

## Huge Consumption of Spruce for Pulp

Limit of Production Reached in United States—Tremendous Increase in Canada—Experiments with Possible Substitutes

The abundance and cheapness of newspapers and other printed matter is one of the most salient features of our modern life. We take a complacent pride in comparing our one-cent 12-page productions with the insignificant six-penny "Times" of a hundred years ago. We seldom give it a thought that all this wealth of morning and evening editions, sporting extras, magazine sections and comic supplements, is making a tremendous drain on our forests of spruce.

One large daily paper in New York consumes in the course of a year as much spruce as can be cut from four to five thousand acres. If the proprietors of this newspaper maintained a forest, sufficiently large for the annual growth to supply them with all the pulp necessary for a year's consumption of paper, they would require a tract about 14 miles square.

The demand for spruce is not only large but rapidly increasing. In the United States, the cut of 1909 was double that of 1899 and six times that of 1889. It is not surprising, therefore, to learn that Mr. Pinchot has estimated that there is only from 10 to 30 years' cut in sight in the various states. Already, the production of pulpwood south of the border seems to have reached a maximum, having decreased from 1,786,000 cords in 1906 to 1,474,000 cords in 1910. This decreasing supply, operating in conjunction with the increasing demand, has led to a great augmentation in the imports from Canada.

At the present time, pulpwood is made almost entirely from spruce and principally by the mechanical process. In Canada, in 1912, the aggregate of wood used was 866,042 cords, and of this 677,747 cords were spruce. The aggregate of pulp manufactured was 682,632 tons, of which amount 499,226 tons were made mechanically. These figures represent an increase of about 44 per cent. over 1910. Canada has by no means yet reached the limit of her production, but it can only be a question of time till the operation of the same forces brings about the same situation as in the United States.

In the circumstances, the question of finding substitutes for spruce becomes of peculiar interest and it is interesting to learn that, assisted by a grant of \$30,000 from Congress, experiments are now being carried on in Wisconsin with a view to testing the efficacy of such woods as hemlock and jackpine as substitutes for spruce in the manufacture of paper-pulp.

With regard to jackpine, it may be said that if it could be utilized in the making of paper, we might turn to profitable account a tree which, at present, has very little commercial value.

## Public Ownership of Timber Lands

Advantages Accruing to United States from Federal Administration of National Forests

The Dominion Government now has under its control in the Rocky Mountains region some 25,600 square miles of forest lands, and there is some likelihood of extensive forest reserves, either under Provincial or Federal management, being established in other parts of Canada in the near future. This being the case, it should be of interest to consider what we may expect to gain from the public ownership of large timber resources. For an answer to this question we may turn to the National Forests of the United States and see what advantages have accrued from the administration by the Forest Service of a vast estate, ten times larger than the present Reserves under Dominion control.

Briefly enumerated, these advantages are:

1. The value of the forests is now increasing with use instead of depreciating.
2. More wood is grown per annum than is lost through cutting, fire, disease and decay.
3. Whenever timber is cut, the operation is so conducted that young growth will not be destroyed, thereby assuring a new crop in the future.
4. The opening of roads, fire lines and trails, and the construction of telephones, lookout stations and rangers' houses, is making an effective system of fire patrol possible.
5. Operators of small lumber mills are encouraged, except in accessible areas whose development involves a heavy outlay of capital.
6. Speculation in, and monopoly of, public timber are prevented.
7. Abuse of homestead and prospectors' privileges is prevented.
8. Settlement is encouraged on lands of the right character, but prohibited on non-agricultural areas.
9. Settlers get wood and timber for their own use, free of charge.
10. Every settler's clearing is an aid in fighting fire.
11. Agricultural lands covered with heavy timber are quickly cleared—not held for speculation—and thrown open for settlement.
12. Sheep, cattle and hogs are pastured in suitable openings in the woods.

