

Conservation

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Rats Eating Matches not a Cause of Fire

Elaborate Experiments Prove They
Would Rather Starve than
Eat Match Heads

In the lengthy category of reasons and excuses for fires, that of friction due to the gnawing of match heads by rats and mice has had to bear its full share. When all else could prove an alibi the rats were blamed. The increasing number of fires attributed to this cause emphasized the necessity of establishing the possibility of it being bona fide.

The Underwriters' Laboratories, Inc., of Chicago, after careful and prolonged experiments by its fire prevention engineers, has reached the definite conclusion that rats would rather starve to death than eat the modern match heads.

This conclusion was arrived at through a series of elaborate tests, covering a period of eight months and more, in which numbers of rats were placed in enclosures with boxes of matches arranged so that they could reach them. The first test was made without feeding or watering the rats; in the second they were given water, but no food; and in the third they were given food and water for two weeks and then starved, but supplied with water until they died. Occasionally the strawboard boxes were gnawed and the boxes broken open and matches scattered all around, but although frequently the rats ate one another, in no case were the match heads gnawed nor was there any apparent danger of ignition.

With this positive evidence in their possession, investigators of fires will view with greater suspicion a fire which can be attributed to no other cause than that of rats gnawing matches.

The value of Canada's fish production in 1919 was \$56,485,579 of which \$40,473,536 was the product of British Columbia and Nova Scotia, British Columbia canned salmon representing \$13,842,140.

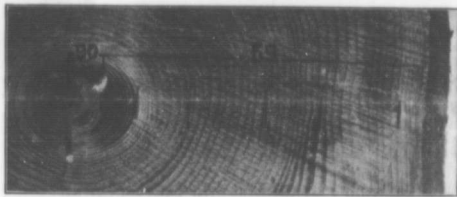
The Laurentide Pulp and Paper Company is cutting a thousand cords of hardwood to be used in the manufacture of ground woodpulp. The species being cut are poplar, white birch, yellow birch and maple. The two first will be floated and the two latter will be transported to the mill on barges.

Conserving Time in Growth of Forests

Application of Forest Practice to Expedite Production of Pulpwood Species

The illustration herewith represents a transverse section, 14-3 inches in diameter, cut from the stump of a balsam one foot from the ground, which grew in the forests of Quebec near Grand-mère. It was found in the mixed type of forest, mostly yellow birch, and conifers, both balsam and spruce.

The annual growth rings, counted from the centre and marked off



PORTION OF A SECTION OF BALSAM TREE 149 YEARS OLD.
Note suppressed growth of 90 years and rapid growth when released.

in 10-year intervals, show that the tree is 149 years old from stump height. It took 90 years to grow the first inch in diameter, while the remaining 13-3 inches were made in 59 years.

Here is where the forester, with his knowledge of nature's methods, is able to assist her in shortening the time consumed in the production of forests.

In this case the growth suppression in the centre was caused by the dense shade of a large yellow birch, under which this tree struggled against great odds for ninety years. It probably was the hardest of a large group of conifers, all of which, save this one, were finally killed in the struggle for light. Sixty years ago some agency, probably wind, removed the yellow birch, which was and still is of only secondary importance on our pulpwood lands. This allowed the stunted balsam to make rapid growth and take its place in the crown cover. Luckily, the suppression had not continued long enough to completely kill the conifer's power of recovery. This fortuitous act of the wind can be emulated by the forester with his axe over a large part of this mixed type.

In many places, groups of young conifers under huge hardwoods are struggling to keep alive until opportunity will enable them to take their place in the crown cover and produce merchantable material. This period of waiting can be reduced by the removal of mature timber. In the case of the tree in the illustration, ninety years could have been saved in its growth period.

Mature timber, whether conifers or hardwoods, is not an active asset to the country. It is a mere hoard, drawing no interest and of no present benefit. In the yearly windthrow or decay from old age in the mature forest we are neg-

lecting a very valuable source of income.

It is of prime importance, in the conservation of forest resources, that both a method of transportation and a profitable market for our mature hardwoods be rapidly developed.—G. A. Mulloy.

City Rest Rooms

Calgary retail merchants have subscribed to a fund to open a rest room in that city. It is felt by the merchants that a rest room will be of benefit to their trade, as country visitors can make it a rendezvous, and leave their parcels, etc., while shopping in the city. The rest room will also encourage farmers to have their wives accompany them when attending the market, as they will be assured of comfortable quarters. Rest rooms are a valuable addition to the social service which cities may render to the neighbouring farmers, and the cost will no doubt be amply repaid by the increased number induced to visit the city to trade.

