

Conservation

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White Pine Threatened

**Prompt Action Required to
Save this Source of Public
Revenue**

In view of the danger which threatens the white pine forests of North America through the invasion of the white pine blister disease, the value of this item of forest wealth should be thoroughly realized.

Relatively little specific information is available as to the total amount and value of the standing white pine in eastern Canada. This fact serves to emphasize the importance of the investigation of the forest resources of the various provinces, which has been undertaken by the Commission of Conservation.

It is, however, probably safe to estimate the total value of our white pine at not less than \$200,000,000. In the four eastern provinces, white pine contributes approximately \$1,250,000 out of the \$4,000,000 of annual revenue collected directly from the forests. In 1914, which was by no means a record year in the lumber industry, 652,000,000 board feet of white pine, with a value of \$13,660,000, was sawn in eastern Canada. In addition, 175,000,000 board feet was exported in the form of logs, bringing the total value of the cut for one year to \$16,160,000. The white pine is one of the most useful woods in commerce, and its growing scarcity, due very largely to lack of protection from forest fires and to extensive exploitation, has greatly enhanced its sale value in recent years.

There are in Ontario, Quebec, New Brunswick and Nova Scotia extensive areas suited only for forest purposes and there is no reason why the revenue and production from this source should ever be decreased if the forests are protected from fire and disease. When awakened to the gravity of the situation, public sentiment should demand the protection of our pine forests from this blight, while it is still possible to check its ravages. As a first step in this direction, a thorough investigation of the disease should be conducted to determine the most effective

means of preventing its spread. At the recent meetings of the Commission of Conservation, the Canadian Forestry Association and Canadian Society of Forest Engineers, resolutions were adopted urging the Dominion Government to appropriate \$50,000 for the investigation, location and eradication of the pine blister disease. It is practically assured that the United States Government will provide \$300,000 for this purpose,

infected district is the Niagara peninsula, but centres of infection are scattered throughout southern Ontario and southern Quebec. The northern pineries have, it is hoped, not yet been infected. In the United States the disease is reported to be doing serious damage in Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Wisconsin and Minnesota.

THE war has agitated every British country to its foundations. It has caused a searching of heart which the world has not known before in modern times. Among the most remarkable of its results has been the re-examination which each nation has been compelled to make with regard to its material resources. The gospel which we have been preaching for some years past has now been found to be the true gospel. It has been found by hard experience that national safety demands that the nation should not only possess resources but understand them and be able to utilize them economically. Whereas, a few years ago people listened to the discussion of this subject with polite but somewhat academic interest, they now know that no subject is of more importance to the national well-being, and that the lack of developed capacity to utilize every possible resource may in certain emergencies mean disaster. Therefore, though it be a time of war, when thoughts of war and matters relating directly to its conduct occupy people's minds almost exclusively, yet it has become clear through the very lessons taught us by the war that our work is of the most far-reaching importance. Every consideration points to vigorous and aggressive action rather than to postponement or delay.—*Sir Clifford Sifton, at Eighth Annual Meeting, Commission of Conservation.*

supplementing the grants by the various states, which will, it is expected amount equal the federal grant.

The distribution of currant, gooseberry and white pine nursery stock from infected districts appears to offer the chief means of disseminating the disease. The importation of white pine seedlings into Canada has been prohibited and the proposed investigation should be conducted without delay in order that the most effective and economical measures may be used in the eradication of this pest.

At present the most seriously

THE ICE HARVEST

During February, the ice crop is at its best in the greater part of Canada. The farmer should utilize his spare time to secure a supply of ice for use during the summer months. With the advent of hot weather, regrets at the lack of ice to cool beverages and to preserve food will be useless. Action at the present time will result in much comfort and pleasure next summer.

Save the wood ashes and keep them in a dry place. They are a splendid fertilizer.

