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THE RING-RECORD OF TREES.

Dr. A. L. Child's statement that "trees known to be only twelve years old were found when cut to have thirty-five or forty of the rings which are popularly believed to be annual marks," naturally suggests the idea that rings thus found are no indication of the age of a tree; are mere haphazard, signifying nothing of importance. It has long been a custom in this country among land surveyors, when running lines through forests, to mark their lines by blazing all trees which come in the line of sight; as well as those very close to the line. And in place of planting monuments at corners, as the custom is now getting to be, trees were marked as witnesses to corners, as they are known to all surveyors. In surveys made under the direction of the Government, these trees were particularly designated—kind of wood, diameter, course and distance from the corner. Hundreds of times in the past twenty years I have had occasion to chop in these trees to satisfy myself in regard to their identity. In every instance the number of rings corresponds to the number of years since the survey was made. I believe that our forest trees made but one ring each year. The surveyor has an excellent opportunity thus to study the growth of forest trees. It is in this way that we are enabled to trace back the history of a survey; and we can tell to a certainty when new witness trees were made to perpetuate old corners and by whom made.

The truthfulness of this "ring-record" is of great importance to the surveyor. I have no doubt that Dr. Child found these rings, or what to him appears like annual rings; but were they not shaded rings rather than distinct marks, as we may find in some of our fruit trees, especially those brought from a different climate? This shading of rings, I believe, may, in many instances, be due to a premature ripening of the wood, caused by drought or other influences, and afterward from copious rains and high temperature are forced to make a second growth, and in some instance to blossom and set fruit late in autumn. An examination made upon trees of my own planting, both deciduous and evergreen, proves the annual rings to be true to date every time.

FACTS ABOUT BUTTER TUBS.

Vermont is the great butter tub state of the union, and Montgomery is the town yearly producing the largest number of tubs in this country, or any other for that matter. The factories in this town have capacity for producing half a million tubs or packages as the trade call them. They are not all used for butter. A great number are bought by lard packers and the oleomargarine manufacturers have within two or three years increased the demand greatly. Up to 1847 the tubs were made slowly and laboriously by hand. In that year Luther

Hendrix, an experienced pail maker of Massachusetts, commenced the manufacture of machine made or turned tubs in Montgomery in a factory built for the purpose. It was then considered a good day's work for one man to turn from 40 to 50 50-pound tubs per day, while now the improvements in machinery and skill acquired by the workmen make it an easy day's work for four men to turn 300 50-pound packages per day. The other work, the hooping, the heading and making the covers, is performed with one-half the labor that was required at that time. It is probably within the bounds of truth to say that 10 men in any of the factories in this town would now manufacture more packages in a given time than 50 men would manufacture in the same time by hand.

The business grew slowly until 1852, when a new impetus seemed to be given the dairy interests. The completion of railroads to the west opened a new and larger outlet, and the small weekly shipments from Montgomery and other Vermont towns in this industry has increased to daily shipments of carloads.

The consumption of lumber by these factories is very large and mostly of spruce, which gives better satisfaction than any other kind of wood. The supply is large, but by no means inexhaustible, and very soon if spruce alone is used it will have to be obtained further back on the hills than now even. It is suggested by a manufacturer of long experience that hemlock, if of the right sort, grown in dry locations may be used without objection. It is quite possible that wood pulp will be successfully used for making butter tubs, and this supply, together with that of hermetically sealed tin packages, now used for ocean shipment to some extent, will be likely to lessen the demand on the forests. —*Boston Bulletin.*

WOOD PULP.

Wood pulp, which is made into paper and molded into barrels, casks, pails, and other wooden ware, boxes, cornices, picture frames, and a variety of small articles, can now be made from many other woods than poplar, which has long held the preference in such manufacture. Buckeye has a white fibre, and can be used, while spruce, pine, chestnut, basswood, fir, hemlock, cedar, cottonwood and other kinds of wood have been found suitable for making into various kinds of paper. Only the non-resinous woods are adaptable for white paper, while the resinous woods serve well for colored paper. Machines have been built which turn out pulp with equal facility from all kinds of wood, however. The longest fibre is made from willow, basswood and poplar ranking next, respectively, in that regard. Cedar, fir and hemlock are said to grind about alike, the latter working a little more freely. Maple has a fibre shorter than either spruce or pine, and is quite hard to grind; birch is comparatively

hard, and grinds very short; poplar and buckeye pulp remain white for a considerable time, other woods changing color; birch becomes pink, maple turns purple and basswood takes on a reddish hue. It is estimated that over 200 tons of wood pulp are daily turned out in the United States.—*Lumber World.*

BRITISH COLUMBIA.