In 1918 there were 253 plants in Canada preserving, canning and evaporating fruits and vegetables.

Forest Conservation Affects the Reader

Information on Forest Conditions
being Supplied by Commission
of Conservation

Where future supplies of pulpwood may be obtained is a problem very prominently in the forefront with the pulp and paper interests. With the tremendously increased demand for newsprint, the price has soared to a point where publishers are obliged to pass the additional cost on to the newspaper readers, and the public is commencing to appreciate how intimately associated are the forests with its daily life.

New capital is constantly being sought and new developments planned to overcome the newsprint shortage; this is creating a demand for information as to what areas of pulpwood are available, and their proximity to possible water-power sites.

The Commission of Conservation, as a result of its forest survey of British Columbia, has published, in a report "Forests of British Columbia," details of available supplies of pulpwood and saw timber in that province. This information has proven of much value to operators and investors, and the demand for copies of the report has been heavy.

Supplies of pulpwood in British Columbia are estimated at 386,000,000 cords, of which 358,000,000 cords consist of spruce, balsam and western hemlock, and 28,000,000 cords of jack pine, lodgepole pine, poplar and cottonwood. Of this amount 185,000,000 cords is at present available.

Two large newsprint mills are in operation in British Columbia, one at Powell River and the other at Salmon Arm, while a building paper plant is established at Sidney, Vancouver Island. Intensive development of the pulpwood areas is forecasted in the number of reported projects under way for the establishment of pulp and paper mills.

Copies of the report on British Columbia forests and of that on "Waterpowers of British Columbia," are available to those interested in these natural resources, and may be obtained from the Commission of Conservation.

The baking and confectionery industry in Canada in 1918 consumed 2,707,014 barrels of flour.

Jack Pine Suitable for Paper Making

Investigation Demonstrates Feasibility of Many Additional Species of Forest Trees for Pulwood

The prodigal waste of taking out one kind of wood from a mixed forest and leaving the remainder to be destroyed by fire, wind or decay has brought about a shortage of supplies which compels the use of substitutes for the woods once considered essential. The search for substitutes has, in many instances, revealed the fact that the substitutes are sometimes, not only equally as good, but are better than the original kind. A case in point is found in the manufacture of newsprint. Not many years ago, spruce was considered the only wood that could be used for this purpose. Gradually, and with much opposition, balsam was admitted in mixture with spruce, until now it is accepted in practically unlimited quantities.

We now find the despised jack pine suggested as a substitute for spruce, and the research departments of several of the progressive pulp and paper organizations have established the fact that it is quite feasible to use jack pine in either the sulphite or groundwood processes of pulp manufacture.

At the instance of the Wayagmack Pulp & Paper Co., Ltd., of Three Rivers, Arthur D. Little, Inc., carried on some investigations in their laboratories. They report that the fibres of jack pine are longer than the fibres of spruce, and that the amount of fats, resins and waxes, hitherto assumed to be prejudicial, is not sufficient to preclude its use as sulphite pulp. It appears to require, however, a stronger acid and a longer cooking than other species, and must, therefore, be manufactured separately. In the mechanical or groundwood process, it is claimed that it will make just as good, if not better, pulp than any on the market.

The use of jack pine for this purpose will materially prolong the productive life of the pulp and paper industry in Canada. Though there is as yet very little reliable information on which to base an estimate of the amount of jack pine in eastern Canada, it is thought that it would probably furnish not less than 60,000,000 cords of pulpwood. In the Prairie Provinces, there is perhaps twice the amount, and, in British Columbia, there is over 20,000,000 cords of lodgepole pine, which is closely related to the jack pine of the east. In addition, there are large areas covered with young jack pine and lodgepole pine, which will reach merchantable size in a comparatively short time. Much of this wood, no doubt, will be used for ties and lumber, but there will still remain a very considerable amount for pulp. The utilization of the jack pine as pulpwood will facilitate the exploitation of the spruce and other species in places where there is not sufficient of the

latter alone to warrant logging operations, and it should greatly reduce the waste at present incident to the production of hewn ties.

Jack pine possesses many qualities which recommend it as a continuous forest crop. It is extremely hardy and will grow on the poorest soils, if not too wet, and it is usually sound. It reproduces more prolifically than any other conifer in eastern Canada, as is evidenced by the way it has replaced the original stands of white pine or spruce in many places, following cutting or fire. It grows rapidly and under natural conditions will attain pulpwood size in a shorter time than spruce or balsam.

