

MICHIGAN FORESTS.

The American Forestry Congress which met in Saratoga considered various questions relating to trees, tree planting, and tree preservation, which will be of interest. Mr. Perry Hannah said, in the course of an interview published recently in the *Post*, that the pine forests of the state would last about ten or 15 years more; that is, before the year 1900 the great lumber industry of Michigan would have died out for want of material. There seems to be no way to prevent this result. The owners of the pine lands bought them for the special purpose of converting their growth of pine into logs, lumber and cash. It seems like a work of devastation, but, whether the rapid clearing will in the long run appear to be the most profitable move in a business view or not, it is progressing too rapidly, and the plants for logging, sawing and transportation are too extensive and too well established to admit of any doubt that the manufacture will go on till there is not a merchantable pine tree left standing in the lower peninsula.

The same fate is in store for the hardwood lumber trees, of which there is such a splendid growth in the northerly part of the state—ash, maple, birch and others. Within the past ten years, and chiefly within the last five, steam and water mills have sprung up for the manufacture of these woods into lumber for house-finishing, furniture and cabinet work, and they are increasing at a rate that promises to exhaust the supply during the lifetime of some who are now engaged in the business. The sugar-maple is especially in demand, and factories for making the birdseye veneering are to be found in many of the maple localities. Denuded pine lands in other states have become barrens. There are great tracts in the State which the owners do not reckon worth paying taxes on, now that they are stripped of their trees.—*Lumber World*.

BLACK BIRCH.

Black birch is a close-grained, handsome wood, and can be easily stained to resemble walnut exactly. It is just as easy to work, and is suitable for nearly, if not all, the purposes to which walnut is at present applied. Birch is much the same color as cherry, but the latter wood is now scarce, and consequently dear. It is with difficulty that cherry wood can be obtained at \$50 a thousand feet, while birch wood can be purchased at any saw-mill for \$10 per thousand feet. When properly stained it is almost impossible to distinguish the difference between it and walnut, as it is susceptible of a beautiful polish, equal to any wood now used in the manufacture of furniture. In the forests throughout Ontario birch grows in abundance, especially if the land be not boggy. There is a great difference in the wood of different sections. Where the land is high and dry the wood is firm and clear, but if the land is low and wet, the wood has a tendency to be soft and of a bluish color. In all the northern regions it can be found in great abundance, and as the tree grows to such a size, little trouble is experienced in procuring a large quantity. The forests of Manitoulin Islands abound with it, as well as those of Peterborough and Haliburton districts. The Muskoka district also contains a plentiful supply. During the past few years large quantities of this wood have been exported from the Province of Quebec at a low figure. It is very easily detected among other trees by its height, large trunk, and the peculiar color of its coarse bark. Most of the perforated chair bottoms now in use are manufactured from it. There is a species of bird's-eye birch, but it is very scarce. An evidence of the weight and solidity of the wood is the fact that it will sink after being a few days on the water.—*Toronto Globe*.

LUMBER PROSPECTS.

"It is useless to expect a revival in the logging business this season," observed a veteran lumberman to the reporter, yesterday, "the outlook is not so good as it was last fall, logs are lower, men harder to get, supplies about the same, and there is about the usual supply of deals on the other side. In former years we were all well into the season's work by the middle of October, but at the present time only

a few of the leading operators are making any move. Nearly everybody lost money last season and few contracts have been let so far. Logs were sold at less than they cost last spring, and having been bitten once most of the prominent dealers will hold back to the last minute before putting in men and supplies.

"Of course, operations are becoming more and more difficult every year, and at the present outlook the lumber business in this Province is doomed to a rapid decline. The trees are remote from the water, and have to be hauled miles to the brow in many cases, and as the camps are moved further into the heart of the country, the portaging of provisions foots up a serious item. Last year the weather was favorable, yet it was after May 1st when the last of the logs reached the brow.

"Mr. Gibson's men are at work on the Nashua, and the understanding is that the output on that river will not exceed 25,000,000 feet of logs. There is some stir on the Miramichi river, and a few of the old-timers have opened up the upper St. John, but, on the whole, the prospect is so blue that the spruce cut will be very limited this season. Probably not more than 50 per cent., or less than 200,000,000 feet will be cut in New Brunswick this year."—*St. John Telegram*.

PURCHASE NOW.

