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AN EASTERN LUMBER FIRM.

PROMINENT among the lumber exporting firms of Nova Scotia are Clarke Bros., whose operations are carried on in Digby county. The firm is composed of Messrs. W. W. and W. G. Clarke. An illustration of their large Lake Jolly mill is shown on this page. The building is 136 feet in length and 26 feet wide, two stories high, the mill proper being on the upper floor. Besides the equipment for the manufacture of ordinary lumber, the mill contains shingle, lath and clapboard machines, planers, resaws, etc., and is modern in every respect. There was installed during the past summer a battery of three boilers with a capacity of 150 horse power, and a 125 horse power engine. Saw-dust and the refuse of the mill are used as fuel for the boilers. The capacity of the mill is about 40,000 feet per day.

Messrs. Clarke Bros. own about ten thousand acres of timber land, but they have been carefully preserving it to provide for future needs by purchasing perhaps two-thirds of their log supply from small land owners and loggers along the Bear river. Their average output is about 8,000,000 feet, made up of spruce, pine, hemlock and hardwoods. They own large tracts of hardwood limits containing a good quality of beech, birch and maple, which they expect to utilize to a greater extent in the near future. The shipments of this firm are chiefly to South America, Cuba, United States and the West Indies, special attention being given to South African business. The firm also carry on an extensive business as general merchants at Bear River, and are owners of five vessels, ranging from 150 to 300 tons, engaged in their own trade. Their cable address is "Clarke," Bear River.

UTILIZATION OF SAWDUST.

In Austria a new method of utilizing sawdust has been invented. At the sawmills of Joseph Fialla the experiment has been tried of making briquettes of the sawdust for domestic heating purposes. The dust is heated to dryness and then to the point where the tarry elements begin to exude. These are used as the consolidating matter, the hot sawdust passing on steam-heated tables to a press which forms them into briquettes, five by three by one and one-quarter inches, weighing about one-half pound. It is said that they give four per cent. of ash and that their heating power is equivalent to that of lignite. The process makes 19 bricks per minute, and with 300 days of work produces 6,000,000 briquettes per year. The experiment has shown that the cost of manufacture is 16 cents per thousand, while the selling price is \$1 per 1,000.

FORESTRY FROM A LUMBERMAN'S STAND-POINT.

The following interesting chapter on the above subject is extracted from the report of the Ontario Forestry Commission, just issued.

The question has now reached a stage at which the various types of forest embraced in the Crown domain should be considered with the view of adopting such special treatment in each case as its peculiar features demand, in order to realize the best results. No timber berth or township can be found in the Province where all the trees are of one species, but in many tracts of smaller dimensions pine so largely predominates as to give a specific character to the whole area. In such instances the timber is frequently found at two or three stages of growth. Some very old trees may be seen, many of them showing decay at the butt and slowly dying of old age, while the main body are sufficiently advanced to have killed off the competitors which started even with them in the race, the place of the latter having been taken in part by seedling pine or by the shade enduring hemlock or spruce. In all probability the trees of the main body commenced their growth with the usual surroundings of poplar and birch over which the pines in the course of time asserted an easy supremacy, or they may have been

quite equal, if not surpass the total growth of the forest before it was entered upon by the lumberman. It is a question that can only be determined on the spot, how far the shade enduring varieties should be cut in a forest consisting chiefly of pine, as they may be of great use in keeping the soil of the forest covered when too great a gap has been made in the forest canopy. If the smaller but merchantable timber is to be extensively cut away, the retention of the shade enduring trees is desirable, if the reproductive value of the forest is to be retained.

HARDWOODS AND PINE.

In a mixed forest of hardwood and pine where the former prevails, it will nearly always be found that the pine trees are large and old, the remnants of a former forest growth before the advent of the hardwood. The latter possesses such a thick shade that where it prevails pine seeds dropped under its cover either will not germinate or attain only a very sickly growth. A specimen of pine struggling to live under such conditions, examined under a magnifier, showed a growth of only one inch in diameter during a period of thirty to forty years. In such a case, if the perpetuation of the hardwood forest is desired, the pine should at once be cut as fully ripe, together with as many of the large hardwood trees as are considered desirable, leaving the space gained to the smaller trees. If on the other hand the district is not

considered suitable for a valuable hardwood growth, it should all be cleared off, leaving a pine tree here and there in sheltered localities if possible, and the surface of the ground should be burned over to get rid of the rubbish and debris. It will then present favorable conditions for seeding by the ever-prevalent birch and poplar, to be followed by degrees by the pine seedlings springing from the scattered old trees left standing.