Many other kinds of wood, including poplar, birch and hemlock, can be used in the pulp and paper industry, and it is hoped that further research will result in their more general utilization for this purpose.—R. D. Craig.

Money to be Made Collecting Waste

Many Organizations are Financing Themselves through Sale of Waste Paper, etc.

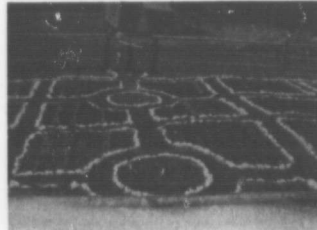
The movement for the saving of waste paper is growing, and many organizations report activity in raising funds by these means. Vancouver schools are buying equipment for field sports; First Avenue School, Ottawa, required a gramophone and paid for it by collecting and selling waste paper; a Conservation of Waste Committee of Sarnia, Ont., by means of the collection and sale of wastes, raised funds during the war and is now engaged in establishing a collection of paintings by Canadian artists; Daughters of the Empire, Young Women's Christian Associations, Boy Scouts, etc., are all interested

in the collection of waste. The cumulative results of this campaign will, no doubt, lead to a larger appreciation of the value of material which we have been wasting.

The educational effect of these campaigns is one of their valuable features; for instance, the scholars in the Ottawa school will not forget that, from four or five days' of collecting waste paper, they raised \$169 for their gramophone, and will appreciate the value of waste paper; similarly, the membership of the various organizations recognize that from such sources much revenue may be secured, with little effort. The widespread dissemination of this knowledge should lead to a reversal of the charge that Canadians are a wasteful people in so far as paper is concerned.



Gillis Bay, B.C., school and grounds, in 1918, when the present teacher took charge. Anything but an inviting condition.



Gillis Bay School Garden, 40 x 60 feet. Cleared, fenced and planted by the teacher and his pupils. A demonstration of what initiative and energy can accomplish in beautifying school grounds.

Photos courtesy British Columbia Dept. of Education.

School Gardening and Conservation

The history of Canada is largely one of creating gardens in the wilderness. Unlike England, where the effort is to maintain and improve the heritage of the past, in Canada we are laying the foundations on which future generations must build. The pioneer is still a big factor in our national life and, even in old settled districts, much spadework remains to be done before our rural landscape will wear the finished appearance of the English countryside.

Improvement in the surroundings of rural schools is one direction in which there is a big field for endeavour. "Where there's a will there's a way" and what can be accomplished even in the face of very discouraging natural difficulties, may be seen from a comparison of the two illustrations published herewith. The contrast speaks for itself and one can easily imagine how beautiful the grounds of this particular school will be in a few years if the excellent beginning thus made is turned to good account.

Educationists emphasize the fact that the chief object of school gardening is to broaden the children's minds, the growing of a few flowers and vegetables being only of secondary importance. The

layman is likely to be most impressed with visible results. From either point of view, the establishment of school gardens is a work of conservation, for it leads directly to higher development of the nation's greatest natural resource, the soil, and of its greatest human resource, the rising generation of girls and boys.

Crops Depend Upon Sufficient Moisture

Controlling Factor in Crop Production in Dry Areas of Western Canada

At the conference on Soil Fertility and Soil Fibre held at Winnipeg, under the auspices of the Commission of Conservation, the fact was emphasized that moisture is undoubtedly the limiting factor in crop production in western Canada.

Prof. John Bracken, President of Manitoba Agricultural College, in speaking at the conference, said: "So long as moisture limits the yield of the crop nothing else will increase it. A chain is as strong as its weakest link. There are links in the problem of crop production. One of those links is moisture; another, organic matter; another, plant food. The

weakest link is moisture, and it will not strengthen that chain any if we strengthen some other link. We have to strengthen the weak ones first, and as we strengthen the weak ones, we strengthen the whole.

"The wealth of a dry country is determined not by the amount of land, not even by the amount of water that falls on the land, nor by the amount of water that falls on the land and is stored there and used by growing crops. As a matter of fact the water that is used in producing straw, under the present system of farming, is largely wasted. We must build up a system that will utilize that by-product, which at the present time is using over one-half of the moisture that we store and conserve in the soil.

"Another fact is this, that the precipitation varies very largely from year to year and from season to season, and because of that we shall have to diversify our cropping system. It has been pointed out and should be emphasized, that Western Canada is, first and foremost, a cereal-producing country; occasionally the precipitation comes in the early part of the season, with the result that cereal partly or wholly fail. By diversifying our cropping system we can reduce this risk."

