Forestry Department Offers Articles of Interest

AT present it is generally conceded that the best time to cut timber is in the Winter, especially if posts, poles or pole-ties are the product desired, for timber cut in Winter gives longer service than if cut in Summer.

There are several reasons for this, chief of which is the factor of decay. Ties known to have been cut in Summer have rotted sooner than others known to have been cut in Winter. This decay is caused by fungi and these organisms depend largely upon temperature and moisture for their development.

In the Spring and Summer months the sap is full of albuminous substances which, under the high temperature of the season, ferment and produce conditions favorable to the formation of fungi. In the Winter, however, the sap is almost entirely water and does not, therefore, offer so good a medium for the development of decay.

The advantages of Winter cutting have been recognized by many users of wood, among them practically all of the government railroads abroad; but for many years inspectors were compelled to accept whatever material was given them, for they had no way of knowing, except by actually witnessing the cutting, whether the wood was cut in Winter or in Summer. Finally a number of examinations, studies and tests were made and as a result it is now known how to tell, by appearance, the difference between Summer-cut and Winter-cut wood.

Study of Western Hemlock.

The Portland office of the Forest Service has recently published, in cooperation with the Timberman, the results of a study of Western hemlock (Tsuga heterophylla).

A study of this species was made in 1900 and the data published in the form of Bulletin 33 of the Forest Service. The recent study, made during the season of 1912, was designed to supplement the information gathered in 1900. For a long time Western hemlock was classed with its Eastern relative, Eastern hemlock, and looked upon as a "weed" tree.

A few progressive millmen, however, realized its worth and did much toward its utilization, until now it is recognized as an excellent wood and marketed under its own name.

The recent study has brought out many interesting facts about the tree. Silviculturally it is a shade-enduring species, reproduces rapidly, recovers quickly from suppression and from damage by fire or other injury and is a long-lived tree, specimens from 400 to 500 years old being common. As a rule mature trees are from three to four feet in diameter at breast height and under 200 feet in height.

Commercially the wood has been found to be suitable for "boxes, flooring, interior finish, sash and door stock, furniture, fixtures, caskets, cooperage stock and pulpwood." The wood is fairly strong, even grained and ordorless when dry. It is free from pitch and does not absorb moisture sufficiently to make it swell or warp. Of all the commercial uses to which hemlock has been put pulpwood is the most important and it is the most important species in the Pacific Northwest for that purpose. In 1911 68,141 cords of hemlock were converted into pulpwood in Washington and Oregon, which constitutes 48 per cent of the total amount used.

According to the study "The original virgin supply of Western hemlock is still almost intact." This is due to the fact that lumbermen thus far have been exploiting the forest which contained the largest amount of Douglas fir and the least of Western hemlock. However, the records show a marked increase in the use of this species, the cut of 90,000,000 feet in 1908 increasing to 152,000,000 in 1909 and 248,000,000 in 1910.

The Forest Service would be glad to furnish further information to those who are particularly interested.

Interesting Statistics.

During the fiscal year 1914 over 12,000,000 feet board measure of timber in Oregon and 2,000,000 feet board measure in Washington were given away under free-use permit. This free distribution is limited to $20 worth per year per settler, or about 80 cords.

The excess in Oregon over Washington is accounted for in several ways. The National forests in Oregon cover approximately 13,500,000 acres, while those in Washington cover only about 9,500,000 acres.

In Washington the forests are mainly in the Douglas fir region west of the Cascades and are not as accessible as the east side forests, while those in Oregon are scattered over the state. In Eastern Oregon, in the dry region, there is little or no timber except in the National forests and the farmers and settlers depend upon them for their wood supply. Over 74 per cent of the free wood taken out was dead or down timber, whose removal is a great benefit to the forest, as it lessens the danger from fire.

In addition to timber given away 521 sales were made from Oregon forests and 142 from Washington. It is interesting to note that this represents 24,594,000 board feet for Oregon forests and 199,146,000 board feet for Washington forests.

Less Timber in Oregon.

Although the number of sales in Oregon exceeds the number in Washington, the amount of timber is greater in Washington because the sales were larger—one was for 58,000,000 feet and another for 50,000,000 feet; whereas the 521 sales in Oregon represent smaller individual sales, 93 per cent of them being small sales involving $100 worth or less. In Eastern Oregon on one forest alone 164 sales were made. The average price received for the timber was $1.78 per M. The revenue from sales amounted to $159,362 for Oregon and $90,647 for Washington. Thirty-five per cent of this amount is turned over to the state for road and school purposes.

The grazing business, too, is heavy on the National forests of the two states. Last year the grazing privilege was granted in Oregon for 109,451 cattle and horses and 872,862 sheep and in Washington for 14,571 cattle and horses and 193,598 sheep. This represents 2204 permits for Oregon and 510 for Washington. Again the difference in the business for the two states is due to the difference in the character of the forests. The forests of Eastern Oregon are much more open than the forests on the west side of the Cascades and furnish better opportunity for feeding stock. Furthermore, the Oregon forests are easily accessible and usually fully stocked, because the available Winter range is much more extensive.

