FORTUNE Feb. 1945 31:169-175

DECLINE OF THE FORESTS

Loggers are cutting the last virgin stands in the Northwest; soon they must slow down to let growth catch up with depletion.

Unbelievably tall and thick, the trees stretch off over the hills and mountains, mile after mile, until on the horizon they look like matchsticks. The forests of the Northwest—Washington, Oregon, Idaho, and Montana—and of northern California cover two-fifths of the land.

From these forests come nearly half of the nation's lumber, a fifth of its wood pulp, and more than half of its plywood. They were the foundation for the Northwest's major prewar industry; of all industrial workers before the war, almost two out of three had jobs that depended on the trees. The war changed this, of course. Shipyards and airplane factories were built, and while the forest industry increased its production it no longer predominated. But when war ends, the shipyards and airplane plants will cut employment heavily. Many North westerners hope that the forest industry can then be expanded to provide new jobs—assuming, not unreasonably, that a great quantity of lumber will be needed for reconstruction, and new housing. There may, indeed, be a spurt in lumber production when men and equipment are plentiful. But, in the long run, the forest industry is more likely to decline. The reason is basic: there will be a shortage of its raw material, trees.

The Cascade Range, running north and south to form the backbone of Oregon and Washington, divides the region into two forest types. On the foggy and rainy west slope is a dark, somber, fern-filled forest of Douglas-fir. In virgin stands two hundred and fifty to five hundred years old, the trees are five to ten feet in diameter and 200 to 300 feet tall. These Douglas firs, which supply a fourth of the nation's lumber, are the most important of the western conifers or softwoods. On the drier east slope of the Cascades, extending into Idaho and Montana and down into California, are open, sunlit, park like forests of ponderosa pine, which makes a fine all-purpose lumber. In Idaho there are also dense stands of the prized white pine, whose soft, straight-grained wood is ideal for sash and doors, matchsticks, and pattern making. In California, in a narrow fog belt along the coast, are the redwoods—trees even bigger than the Douglas fir. These trees, one to two thousand years old, often produce logs six to twelve feet in diameter. They are not museum pieces: at the present rate of cutting, the virgin stands of redwood will last longer than most other stands. Redwood is used for posts, siding, and tanks; it resists rot.

Other trees of the Norwest and northern California are sugar pine, which is much like Idaho pine; Sitka spruce, used for gliders, and airplanes; western red cedar, for posts and shingles; Port Orford cedar, now almost gone but in demand for venetian blinds and battery separators; incense cedar, used for pencils; hemlock, the best tree for pulping; and western larch and true fir, once regarded as "weed" trees but now logged profitably at wartime prices.

THE BIG AND THE LITTLE

The forest industry of the Northwest is based on big trees. Lumber manufacture consumes about 88 percent of the volume of timber—pulp and paper use about 7 percent and plywood 5—and the Northwest's mills produce

THE UNENDING FORESTS OF THE NORTHWEST

The forests of the Northwest moved one of the pioneers to write a poem in which he described the mountains as "covered all over with timber—like hair on the back of a dog." The description is still apt. So vast are the forests it is hard to believe that they can ever be used up. But they can be. Loggers are mowing down the big trees too fast, just as they mowed the forests of Maine, New York, Pennsylvania, and the Lake states.

SOME TREES ARE WASTED—AND SOME USED

The fallers are the men who cut nearly into the huge trunks of aged trees. They wok in pairs, a right-handed cutter with a left-handed one. Some become legendary, like one famously taciturn pair known only as Hell Yes and Hell No. All good fallers work together with flawless rhythm and wordless understanding.

At the right is the classic example of waste—the Tillamook burn. In 1935, a messenger sent to warn the loggers in Tillamook County, Oregon, that the day was too dry for safe logging, stopped for a cup of coffee. When he got to the logging camp a fire had been started by the friction of one log being dragged across another. The fire burned 245,000 acres of fine virgin timber in twelve days. In 1939 lightning hit one of the dead trees (snags) and the area reburned, killing new growth. What to do with this dead forest nobody knows; to cut down the snags and replant it would cost $20 million.

big timbers and wide boards. The mills are usually big; there are relatively few "teakettle" mills such as the thousands in the South and East that cut second-growth timber.

