Ontario Celebrates Its History
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During the Spring of 1984, the eastern white pine (*Pinus strobus* L.) was declared the Arboreal Emblem of the Province of Ontario. The choice was entirely appropriate. More than any other single factor, the white pine shaped Ontario's history. The story of the white pine is more than a story of man and nature; it is the story of the making of a province.
Dawn comes to the majestic pine forests of the Ottawa Valley.
Photo: Dan McKenney
White pines battle the wind in Muskoka.
Photo: Steven Behal
A windblown rural white pine in southern Ontario at day's end.

Photo: Brad Graham/Eco-Images
Our Family Tree

Most of us have a special feeling for Ontario — the nation’s geographic and industrial heartland, a place where great cities and the arts flourish. It’s the home of one-third of Canada’s population, most of whom live on the southern edge of a vast northern landscape rich in minerals, forests, rivers, and lakes.

For Ontarians, a family whose members came from every corner of the world to start a new life, the white pine is a splendid arboreal symbol, a family tree.

Soaring above other treetops with its sweeping limbs and ragged foliage silhouetted against the sky, the white pine — even in the lush farmland of the south — seems to symbolize a fresh, northern spirit. A beautiful tree for a province famed for natural beauty.

Our white pine, like the loyalists whose coming two hundred years ago we celebrate in 1984, has a heroic, even romantic, past. It, too, is a pioneer species, like the people who struggled to open up this province and were richly rewarded for doing so.

Like the land, the white pine was also a provider. Its pale, light, easily worked wood quickly gave us a livelihood, a prosperous economy, shelter, something to sit on — even matchsticks.

The white pine also taught us that even plentiful natural resources have to be carefully managed. The great pine forests that challenged and rewarded our first settlers are gone. But the white pine will never die out.

Like Ontario, the white pine can look to the future. Eight million white pine seedlings from superior parent trees are produced in provincial nurseries and planted each year throughout Ontario, seed orchards are being established, and genetic research continues to increase.

And the offspring of those great pine forests continue to flourish in the far west, on the north shore of Lake Huron, around Georgian Bay, and throughout the Algonquin region. And even in your neighbourhood.

Join me in celebrating the history of our official provincial tree, our family tree.

— Alan Pope
Minister of Natural Resources
The great pine forest near Dorset.
Photo: Brad Graham / Eco-images
On the west side of Toronto you are immediately in the pine forest, which extends with very little interruption for about fifty miles to Hamilton.

Anna Jameson, 1836-37

Seeing Southern Ontario today—with a population of nearly eight million, with dozens of cities and hundreds of towns and villages, with a complex network of roads and highways, with huge tracts of open farmland—it is all but impossible to picture what the country was like when Anna Jameson toured Upper Canada, or even more so, when the first settlers arrived fifty years earlier. Today, we can see patches of woodlot and bush breaking up the fields, the occasional park or conservation area criss-crossed with nature trails, the “backwoods” of cottage country. Two hundred years ago, there was only the forest.

“The interminable forest” was what Catharine Parr Traill called it in the mid-nineteenth century. And so in fact it was, a solid, unbroken expanse of trees that reached from the St. Lawrence River and the lower Great Lakes as far north as the Hudson Bay Lowlands. It was a part of the great forest that, for thousands of years after the final Ice Age, had covered the entire northeastern section of the continent.

Ontario’s primeval forest may have been virtually endless, but it was by no means uniform. Over fifty species of trees grew in the original forest. In most areas the forest was what is called a “mixed” type—that is, it contained both hardwoods (deciduous trees such as oak, maple, elm, or poplar) and softwoods (the conifers, or evergreens, such as pine, spruce, and cedar). Naturally, not every species grew in every area, nor was any single species universal. Regional growing conditions—such as type and quality of soil, climate, and availability of water—were suitable for certain species and tended to make them dominant. For example, in much of northern Ontario, black spruce is the dominant tree, especially where the soil is moist. However, on sandy plains or rocky ridges in the same area, jack pine tends to prevail.

In southern Ontario, where the settlers first came and where over ninety per cent of the population of the province now lives, the forest was composed of many species. Across much of southern Ontario there were sugar maple, beech, walnut, black cherry, and several different kinds of oak. Chestnuts, magnolias, and tulip trees flourished along the shore of Lake Erie. On the shores of Lake Ontario and Lake Huron grew elm, ash, hickory, and silver maple. In the lowlands of eastern Ontario there were great stretches of white cedar and juniper.

Much of southern Ontario was suitable for agriculture and is today some of Canada’s most fertile farmland. There were also, however, vast sections of southern Ontario (as well as the lower part of the Canadian Shield) that consisted of sandy plains. The sand is testimony to the large rivers that flowed on and from the huge glaciers as these ice sheets retreated some ten to thirteen
Surrounded and dwarfed by the magnitude of the forests, the early settlers saw them as endless.

Photo: Ontario Ministry of Natural Resources

thousand years ago. It was in many of these areas that the Native people grew their corn, and it was in their abandoned corn fields that the pine forests grew. Pine forests also sprang up on sites which had been conditioned for pine regeneration by periodic forest fires. Thus, when the first settlers arrived, they found that in much of the Ontario forest, red and white pine were the dominant trees and that, of the two species, white pine was by far the most prevalent.

It is difficult today to imagine what the original pine forests were like, to visualize their seemingly infinite reach and the size of the trees they contained. A surveyor in 1867 spoke of “the pine standing like grass for number”, and estimates from that period frequently described the supplies of the tree as “inexhaustible”. Giant white pines more than 76 m tall and measuring 5 m around were reported by early travellers.