The *Northwestern Lumberman* says:—Those who contemplate engaging in the business of manufacturing lumber, and have their pine to buy, would do well to consider the wisdom of buying it before there comes another boom in prices. During the last two years it has been shown in numerous cases that the manufacturer cannot pay such prices for stumpage as ruled in 1881-82, and succeed in business. Their ships sail well so long as high prices are obtained for lumber, but when depression comes the wind leaves their canvases and disaster follows. Stumpage is now 25 per cent. lower than it was in the years above named, and in many individual cases 25 per cent. would not begin to cover the decrease in prices. The best business men sell when prices are highest and buy when they are lowest, so far as they can determine when those points are reached. That stumpage will advance as soon as better conditions govern the lumber market is inevitable, and we know of several operators that sold pine two and three years ago who think it is about time to begin to buy it in again. There are men who will make respectable fortunes by these transactions.

TIES TO ONE HUNDRED FEET.

There was addressed to the *Register* this week the query: "How many ties are laid to 100 feet of track, and, also, how many to the mile?" The number of cross-ties in a mile of track varies largely in different roads. Every first-class line has at least 2,640, or one every two feet, and some exceed 3,200 per mile. Then again, there is a difference on different parts of the same road. A tie, to grade, must present a clear surface of eight inches and a thickness of six inches. Sometimes ties below grade are used and the difference balanced by increased numbers. To illustrate the existing difference take the following examples from St. Louis roads: The Cairo Short Line uses 2,640 cross-ties per mile, as does also the Missouri Pacific on all new road; The Wabash, from 2,700 to 3,000; with the St. Louis and Cairo, 3,000 is the standard. The Vandalia Line uses 3,200 cross-ties per mile, and this also the average on the Frisco Line, although there are as high as 3,280 on some portions of the Arkansas division of the latter road. Of the railways entering this city perhaps 2,900 cross-ties per mile would be a fair average.—*Railway Register*.

SHAFTS AND BELTS.

In many cases the shafting is too light for the weight put upon it and the strain to which it is subjected. In many cases the bearings are too far apart to properly sustain the load when in motion. In many cases the directions of the belts are either absolutely improper or relatively wrong.

Recently much trouble was caused by the heating and rapid wearing out of the boxes on the receiving length of a main countershaft in an establishment which occupied a four story

building. The length of shaft, which was only two inches in diameter, was replaced by one of two inches and three-eighths, but the trouble still continued. Between two hangers, a little over eight feet apart, were hung pulleys, the aggregate weight of which could not have been less than six hundred pounds. The main driving belt, twelve inches wide on a six foot pulley, ran directly up and down—vertically—and every other belt pulled in one direction. The main belt that ran vertically weighed about two hundred pounds. With these data the intelligent millwright or other mechanic can readily see that economical running was impossible.

Objection is made to shafting, stiff enough to bear the load and strain, on account of its weight. This might be remedied in a great measure by substituting hollow for solid shafting. This subject was treated definitely in the *Scientific American* of May 12, 1883, under the heading "The Load of Shafting," showing that the change was entirely feasible.

Part of this objection might have been removed, also, by sufficiently supporting the shaft, as it is evident that a shaft will run with less friction when running perfectly straight and level than when running on the "double wobble" principle; at least no deflection out of a direct line should be permitted on a shaft at any place in its entire length. Even if a deflection is not apparent to the eye, it can be detected by holding the finger against a shaft in motion.

The direction of belts is a subject that is not usually sufficiently considered. If a belt is hung to run vertically its entire weight is upon the upper shaft, and it must be kept so tight as to take up the sag of its weight, which causes it to fall off from the bottom of the lower pulley. If a belt must run vertically, let the lower pulley be as much larger than the upper one as possible, so that the belt can have a bearing on its sides. Under no circumstance allow the lower pulley to be smaller than the upper one; it is best always in leading from a lower to an upper shaft, or vice versa, to give the belt an angle; the best running belts are those which run horizontally.

Never have the pull of the belts all on one side of the shaft; it is unnecessary to point out the reasons why. The pull of belts should be as equally distributed relatively as possible.

It is an easy matter to ascertain the proper position of the bearings of a shaft relative to its weight before the hangers are placed and the shaft hung. Place the bare shaft on boxes or movable horses, the bearings being at the desired distance apart. Then load the length of shaft with the weight or estimated load of pulleys, and notice any deflection. The load test need not be the actual weight, but only a relative portion. Rig a lever over the shaft midway between the bearings on the horses, one end of the lever to be held by a rod bolted to the floor and the other end loaded. By estimating the difference (relative) between the fulcrum and the shaft and the weight at the end of the lever, a comparatively easily handled weight can represent the total weight of the shaft, on the principle of the ordinary steam boiler safety valve lever. After testing the shaft by the actual weight of the pulleys and belts it has to carry, add 50 per cent. more for the sagging, swaying, and vibration of the belts in motion, and when this total weight can be sustained without deflection, the position of your bearings is determined.—*Scientific American*.