Biggest of many big forest companies is the Weyerhaeuser Timber Co. of Tacoma, Washington (assets $164 million), which saws about 4 percent of U.S. lumber. This is only one of the companies in which President F.E. Weyerhaeuser, Vice President J.P. Weyerhaeuser, and other members of the family have interests. The founder of the company, Frederick Weyerhaeuser, who went to the Northwest when the Lake states' timber began to run out, started off as a sort of timber trader. He did no more than buy and sell vast tracts of timber ("stumpage" to the industry). Now the Weyerhaeuser Timber Co. alone controls two pulp plants, two plywood plants, and eleven sawmills, including one at Longview, Washington, that is one of the two biggest in the world. But the great strength of Weyerhaeuser is its timberland. How much timber the company owns it does not say, but it is the greatest private timber holder in the world. The Weyerhaeuser Timber Co.'s 1943 report values its timber holdings at $67,600,000 (appraised at 1913 value, because of tax laws). The Forest Service cautiously regards Weyerhaeuser as "having good potentialities for sustained yield," which means that Weyerhaeuser timber is so plentiful that it is growing about as fast as it is cut.

The Long-Bell Lumber Co., started by R.A. Long of Kansas City, is regarded as Weyerhaeuser's main rival. Long-Bell logged and manufactured most of its timber in the South until the virgin growth there began to run out. In 1922, when he was seventy, Long decided to move to the Northwest. Unsatisfied with the many lumber towns available, he decided to build a new one about fifty miles northwest of Portland, at the confluence of the Columbia and Cowlitz rivers, which could be used to bring logs from 30 percent of the timberland in Oregon and Washington. Long bought 14,000 acres in the peninsula formed by the two rivers, including the hamlet of Monticello. Unmodestly, he renamed the place Longview. The land was low and swampy, so Long formed a drainage district, guaranteeing its bond issue of $3,260,000. He brought in city planners who laid out a town with wide streets and plenty of open space. The six-story hotel, bank, stores, theatre, and other buildings the company built were of brick, for Longview was to be no transitory logging camp. The company built a $10 million mill and contracted to buy $11 million worth of timber from the Weyerhaeusers.

Bonds were issued for the town and mill—the total cost was around $39 million. But in the depression Long-Bell was unable to meet its interest charges; the timber it had contracted to buy went back to Weyerhaeuser; and in 1935 (a year after Long Died at eighty-two) the company was reorganized. Long-Bell now purchases most of the logs it saws; the company's 1943 report listed holdings of only 1,052 million board feet back of the Longview plant, little more than three years' supply. Long-Bell, however, has cutting contracts for about 1,200 million more board feet.

Weyerhaeuser and Long-Bell are integrated; they own timber, log it, manufacture it, and sell it at retail. Some of their smaller competitors merely own and sell timber. Some, called "gyppo" loggers, log on contract, or buy stumpage and sell logs on the open market. Many millowners do not own a stick of timber; they buy logs as they need them. Such buying is increasingly difficult, for the open log market is shrinking with the supply of timber. Few companies have retail organizations. There are a number of mills that saw around 100 million board feet a year—as compared with about 325 million for the big mills at Longview. And there are about 400 mills that saw five million or more feet a year; these altogether produce about 90 percent of the Northwest's lumber. The other 10 percent is produced by hundreds of little mills, some of which get their timber from farm wood lots.

Many of these little mills are not very efficient. Their circular saws have thick teeth, which waste more in sawdust than do the hand saws of the big mills. They do not sell their sawdust as fuel or as a raw material, but use what they need to make their own power and burn the rest or leave it to rot. But the little mills have advantages. Investment is low; indeed, the plants, often filled with secondhand machinery, may cost only $5,000 or $10,000. some have been started for as little as $500.

This wide range between big and little mills is peculiar to lumber manufacture. No competition plywood mill can be started for less than $800,000. And a competitive pulp mill costs as least $5 million.