From the accounts that have come down to us, it was apparently impossible to remain unaffected by an encounter with these great pines. “In more remote regions,” Susanna Moodie wrote in 1852, “where the forest has never yet echoed to the woodsman’s axe, the first approach to the shore inspires a melancholy awe which becomes painful in its intensity.” Some travellers, such as Charles Daubney in 1837, were moved by “the perfect silence that prevails in these regions”, while others, such as Samuel Thompson, were struck by the noise of the wind in the tree tops high overhead, “a low surging sound like the moaning of breakers in a calm sea, which gradually increased to a loud boisterous roar, still seemingly at a great distance.”
Nothing can really be more bewildering than a lot of wild land covered with unfelled forests.
Samuel Strickland, 1853

Travellers could afford the luxury of being impressed and excited by the forest because they were just passing through it. Those who had settled in Ontario – those who were trying to carve a life out of the wilderness – saw the forest somewhat differently.

An account of early pioneer life in Upper Canada succinctly captured the point of view: "Timber encumbered the ground, the difficulty of the settler being how to get rid of it." In the beginning, magnificent 200-year-old white pines were not seen as an asset and still less as a marvel of nature to be admired. They were, rather, obstacles to be removed. Until the land was cleared, no crops could be planted. Without crops, there would be no food. It was quite simply a question of survival – the classic conflict of man against nature. As a visitor to Ontario in 1850 explained: "War to extermination against the forest: is the settler's rule."

The axe was the weapon. It could be used to "girdle" or "ring" trees, cutting a circle in the outer living tissue, thereby killing the tree where it stood. Later, the dead tree could be burned or cut down. The "slash-and-burn" method involved felling all the trees in a given plot, leaving them for a year or two to dry, then burning everything. Most common, however, was the laborious task of felling trees, then cutting them into logs to be put into piles and burned. Whichever clearing method was employed, it was long, intensely strenuous work; one man was able to clear and plant probably no more than one or two hectares in a year. In this way, gradually, hard-won plot by hard-won plot, the forest was cut back and the rich farmland of southern Ontario reclaimed. Much valuable timber was lost in the process, but it was clearly a necessary loss.
Of course, not all of the trees were burned. The settlers had need of shelter, furniture, and fences, and the material for all of this was obviously close at hand. An early nineteenth-century book, *Advice to Settlers in Canada*, included a valuable piece of advice: “Do not take a chair or table; if you have them, sell them and strengthen your labour; construct all rude articles of that kind in the woods, and bye and bye, you will be in a condition to purchase better.” White pine, being a softwood and easily worked, was used a great deal for this homemade furniture. Today, the rude articles that survive are called “primitive” and are much sought after by collectors. Similarly, the one-room log cabins that housed the early settlers can still be seen, either in their original locations or as exhibits in regional museums throughout the province.

The days of the rudimentary log cabin, though, were fairly brief. Almost as soon as the first settlers arrived in an area, they would erect a water-powered sawmill at the closest suitable location. The mill not only produced lumber that was needed for construction, but equally important, it provided a market for the trees that the settler had to remove anyway. Sometimes the logs were sold to the mill for what might have been the farmer’s only cash income during the year. Other times the logs were brought in to be cut into boards and the mill owner would receive half of them in payment and would in turn sell them.

Although the first mills were small and very slow, in general capable of producing only about twelve hundred board feet per day (a board foot is a piece of lumber 30 x 30 x 2.54 cm or 1 ft x 1 ft x 1 in), it is impossible to overstate their importance. In nearly every instance, they were the real starting points for the communities that grew up around them. The presence of a sawmill attracted more settlers to an area. The influx of settlers in turn created the need for a grist mill, for a blacksmith, perhaps for a cooper to make barrels, for a cobbler, a tailor, a cabinet-maker, for a country store. Eventually there was a village where a few years before there had been only forest. And so it went across southern Ontario, the pattern repeating itself hundreds of times.

In the early days of Ontario, white pine was used simply because it was the tree that was found where the people were. In the first part of the nineteenth century, events abroad changed all that. The white pine became the tree. People by the hundreds and thousands sought it and endured great hardships to bring it out of the forest. For more than a hundred years, the white pine was the dominant factor in the growth and development of Ontario.
Canadian Northern (Ontario) Railway (1896-1917) (CNR)
In 1901, the CNR acquired several small lines in northern Ontario. By 1910, it had built the Toronto-Sudbury-Port Arthur (Thunder Bay) line, part of a new transcontinental railway that would compete with the CPR. In 1917, the Canadian Government Railways assumed control of the CNOR. When the CPR nationalized the GTR in 1923, the CNOR along with the GTR formed the new Canadian National Railways.

Ottawa, Arnprior and Parry Sound Railway (1894-96) (OAR & PSR)
The OA & PSR was built by lumber baron J. R. Booth to transport timber from the Ottawa-Huron Tract to American markets. The line, which ran through Algonquin Park, was absorbed by Booth's other railway - the Canada Atlantic - in 1899. The CAR was bought by the GTR in 1905.

Midland Railway (1851-55)
An aggregation of small Ontario branch lines totaling 450 miles, the railway serviced many of the "mill" towns in the southern Georgian Bay region. The Midland was absorbed by the GTR in 1881.

Bytown (Ottawa) and Prescott Railway (1851-55) (O&P PR)
The railway was built so that timber could be shipped down the line to Prescott, across the St. Lawrence River, and then transferred to the Ogdensburg and Lake Champlain Railway for transport to U.S. markets. The O&P PR was taken over by the CPR around 1886.

Great Western Railway (1849-55) (GWR)
Although located wholly in Canada, the GWR was conceived as an international line. It connected Sarnia, Port Huron and Windsor/Detroit with Niagara Falls/Buffalo - the western transshipment point of the New York State Erie Canal system - and further American trade. The line was bought by the GTR in 1882.

