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The Wealth of Nature: Lumber

Where Value Comes From

The grain elevator was not the only place in Chicago where the products of rural nature entered the urban market to become commodities. Elevator receipts were an extreme case of what the market could do because grain so easily seemed to lose its physical identity while passing from hand to hand. But the process was far more general. Rural products entered Chicago in such immense quantities that their sheer concentration encouraged people to think of them as symbolic abstractions—as commodities defined by their passage through the market. When post-Civil War boosters waxed eloquent about Chicago, they declared their city to be not merely the greatest grain market in the world but also the greatest cattle market, the greatest hog market, the greatest lumber market, and so on. “Chicago,” exulted the city’s chief booster in 1870, “which less than thirty years since imported grain and provisions of all sorts from the East . . . is now in grain, lumber, live stock, and provisions, chief market of the world.”¹

machine age: the nail. Taylor used these simple materials to erect a structural skeleton consisting of sills, floor joists, studs, and roof rafters, all nailed together and covered with a wooden sheathing of clapboards and shingles. Because his design supported the load of the building with a cage-like framework consisting of many lightweight studs and joists rather than a few massive wooden columns and girders, it came to be known as the balloon frame.

As a popular farmer's manual defined it in the 1880s, what distinguished the balloon frame from its more stolid predecessor was that it consisted of "a strong frame made with few mortises and tenons, spikes and nails holding all firmly together."¹¹⁰ Mundane as this simple description may sound, it proclaimed an architectural revolution. Because the balloon frame consisted of light, milled wood, a small number of workers could erect it quickly; because it was held together with nails instead of intricate carved joints, it required less skill than earlier buildings; and because its components were easy to modify and repeat, it was wonderfully adaptable to buildings of different shapes and forms. Perhaps its only real drawback was that the tall two-by-four studs supporting both the second-floor joists and the roof rafters formed continuous air spaces that ran from basement to roof. Because builders did not at first grasp the implications of these air spaces, early balloon-frame structures had few or no fire-stops in their walls.¹¹¹ In the event that any part of the structure started to burn, the walls quickly began to act as flues, and the building became an inferno. Chicagoans would learn this lesson all too well during the Great Fire, which devastated their city in October 1871.¹¹²

Despite this one invisible danger of the balloon frame, Chicagoans and other nineteenth-century Americans had every reason to embrace it as the quintessential building form of the age. In a world where wood was cheap and readily available, Taylor's design was ideally suited to the task of occupying a frontier landscape as quickly and with as little labor as possible. "Everything new," wrote a traveler to Chicago in 1880, "is of wood. . . ."¹¹³ The balloon frame was no less well adapted to the needs of humble farm outbuildings than to the elaborate architectural fantasies it soon helped inspire in the domestic residences of the well-to-do. Even inexperienced carpenters could use it with reasonable success, and builders' manuals promoted it accordingly. By the second half of the nineteenth century, the vast majority of America's wooden buildings were using it.

Appropriately enough, the decades following 1850, during which the balloon frame triumphed in American architecture, also constituted the period when Chicago emerged as the greatest lumber market in the world. The fences, railroad ties, and buildings that fueled the prodigious

of the nineteenth century.

Here again they followed Chicago's example. In 1833, just as the city was experiencing its first major real estate boom in the wake of the canal fever, the builder Augustine D. Taylor devised a new architectural framing system while constructing St. Mary's Catholic Church.¹⁰⁹ In designing the building, Taylor rejected the strong but laborious timber-frame construction—with heavy beams held together by hand-carved mortise-and-tenon joints—that had typified wooden architecture since the European Middle Ages. Instead, he turned to the new, lighter, mass-produced pieces of lumber that were beginning to be available in the city, and combined them with an even more unpretentious product of America's

American demand for wood were in common use throughout the country, but nowhere was the demand for them more concentrated than at Chicago. In no other city on the planet was there a neighborhood to compare with the vast, strange landscape of stacked wood that dominated the South Branch of the Chicago River. In no other city did so large a lumber fleet gather to deliver so immense an output from so many different sawmills. And in no other city did so many customers from so extensive an area gather to buy so much wood.