A ROOTLESS AND RISKY BUSINESS

The Northwest's lumbermen were raised in the industry's cut out and get out

tradition. Lumbering started in Maine, moved to New York and Pennsylvania, then to the "pineries" of the Lake states, and finally to the South or Northwest. It was a business in which many got rich—and many went broke, often the same ones—by cutting trees without thinking of new ones.

The Northwest's logging started off around Puget Sound, Grays Harbor, and the lower Columbia River where trees could be practically rolled into the water. From 1890 to 1910 many lumbermen came into this area from the Lake states, bringing with them the equipment and skill for heavy logging. Stands of tremendous timber could be bought for almost nothing; there was a rule of thumb that timber held for more than twenty years would be eaten up by taxes, fire, or disease.

The new logging was done by power; it was usually destructive. Logs were dragged 2,000 to 3,000 feet by steel cables attached to donkey-engine winches, and the cables knocked down any trees the fallers had passed by. Logged-over land looked as if it had been scythed. It was left piled head-high with tops, branches, and rejected logs—slash that made an almost explosive fuel for forest fires, which destroyed new growth. The common practice was to log off the land, then let it go for taxes.

Within the Northwest a new migration is going on. Mills on Puget Sound have been shutting down for years. Sixty percent of them, representing 35 percent of the Sound's production, probably will be out of logs from private land in five years. As the trees run out, business shifts from Washington, the leading lumber state in the period from 1905 to 1937, to Oregon. Oregon, the leading state since 1938, may not yet have reached its peak, but even within Oregon there is over cutting. In four northwestern Oregon counties there are 113 mills, but only twenty own or control enough private timber for a life in excess of ten years.

BIG LOGS ARE HARD TO HANDLE

Heavy loading equipment (loft) is needed to handle the Northwest's logs, and when they come to a mill (right) they are dumped into a pond, and then floated to the bull chain, which pulls them up to the head saw. The mill's head sawyer is a most important man; he can make or break the mill. to get the most good lumber out of each log, he must estimate its merits and defects, both visible and hidden, in a few seconds as it rolls onto the saw carriage. Because he cannot be heard over the rumble of the carriage and the scream of the head saw he gives his instructions by finger signals t the setter. With steam-driven hooks and plungers the sayer and his crew can turn and toss ten-ton logs as if they were toothpicks.

Some mill owners have made money without owning timber, but there is a theory that the only big profits in the industry come from price rises in stumpage. Many lumber fortunes, including Weyerhaeuser's seem to have even started on stumpage. Frederick Weyerhaeuser, for instance, bought timber in Washington and Oregon when it could be had for 10 to 50 cents a thousand board feet. The 1939 average was $1.95; the 1943 average, $3.49. The Weyerhaeuser case, however, is not typical. Life for almost everyone in the business has been one of too few feasts and too many famines. The industry did well in the 1920's. But from 1932 to 1935, when all manufacturing had a net profit on invested capital of 1.8 percent, the lumber was 2.9 percent Even in 1941, the last year for which figures are available, all manufacturing's return was 21.8 percenter; lumber's but 16.4 percent.

Lumber's poor showing and erratic earnings are not hard to explain. If prices went down the "cure" was to produce more. Mill capacity always has been in excess of needs. In an industry weak in marketing this was disastrous to earnings.

The industry has not been content with its low profits. In the mid-twenties the National City Bank, at the invitation of a few lumbermen, tried to merge fifty to a hundred lumber companies. The proposed corporation, the U.S. Steel of the woods, would "dominate, bring order to, and provide leadership for" the industry. The merger never jelled, principally because the lumbermen, all indivudalists, would not agree on anything more than making more profits. Hard times, however, made them more willing to agree, and in NRA days they early adopted a code. After NRA was invalidated they apparently tried to keep some of it alive. The government in 1940, in an antitrust suit, brought charges of fixed prices and restricted production. The lumbermen replied publicly that they had merely agreed to exchange information (privately they insisted that nobody had paid much attention even to that exchange), but he West Coast Lumbermen's Association and the Western Pine Association thought fit to plead *nolo contendere*. Consent decrees were entered against them and thereafter the industry went on being its old competitive self. And so it remained until war disposed of the marketing problem but imposed production problems such as the industry had never met before.