Logging methods are rather devoid of improvement in the British Columbia lumber districts. Logs are generally snaked, from two or three to seven or eight yoke of oxen being employed as a team. A good ox-teamster commands the highest wages paid, and is the biggest man on the job. A few mules are used, and one camp has a brace of old-style Scotch traction engines at work on the main road. A New Brunswick man bought them at a cheap price after they had been found to be unsuited for use on a waggon road, on account of the numerous hills. They are credited with doing surprising service on a level and well kept road, and have the advantage of requiring no sustenance while kept idle. What one of them will ordinarily haul can be understood by the fact that it dragged a log 24 feet long and 48 inches in diameter at the small end, with another dogged to it at the top that was 60 feet long and 24 inches in diameter at the small end. Another camp has a wooden tramway.

Logs have not yet been cut more than a mile or two from deep water, and no driving in the small streams has been done, or apparently thought of. There are numerous suitable streams in the timber regions, but they would require much costly improvement to suit them to floating the heavy timber. No system of collecting crown dues on stumpage is there in operation, as in other parts of the Dominion, and nothing is done by the local government to assist the lumbermen in the matter of making improvements. Anybody can enter government land, having perfect freedom to cut timber anywhere. Government land and the timber on it can only be secured by purchase. The camps are well arranged, and the tables excellently supplied. Every man furnishes his own bedding.

In felling the giant Douglas fir, chopping boards are employed, six or seven feet long, and six or eight inches wide, shod with iron at one end, the same as are used in the red wood regions, which are driven into notches cut at the proper height. On these the choppers stand. They are sometimes placed 10 feet from the ground, to avoid shakes, as the logs are not butted after felling, and for the reason that the fir trees are much harder near the ground than a little higher up.

The wages of choppers and teamsters run from \$50 to \$75 per month, and those of sawyers and road cutters from \$25 to \$40. The amount realized by the men is more or less reduced by the time lost during unfavorable wea-

ther, when their board is charged against them.

The mills are somewhat different from those in the eastern part of Canada. The logs are canted and rolled by machinery, dogs not being feasible. All the appliances have greater weight and strength than is required for pine. The square timber is sawed, and none hewed. The edger tables travel backward and forward, and the trimming saws are swinging ones. Every mill has a planer in connection, which dresses the green lumber, as it comes direct from the saw.

The export trade is heavy in spars, for which the timber is particularly suitable, on account of length, strength, straightness and elasticity, and the exporting has been chiefly confined to the two mills of Burrard Inlet, owned by the Moodie Saw-Mill Company, and the Hastings Saw-Mill Company. Caroes are sent to China, Australia, India, Sandwich Islands, South America and Great Britain. The American duty on manufactured lumber has prevented the British Columbian interests from competing very extensively with their Puget Sound rivals. The timber at a little distance back from the coast is the best, but the advent of logging roads will increase the expense.

The common men employed in the mills get from \$30 to \$40 per month and board, and the more expert from \$35 to \$50. Sawyers and engineers get from \$50 to \$75. The two Burrard Inlet mills, the largest in the province, cut 15,000,000 feet each in 1882.

Indications as to the quality of trees are radically different in the fir from those of pine, and an expert in the latter finds himself off his reckoning with the former. Lumps that would show the presence of knots in a pine tree may mean no inferiority in a fir, which, however, may also be full of knots without exterior evidence of it. Large quantities of the Douglas fir cover the mountain sides, while good red cedar for shingles and fencing is found along the river bottoms back from the shore line. Farther north the pine disappears, to be replaced by white spruce and white cedar, and above the parallel of 52 degrees latitude the pine almost completely disappears, and the spruce is abundant. The latter grows very large, and generally straight and without knots, making tough light lumber for building purposes, which works well under the plane. The white cedar abounds above the parallel of 54 degrees, also a splendid wood, tough, close in grain, and readily worked. It is asserted that it is proof against the boring teredo, which renders it useful timber for wharf piles. It is much favored for shipbuilding, and is said to endure equal to the best oak. Hemlock abounds everywhere, but is chiefly esteemed for its bark. The arbutus grows on the south end of Vancouver's Island, and on the islands in the Gulf of Georgia. There has been severe weather in the province this winter.—*Northwestern Lumberman.*