The Cutover

Beneath the geography of capital, underpinning it and sustaining it even as the two transformed each other, there was still the geography of first nature. To explain why Chicago lost its wholesale lumber trade, one must ultimately turn to that older geography. Behind the retailers' resentment of the Chicago drummers, behind the millowners' efforts to escape the influence of the cargo market, behind the competition of other regions and the coming of yellow pine, behind even the proliferation of the railroads, there remained the forest itself. Without it, none of the others would have mattered. Chicago lost its lumber trade because the forest was finally exhausted by the effort to bring it to market.

Even as late as the early 1870s, few had believed this possible. "Will our pine timber soon be exhausted?" asked a journalist in a popular Chicago magazine in 1870. "We say no. None of our generation will see our pine forests decimated."¹⁹² Efforts by early conservationists to suggest that the forests of Michigan, Wisconsin, and Minnesota were finite and should be used more carefully were greeted with scorn by the lumber press.¹⁹³ A case in point was the reaction to James S. Little, a wealthy Canadian lumberman unusually concerned about preserving forest resources, who wrote a long article in 1876 on the timber supply of the United States and Canada. In it, he suggested that Great Lakes loggers were "not only burning the candle at both ends . . . but cutting it in two, and setting the match to the four ends to enable them to double the process of exhaustion."¹⁹⁴ In the face of Little's estimates, the editors of the *Northwestern Lumberman* simply argued that his statistics were inadequate and his economic assumptions naive. They showed no real concern about whether he might be right in the long run about the potential destruction of the forest. They were equally hostile to the special report on the nation's forests published in the 1880 census, and devoted many columns to refuting its pessimistic estimates of the remaining timber supply.¹⁹⁵

During the 1880s, however, as Chicago lumbermen reeled from one bad piece of news after another, there were more signs that the white pines might in fact be giving out. For instance, sawlog prices, along with the prices of forested real estate, were steadily rising. Michigan sawlogs in 1879 were selling for \$14 per thousand feet, when just four years earlier even fully milled coarse lumber had not cost as much.¹⁹⁶ Just as worrisome was the general decline in the quality of trees that loggers were

cutting. In 1870, the typical sawlog reaching a Michigan mill town measured sixteen to eighteen inches in diameter, and no one considered a tree worth cutting if it was not at least a foot wide. Ten years later, the minimum size had fallen to six to eight inches, so the average log contained far less lumber than before.¹⁹⁷ The costs of logging rose accordingly. By 1883, loggers in the Muskegon district were cutting trees higher into the branches than they ever had before; they cut almost the entire tree into logs.¹⁹⁸ To make matters worse, trees still worth cutting were located farther and farther from the lumber streams. In 1879, for instance, the *Lumberman* reported, "There is not to-day a navigable creek in the state of Michigan or Wisconsin and we may, with little risk, add Minnesota, upon whose banks, to the head waters, the better grade of timber is still standing within a distance of two to three miles."¹⁹⁹

Many of the technological and economic changes sweeping the western lumber trade were responses to these fundamental shifts in the nature of the forest. With suitable trees no longer in easy reach of the watercourses, logging railroads became an ever more necessary, if expensive, investment. The rising sale of hardwood lumber from Michigan and elsewhere occurred partly because railroads could now carry such wood, but also because there was so little white pine lumber left to compete with it. The rapid disappearance of uncut pine land led lumbermen to realize they were running out of timber, and many of them therefore began looking to the uncut forests of the South and the Pacific Northwest. Frederick Weyerhaeuser's decision to move his chief field of activity to Idaho and Washington was only the most celebrated of these movements, for the rise of the southern yellow pine industry also followed the search of Great Lakes capital for new timber investments.