Greater Profits from Clean Seed

**If Good Crops are Expected,
Good Seed Must be Sown**

The quality of the seed grain sown on the farm next spring will depend upon the farmer himself. This is a matter which is entirely in his own hands. If good crops are to be expected, good seed must be sown. The farmer should prepare the seed now for the spring sowing. During the winter months, when other farm work is not pressing, is the best time to clean the grain for seed. The best grain grown on the farm should be used and it should be put through the fanning mill two or three times at least, or until all of the light or shrunken grain and the weed seeds are removed. There is a distinct loss in sowing weak seed and it is much more profitable to screen out the shrunken and weak grain and feed it than to sow it and lose it. It is also essential that weed seeds be not sown if weed growth is to be prevented.

The increase in total yield is practically all profit. A crop of wheat from ordinary seed may yield 25 bushels per acre, and cost 20 bushels per acre to produce, leaving five bushels per acre as net profit. If, by sowing well cleaned seed, the yield is increased one bushel per acre, the increase in net profit is 20 per cent. The cleaning of the seed in spare time during the winter does not add one cent to the cost of production. When well cleaned seed is sown in place of ordinary grain, the gain in yield is, of course, much more than one bushel per acre. The net profit has often been increased 50 per cent or even doubled. This is one way of increasing production and profit.—*F.C.N.*

MAKE PLANS NOW

A well-considered plan for the farm work, utilizing fully the time available, will vastly increase production. With the shortage of labour on our farms, the most must be made of that remaining. Proper planning of the work now will save time.

Rural Education Conditions

Importance of Primary School Training as Shown by Survey

In a survey of agricultural conditions in Dundas county, Ontario, conducted by the Commission of Conservation in 1916, the subject of education is reported on as follows:

Ninety-eight per cent of the 400 farmers visited had attended public school only, and one per cent had attended high school. None had attended college and one of the 400 had attended business college. Ninety-two per cent of the farmers' wives had attended public school only. Three per cent had attended high school and none had attended college.

Nine per cent reported the children as having school gardens, while 22 per cent reported having a home garden under the supervision of the teacher. Forty-seven per cent stated that they had attended a short course in agriculture and 93 per cent were in favour of short courses for the young people. Many of these short courses consist of judging classes in seed grain and live stock, held in various parts of the county, to which all farmers are invited. Ninety-seven per cent were satisfied with the schools as at present managed.

If the farmers' training is to be improved, the improvement must evidently be made in the training in the rural school. Hence the wisdom and advisability of making the rural school training as efficient, adequate and suitable as possible to prepare the young men and and young women for real life in the country. The teaching of agriculture should occupy a more prominent place on the rural school curriculum than at present.

COST OF BAD ROADS

A company in Stanislaus county, California, that buys skimmed milk from the farmer has demonstrated to the rural residents in an emphatic manner the value of good roads to them. This company sends trucks directly to the farms to collect the skimmed milk but it pays higher prices to farmers living on good roads than on bad roads. On poor roads the company pays 17½ cents per 100 pounds, but on good roads it pays 20 cents. Of course, the farmer always has been paying this tax on every hundred pounds he hauled over bad roads and he has been relieved of it on every hundred pounds he had hauled over good roads, but that fact has not been brought to his notice as in the case cited. When he measures his distance from town in minutes instead of miles he will realize the profit of good roads. —*American Lumberman.*

Classification of Land

Only Land Suitable to Agriculture to be Opened to Settlement

In 1916 a forest survey was undertaken on the Crown lands of New Brunswick. It was considered advisable also to secure information regarding the quality of soil and differentiate between districts suitable for agriculture and those in which the soil was of a quality suitable to forest growth only. The Agriculturist and Chief



Cut 43

THE BEGINNING

The settler, without knowledge of soil conditions, attempts to establish a home. With the exception of patches containing a few square feet, there is, on this prospective farm, no soil that approaches a loam in texture. It is mostly gravel and sand.

Forester of the Commission of Conservation co-operated in the work. One result of this survey has been a recommendation to the government that before Crown lands are thrown open for settlement, an examination be made to determine its agricultural value.

What New Brunswick has done is equally necessary in other provinces. By not protecting the settler against taking up unsuitable farm land, the provinces administering their own Crown lands, and the Dominion, have made mistakes in the past in granting land. It is quite true that, in some cases, the applicant for the land did not care about the quality of the soil so long as he could get the timber, but, on the other hand, there have been many disappointments and dismal failures by men who really wanted to farm, on account of having settled on unsuitable land.