Brockville and Pembroke Railway and other branch lines (1860-68) (B & PR)
A "portage railway", the line joined Brockville on the St. Lawrence River with Pembroke, a logging centre upstream of the great Chats Falls. The B & PR was also acquired by the GTR.

Ontario, Simcoe and Huron Railway (1851-55) (OS & HR)
A "portage railway" joining Lake Huron with Lake Ontario, the line ran from Toronto through Aurora along the shores of Georgian Bay to Collingwood. Also known as the Northern Railway, it was taken over by the GTR in 1903.

Canada Central Railway (1876-80) (CCR)
Running alongside the Mattawa and Ottawa rivers to Montreal, the line provided an alternative to river transport of timber harvested from the timber limits of the Ottawa Valley. The CCR was purchased by the CPR in 1886.
The square-timber trade with Britain launched a new campaign in the war against the wilderness. These timber ships awaiting cargo in the Ottawa Valley were to become a ravaging navy and white pine timbers, the spoils.

Photo: Ontario Ministry of Natural Resources
Great Britain was a sea power, and its navy was made up of wooden sailing ships. For a long time, there was a sufficient domestic supply of oak to build hulls, but Britain did not possess the towering pines that were needed for masts. These were obtained from the countries that bordered the Baltic Sea in northern Europe. The great pine forests of North America were, of course, well known, and some naval timber had been shipped back from New Brunswick and Nova Scotia, but the distances involved made serious exploitation uneconomic.

The rise of Napoleon and his control of the Baltic ports threatened Britain’s European timber supplies and forced the Royal Navy to seek a more secure source for its masts. The requirements were very specific: main masts were not less than 1 m across at the base and 36 m tall; bow sprits were not less than 76 cm by 27 m; yards and spars were between 45 and 50 cm across and 12 to 18 m long. The timber had to be absolutely straight, strong, and flawless. New Brunswick and Nova Scotia were unable to provide trees of sufficient quality. The focus shifted to the white pine forests of Ontario.

Under long-standing law, all trees in Ontario suitable for naval use were reserved for the Crown. However, the size of the territory, the needs of an expanding population, and the difficulty of inspection had made that law all but impossible to enforce. A new system was developed in which agents were hired to obtain suitable material to be shipped back to Great Britain. Rather than compelling people to breach unenforceable regulations, the new system encouraged their support by offering them the chance to make a legitimate profit. The Navy needed masts. However, instead of merely claiming them, the Crown would buy them. For the first time, there was more than just a local market for the white pine.

At the same time — and for the same reasons — that the Royal Navy was looking to Ontario’s forests, commercial interests were exploring them as well. They too obtained most of the pine for the British market from Baltic sources, and in the first decade of the nineteenth century, they too had had their lines of supply disrupted. While Canada possessed immeasurably vast resources which the timber merchants were eager to tap, it was also much farther away than the Baltic. Shipping costs and difficulties made trade uneconomical.

Nothing could be done about the distance, but something could be done about the cost advantage the competition enjoyed. Vigorous lobbying on the part of British timber importers resulted in Parliament’s enacting of “differential duties”. Steep tariffs were imposed on timber coming from the Baltic. Canadian timber entered Britain duty free.

The favourable rates did not, however, apply to sawn lumber. High duties were levied on that commodity to protect Britain’s own industry. What the British wanted was the raw materials. The form in which they wanted it was square timber.

The year was 1810. The stage was set. The grandest era in Canadian lumbering was about to begin. It would alter the landscape and shape the development of the province. It was a time of giant trees and strong men... It was the beginning of the Ottawa Valley square-timber trade.
The banks of the Ottawa and its tributaries may most emphatically be said to constitute one of the most important pine timber regions anywhere to be met with.

Geological Survey Report, 1845-46

Square timber, a form that is no longer used, was exactly what its name suggests—logs squared on four sides. The practice of squaring timber probably developed in order to have the logs fit more snugly and compactly in the holds of specially designed timber ships. The requirements of the trade were very demanding. Sticks, as the huge pieces of squared white pine were called, were rarely less than 6 m long, at least 30 cm square—more often closer to 60 cm a side—and on average consisted of about 20 m$^3$ of perfect, blemish-free wood. Depending on its size, a stick weighed between 900 and 4500 kg. As an old Ottawa Valley lumberman reminisced, “They weren’t toothpicks we heaved about.”

The logs were squared in the forest where they fell. Only the centre parts of the biggest pines were used to make square timbers. The tops of the trees and the outside portions, both of which contained some of the best wood, were cut off and left on the ground. Since nothing less than perfect timbers were accepted, a cut tree that turned out to have even a minor flaw was left behind. While this process produced sticks of extraordinary size and quality, it left between one-third and one-half of each tree unused.

It should be pointed out, however, that at the time the practice was not regarded as wasteful. Because there was only a market for square timber, the material discarded did not have any value and did not, therefore, represent an economic loss. Only later, when the nature of the industry changed, would the entire tree be utilized. Most of all, there was no reason to be concerned about waste; as the Geological Survey Report put it: “The endless succession of forests... would seem to be inexhaustible.”

In the first half of the nineteenth century, it must have seemed that the Ottawa Valley had been especially created for the timber trade. Not only were there vast quantities of the wood that was most in demand, but there was a river system that would enable the product to be brought to market. In 1806, a few years before the differential duties created the trade, an enterprising settler named Philemon Wright took a raft of pine down the Ottawa River to the St. Lawrence and then on to Quebec City. At the time, Quebec City was the main port, and Quebec would be the place where the timber ships took on their cargo. Wright, who would become one of the early “timber barons”, didn’t make much money from that first shipment, but he did prove a point—it could be done. (Southern Ontario provided no convenient route for getting timber to Quebec. The exploitation of those pine forests would have to wait for the coming of the railways.)
As soon as the trade started, people flocked to the Ottawa Valley. As would happen during the western gold rushes later in the century, the Valley quickly filled with all sorts of people hoping to profit either directly or indirectly from the boom – timber merchants, lumbermen, laborers, settlers, craftsmen, shopkeepers, as well as those labelled “adventurers” and “loose and immoral types”. It was the frontier, and as was true in most frontiers, things could get pretty rough and rowdy.