The ability of yellow pine to compete at all in the heart of white pine country was among the most telling signs that the best of the white pine was already gone. When Chicago wholesalers started having trouble obtaining the higher grades of white pine, it was not just because manufacturers were holding back those grades to sell directly from the mill but also because higher grades no longer existed.²⁰⁰ In 1890, sawmill operators in the Mississippi Valley met to suggest that regional grading scales be shifted downward so that lower-quality wood could be graded higher than before. In the very act of trying to obscure the truth, they acknowledged that their forests were disappearing.²⁰¹ By the 1880s, that realization was dawning on even the most skeptical. As early as 1881, the *Northwestern Lumberman* was admitting that "the old prophets must be accredited with a remarkably correct appreciation of the timber supply."²⁰² By 1887, its editors had joined the prophets of doom to declare

that "the end of the, at one time supposed inexhaustible, supply of white and norway pine timber is altogether too near."²⁰³

Lumber production in the Great Lakes peaked in the early 1890s, and began to decline precipitously thereafter. The Michigan white pines gave out first, followed by those in Wisconsin and finally by those in Minnesota.²⁰⁴ As the loggers finished their work in the forests they had consumed, they left behind a literal wasteland. Great piles of slash—small timber, branches, and other debris that had little economic value—remained on the ground where they fell, sometimes in piles ten to fifteen feet high. They accumulated over a vast area, turned brown in the summer heat, and waited for the dry season, when a spark might set them alight.

Fires had long been common in the Great Lakes forests. Indeed, fires were an important reason why the white pine was so abundant in the region, for the tree was adapted to reproduce most effectively in newly burned-over lands. The most extensive stands of white pines were often on the sites of old forest fires. But the fires that followed in the wake of the loggers were not like earlier ones. As the loggers cleared the forest, farmers—believing the old theory that the plow followed the ax—moved onto the newly cleared land to plant their crops. To remove the loggers' debris and to ready their fields for plowing, they typically followed the pioneer practice of setting fire to the ground in the fall. In so doing, aided by an occasional spark from the logging railroads, they ignited the immense tracts of clear-out land to produce some of the worst forest fires in American history. The 1871 fire at Peshtigo, Wisconsin, killed perhaps fifteen hundred people, far more than died in Chicago during the fire that burned down the city at almost the same time. Comparable holocausts occurred in Michigan in 1881, at Hinckley, Minnesota, in 1894, and—the last of the great slash fires—at Cloquet, Minnesota, in 1918.²⁰⁵

But human deaths and the destruction of would-be farming communities were not the only consequences of the great fires. They killed much of the remaining white pine forest as well. The tree's ability to flourish in the wake of natural fires depended on the seeds its cones released after undergoing the intense heat of burning. After a fire, tall parent trees ordinarily released their seeds to the newly cleared, now sunny ground beneath them, where young trees thrived and achieved maximum growth. In logged areas, few parent trees remained to reseed after a burn. As a result, other species, especially the deciduous aspens and birches with their ability to reproduce from stumps and suckers, began to invade the pine's old territory. They were aided in this at the end of the nineteenth century when people accidentally introduced to North America a European plant disease, the white pine blister rust. Fatal to a majority of white