13. The old warfare between sheep and cattle ranchers is put a stop to.

14. Erosion, caused by removal of surface cover, is checked.

15. Water supply is conserved for irrigation and waterpower projects.

16. Pests—insects, rodents and beasts of prey—are more effectively combated.

## Prevention of Accidents in Textile Mills

Leeds Operatives Draw Up Recommendations Designed to Protect Workers

The superintending inspector of factories for the Leeds district has presented an agreement between representatives of employers and employees and the inspectors concerning the fencing of machinery and the prevention of accidents in woollen and worsted mills. . . .

The report sets out in detail the points of agreement, and they include the following general provisions:

1. On new machinery all projecting setersaws on continuously revolving parts shall either be countersunk or be otherwise efficiently protected; where projecting setersaws are placed inside box-pulleys they shall be deemed to be efficiently protected. Projecting setersaws on existing machinery to be fenced unless safe by position.
2. Ladders, other than step-ladders, shall be fitted with hooks or other nonskid device; provided that in mule spinning rooms, or in rooms where persons work with bare feet, ladders shall not be fitted at the bottom with spikes.
3. Heavy overhead main driving belts shall be guarded underneath in all cases where there is liability of persons having to pass under them.
4. Fencing for all toothed wheels shall, as far as practicable, completely surround the wheel, so that there is no danger of any accident between the wheel and the guard itself.
5. All representatives present were of opinion that it was most desirable that women and girls working amongst machinery should have their hair put up, or otherwise confined in a net, and all agreed to use their best endeavors to see that this is done.
6. All firms are to be urged to keep a supply of sterilized dressings which shall be kept available for first aid for any operative who receives a cut or wound.
7. Cleaning machinery in motion was considered by all to be a dangerous practice, and should be avoided.
8. Floors of machine rooms and stairs to be kept clean and free from grease as far as practicable.
9. Periodical examination of machinery. Some person in each mill to be told off to examine, at least once a month, fencing of ma-

chinery and mill gearing, maintenance of proper temperature and ventilation, compliance with special rules and regulations, means of escape in case of fire, fire-extinguishing appliances, and condition of the sanitary conveniences.

10. Lifting of heavy weights. Children and young persons should not be required to lift weights which exceed for: Girls under 13 years, 16 pounds; between 13 and 14, 20 pounds; between 14 and 16, 25 pounds; boys under 13, 24 pounds; between 13 and 14, 30 pounds; between 14 and 15, 40 pounds; between 15 and 16, 50 pounds.—U. S. Consular and Trade Reports.

## Accident Prevention in Railway Shops

The matter of the prevention of accidents in roundhouses and railroad shops has received considerable attention from railroad authorities. It is recognized that while the training of the human element is as important in shops as elsewhere, yet at the same time physical conditions also merit consideration.

There are four main sources of accidents in shops: First, unguarded machinery; second, insufficient light; third, flying particles, and fourth, obstruction of passageways. These things can be properly attended to and increased safety can be obtained. Safety devices can be installed for the safeguarding of machinery; sufficient light can be provided and windows and electric lamps can be kept clean; the employees can be equipped with goggles to prevent injury of the eyes by flying particles; and passageways can in a majority of cases be kept clear of obstructions.

The matter of oversight also enters largely into the prevention of accidents. If the foreman or superintendent in charge of the shop is thoroughly impressed with the necessity of accident prevention, he will find numerous ways of preventing injuries that might otherwise occur.

The following are some of the precautions which employees in shops and roundhouses should observe:

Don't wear loose, baggy clothing in working around moving machinery.

Don't walk on railroad tracks and before crossing any track "Stop, Look, Listen."

Report all unsafe conditions and practices to the foreman or other person in charge.

Explain fully to your helper the proper methods of work. A little time spent by a mechanic in imparting instructions to his helper may save one or both an injury.

Never jump on moving cars or engines. This is a risk which no shopman is required to take and which he cannot afford to take.

Never strike tempered steel with hammer or other metal objects.

Stop machine before oiling, wiping or repairing.—W. L. C.