Shipments from St. John.

According to the *St. John Globe* the shipments of deals from that place to trans-Atlantic ports during the past nine months show some reduction as compared with the shipments last year. From January 1st to September 30th last year 153,535,617 feet of deals were sent forward, while this year 145,357,817 feet were exported. There has been an increase in the shipments of birch timber, which this year amounted to 11,546 tons compared with 7,401 tons last year. Of pine timber 3,642 tons went forward this year and 7,401 tons last year. The two largest shippers this year are Alox, Gibson with 90,789,825 superficial feet of deals, and W. M. Mackay, 22,337,201 S. feet. Then follow in order Guy, Bevan & Co., Samuel Schofield, and R. & J. Stewart.

A TOUR THROUGH THE WOODS.

Some weeks ago we noticed the departure of Mr. Phipps, the Ontario forest conservator, on a tour of examination in the lumbering woodlands near the Upper Ottawa. He has now returned and is staying for a day or two at the Grand Union. During his journey he visited the establishments of Messrs. Booth, Thomas Mackey, Levi Young, William Mackay, Bronson and others, stopping some days with each, travelling through their limits, remaining over night at their camps in the bush, and observing thoroughly the manner of their operations and the management of the forest. Mr. Phipps describes himself as having been treated with the greatest hospitality at all these establishments, and given every facility for observation and enquiry. He is of opinion that, with regard to a very large portion of the country, settlement by farmers should be discouraged, and every effort made to retain a permanent and productive forest. This, he observes, is being done in many countries of Europe, where land is much more valuable than here, and where the opportunities of attaining the object are not nearly so great. There they have to plant a forest—here, we need only protect one. It is to be noticed, he remarks, that houses and furniture, and many another product of the forest, are almost as necessary to the comfort of man as food itself, and that we need land to grow the one as well as the other. Everywhere on his journey the ravages of fire, both of this summer and of earlier date, were visible in the timber lands, and the general opinion of practical men was found to be that Ontario loses millions of dollars annually by this cause. With the assistance of such men, Mr. Phipps has matured a plan, which he will shortly submit to the Ontario Government, by which these great losses may be largely diminished. It is to be hoped that it will soon be in successful operation.—*Ottawa Free Press*.

FAMINE CAUSED BY GOATS.

According to the *Indian Forester* famines in India are caused by goats. The goats in India appear, as a rule, to live on the brink of starvation, as, indeed, goats almost everywhere seem to do, collecting a scanty livelihood out of the barrenest materials. Especially, however, do they attack the green shoots and topmost twigs of every young tree which they come across. A herd of goats, numbering, say, from 15,000 to 20,000 animals, as is sometimes the case in the desert tracts of Asia, is not likely to leave much vitality in the saplings that grow in its line of grazing. These saplings, therefore, never grow to trees. The old trees, unless reinforced from time to time by a younger growth, die off, and thus whole forests disappear. Without forests the rainfall ceases; without rain the crops fail. In spite of the enormous extent of Indian plains, it is altogether possible that the action of the goats must be thus indirectly responsible for Indian droughts. St. Helena, as every one knows, has been converted from a Garden of Eden to a howling wilderness owing to the importation of the goat alone. In Cyprus, too, the diminished rainfall and consequent sterility is attributed almost entirely to the herds of goats which every Cypriote appears to keep, and which have long ago devastated the vegetation of the island.

QUEBEC CULLERS' OFFICE.

The following is a comparative statement of Timber, Masts, Bowsprits, Spars, Staves, &c, measured and culled to date:—

	1882.	1883.	1884.
Waney White Pine..	2,473,010	3,027,589	2,135,267
White Pine.....	7,433,695	6,292,583	3,686,664
Red Pine.....	1,419,054	443,974	309,940
Oak.....	1,149,396	1,716,636	706,633
Elm.....	701,026	509,261	651,722
Ash.....	258,196	250,004	410,206
Basswood.....	1,273	2,244	4,121
Bitternut.....	2,639	1,028	1,300
Tamarac.....	51,482	5,253	19,113
Birch & Maple.....	268,333	138,803	201,141
Masts & Bowsprits..	33 pcs	— pos	— pos
Spars.....	51 pcs	— pos	41 pcs
Std. Staves.....	332,621.3	627,012.22	66,922.20
W. I. Staves.....	1134.80.6	510,23.5	176,32.19
Std. Staves.....	754.2.29	87,21.19	24,2.29

JAMES PATTON,

Quebec, Oct. 10.

Supervisor of Cullers.