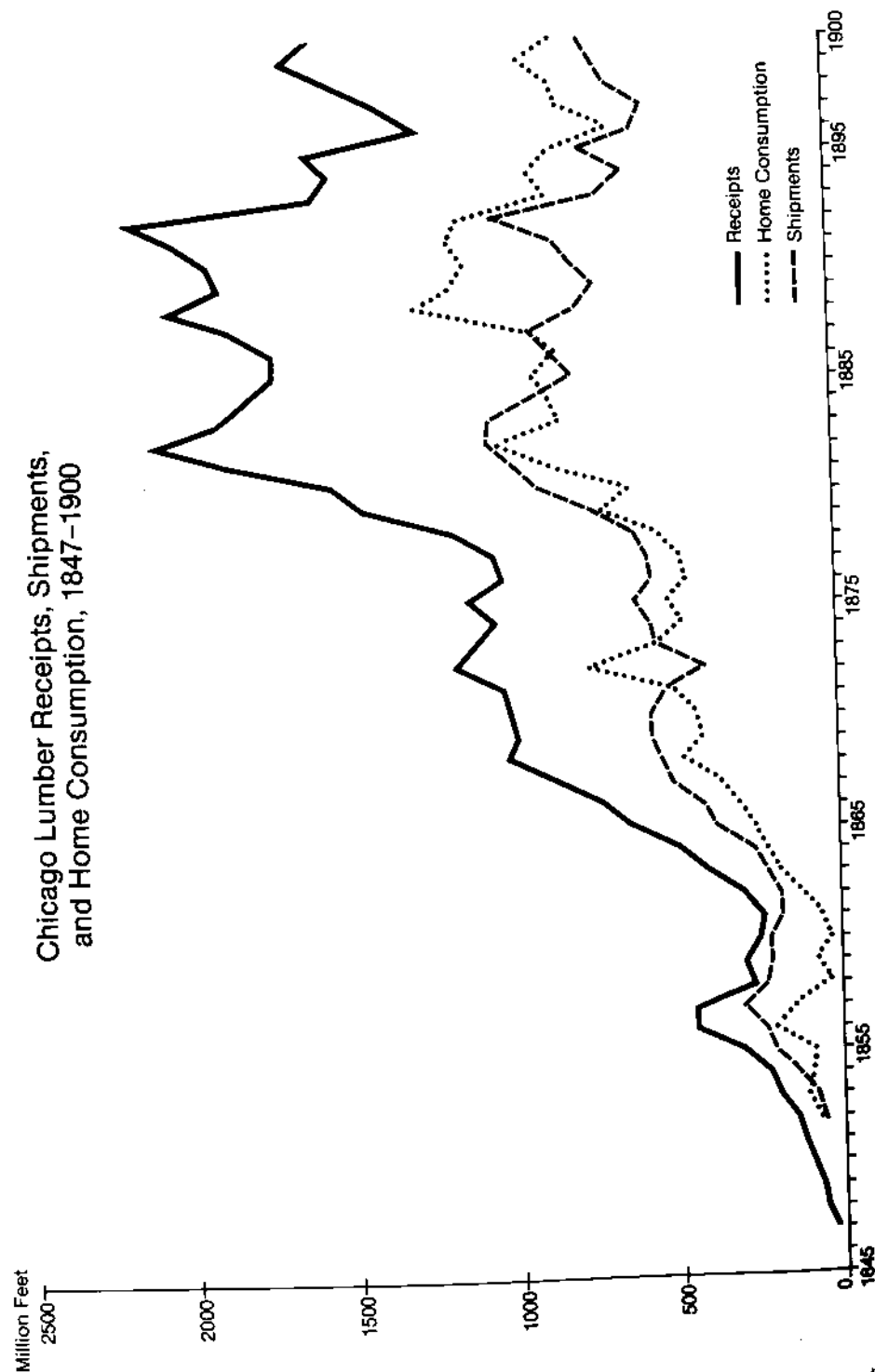
pinus in moist areas like the north woods, the rust had reached the Great Lakes forest by the second decade of the twentieth century, and it diminished still further the chances that the white pine forest would ever fully reproduce itself. Aspen and birch, in alternation with balsam fir, appear to have permanently replaced the pines in areas where the forest has been left to its own devices. In many places, however, people in the twentieth century have systematically replanted pines and other desirable tree species, so stands of pines do still exist in many areas of the north woods.²⁰⁶

The dream that the "Cutover" district would become a fertile agricultural landscape proved within two or three decades to be an illusion. Clear-cutting and the fires that followed it reduced what little natural fertility the soil already had, and contributed to problems of erosion and flooding. More important, the poorly drained, heavily glaciated soils typical of the northern forests were inherently inhospitable to agriculture, as was the climate. Farmers who tried to earn a livelihood amid the stumps of the old pines quickly discovered that doing so was very hard indeed. Potatoes might survive in the poor soil, but few other crops did well there. Already by the late 1890s, a government report could foresee "no prospect that our denuded lands will be put to agricultural uses."²⁰⁷ Old pinelands, whether abandoned by lumbermen or farmers or both, became an increasing burden on county and state tax rolls as their owners went into arrears and let the government claim the lands. The problem of what to do with the resulting depopulated landscape continued to haunt Great Lakes states well into the twentieth century.²⁰⁸ As time went on, the north woods found new economic possibilities in the rise of the paper industry, which made good use of fast-growing species like birch and aspen; and the regrowing forests also became prime recreational country for Chicagoans and other inhabitants of the Great Lakes region. All of that lay in the future. In 1900, the Cutover was just that: cut over, and abandoned.