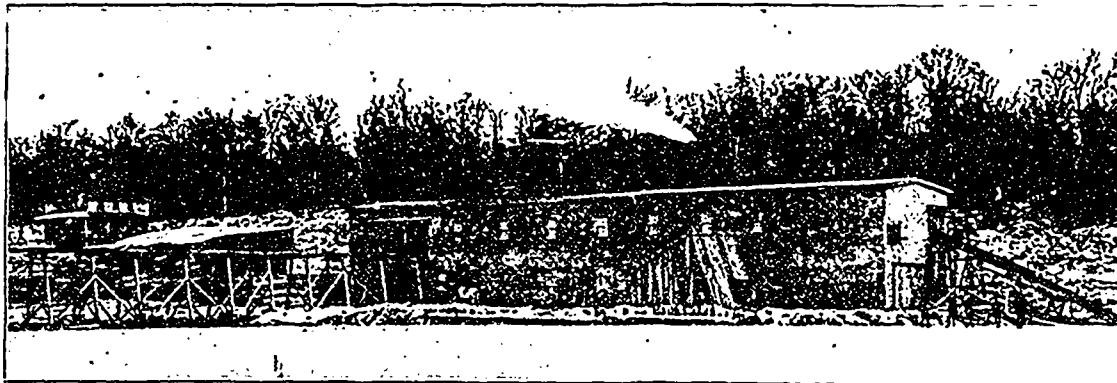
PURE PINE FOREST.

A pine forest may often be seen where the trees are nearly all the same age—or it may be differing by ten or twenty years, and where they have succeeded by their abundant growth in overshadowing and killing out every other variety, the only difference observable being in the diameter of the trees, brought about by the diversity of their individual surroundings. The tall and slender trees have maintained the struggle for existence with insufficient sunlight, having been overshadowed by their more favorably situated neighbors, and while they are of small diameter, it would be of no use to leave them standing, as when the others were removed they would only blow down and encumber the ground. The only course to pursue if the reproductive character of the forest is to be maintained, would be to preserve the trees on any neighboring ridge or hillside, the height of which would secure the distribution of the seed over a wide area, or in case the country is comparatively level, then clumps of trees growing on the highest ground available should be allowed to stand for that purpose.

After the remainder of the forest has been levelled, the ground should be burned over to destroy the covering of pine needles and the litter left by lumbering operations, so as to leave the soil in the best condition for future seeding. In doing this due care should be taken to leave a cleared space around the groups left standing, so that the fire cannot reach them.

MIXED CONIFERS.

One of the most difficult conditions to deal with, where the growing of a future crop of pine is the end in view, is



LAKE JOLLY MILL OF CLARKE BROS., BEAR RIVER, N.S.

subjected to a severe competition with their own species or with other conifers which they have been enabled to outlive by reason of quicker growth, better adaptability to the locality, or more robust qualities.

SELECTIVE CUTTING.

This type of forest is the easiest to understand and treat in accordance with the principles of forestry by selective cutting. The merchantable timber should be cut down and marketed, and many of the smaller trees, growing too close together under the shade of their neighbors, should also be removed, as they would ultimately die before attaining maturity. But due care should be taken to preserve the forest cover and yet to make sufficient openings in it to allow the sunlight to reach the younger trees and give the seed a chance to germinate.

When these considerations are borne in mind, it will be seen that no absolute rule can be applied as to the smallest tree that should be cut, as a tree which it would be desirable to spare if growing in one situation considered with regard to its neighbors, might be nearly superfluous in another. A pine that would make a 10-inch butt log sixteen feet long would be regarded as merchantable, but it would not be good forestry practice to cut it unless a sufficient number of smaller trees be left standing near it to fairly cover the ground. It has been demonstrated by many specimens now in the Bureau of Forestry, that the accelerated growth of the young trees resulting from the removal of the overtopping mature vegetation, will