With time, though, came stability. After a free-for-all period during which poaching, trespassing, and wild speculation were common, the trade became better organized, more business-like. The government, too, began to exercise some control over the trade by auctioning off timber “berths” or “limits” on Crown lands and collecting duties on every tree cut. Farmers who started by fighting with lumbermen over property boundaries or timber rights ended by selling provisions to the lumber camps or maybe even working in the camps during the winters to earn much-needed money. As the forests in an area were depleted, the timber trade moved farther up-river to fresh stands of pine. However, in place of the once majestic forests, the trade left behind settlements and lines of commerce that would not have otherwise existed. As the trade moved, it opened up new territory and provided ready-made conditions for new settlements.

“The pine tree is indeed to all intents and purposes the god of this community,” a Valley observer wrote in 1849. So much pine standing around, so much money to be made with it – or at least so many stories of money that had been made or could be made. To a cash-poor Ottawa Valley settler, the idea of going into the woods to cut timber would have seemed like a profitable way to spend the winter. So the settler borrowed money for the supplies needed for the operation, hired a crew, and put in five months of hard labour, felling and squaring timber. It was not always so simple. If there was an early thaw, the trees would be stuck in the forest until the next year. If there was a late thaw, the settler would miss the spring planting. If the settler lacked experience – he might have trouble with his raft – the trip to Quebec would take longer than expected and again the farming would be neglected. When he finally got to Quebec, he might discover that the market was glutted because everyone else was doing the same thing; prices would be low, expenses couldn’t be covered; ultimately, land might be lost to creditors.

While some settlers did manage to do well, the hazards took a heavy toll in the Ottawa Valley. Eventually the small operators were driven out of the business and the big operators – the timber barons – took over. Yet, they too had their problems. The big operator – with huge timber limits, with a hundred or more men cutting in the forest, with a million or so cubic metres of white pine coming down the river – faced many of the same difficulties as the farmer-lumberman, only on a much larger scale.

A big timber operation was not unlike a military campaign. It had to be scouted beforehand. Where and how much to cut had to be planned well in advance. Crews had to be hired, access roads cut, supply lines laid down. Large stores of goods had to be purchased. In short, it required a major commitment of men, material, and money at the outset, without any certainty what the supply-and-demand situation – and, hence, the return on investment – would be when the timber finally reached Quebec.

It was a risky business, a giant gamble. Great fortunes were undoubtedly made in the timber trade, but probably even more were lost. The wealthy timber barons are part of the mythology of the trade, and while they did exist, most of them, in fact, left the business with no more than what they had when they entered it.

The barons made or lost fortunes, but they didn’t make timber. That task was left to the other end of the trade – to the men who spent the winter in the forest cutting logs and the spring on the river bringing them to market. These woodsmen were really the ones who made the timber trade. Their lives were most closely tied to the great white pines and they were said to have pine sap in their blood. These were the men who were, in the Ottawa Valley’s highest praise, “heart of pine”.
Camoose shanties, dotted throughout southern Ontario from the Ottawa Valley to Parry Sound, housed up to 40 or 50 loggers in quarters usually no more than 13 m square.

Photo: Ontario Ministry of Natural Resources
In the late autumn, the crews went up to the timber berths they would work that winter. In the early days, they did not have to go very far, but as the trade expanded and the trees were cut, it was necessary to journey farther and farther into the Upper Ottawa Valley in order to find untouched stands of pine. Sometimes it would take two weeks of travelling by boat, cart, and foot to reach the limit that would be cut.

Two years before work started in an area, men called “timber cruisers” would go out to survey it to determine the quantity and quality of the pine there and the feasibility of bringing it out. On the basis of the cruisers’ reports, the timber operators would know how much to bid for the rights to cut on the limits when they came up at government auction. The limits or berths generally measured about 26 km² of forest, though occasionally they were ten or more times that area.

The winter before work was due to start, another more detailed cruise of the limit was made. At this time it was determined where the camp (or camps) would be built and the roads and trails cut. Without well-made, well-planned roads, the logs could not be brought to the river and, therefore, could not be delivered to Quebec and sold.

If there was not already a camp in place when the men arrived at the limit, the first task was to build the shanty. The shanty (from a French word, *chantier*, meaning “workshop”), a large log cabin built around an enormous fireplace / cookstove, was the heart of the camp. In the later days of the trade, there might be several buildings in a camp, but for a long time there was only the shanty – also called a “camoose” after a Dutch word for the cabin house on a boat – in which work crews ate, slept, and spent their leisure hours.

*The loggers bunked around three walls, the centre of the camoose being given over to the green-log fireplace that was kept going all winter to provide heat and ventilation.*

*Photo: Ontario Archives*
The campboose cook was the king of these primitive castles. He ruled from his position at the fireplace, cooking the simple fare in iron pots slung on cranes and baking in kettles in the hot sand under the fire.

Photo: Ontario Archives
Work crews usually consisted of five men, and a shanty would house several crews, as well as the teamsters who would haul the logs to the river, the camp foreman, the company clerk, the blacksmith, and perhaps most important, the cook. The cook not only prepared the meals that refuelled the camp, but he was also the boss of the shanty and decided what went on in his domain. With perhaps forty or so men living in close confinement for an entire winter, the cook could make all the difference between a satisfied camp and a discontented one, and thus he was frequently one of the best paid of all the workers.