RETURN FROM THE "SHEEPYARDS"

In the early days of the war lumber was used freely to substitute for steel, and eventually it became as scarce. The West Coast industry in 1941 turned out 19 percent more lumber than in 1940, and cut heavily into timber stocks to supply demand. In 1942 production fell off a little, and in 1943 there was another small decline. The chief reason was lack of manpower. Besides losing men to the Army and Navy, the woods and mills lost many to the shipyards. A loader found it easy to run a big "whirly" crane, and a high climber was a natural rigger. In 1943 there were 19 percent fewer workers than there had been in 1940. Furthermore, lack of manpower could not be offset much by mechanization. New machines were hard to get; the things the lumbermen most needed—tractors, trucks, tires, heavy loading machinery—were also needed by the Army and Navy.

In this situation the lumbermen managed to get along by lengthening hours. Average weekly pay of Douglas-fir employees rose from $26.38 in 1939 to $47.21 in 1943. Good fallers and buckers made $15 to $25 a day on piecework. These wages could compete with shipyard pay, and some of the lumberjacks came back to the woods. They disliked the crowding and uproar of the "sheepyards" (so called because woodsmen in the yards felt they were being herded like sheep), but a majority stayed in the cities.

Meanwhile, timber was being cut farther and farther back in the hills, and consequently was harder to get out. This difficulty was compensated in part by the fact that almost any tree that would make a board could be cut profitably. Species once left in the woods were sent to the sawmills.

Wartime profits, however, were good enough to make up for a lot. The average mill price in the Douglas-fir region rose from $19.97 per thousand board feet in 1939 to $38.27 in the first eight months of 1944. OPA raised ceiling prices on items the government especially wanted. Profits were further boosted because the Army and Navy often had to use higher grades of lumber because lower grades were unavailable, and because, with "demand backed up to the saw," much lumber was sold without seasoning.

Only a few companies published financial reports, but these show high profit. The small mills that do not publish reports are believed to have done even better. A northwest banker tells of a lumberman who used to be happy if he made $10,000 a year. In 1942 this lumberman made $200,000; in 1943, $400,000. But when he met the banker on the street he growled: "By God, I make $400,000 and what does the government let me keep? A lousy $80,000. If I can't make more than 20 cents on eh dollar I'll shut the damned mill down the minute the war's over!"

RECONVERSION: A FLIP OF THE FINGER

The forest industries never really had to convert to war production. They went on doing what they had always done: sawing up logs to make boards and timbers, pulping them to make paper or cardboard, peeling them to make plywood. In the lumber industry, conversion—if it really can be called that—was accomplished by a change in the day's cutting orders and a flip of the head sawyer's finger. Reconversion will be as simple. If the sawyer has been signaling with down turned index finger for eight-inch cuts, for timbers to rebuild the docks at Brest, he can signal with upturned index finger for one-inch cuts, to sheathe a house.

Decline of the Forests

(Postwar markets look good – the nation's housing shortage is acute, and wood technology shows promise, (See "The New Age of Wood," FORTUNE, October, 1942.) The industry, laggard in research, is now stepping out. The government's Forest Products Laboratory at Madison, Wisconsin, is being backed up by company laboratories (Weyerhaeuser has one that cost $100,000) and industry-association research establishments.

A PIECE OF LUMBER IS A CUSTOM JOB

Lumber cannot be produced in the flow that production engineers dream of, with each operation so limited that little or no judgment is necessary. No two trees are exactly alike, and neither is the lumber that comes from different parts of the tree. Not only must the head sawyer use judgment but so much the edger and the man at the cutoff saw, who trims the lumber to get rid of defects, and the people on the "green chain," who sort it.

