

Forest wealth of Canada.

forestry. The introduction of wood pulp was regarded with satisfaction by students of the forestry question, because they saw in its use a market for certain small-sized timber, the sale of which is necessary to an economic forestry management. The successful pecuniary results obtained in the management of European forests are due, largely, to the fact that there is a market for everything that is left after cutting the large-sized timber; and so the advent of the wood pulp industry encouraged our forestry people to believe that operations in interlucation could now be carried on as the sale of the thinnings would cover the expense.

"But the consumption of timber by the pulp mills has increased so rapidly as to endanger, instead of promote, the welfare of our forests. In the last eight years, the amount of timber used for this purpose has increased 500 per cent. In the year just passed, 1891, the timber cut for wood pulp in the great forest of Northern New York, was equal to one-third the amount cut by the lumbermen.

"It is not the increased consumption of this forest product that is so noticeable, but the fact that the entire amount consumed is taken from young trees. Only a small amount of pulp timber can be gathered from the limbs and tops left by lumbering operations. Spruce and balsam furnish the main supply, and owing to their excurrent growth, only the tree trunks of these varieties are available.

"The pulp mills on the eastern side of the great forest use timber whose diameter runs from fourteen down to six inches. On the west side, the mills on the Black River use wood with a diameter as low as three inches. It will thus be seen that the introduction of wood pulp, while it might be a valuable factor in economic forestry under proper management and restrictions, now indicates a speedy extinction of the conifers.

"The mills on the Upper Hudson use poplar to an extent of twenty-five per cent, and spruce for the balance; but the proportion of poplar used is growing less each year. The mills on the Black River use spruce, balsam, poplar, and some small second growth pine. Hemlock is used to some extent, when mixed with other kinds of wood. In making chemical fibre, however, the sulphite mills can use one-third hemlock. Tamarack is also used in small quantities, but it is a dark-coloured wood, and makes a dark, although strong paper. No cedar is used, nor any hardwood. On the Hudson, the pulp timber is cut in the same length as logs, and is floated down the streams with the log drives. It is cut thirteen feet long, and is sent to the mill with the bark on. The most of the pulp timber for the Black River mills comes from St. Lawrence and Lewis counties, where it is cut into four foot lengths, measured, and sold by the cord, and shipped then over the Carthage and Adirondack Railroad. A large proportion of the pulp timber cut in Lewis and St. Lawrence counties is peeled before it is taken from the forest, thereby obviating the use of barking machines at the mills. This supply of peeled timber is cut during the bark season, which lasts from 20th May to 15th August, before or after which time the bark will not peel.

"In estimates of a general character, one cord of timber is said to make one ton of brown pulp, dry weight; but the actual results indicate that a cord of wood will produce only 1,800 pounds. In the chemical process, two cords of wood are consumed making a ton of dry pulp, or chemical fibre, as it is called.

"Wood pulp, or cellulose, when first manufactured in this country, was used for paper only, and to a comparatively small extent. But the industry has developed with surprising rapidity, and now almost the entire bulk of newspaper stock is made from wood. Other uses for it have been discovered, and these new adaptations are multiplying each year. Under the name of indurated fibre, it is used to a large extent in making tubs, pails, barrels, kitchen ware, coffins, carriage bodies, furniture and building material. In this state there are pulp mills at Oswego and Lockport which manufacture various wares of indurated fibre, but these mills do not obtain their timber supply from the Adirondack forest. Wood pulp is also used to some extent in the manufacture of gunpowder.

"Prof. B. E. Fernow, of the Forestry Bureau, at Washington, says in his last annual report:—'While the use of timber has been superseded in ship building, the latest torpedo ram of the Austrian navy received a protective armour of cellulose, and our own new vessels are to be similarly provided. While this armour is to render the effect