In taking up Dominion land, the onus of choosing suitable land is placed upon the settler. If he can distinguish poor soil from good soil he will probably not make a mistake, but the man from the city or elsewhere who knows nothing regarding soils should be protected against himself. Deserted

farms with their crumbling shacks tell plainly the story of the failure of men who did not know how to choose their farms. These men should be advised and assisted by those who do know. It is too much to expect that all of these mistakes can be righted, but it is not too much to expect something to be done to prevent their recurrence in future.

THE COST OF CARELESS PACKING

The Glasgow market offers special opportunities to observe the premium prices that are regularly

Protection of Forest

The Efficient Ranger has many Responsibilities

The duties of the efficient forest ranger, in the protection of forests from fire, were very well described by Mr. Henry Sorenson, manager of the St. Maurice Forest Protective Association, at the Eighth Annual Meeting of the Commission of Conservation, as follows:

The fire ranger's duty is first and foremost to prevent forest fires, and when they do occur, to put them out. One great feature of fire prevention is the ability of the ranger to educate the people in his district and make them understand the great cause that we are working for.

In dry weather he should always be on the move, watching fishermen, drivers, jobbers and other people travelling in the woods. Whenever he meets a person, he should find out his name and destination, give him advice when needed, and always warn him against the danger of forest fire. By giving the people kind advice and help, he will make them his friends and they will be more willing to do their share in saving our forests.

In the settled districts, forest rangers also supervise the burning of slash. The clearing of land for one of the worst menaces to the forest. In former years when a settler wanted to clear his land, he put fire to the brush on his own, regardless of time and weather. That millions of dollars worth of good timber went up in smoke mattered little to him if it cost him a few days' labour piling the brush before, and waiting while it was burning.

Damp and rainy weather does not give the ranger a vacation; many people would believe. He then starts cutting and clearing, portages and trails to facilitate communications, so that, when a fire occurs, he can get men and supplies to the fire in the easiest way and the shortest time possible. He also builds look-out towers in high and convenient sites in the district during wet seasons. Convenient places in his district are stored shovels, mattocks, fire pails, etc., for fighting fires.

THE HOME GARDEN

Canada must produce more food stuffs. We have much vacant land about our homes, which, if cultivated, would greatly add to our food supply. Very little work is necessary, and the returns are more than compensate for the effort. By helping to provide the food for your own family you are releasing your own additional for the general good, and reducing the cost of living.

paid to the packer of high quality fruit. One Ontario shipper in particular holds a unique position in the esteem of the buyers, and there is always active competition to secure his offerings, with resulting high figures. Thus, in October, his No. 1 Kings were sold at 57¢ to 61¢, as against an average for less favourably known parks of 50¢. Last month at the sale of shipments ex S.S. Scotian, his Baldwins made 38¢, to 39¢, for No. 1's and 31¢, to 35¢, for No. 2's, as against 30¢, to 31¢, for No. 1's and 27¢, 6d. for No. 2's of other parks.

There is no escape from the conclusion that there would be a very considerable increase in the returns received by Canadian shippers if there were a more general adoption of the methods of selection, grading, and packing that have won such an outstanding reputation on the market in the case under consideration.—*Weekly Bulletin, Trade and Commerce Dept.*

Plough up the old sod that has been sown two or three years and sow corn or roots, or plant potatoes. A heavy seeding of peas will also give good results.

Commission of Conservation

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CONSERVATION is published the first of each month. Its object is the dissemination of information relative to the natural resources of Canada, their development and the proper conservation of the same, together with timely articles covering town-planning and public health.

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OTTAWA, FEBRUARY, 1917

Commercial Forestry

Its Adoption by Great Britain Must Follow the War

The assignment of several battalions of Canadian woodsmen to cutting timber in Great Britain calls renewed attention to the great shortage and depletion of local timber supplies there. Relatively little attention has been paid to the practice of commercial forestry in Great Britain, due in part to the existence of large private estates and in part to the ease of importation from other countries. It is, however, to be anticipated that the present denudation of Britain's forests will result, after the war, in the adoption by the Government of a comprehensive plan for the reforestation of the millions of acres of non-agricultural lands which are now producing relatively little in the way of forest products.