In order to administer and protect these National forests the Forest Service has, up to date, constructed in Oregon 427 miles of road, 263 miles of trail, 2428 miles of telephone line and 79 bridges and in Washington 104 miles of road, 1529 miles of trail, 974 miles of telephone line and 52 bridges. Not only does this improvement work aid in the administration of the forests, but it opens them up for the use of the public.

There is another benefit which the states receive as a result of National forest activities and that is in the money which this branch of the Government spends annually in the locality for labor and supplies. This amounts to an average of $558,414 for Oregon and $270,465 for Washington.

Forest Timber Sale.

The Forest Service is offering for sale 26,650,000 board feet of timber on the Crater National forest and the 30-day advertisement for sealed competitive bids has just begun.

The timber is situated on a tract of approximately 2740 acres in T. 36 S., R. 6 E., W. M., on the watershed of Odessa Creek, which is just south of Pelican Bay, on Klamath Lake, and 30 miles from the town of Klamath Falls, Or.

The timber consists of 24,000,000 board feet of Western yellow pine and sugar pine, 2,000,000 board feet of Douglas fir and 650,000 board feet of white fir. The lowest stumpage rates that will be considered for this timber are $3.50 per M. for Western yellow pine and sugar pine and 50 cents per M. for Douglas fir and white fir. Approximately four years will be allowed for the cutting and removal of the timber and payment for it, based on the log scale in the woods, will be required in advance of cutting in amounts of only $5000 each.

This sale will bring into the Treasury of the United States more than $85,000 and 35 per cent of this will be spent locally for roads and schools.

Formation Explained.

Cut a cross section from a pole or pole tie. Place it under a microscope. This shows up the cellular formation of the wood. In the center is the heartwood. Next to this is the sapwood, the living part of the tree. It is to this part of the wood that the annual layer or ring is added and it is here that the difference in the time of cutting is revealed. The first cells formed in this new growth in the Spring are open and thin-walled. As the season progresses the cells added are smaller and the walls thicker, until at the end of the growing period, late in the Summer, the new tissue appears almost solid next to the bark. Thus, if the wood has been cut in the Spring, the open cells show next to the bark; if in early Summer, the smaller cells appear next to the bark, but if cut at the end of the growing season or in the Fall or Winter, while growth is dormant, the full development or the solid cells show next to the bark. An expert may be able to determine this difference by the naked eye, judging by the color. The open Spring cells cause the wood to look much lighter than do the later closed cells. It is this difference in color which makes the annual ring discernible.

Tests as to how much longer Winter-cut wood will endure than Summer-cut wood have not yet been completed, but it may be safely assumed that under certain conditions it will last a year longer at least. On this assumption think of the saving to the average railroad. Approximately 2800 ties are used to the mile. If ties are changed every seven years there would be required annually 2800 divided by seven, or 400 ties. If they served eight years than the number would be 2800 divided by eight, or 350 ties, a difference of 50 ties per mile per year. At 50 cents apiece this would mean $25 per mile of track per year, exclusive of the labor to replace them. Think how much this would mean for the 300,000 miles of main track in the United States.

This saving applies to poles as well as to hewn ties, but not to sawed ties or poles, since the latter are cut from the heartwood, which is not affected by seasonal changes.

Water on Grazing Lands.

Farmers' Bulletin 592, recently published by the Department of Agriculture, gives some very interesting information as to the means by which practically worthless range may be improved by the development of stock watering places.

Range cattle require from eight to ten gallons of water a day and sheep need from one-half to two gallons per day. This is a vital necessity. No matter how good the forage may be, if there is not a sufficient and permanent supply of water near at hand the stock will not thrive.

Upon the National forests the Government has developed watering places in several ways. The flow from ordinary springs and seeps has been increased by digging them out and curbing the sides with cement and then carrying the water through pipes to some convenient trough. Swampy spots have been utilized by cutting an open channel from some spring in their midst and drawing the water to the trough.

Dirt flood water reservoirs have been constructed to store the water and thus supplement the natural supply. Furrows have been run diagonally across slopes to collect the rainfall or melting snow waters and carry them to the storage reservoir. In cases where the natural supply is 50 feet below the surface wells have been drilled.

In this work on the range to improve the water facilities a total of 576 projects have been developed on the National forests, 329 of which were developed by users of the range themselves, 172 through co-operation between the Forest Servoce and the users and 175 by the Service alone. Of these 676 improvement projects 378 are springs and seeps and 286 are reservoirs, while the balance are wells, trails and the like. In Oregon and Washington 101 of these water improvements have been reported up to January, 1914.

Copies of Farmers' Bulletin 592 may be had upon request of the local Congressman or by purchase (5 cents) from the Superintendent of Public Documents, Washington, D. C.

No Reductions in Range.

As a whole the range in the National forests of Oregon and Washington is now in such splendid shape that no fears need be felt that reductions in the grazing privilege will be necessary for years to come. Only very intensive agricultural conditions and a heavy demand from settlers will justify it.

When the forests were created it was found that the range was heavily overstocked and overgrazed. This necessitated heavy reductions in the number of stock. Reductions were made for two reasons: (1) To stop damage to the range and (2) to provide grazing privilege for deserving settlers. For the past four or five years, however, no reductions have been made for any purpose. While at times reductions have been considered and even notice given to that effect, the step has never been taken, and reductions will be considered only as a last resort when all other methods of improving the range have failed.