Dam, at Clark's Ferry, just above the confluence with the Juniata, the pilot elected to take what the raftmen call "The Lazy Man's Gap." Coming down the river from Northumberland, raftmen stick close to the west bank, where the channel is. But to get beyond Greene's Dam, they must cross the stream, here probably three-quarters of a mile wide, in order to get into the chute on the east side. A raft can be worked directly and laboriously across the stream just below New Buffalo, or it can be given an occasional pull with the oars, so that it sidles along, crablike, toward the eastern bank, reaching it just above the chute. This easy course takes the raft between islands. Hence the name, "The Lazy Man's Gap." Our pilot took the Lazy Man's Gap.

We had not moved far out into the stream before the pilot suddenly dashed wildly back from his forward oar, tore the tent down like a crazy man, and shouted hoarsely, "Every man on an oar." Every soul leaped to his post. Over the brow of Peter's Mountain,

the precipitous cliff that rises from the eastern bank of the river, came a frightfully ominous cloud, rushing before a sudden tempestuous wind. We were head on to it. The wind held us back almost as though we were anchored. Back and forth across the deck we raced with those heavy oars. It seemed as though the raft would never make it. Failing to do so, it would be swept over Greene's Dam, broken in pieces, and the crew pounded to jelly between swirling logs. At Inglenook, the villagers were on the river bank watching the seemingly hopeless fight for life. A man in a footboat rowed out from shore to take the crew to land. The pilot grasped the nose of the footboat. "Come aboard," he said to the oarsman. "I want to talk to you." The boatman stepped on the raft. The pilot drew the boat up on the logs. What he said to the oarsman was, "Get on an oar." Aided by this added "slave labor," the clumsy raft was inched toward the shore.

All the while it was being swept down stream with frightful velocity, for it was in the rapids above the dam. As it neared the bank, a big raftman grasped the end of the snubbing rope, raced across the deck and leaped for shore. He fell short many yards. But he swam desperately to land, and instantly had the hawser tied around a tree that was fully a foot in diameter. The pilot



From "Pennsylvania Songs and Legends" (1949), George Korson, editor.

Courtesy University of Pennsylvania Press

snubbed the raft too hard. Up came the tree and went bouncing along the shore beside the raft. Somehow, that raftman got the rope untied and fastened it about a huge sycamore. This time the pilot was more cautious. The raft was snubbed gradually, then made fast, just above the chute. And almost before the tent was raised, rain descended in blinding torrents. It was a close race with death.

Below Harrisburg a few miles lie the so-called Conewago Falls. Here the Susquehanna rushes down a river bed that is worn to fantastic shape. Elsie Singmaster's book *Pennsylvania's Susquehanna* pictures that river bottom on page 185. The picture, taken during a protracted period of drought, shows the river bed absolutely dry. And such a fantastic, grotesque, amazing array of potholes, perpendicular crags, eroded boulders, upright rocks, one could not even imagine. Well, the spring flood, rushing down over this uneven floor, is torn and whipped and churned into indescribable fury. The water comes tearing down this frightful slope with terrifying speed. Here it leaps upward in a great comber. There it swirls savagely about a sunken rock. Yonder it is churned into blinding spray. The roar of the water is overpowering, benumbing.

Yet there is a channel through this maelstrom. Probably no one now living knows that channel, unless it be John Myers, of Lock Haven. Very early in the century, when our raft went through these rapids, only one pilot remained alive of all those who had guided rafts through these troubled waters. He was tall, but old, stooped, and fragile. When finally we entered the rapids, he took his place at the right forward oar. Both oars had been fastened to the deck with strong ropes. The blades were thus well above the raging waters. The ends of their handles rested on the logs. Should an oar be torn loose and its blade drop into the flood, it could swing the raft crosswise of the current in the twinkling of an eyelid, and cause it to be torn to pieces on the rocks that studded the falls.

Hardly was the raft caught by the current before something happened to the pilot. He straightened up like a pine tree. He braced his feet for what he knew was coming. His long cloak gave him a peculiarly commanding appearance. He had shaken off senility and become a gladiator. All hands were gathered at the oars. From time to time the pilot motioned with his right hand, now gently, for an easy pull, now violently, for a hard push. As the raft hit

the first comber, its nose dived under water. The comber swept back over the raft. Yet the pilot, with nothing to hold to, stood as firm as a post. This was what he was braced for.

So the raft drove into the maelstrom. At the very worst part of the passage, with the raft plunging up and down, the waves sweeping over it, the rapids shaking it savagely, the oar at the pilot's side tore loose. But the blade never touched the water. Like a football player diving for a fumbled ball, the pilot was on it, full length, fighting with might and main to keep the blade above the waves. Two of the raftmen raced forward. One knelt on the handle, to reenforce the pilot. The other speedily prepared the rope for retying. Then the rope was readjusted and knotted so that it could never come loose again. Meantime, the men at the sweeps had kept the raft on its course. The pilot, seemingly unconcerned, resumed his post. The oarsmen hastened back to their comrades. On went the raft through the surging combers.

It ran out of the maelstrom into the calm waters in the deep pool at the foot of the rapids. Those aboard had seen another of those close and sudden battles with death that marked every step of lumbering in the early days of the industry.

Those brave old days are gone forever. They were succeeded by an era of narrow gauge railways that pushed their way into innumerable sections of the Pennsylvania forest. The narrow gauge days have been followed by the portable sawmill and the motor truck. Lumber still comes, and always will come, out of Penn's Woods. But the picturesqueness, the pioneer atmosphere, is gone. On the lumber brought out of these woods rests much of the prosperity of today. For the money gained through the sale of the timber created many of the thriving industries of the present. So, no matter how you view it, Pennsylvania civilization was built of lumber.