Each day, as soon as there was sufficient light, the crews headed for the areas they would work, which were usually within 5 km of the camp. The most experienced member of the crew, the liner, decided which trees would be cut, and he had to be able to judge from the ground if the tree was sound or flawed. Since only perfect timbers were acceptable, there could not be a lot of wasted effort if the liner made a mistake. He also determined how the tree should be cut for it to fall in the right direction. A good liner would know exactly how a tree would fall.

Once the liner had selected a tree and planned the cut, two axemen – called scorers – would go to work on the giant white pine. It often took an hour to chop through the huge tree. As it was about to fall, they shouted “Timber!” and made sure they were well away from the plotted path. When the tree was down, the top and the branches were removed.

The liner then examined the log, and if it seemed free of blemishes, he marked off how it would be cut in order to square it. The scorers, and an apprentice if there was one, then removed the bark and cut roughly to the correct depth. At that point, the log was turned over to the hewer, the most skilled axeman. Using a 5.5 kg broadaxe honed to razor sharpness, he finished the side, cutting it as flat as a table top and as smooth as a planed plank.
The hewers, the most skilled axemen on the crew, finished the sides, experience and a trained eye taking the place of a carpenter's level and broad-axes the only planing tools required.

Photo: Ontario Ministry of Natural Resources

The hewer's broadaxe, razor sharp and weighing 8.5 kg, was wielded with skill in producing both square and waney timbers. Waney timber, shown here, where the edges of the square timber were somewhat rounded, used more of the log.

Photo: Ontario Ministry of Natural Resources
The heavy timbers were loaded onto a sleigh and the teams hauled them to the river. This load of waney timber was worth approximately $1500 in 1890.
Photo: Ontario Ministry of Natural Resources

On reaching the river, the timbers would be piled until spring. When the thaw came, the river drive began.
Photo: Ontario Ministry of Natural Resources
The perils on the river were many and not the least of them were the roiling rapids and falls common to most of the river routes. This flume, or inclined channel, was used to convey timber over the Tolon Falls on the Matiawa River by J. R. Booth Ltd. Photo: Ontario Ministry of Natural Resources.
One of the severest problems on a river drive was the log jam which often occurred when the timbers snagged on rocks in the river. An entire winter’s cut could be lost if the jam was unbreakable.

Photo: Ontario Archives

The second side was cut in the same way, and then, using levers, the great log was turned so that the last two sides could be squared. Sometimes turning revealed a flaw and the log was considered to be a “cull” – scrap – and was left in the woods. A crew would generally do five or six sticks a day – 113 m$^3$ a season. For this, each man earned between fifty cents and a dollar per day.

When the ice finally broke and the river started to flow, the most dangerous phase of the timber operation began. The timbers were slid into the racing water, and the men went with them. Sometimes they would ride the bouncing, spinning logs, precariously balanced, steering them downstream. Other times, whole days would be spent waist deep in the icy water, manoeuvring the logs, freeing them from obstacles, making sure they kept moving. If there was a jam, it had to be broken, or else the entire winter’s cut would be stuck until the following year.

From the tributaries of the Upper Ottawa Valley, it would take three weeks or so to get the logs down to the Ottawa River. It was a race against time. If the level of the water dropped too low, the timbers would not get out that year.

Once in the big river, the logs would be assembled into a raft. The basic component of a raft was the crib, a frame about 7.6 m wide into which timbers of approximately the same length would be fitted. A hundred or more cribs would then be joined together to form the raft, a giant blanket of wood much bigger than a football field – two thousand or so square timbers, 2500 m$^3$ of fine white pine.

Once the logs had safely travelled down the tributaries in the Upper Ottawa Valley, they were assembled into cribs – frames about 7.6 m wide – that contained about twenty timbers. A hundred or more cribs would be joined together to form a raft. One of the last timber rafts is shown being assembled in 1902 on Seven League Lake, about 29 km north of Mattawa.

Photo: Ontario Ministry of Natural Resources
This enormous raft of white pine was cut by the Hale and Booth Co. during the winter of 1889-90. The timbers were driven down the Nipissing River to Cedar Lake and then down the Petawawa and Ottawa rivers to the mouth of the Bonnechere where the raft was constructed for the journey to Quebec.

Photo: Ontario Ministry of Natural Resources

The rafts were fitted with oars and sails to provide some control over their river passage. Since a raft usually contained two thousand or so timbers and was larger than a football field, maintaining course was a matter of hard pulling on the oars and expert sailing.

Photo: Ontario Ministry of Natural Resources
Driving the rafts was as beset with danger as driving the free timbers. Rapids and falls had to be negotiated and loss of life was common.

Photo: Ontario Archives

The crew lived on the rafts for two or three months in sleeping sheds and here, too, the cook was the focal point. One crib held the cookhouse and between shifts at the oars the crew gathered there.

Photo: Ontario Archives
The journey to Quebec City would take two to three months, depending on how far up the Ottawa it started. The rafts were fitted with oars and sails. One crib held the cookhouse, and there were sheds for sleeping since the crew lived on the rafts. Early in the timber trade, slides – large wooden ramps – were built to enable the rafts to avoid the numerous rapids and falls on the Ottawa River. While the slides made things much easier, the rafts still had to be broken apart and sent down the slides one crib at a time. It usually took three days to move a raft down a slide; then it had to be reassembled at the bottom.