Exact statistics are not available as to the total amount of standing timber in the United Kingdom, but the timbered area has been estimated at 3,000,000 acres out of a total of 77,000,000 acres. Prior to the war, this timber was valued at \$155,000,000. In time of peace, England's timber imports were valued at \$215,000,000 annually, so that if imports were cut off, the total local supply would be insufficient for a single year's consumption. So great is the demand for timber for war purposes that, in spite of the general cessation of building operations, the consumption remains practically normal.

Before the war, large quantities of timber were imported from Germany, as well as from Russia, Sweden, France, Norway, Portugal and Spain. With the complete cessation of imports from Germany

and the difficulties in securing adequate supplies from the other countries named, the way has been opened for a great increase in the amount of supplies from the North American continent. Canada, for instance, during the year ended July, 1916, exported to the United Kingdom, wood and manufactures of wood to the value of nearly \$16,400,000. Were adequate shipping facilities available, the exports of Canadian supplies would have been much greater.

While Canada's forest resources are great in proportion to her population, the tremendous possibilities for the development of the export trade in the future make it

ings throughout our whole territory, which comprises over 1,000,000 acres of settled land.

Since the permit system has been inaugurated in our territory the following results have been obtained:

1914, 80 fires caused by settlers
1915, 41 fires caused by settlers
1916, 00 fires caused by settlers

To obtain good results, competent inspectors and rangers are essential. These men are often called upon to educate the settlers in their districts and to co-operate with them in their work. The ranger must also be friendly with the settlers and render them all possible assistance in their slash burning.



THE END
One of the many abandoned farms. The amount of human energy expended in attempting to make a living from such areas has been, and still is, enormous. Proper survey of soil conditions before settlement would avoid this waste.

imperative that these resources be conserved to the fullest possible extent, that the raw material may serve as the basis for the greatest development of Canadian industry. The first essential is that the heavy annual loss from forest fires be reduced to a minimum. Very much still remains to be accomplished in this direction.—C.L.

Settlers' Permits

Results Secured by St. Maurice Association—No Settlers' Fires in 1916

In 1916, the Quebec Government amended the forest protection laws of the Province, to provide that no setting of fire to clear land be permitted between April 1 and November 15, without a written permit from an authorized fire-ranger. This amendment facilitated the work of the fire-ranger in the field.

The past season (1916) has been the most successful since the forest protection system of the St. Maurice Forest Protective Association has been organized—1,213 burning permits were issued by our inspectors and rangers, and not one fire was reported as being caused by settlers burning slash in their clear-

The ranger is instructed never to issue a permit before first visiting the slash to be burned, and seeing that it is put in piles or heaps at least 50 feet from any standing timber, and, second, to see that the weather conditions are favourable. The permit should never be given for more than one day, unless it is during a wet spell and the slash is situated at a safe distance from any standing timber. If the slash were not completely burnt, and if the weather conditions are favourable, another permit may be issued for the following day. Except during wet spells, burning should never be started before four or five o'clock in the evening and the fire should be completely extinguished in the early morning, as the heavy winds during the day may cause it to spread.—H. Sorgius, at Annual Meeting, Commission of Conservation.

Forest Protection

The Dominion Forestry Branch has constructed a total of 710 miles of telephone lines in the Dominion forest reserves. Of this, 75 miles are in forest reserves in the railway belt of British Columbia, 265

miles are in Alberta, 50 miles in Saskatchewan, and 320 miles in Manitoba. While telephone lines are of great value in the ordinary administration of forest reserves, their greatest service is in connection with the protection of forest areas from damage by fire. Large fires all start as small ones, and the use of the telephone assists greatly in facilitating the control of fires before they become too large to be readily extinguished. In many cases, lookouts are placed on commanding peaks or towers, to keep constant watch for fires during the summer season. As these lookout stations are connected with headquarters by telephone, men can be despatched as soon as a fire is detected. Through the adoption of modern standards of organization and equipment, the danger of serious fires in the Dominion forest reserves is being gradually reduced.—C.L.