Laminated arches, to support the roofs of large buildings, have been satisfactory during the war; in some instances they may be better than steel. TECO connectors—bolts and rings with which timbers can be fastened together without weak spots—are being widely used in structural work. Compreg, a resin impregnated and compressed wood that does not shrink, swell, or warp, has already moved out of the laboratory stage. Sawdust and shavings are being pressed into fireplace, stove, and furnace logs. Two northwest plants financed by DPC will try out methods of making alcohol and high-protein yeast from sawmill and pulp-mill waste. Manufacture of charcoal is in the pilot-plant stage. And some visionary day trees may simply be ground up to make cellulose for pressing into boards and timbers.

THE LAST STANDS

Yet the future is not bright. Even immediately after the war there will be labor and cost problems. A.F. of L., and C.I.O. have been organizing for battle both in the woods and in the mills. (See "After the Battle," page 176.) If there is to be a bitter struggle, the industry may find itself in the middle. Costs seem certain to rise as loggers reach farther into the hills for timber. Moreover, West Coast lumbermen using second growth will lose the quality advantage that has offset a transportation advantage enjoyed by southern and eastern lumbermen.

But these troubles are overshadowed by the far more important fact that the supply of timber is beginning to run out. Some old-time lumbermen choose to ignore depletion. They recall that years ago Carl Schurz and Gifford Pinchot were crying alarms that the nation's timber supplies were about to disappear—yet the supplies didn't. But lumbermen generally are realistic, especially the younger men: they know that in the past there were always new forests to which they could go, and that now there are none.

The Forest Service in 1938 estimated the remaining stands of saw timber in the Northwest at 600 billion board feet in the Douglas-fir region, 280 billion feet in the northwest interior (eastern Washington and Oregon, Idaho, and Montana), and 200 billion in California—a total of 1,080 billion. This is being cut at the rate of 15 billion a year. On a strict arithmetical basis, the timber ought to last for seventy-two years. But—a most important "but" –perhaps half of this timber is too poor or too remote to be logged at prewar prices. Somewhat more than half can be profitably logged at conceivably higher future prices: as first stands grow scarcer, poorer stands become profitable. But more than price is involved.

In the same year, the Forest Service estimated the drain on saw-timber forests (drain means loss by fire, insects, and disease as well as by cutting) at 3.5 times current growth in the fir region, 1.9 times growth in the northwest interior, and 6.4 times growth in California. For the entire forested area these ratios are lower, but it is saw timber that keeps the mills going.

Estimating on the basis of privately owned old growth and large second growth, the Forest Service last year prophesied that the mills of Washington and Oregon would be out of logs in eighteen years at the present rate of cutting. If all publicly owned timber were added to the private holdings, the theoretical cut could be extended to thirty-seven years.

The industry cannot count on second growth to replace the supply of virgin growth. On the average, a tree takes sixty to one hundred years to grow to saw-timber size, and since lumbering did not begin on a large scale in the northwest until after 1900, most of the second growth will not be ready until around the year 2000.

THE INDUSTRY'S SOLUTION

The coming shortage of timber will affect the industry in two ways: it will reduce production, and it is making the industry the target of a forest-conservation campaign backed by government controls. The industry—or at least the growing part of it that is realistic enough to want to do business permanently—admits the shortage is of national concern; it insists, however, that the best remedy is voluntary action by the industry itself with a minimum of government intervention.

It is a matter of fact that logging methods have been greatly improved; cutover land is left in better condition that formerly. The improvement comes in part from better machinery, crawler-type tractors have replaced the old donkey-engine and cable method of bringing in logs from the woods to the loaders. The tractors, pulling wheeled arches from which one end of the log is slung, usually follow paths through the woods, and steer clear of small growth. But in part the improvement is the result

of conscious effort. After NRA vanished, the lumbermen voluntarily adopted the NRA code on logging practices, which calls for careful burning of slash, for leaving seed trees to restock cutover land, and for selective logging (cutting only big trees and leaving the rest to grow) where possible. Some lumbermen, as a matter of good business, have gone in for selective logging, leaving young trees that may be logged again in another thirty years. A few, particularly in the ponderosa-pine region, are even trying light selective logging, cutting only old, slow-growing trees that have a high mortality rate and impede the growth of young trees. Besides, as timber grows scarcer, more and more lumbermen are keeping their cutover land, some are buying it.[1] And many timber owners are now giving their land excellent fire protection.