When the rafts finally reached Quebec City, the timber was inspected and loaded onto the waiting timber ship, and the crew was paid. At the peak of the trade, between half a million and a million cubic metres of pine would come to Quebec each year. If demand was high, the timber would fetch a good price; if demand was low or was exceeded by supply, it would not. If there was a surplus, some rafts would have to be docked and sold the following year. In a good year, a raft of two thousand sticks might bring between $25,000 and $30,000. In a poor year, that same raft could sell for $12,000 – just $6 for each stick that was so laboriously cut, shaped, and transported.

In the timber trade, the work was long, hard and occasionally dangerous. Life in the camps was monotonous. The food, while abundant, basically consisted of salt pork, beans, bread, molasses, and green tea in various combinations and at various temperatures. The only amusement in the evenings was generated by the men for themselves – songs about their life and work and fantastic tales about the adventures of superhuman lumbermen. Giant Paul Bunyan, the most famous lumberjack of all, started life as Paul Boullion, a French-Canadian shantyman.

Like the heroes in the stories, the men in the camps were tough and strong. They were not well educated or sophisticated, yet they managed to live together at very close quarters for long periods with a kind of rough-and-ready camaraderie. While disputes or disagreements were unavoidable, serious incidents or episodes of violence were apparently rare, no doubt in large part due to the ban on alcohol in the camps. It is not surprising that once the men were released from their winter confinement, they tended to cut loose, often to the real distress of communities down-river. Complaints about the lumbermen’s rough habits and rowdy ways were common, and no doubt often justified; at the same time, however, the communities, the businesses, the livelihoods of those who complained were probably directly traceable back to those “ruffians” who went into the forest.

The lumberjack is Canada’s counterpart to the American cowboy. He worked the frontier, in isolation, beyond the edge of his society, to clear a path for communities and industries. In shaping the white pine, he helped shape the province.
A group of lumberjacks in Dorset between 1890 and 1910. In isolation, beyond the boundaries of society, the lumberjacks formed a new society.

Photo: Ontario Ministry of Natural Resources

Tough, strong, with his own customs and codes, the lumberjack lives on in story and song.

Photo: Ontario Ministry of Natural Resources
When the raft reached Quebec, the timbers were inspected and loaded into the hold of the timber ship for transport to Great Britain. This sturdy ship is being loaded at Sillery Cove, Quebec City.

Photo: Public Archives of Canada
An early sawmill and general store, founded in 1832 at Brewster's Dam, south of Grand Bend.
Photo: Ontario Archives
The ravenous sawmills in this pine wilderness are not unlike the huge dragons that used in popular legend to lay waste the country; and like dragons, they die when their prey, the lordly pines, are all devoured.

W. H. Withrow, 1899

The last raft of square timber came down the Ottawa in 1909, 103 years after Philemon Wright led the way. However, the decline of the square-timber trade had begun long before.

By the 1840s, the operators had to go farther up-river each year to find suitable trees and experience began to show them the wastefulness of their practices. Not only had they discarded a large part of the trees they had cut, but they had also passed over many trees that were perfectly acceptable, if not absolutely perfect. Worst of all, though, the process involved in making square timber covered the forest floor with woodchips, a situation which greatly increased both the likelihood and the severity of forest fires. Huge tracts of forest had burned, and millions of trees were lost.

Meanwhile, in England, a movement towards free trade was in progress.

Canada was losing its preferential tariffs and would have to compete head-to-head with suppliers from the Baltic. The high quality of the Canadian product guaranteed a market, but it would be much smaller.

Fortunately, at this time a new market was opening up. In the United States, the forests of the northeast were quickly being depleted as westward expansion and a rapidly growing population created an unprecedented demand for building supplies. The new U.S. market was for sawn lumber. With the enactment of the Reciprocity Treaty in 1854, everything came together to create a new industry. The treaty allowed sawn lumber to enter the United States duty free and heralded the age of the sawmills in Ontario.

Early sawmills tended to be small and slow. Their output needed only to be sufficient for local demand. The opening of an enormous new market resulted in the building of many more sawmills, each with a vastly greater capacity. Instead of having just one saw driven by a waterwheel, the new mills were equipped with multiple saws (called “gangsaws”).

New types of saws – circular saws and band saws – were developed that were faster and more efficient and many new sawmills were powered by steam or turbines. Electric light permitted round-the-clock operation. Where the first mills produced twelve hundred board feet per day, eventually sawmills were established that would produce more than half a million board feet per day.
And produce they did. Ottawa, with the great Chaudière Falls providing power, became a gigantic mill town (derisively called "Slabtown" by its detractors). In 1859, two years after Ottawa was made the capital of the Province of Canada, its mills produced about twenty-five million board feet of lumber. By 1868, production was up to a hundred million board feet. By 1871, there were over twelve hundred saws cutting away, producing a quarter of a billion board feet. Three years later, that quantity had nearly doubled, and the output continued to grow for the next twenty-five years.

To feed the voracious mills, more and more white pine was needed. Winter forest operations expanded accordingly, and while the life in the shanties remained essentially the same, the work changed. Instead of the slow and methodical selection, cutting, and hewing processes involved in producing square timber, the men now had only to fell the trees, strip them of their branches, and cut them into sawlogs approximately 6 m long. A crew would produce seventy-five sawlogs per day where before they had produced five or six sticks. Driving the logs down to the Ottawa River in the spring was as hard and as hazardous as before, but once on the Ottawa, it was no longer necessary to build rafts. Instead, a mark identifying the owner was stamped on each log, and the logs went down loose. As they neared Ottawa, they were sorted into booms (a kind of floating corral for logs), which were then hauled to the appropriate mill.