Timber Treatment

Scarcity of Certain Species Demands the Use of Preservative Measures

While the preservative treatment of timbers is still in its infancy on this continent, much more progress has been made in the United States, where, in the east, the pinch of partial exhaustion of timber supplies is being felt, than in Canada, where supplies are still relatively large in proportion to the population. In the United States, the number of wood-preserving plants has increased in ten years from 39 to over 100. In 1915, at 102 plants, nearly 142,000,000 cubic feet of timber was given preservative treatment. Of this, more than 78 per cent was cross-ties, for railway use.

Preservative treatment of ties makes it possible in the east to utilize so-called inferior species, such as beech, birch and maple, in place of the now relatively scarce and much more expensive oak and cedar, which were formerly used to a very large extent. In this way, better service is secured at a materially lower cost.

The slower developments along this line in Canada are due to the fact that we still have large supplies of coniferous material suitable for ties. For instance, in 1914, more than 43 per cent of all ties purchased in Canada were jack-pine. Eastern cedar followed next, with 13.7 per cent, then tamarack with 7.8 per cent, Douglas fir with 7.5 per cent, and hemlock with 7.2 per cent. Canadian railways require about 20,000,000 ties per year. The increasing shortage of readily accessible supplies will inevitably mean higher costs, and this, in turn, will gradually bring about the wider use of preservatives in connection with the cheaper hardwoods, of which birch is the most plentiful in Canada.—C.L.

Utilization of Fish Waste

Practical Methods of Converting Offal to Economic Use Required

The profitable utilization of the immense quantities of waste material which characterize practically every branch of the fisheries presents one of the chief problems in securing efficient conduct of the Canadian fishing industry. As a result of investigations on the Pacific coast, it has been estimated that the sheer waste of the fisheries of Alaska amounts to 70,000 tons per annum and of those of British Columbia at from 15,000 to 20,000 tons. The proportion of waste material in the lobster canning industry is extremely high. Mr. R. H. Williams of Halifax makes the startling assertion that of 32,000,000 pounds of lobsters required for an average Canadian season's pack of 160,000 cases only 6,500,000 pounds are utilized, 25,500,000 pounds being absolutely wasted. In other words, the lobster industry as now conducted uses only 20 per cent of the raw material. Even under such conditions, the annual value of this industry to the Dominion is normally around \$4,000,000.

From the foregoing figures it will readily be appreciated that few industrial improvements could render more substantial aid to the fishing interests than the perfection of practical methods of converting the offal to economic use. Experiments now being conducted by Mr. J. B. Fielding for the Commission of Conservation will prove of material service in solving this problem.

Plant for Using Grain Screenings

The Fort William Grain Co., Fort William, Ont., recently purchased a local factory building which is to be converted into a plant for the production of grain-screenings products. Heretofore there has been practically no market in Canada for the residue from the cleaning machinery of the grain elevators. The entire output of the elevators of this district has been purchased by American firms and shipped to Duluth and Minneapolis, with some shipments to Buffalo and New York city. This material is used as the principal element in certain kinds of cattle food. These screenings are usually sold at a stated price per ton without regard to grade, prices being 1 c. a bushel at the elevator shipping point. They consist largely of wheat screenings, although mixtures of oats, rye, and other grains are noticed. Grades run from mere elevator grain dust, valued at \$6 per ton, to high-grade "scalpings" (practically no-grade grain), val-

ued as high as \$40 per ton. Prices for all grades thus far this season have averaged about \$8.50 per ton, with a tendency toward much lower prices during the coming autumn months.—U. S. Consular Report.

IS THE PLANT READY?

"A stitch in time saves nine" is never more true than when spring is at hand and finds the farmer unprepared. Much time is often lost because his machinery is not in condition for immediate use. Parts are missing; bolts and screws have been removed from one machine to repair another, and, from lack of paint to protect it, the woodwork has decayed and probably become broken.

During winter, all implements should be thoroughly overhauled.