Four years ago the West Coast Lumbermen's Association initiated a Tree Farm movement. A Tree Farm is "an area of land devoted primarily to the continuous growth of merchantable forest products under consciously applied forest practices." An owner who agrees to protect his land from fire, insects, and disease, and to cut his timber "so as to maintain continuous forest growth" gets, with much fanfare, a certificate issued by his industry association. So far the West Coast Lumbermen's Association and the Western Pine Association have "dedicated" 3,500,000 acres in Tree Farms. In a foreword to a brochure on progress in forestry issued by the West Coast Lumbermen's Association, Colonel W.B. Greeley, its manager and onetime Chief of the U.S. Forest Service, notes that there is little or no net growth in an old forest and says: "the actual growth of the region has increased as more old timber was cut and more acres put into crops of young trees. When enough virgin forests are harvested to put the productive capacity of the land fully at work, the growth will equal or exceed the rate of cutting."

The industry has supported some governmental actions that tend to reduce the pressure for liquidation of timber holdings and to promote good forestry. It applauds the fire-fighting services financed by the federal government and private agencies, and urges their continual improvement. It enthusiastically approves the government's efforts to eradicate the blister rust that threatens to wipe out the second growth of white pines and sugar pines. It has often supported legislation—as in Oregon and Washington—to tax forestland lightly until the timber is cut, then to take 12.5 per cent or more of the timber's value as a severance tax. Most important, the industry backed a bill passed by the Oregon legislature in 1941 authorizing the state to regulate logging practices. The state may require leaving seed trees singly or in blocks, and, if the land is badly damaged in logging, may spend up to $200 per forty-acre unit to replant it, charging the cost to the land.

THE FOREST SERVICE'S WAY

The Forest Service has not been much impressed by what the industry is doing. Nor is it impressed by Colonel Greeley's argument that growth increases as the old forests are cut: U.S. foresters call this "the-more-you-cut-the-more-you-grow" theory. In his 1943 report Chief Forester Lyle Watts noted the Tree Farm movement as "a favorable trend" but concluded rather sourly: "unfortunately, mediocre or lower performance has served to qualify some properties for the Tree Farm designation." And in 1943 Watts, speaking before a sectional meeting of the Society of American Foresters, said that the industry's brochures appeared to give the impression that it was doing all that was needed and added: "I cannot let the misleading publicity of the forest industries pass unchallenged."

The Forest Service has its own program: first, greater federal and state ownership of forest lands unsuited to private ownership; second, increased public assistance to owners of private timber, including long-time credits; third, public regulation of private logging to keep forest lands productive. The third point is bitterly opposed by the organized industry.

The Forest Service has advocated some form of federal regulation of cutting practices since 1919. Privately, U.S. foresters think that such state regulation as the Oregon law is too mild. The industry, they say, supported it not because it wanted regulation but because it wanted to head off effective (meaning Forest Service) regulation.

The Forest Service is an oddity; that it should annoy the industry is understandable. As

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[1] One Washington lumberman, looking for good second growth as a hedge for the future, found some on land he had once logged and let go for taxes. He asked the county to put it up for sale, expecting to get it for the taxes, about $20,000. When the sale came two rival lumbermen entered the bidding. The original owner had to pay $80,000.

the government's No. 1 career agency it has always been aggressively nonpolitical. Men who get permanent appointments in the Forest Service usually are forestry school graduates who must pass a tough examination. Lumbermen complain that the Forest Service still lives in the crusading spirit of its first chief, Gifford Pinchot. Many Forest Service men do have a zealous, faintly ministerial air.

Under Republicans and Democrats the Forest Service has done well in appropriations. And, so far, it has defeated perennial efforts to transfer it from the Department of Agriculture, where it is relatively independent, to the Department of Interior, where it would be consolidated with bureaus that handle public domain, grazing districts, Indian lands, national parks, and the "revested" Oregon & California railroad-grant forests in Oregon. Just how the Forest Service keeps its independence and appropriations is difficult to explain, since no strong pressure groups support it. Critics say the Forest Service is adept at getting publicity, but most of its "information and education" men are old foresters who would never excite the admiration of a professional publicity man.