If some of the skill—and consequently some of the romance—had gone out of the timber trade, the loss was more than compensated for by greater efficiency and more economical utilization of white pine. Obviously, sawn lumber used more of the tree than square timber, but the economy did not stop there. Small pieces that were left over from the cutting process were used to make rollers for window shades. Still smaller pieces made the laths that formed the basis of plaster walls in the days before wallboard. The buttings—the ends of logs—were used to make matches (and matches were what E. B. Eddy started with, eventually building one of the great firms in the wood-processing industry). Even the sawdust was used—to fuel the boilers that powered the saws, to be compressed and made into tubs and pails, and to be sold to butcher shops for use on the floor.

As mill production steadily increased during the second half of the nineteenth century, the trade began to seek out new sources of supply. The "inexhaustible" resources of the Ottawa Valley were, in fact, becoming exhausted, but the pine forests of southern Ontario and the Georgian Bay region had hardly been touched. What the Ottawa River had been to the early timber trade, the railways became for the second phase.
Sawlogs were driven loose but the perils of the journey were the same. These river drivers are clearing a jam at the edge of a waterfall.

Photo: Ontario Archives
Wherever white pine stood, railways were built to reach it. Wherever railways went, sawmills followed. And wherever there were mills, communities grew up. In 1870, the area that would become the Town of Midland on Georgian Bay was virgin forest. The railway arrived in 1875, and by 1882 there were six mills. In 1890, the town had a population of three thousand. By 1900, it was the leading sawmilling centre on Georgian Bay, producing sixty million board feet per year, second only to Ottawa. On a smaller scale, the sequence of growth—pine, railways, sawmills, towns—was repeated around Georgian Bay with Parry Sound, Collingwood, Meaford, Owen Sound, and Wiarton.

Elsewhere—Bracebridge, Huntsville, Lindsay, and Peterborough, among many others—important sawmill centres grew up because of the convergence of the railway and the white pine. Railways criss-crossed Ontario, built either to get to the pine or to get it to market, and at various times towns such as Port Dover, Oakville, Whitby, Cobourg, Port Hope, Trenton, and Belleville became flourishing ports, shipping out millions upon millions of board feet of lumber. Secondary related industries grew up throughout the province: sash-and-door factories, shingle factories, pail factories, chair factories, cabinet makers, all in existence largely because of the white pine.

Perhaps nothing better indicates the way the white pine shaped and contributed to the development of Ontario than the story of J. R. Booth, Canada’s greatest lumberman, the biggest timber baron of them all.

John Rudolphus Booth was born in 1827 in Quebec’s Eastern Townships. He came to Ottawa in the early 1850s, and after several false starts at the timber trade, he acquired a sawmill at Chaudière in 1858. The following year, underbidding the competition, he got the contract to provide the pine for the new capital’s Parliament Buildings. It was cut from a timber limit on Constance Creek, upriver from Ottawa, and today the carved panelling in the Library of Parliament may be the finest example of white pine that can be found in Canada.
In 1867, wanting to expand his operations, Booth bought at government auction the 648 km² timber limit on the Madawaska River that had once belonged to John Egan, one of the early timber barons. Booth went deeply into debt to buy the limit, but it contained the largest body of pine in the Ottawa Valley and proved to be the basis of his fortune.

Booth then set out to enlarge and expand his sawmills. In 1872 he produced thirty million board feet of lumber. Twenty years later, at the height of production, his mills turned out a hundred and forty million board feet of pine, more than any other mill in the world. His mills employed hundreds of men – five hundred wagons alone were needed to haul the sawn lumber to the piling yards – and hundreds more were employed in the forests, cutting up to a million logs per year to feed the operation.

One of Booth's biggest problems was getting his lumber to the American market. Although he owned a fleet of barges, this method of transport was too slow and not at all practical in the winter. Thus, in 1879, he began to build the Canada Atlantic Railway. Running for 219 km, it went down from Ottawa, crossed the St. Lawrence at Coteau, and connected with the Vermont Central Railroad at East Alburgh. There was a drawback, however; the trains had to be ferried across the St. Lawrence. In the late 1890s, Booth built the first railway bridge across the river, a massive engineering undertaking.

The Canada Atlantic took care of Booth's delivery problems, but he still needed to ensure that he had sufficient supplies for his mills. In 1892, he started to build the Ottawa, Arnprior and Parry Sound Railway that would open up the great pine forests of the Canadian Shield.
Giant white pines, towering 40 m and more into the sky and 1.5 m in diameter, in Algonquin Provincial Park about 1910. Today the park contains one of the province's great remaining pine forests.

Photo: Ontario Ministry of Natural Resources
The sight of immense masses of timber passing my windows every morning constantly suggests to my mind the absolute necessity there is for looking at the future of this great trade. We are recklessly destroying the timber of Canada and there is scarcely the possibility of replacing it.

Sir John A. Macdonald, 1871

In the middle of the nineteenth century, it was estimated that there was sufficient pine to feed the mills for the next six hundred years. Seventy-five years later, most of the great pine forests that had covered Ontario were gone. Sawmill production dropped and mills closed.

The concerns expressed by John A. Macdonald were voiced more and more frequently in the latter part of the nineteenth century. The industry and the public alike became increasingly aware of the need for conservation and forest management. The creation of Algonquin Park in 1893, actively supported by J. R. Booth and other lumbermen, was the first major step in this direction. The park restricted settlement and in so doing valuable forest was preserved from clearing and the attendant likelihood of fire, and the area could be more easily maintained for continued productivity. At the same time, the park became a major recreational resource for the people of the province. Today Algonquin Provincial Park contains one of Ontario's remaining great pine forests. At the time of its founding much of the white pine in other parts of the province had vanished.

