

# **CONDITIONS AFFECTING GROUND OR MECHANICAL WOOD PULP MANUFACTURE, WITH COST OF PLANT AND PRODUCTION.**

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**GENERAL CONDITIONS.**—In erecting a ground wood pulp mill three conditions have to be considered :

- 1st. A sufficient quantity of water, with a good fall.
- 2nd. That the supply of spruce wood is sufficient.
- 3rd. That it is conveniently situated with regard to connection either by rail or water.

The necessity of a good supply of water and a good fall will be seen when it is stated that it requires from 80 to 100 horse-power to grind one ton of air-dry pulp per day. If steam were employed it would cost, with coal at \$3 per ton, from \$8 to \$10 to produce this 80 to 100 horse-power per day, which will be seen afterwards to be prohibitory. That the mill should be conveniently situated for shipping is also necessary, as the weight of a ton of dry pulp as it is shipped in the wet state would be two tons, as the pulp would contain 50 per cent. of moisture.

**THE TIMBER.**—The timber is usually floated down the river in logs 13 feet long and is caught in a boom convenient to draw the logs into the mill. This is accomplished by a log-haul or conveyor, which takes the logs in the water and forwards them to the mill. The logs for winter use are drawn out of the water by a special log-haul in the autumn before the river freezes, and are piled up for use.

**PREPARING THE WOOD.**—When the log arrives at the mill it is cut into lengths of from 16 to 24 inches, as required by the grinding stones, the blocks being 2 inches shorter than the width of the stone. The blocks are then conveyed to the barking machine, which strips off the bark, and are then split into two or more pieces by suitable machines, when they are ready for the grinder.

**GRINDERS.**—The grinders are usually coupled directly up to the turbine shafts, the turbines revolving vertically, and are placed on the same floor as the grinders. From two to three pockets are used for holding the wood in the grinders up to the stones, against which they are pressed by hydraulic pistons. The out-turn will vary from 3 to 5 tons per day per grinder using 300-horse power, according to the quality of the pulp made.

**PRESSES.**—The ground pulp proceeds from the grinders to a sieve, where the large pieces of wood are taken out, and then to the screens, where any coarse pulp is stopped from going forward to the paper machines or presses, where the water is pressed out till the sheet of pulp contains from 33 to 40 per cent. of air-dry pulp. If the cost of freight is of great importance it is then put into hydraulic presses, where more water is taken out, and the pulp remains with 50 per cent. of air-dry pulp in it, and is ready for shipment. It is usually shipped in bundles, tied up with a string.

**COST OF MACHINERY.**—The machinery necessary for making the pulp will cost from \$1,000 to \$1,500, according to quality, per each ton of air-dry pulp made in 24 hours. The cost of the dam, flume, water wheels and buildings, etc., can only be determined after the location is selected.

**WOOD.**—The price of wood will vary from \$1.50 to \$3 per cord, but with a reasonably short river drive should not cost more than \$2 per cord delivered at the mill. It is usually con-

sidered that a cord of good spruce wood will make one ton of air-dry pulp

**SUNDRY EXPENSES.**—There are sundry expenses apart from wear and tear of machinery that have to be considered, namely, the cylinder wires and felts, which require renewing from time to time.

**LABOR.**—The cost of labor should be from \$1.50 to \$3 per ton, according to the rate of wages and the quality of pulp made.

**COST OF ONE TON OF PULP.**—The cost of one ton of air dry pulp at the mill would be, therefore :

Wood.....	\$1 50 to \$3 00
Felts, wire, etc. ....	64 to 64
Wages..	1 50 to 3 00
	<hr/>
	\$3 64 to \$6 64

**SELLING PRICES.**—The pulp is now selling at from \$17 to \$22 per air-dry ton in the U.S.A., according to quality and place of delivery. As stated before, the pulp is shipped in a half-dry state, and the railway car therefore holds only half its capacity of dry pulp.

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## **THE HOME MARKET.**

**T**HE condition of the market is very quiet at present in all lines of book and writing papers. The volume of imports for the Christmas trade this year was smaller than last. There is also a falling off in the imports from the United States for the general trade, but this may be attributable to uncertainty upon the tariff question. The purchasing agent of one large firm, that has for some time past been a heavy importer, has not visited the States for more than a month, and does not intend making any other purchases until the new tariff is promulgated. In the meantime shelves in the warehouse are being rapidly cleared. Either this gentleman has had an intimation that the tariff will be reduced or else he prefers taking chances for the future. In news trade is quiet, the consumption having fallen off slightly. Now that the holiday issues of dailies and weeklies are worked off, managers are cutting down expenses for a few weeks by running smaller papers. Nothing more has been heard of imports of news from the United States. Prices continue unchanged.

## **THE UNITED STATES TARIFF.**

A meeting of the paper manufacturers of the United States was held recently in New York to discuss tariff questions as they affect the paper mills. After a discussion lasting several hours, it was decided to ask that the new rates on paper and pulp be fixed as follows: Ground wood, \$2 per ton; unbleached chemical fibre, \$4 per ton; bleached chemical fibre, \$5 per ton; sheathing paper, 10 per cent.; printing paper, sized or unsized, 15 per cent.; copying, filtering, silver and tissue papers, in books or reams, 7 cents a pound; photographic papers, 30 per cent.; writing papers, 30 per cent.; surfaced coated papers, 30 per cent. This schedule as made up was forwarded to the Ways and Means Committee of the House of Representatives, which gave a hearing on the pulp and paper schedule.

The gathering also took up the question of the Loud Bill, and after discussion it was decided to actively oppose the measure.