Lumbermen hoped that talk of federal regulation would diminish when Lyle Watts became Chief Forester in 1943; he had been regional forester at Portland, Oregon, and knew lumbermen well. But Watts proved to be as eager for federal control as his predecessors, and more adroit. Where they had been for flat federal control, Watts made a bow to states' rights. He proposed that the federal government regulate only in those states that did not have satisfactory state laws. This meant, of course, that state regulation had to accord with federal wishes or else. But it mixed things up for the lumbermen who were relying on states' rights as a defense. Now they were forced to admit that they objected to whatever sort of regulation—state or federal—the Forest Service had in mind.

AGREEMENT—TO GET TIMBER

While they were fighting over federal regulation of cutting, the industry associations and the Forest Service did agree on the sustained-yield law, passed by the last Congress. This measure may ultimately give the Service greater control over the industry than any cutting law. It permits the Service to make a long-time contract with an operator allocating to him a certain amount of national-forest timber. This may be combined with the operator's own timber and perhaps with other federal, state, or county-owned timber to form a "working circle," and the whole circle must be cut on a sustained-yield basis. Thus, generally speaking, timber can be cut no faster than it grows; furthermore, wherever old growth and second growth are combined, the cutting of the old growth must be spread out over the years until the second growth is big enough for sawing. The Forest Service can tell the operator not only how he can cut but how fast he can cut.

In the whole Northwest, including California, only 46 per cent of the saw timber is privately owned. While a few companies own enough timber for continuous production, sooner or later most of them will depend in whole or in part on government trees. They supported the sustained-yield law because they wanted to be sure of them.

Since federal timber will usually be assigned to operators who have timber, many lumbermen are far from happy about this new federal control, especially the ones who have little or no stumpage and thus have nothing to throw into the pot to get public land and form a working circle. "I must have been looking the other way when they passed that law," said a former president of the West Coast Lumbermen's Association.

The Forest Service will have troubles too. It is likely to be accused of favoring the haves at the expense of the have-nots. Where there is too much mill capacity—and there is clearly too much almost everywhere—the Forest Service will have to decide which mills can go on and which must die. Hence the law may easily lead to the creation of local monopolies, with the government as a partner, and perhaps to some form of regional monopoly.

The forest industry may be under pressure greatly to increase production and normal working hours immediately after the war in order to absorb some of the workers who will be turned out by the shipyards and the airplane plants. Such an increase would help during the West's transition period, and there is a good chance that it will happen. Aside from the probable demand for lumber for housing and reconstruction, there will have to be heavy production to rebuild the industry's stocks, now down to about one-fifth of normal. And whatever the long run timber problem, there is enough timber to permit a brief spurt. Even the Forest Service may be under great pressure to

help maintain employment by permitting overcutting on national forest land, especially in hard-hit localities. But every day that overcutting is prolonged will make the inevitable adjustment more difficult.

The future admits of only one possibility; the forest-products industry, as it now exists, faces a gradual period of decline. It could, in theory, go on at a fairly high level until all the easily logged timber was gone, then drop precipitously. This is pretty much the hope of the industry's old men, who do not like the sustained-yield law; they want a short life but a happy one.

The sustained-yield law will bring the tapering-off sooner. Probably it will begin fairly soon after the war, for the Forest Service will then begin to deal with applications for working circles. For the most part, the lumbermen who do not get working circles will drop out, selling whatever timber they have left. The survivors, it is reasonable to expect, will look upon the forests with new eyes. Not only will they be compelled to preserve them, but they will try to make better use of them. They will utilize more of the trees they cut==at present a third of the tree is left in the woods and another third mostly wasted in the sawmill in sawdust, shavings, and edgings. Already there are trends in this direction: methods of gluing up little boards to make big ones, a new hydraulic barker that utilizes 15 per cent more of the logs used in pulp mills. It is probable that other new techniques will make trees go even further. All this adds up, for the forest industry, to a long life and in many ways a successful one. It may be a smaller life, true, but it will be happier because of the boon of stability. The migration will be over and the forest industry will have grown up.