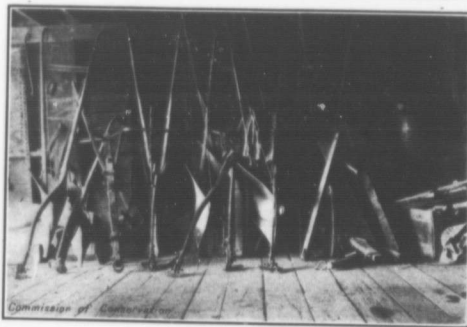


FIG. 23

IS THE PLANT READY?

Implements and tools should be put in best condition and kept where they are immediately available when the work season opens.

Missing parts should be secured, a supply of bolts and screws obtained, working parts should be cleaned and polished, and woodwork well painted. Bolts and screws can be purchased in boxes of assorted grades and sizes. The loss of a nut or breakage of a small part while engaged in the use of not only the implement, but the team, the hired help, and probably of the opportunity during favourable weather to perform the work which had been planned.

Thousands of trees throughout Canada are being injured by the nailing of advertising matter to them. Not only is the bark injured and the cambium layer broken, which gives fungi an opportunity to attack the trees, but the spaces behind such signs serve as harbours for moths and other insects.

Heavy seeding smothers weeds and adds humus to the soil. Light seeding encourages weed growth in the vacant spaces and adds little fertility to the soil.

WEED ERADICATION

QUACK GRASS

All methods of eradicating this troublesome weed are based on thorough tillage. The implements found on any well equipped farm are sufficient to eradicate quack grass.

As the quack roots are found closer to the surface in sod and pasture fields than in cultivated fields, it is often advisable to utilize a field for pasture or meadow, keeping the grass cut closely or grazed before attempting to kill it. The work should start immediately after haying by

Lookout Towers

Their Value Proven as a Protection Measure

The great value of lookout towers for the quick discovery of fires has been demonstrated many times, in Canada as well as in the United States. In the west, the devices are used extensively by Dominion Forestry Branch, Dominion Parks Branch, and British Columbia Forest Branch. The system is being extended each year and as the stations being connected by telephone with headquarters with neighbouring settlements can be despatched quickly in case fire is discovered.

The United States Forest Service and many of the states are using lookout towers extensively with excellent results in the direction of both efficiency and economy.

In eastern Canada, while developments along this line have been slower than in the west, an excellent beginning has been made. Lookout towers have also proved their great value, in the case of the St. Maurice and Lac Ottawa Forest Protective Associations, in Quebec. In Ontario similar results have been secured on Nipigon forest reserve, and on the limits of M. J. O'Brien and Mattagami Pulp and Paper Company. In each case cited an usually progressive system of fire protection is in effect, due largely to the assignment of competent men, with power to act.

On the whole, action along these lines, by the provincial governments in eastern Canada has kept pace with the progress made by private initiative, but the situation is improving steadily, and efficiency of fire protection Crown lands is increasing in proportion.—C.L.

Technical training will also be the present system of apprenticeship in many establishments, just letting a boy grow into business because he happens to be on the premises.

Farmers should make the necessary preparations to harvest the ice supply, so that there may be no delay when the ice is at its maximum usually in February.

The practice of standing in roadway to wait for an approaching street car is unnecessary, a menace to public safety, and frequently blocks traffic to an objectionable degree.

In the Yunnan province of China one pheasant farm produces about 200,000 birds a year, and many other farms have lesser output. The birds are mostly of the Golden Silver breeds.

ploughing the infested land only deep enough to turn over a furrow containing most of the grass roots. From three to four inches will be deep enough on sod or pasture land. Disk the land thoroughly every ten or twelve days until autumn, when the quack grass will be killed. Plough the land to a good depth the following spring to bury the dead roots which will supply food to the succeeding crop. Plant corn or potatoes and cultivate thoroughly, or sow a smother crop as millet or buckwheat.

The process of killing quack grass is not complicated, but one thing must always be borne in mind, the work must be done conscientiously and thoroughly. A half-hearted effort is useless.—F.C.N.

Popular lectures on the importance of forestry to China have recently been given in Peking under the auspices of the Chinese Forest Service. The lectures have been given by a Chinese official of the service. They were accompanied by an exhibition of Chinese woods.