For a hundred years, clearing of the forests had been actively encouraged for the purpose of creating more land for farming. However, much of the land on which the white pine grew was completely unsuited for agriculture. Like the “Pine Plains” of Simcoe County, which had yielded masts 37 m tall and had produced sixty million board feet of lumber per year in the 1860s, when denuded of forests much of the land became barren, sandy wasteland. Trees not sacrificed for agriculture or industry were often lost to fires which destroyed thousands of square kilometres of pine forest. J. R. Booth once estimated that for every tree the timber industry took, fire took another twenty.

The devastation of land denuded of forests in York County.
Photo: Ontario Ministry of Natural Resources
In the early 1900s, E. J. Zavitz, called "The Father of Ontario Forestry," began a program to reforest the wastelands of Ontario that continues to this day. This ongoing project has had considerable success, and much land that had been unproductive is once again valuable woodland. Unfortunately, little of this reforestation involved white pine, the tree that originally grew on much of the wasteland. White pine is susceptible to two pests — white pine weevil and white pine blister rust — and that susceptibility has made it somewhat difficult to reestablish. In recent years, however, techniques have been developed to deal with these problems, and much more intensive reforestation efforts involving the white pine have been undertaken.

The vast white pine forests are gone, and we will never again see the giants that once grew here. Yet, the story of the white pine continues. The trees are smaller, the forest area much smaller, but there are still many white pines to be seen in southern Ontario. The tree still flourishes in the province — in the far west, on the north shore of Lake Huron, around Georgian Bay, and in the Algonquin region. Although it is no longer Ontario's foremost forest product, it is still an important part of our lumber industry. Each year nearly half a million cubic metres of white pine are cut on Crown lands.

Most important, the legacy of the tree remains. Ontario would have grown and developed had the white pine not stood here in such abundance, but the story of that growth and development would have been very different. At one time, Ontario's white pine accounted for nearly forty per cent of Canada's exports. For most of the nineteenth century, through the sale of timber berths and the collection of timber dues, the white pine brought in millions of dollars to the provincial treasury, nearly thirty per cent of all revenue collected. In fact, this was the largest single source of income for the province until the early 1900s, and to a large degree it provided the funds for the building of schools and roads and for the other necessary functions of the Government of Ontario. The white pine provided shelter for the first settlers and the material for their comforts. It brought in foreign capital and led to exploration and settlement. It made industries and jobs and it created transportation networks and towns. Ultimately, the white pine created history.

Edmund John Zavitz (1875-1968) devoted nearly half a century to distinguished work in reforestation in Ontario. He played a major role in assisting the provincial government to establish nurseries, assess the problems of southern Ontario wastelands, and enter into a co-operative rehabilitation program with municipalities. He was also instrumental in establishing the forest fire protection system in the province. A month before his death, Dr. Zavitz was honoured at Queen's Park in a planting ceremony in which the billionth tree shipped from Ontario provincial nurseries was dedicated to him. Perhaps his greatest and most fitting memorial, however, is the living legacy he left us — the thousands of hectares of forests that thrive in Ontario today.

Photo: Ontario Ministry of Natural Resources
In the shadow of two lone white pines contour ploughing for tree planting takes place in Ganaraska in 1947.
Photo: Ontario Ministry of Natural Resources

This pure white pine plantation was planted in 1911 at St. Williams. This photo was taken in 1954 and shows the results of recent thinning and pruning.
Photo: Ontario Ministry of Natural Resources
Top Row
(Photos by Brad Graham / Eco-Images)
(Left) Flashing of white pine male flower buds
(Centre) A single cluster of white pine male flowers
of the red variety
(Right) Several clusters of white pine male flowers
of the yellow variety

2nd Row
(Photos by Brad Graham / Eco-Images)
(Left) White pine cones in dormant winter stage
(Centre) Developing white pine cone
(Right) Ripe white pine cone after seed dispersal

3rd Row
(Photos by Brad Graham / Eco-Images)
(Left) Sectioned white pine cone showing mature seed
(Centre) Sawn white pine seed at Midhurst Nursery
(Right) Containerized white pine seedlings at Kemptville Nursery

4th Row
(Left and centre photos by Ontario Ministry of Natural Resources, right photo by Dan McKenney)
(Left) Two- to three-year-old bare-root white pine seedlings at Midhurst Nursery
(Centre) Pruning a young stand of white pine
(Right) Older plantation of white pine (left) and red pine (right) established in the late 1950s at the headquarters of the Ganaraska Conservation Authority.
White Pine Tree

The tallest conifer in eastern Canada, commonly reaching heights of 30 m and diameters of 90 cm, the eastern white pine may attain heights of 50 m and diameters of 150 cm when growing on favourable soils. Its bluish green leaves are found in groups of fives, 6 to 13 cm long, and are needleshaped, with finely toothed edges. They are slender, straight, flexible, and soft to touch. The tree’s thin, smooth bark is greyish green when young and becomes darker with age. Its wood is light, moderately low in strength, soft, creamy white to yellow in colour, and moderately decay resistant.

White pine cones mature in September and fall during the winter. They are cylindrical when closed, 7.5 to 20 cm long, 2.5 cm across, and open soon after maturing to release the seeds.

Eastern white pine is a characteristic tree in the Great Lakes – St. Lawrence Forest Region; but its range also extends into the southeastern parts of the Boreal Forest Region, eastward into the Acadian Forest Region, and south throughout the Deciduous Forest Region.

It can be found on many different soils, from dry sandy and rocky ridges to sphagnum bogs, but achieves its best growth on moist sandy or loamy soils. The tree may grow in pure stands or in association with other conifers and hardwoods.

White pine produces the most valuable softwood lumber in eastern Canada. Because of its low shrinkage and uniform texture, it is used extensively for window sashes and frames. Other important uses are for doors, mouldings, trim, siding, panelling, and cabinet work, and it is especially valued for making the patterns used in metal-foundry work.
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