The newly treeless countrysides of northern Michigan and Wisconsin were far from the minds of most Chicagoans by the 1890s. Even though the city's wholesalers were abandoning their old western haunts to new competitors, they never lost their home market. Ever since the Civil War, people in Chicago itself had consumed a gradually rising share of the lumber that entered its yards. This home consumption eventually became the mainstay of the lumber trade, with regional wholesalers shifting toward a local retail business. No one feared that Chicago itself would run out of wood, for the city was now attracting lumber from across the entire nation. The demise of the white pine forest thus posed no permanent problem for the Chicago lumber trade.

The internal growth of the city had replaced the settlement of the

Chicago Lumber Receipts, Shipments,
and Home Consumption, 1847-1900



prairies as the driving force behind lumber sales. Some even saw in the wholesalers' adversity the signs of future opportunity: by losing the trade of western farmers, hadn't the lumbermen acquired the much more profitable trade of the new metropolis? "The time is rapidly approaching," wrote the *Northwestern Lumberman* in 1889, "when the city demand will be much more important than that in the rural districts."²⁰⁹ Cities, and especially Chicago, had become the centers for great concentrations of wealth, and the wealthy were likely to spend huge sums on mansions and other expensive structures for which white pine was hardly needed. How fortunate, then, that just as the northern forests were disappearing, "hardwoods have come in and pine has been in a great measure ruled out"—a wood unworthy of the new urban elite.²¹⁰ Demand for cheaper lumber would continue to come from people building the growing numbers of working-class houses in the city, as well as the prosperous farmers living in the immediate vicinity of Chicago, so lumber dealers could look forward to ongoing business from those markets as well.²¹¹

And what of the ravaged pinelands to the north? What was their relationship to this new vision of urban harmony and grandeur? Presumably those Chicagoans who thought about it, like most other Americans, saw the vanished forests as a worthy sacrifice to the cause of civilization. The fate of those forests had been prophesied as early as 1868, when a visitor to upper Michigan could declare in a remarkable passage, "The waste of timber is inevitable." He went on,

The pioneer is insensible to arguments touching the future supply; to him the forest is only fit to be exterminated, as it hinders his plough and obstructs his sunlight. When Northern Michigan becomes, like Southern Illinois, a great rolling prairie of grass and grain, whose horizon is unbroken as the horizon of the ocean, the want of foresight that permitted the destruction of these magnificent forests will be bitterly lamented. But the lament will come from the next generation: the people of this will only boast the swift change of the wood and the wilderness to the fertile field, and exult in the lines of towns and cities which spring up along its water-courses and overlook its lakes.²¹²

What made this vision so remarkable was its partial truth. The deaths of the forest trees had indeed built farms on great rolling prairies, and towns and cities had indeed sprung up as a result of the white pines' sacrifice—but not on the forest soil itself. The wealth that the northern pines had stored as natural capital had been successfully transformed into a more human form of wealth, but the vast bulk of it had been moved to another soil, another landscape, another ecosystem. The forest had been consumed in pursuit of a vision that would triumph in the grasslands and,

even more, in the city of Chicago—but not in the Cutover. The old blackened stumps would continue to serve as reminders, like the gray stones in an abandoned churchyard, that the city and its hinterland had originally been the products of a kind of theft that few now wished to remember. A sizable share of the new city's wealth was the wealth of nature stolen, consumed, and converted to human ends. The task of forgetting that fact was easier the farther one traveled from the north country, and easiest of all when one stood in the shadows of the tall stone buildings of Chicago's Loop.

A few remembered nonetheless. Toward the end of his life, Isaac Stephenson, one of the most successful of the Marinette-Menominee lumbermen, would write in his autobiography,

The habitual weakness of the American people is to assume that they have made themselves great, whereas their greatness has been in large measure thrust upon them by a bountiful providence which has given them forests, mines, fertile soil, and a variety of climate to enable them to sustain themselves in plenty. . . .²¹³

From the wealth of nature, Americans had wrung a human plenty, and from that plenty they had built the city of Chicago. Chicago's relationship to the white pines had been exceedingly intricate, emerging from ecological and economic forces that for a brief time had come together into a single market, a single geography. The tensions in that market and that geography finally destroyed the distant ecosystem which had helped create them—but by then it no longer mattered. Perhaps the greatest irony was that by surviving the forests that had nurtured its growth, Chicago could all too easily come to seem a wholly human creation.

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Annihilating Space: Meat