Commission of Conservation CANADA

Hon. W. C. EDWARDS
Acting Chairman
JAMES WHITE
Deputy Head

CONSERVATION is published monthly. Its object is the dissemination of information relative to the natural resources of Canada, their development and proper conservation, and the publication of timely articles on housing and town planning. The newspaper edition is printed on one side of the paper only, for convenience in clipping for reproduction.

OTTAWA, DECEMBER, 1920

Study of Power

Conditions

The many advantages to be derived from a power survey repay many-fold the labour and money expended in conducting the survey in a thorough and systematic manner. The necessity for such an investigation is most pronounced in a rapidly expanding country, such as Canada, at a time when development and power requirements are growing by leaps and bounds. It is the only solution to overcome existing local power deficiencies and to afford proper guidance in providing for future requirements.

For these purposes it is not sufficient to have bulk figures and general statements. The study should go into details and, where it is opportune to do so, should cover individual cases and indicate where deficiency exists. Perhaps most important of all, it should point out how the difficulty should be remedied or avoided in the future.

As an example of progress in this direction outside of Canada, such a survey has recently been recommended for the state of North Carolina. It is to comprise a complete compilation of data relating to the present status of power demand in the state, a comprehensive survey of the water-power resources, the development of a general scheme for district power service, and the passage of a water-power conservation law.

The power supply of Canada is now derived partly through central electric stations which serve various industries and partly through steam and water-power plants installed to operate individual factories. Proper co-ordination of these would result in a more efficient and easily available power supply, and is of national importance.—L. G. Denis.

Planting Windbreaks as Crop Protectors

Results Emphasize the Importance of Trees to the Farmers of Prairie Provinces

Mr. Norman Ross, Chief of the Tree Planting Division, Dominion Forestry Branch, at Indian Head, Sask., in speaking of the effectiveness of trees as windbreaks on field crops, at the conference on Soil Fertility and Soil Fertility at Winni-

peg, under the auspices of the Commission of Conservation, gave illustrations of the results actually obtained. Of special importance was that secured at the new nursery near Saskatoon, which Mr. Ross described, where the main outside shelter belts had not yet reached more than six to eight feet in height. The nursery is divided into one-acre plots, each about 25 yards wide, with caragana hedges about 21 feet high dividing the plots. Of these plots 35 were sown to oats, after summer-fallow. Almost adjoining and on exactly the same class of soil and similarly cultivated, a ten-acre field was sown, also fifteen acres on stubble either spring or fall ploughed. The ten-acre summer-fallow field was completely blown out, while the stubble field yielded but 10 bushels per acre. The protected summer-fallow plots yielded 40 bushels of oats per acre—the largest crop in the district. In other words, hedges, 21 feet high and 75 feet apart, made all the difference between a crop of 40 bushels per acre and a complete failure, all other conditions being equal.

This question is of maximum importance to the Prairie Provinces, and some co-operative system of planting should be developed, whereby large areas could be set out, otherwise much damage may be done to protected lands by blowing soil from adjoining properties.

Feeding Grounds for the Migratory Birds

To Increase Numbers of Birds the Inland Lakes and Swamp Areas must be Perpetuated

Friends of our migratory birds appreciate that in the adoption of the Migratory Bird Treaty the first important step for the perpetuation of the birds has been made, but that another vital safeguard remains to be provided.

For purposes of shelter and refuge during migration and for feeding and rearing their young, it is essential that small inland lakes and swamp and marsh areas be perpetuated. With protection the birds are rapidly increasing, and provision must be made that as far as possible, natural conditions shall be available for them in their passage north and south.

Canada is appreciating this condition, and is setting aside areas throughout the country as bird reservations. These are under the jurisdiction of the Dominion Parks Branch, which has the administration of the Migratory Bird Treaty and the Northwest Game Act. Many private reservations are also being established, and it is hoped that with the increase of bird life many of the enemies of agriculture and forestry will be overtaken. The farmers of Canada can well afford to encourage the birds, as they very much more than pay their way.

Forest Research is Needed in Canada

Intensive Study of Forest Conditions Essential to Perpetuation of Wood-using Industries

At the Imperial Forestry Conference, held during the past summer at London, England, stress was laid upon the urgent necessity for a comprehensive scheme of forest research, to serve as a basis for the intelligent handling of the forest with a view to its perpetuation by wise use. It is recognized by those familiar with conditions, that lack of intelligent direction in the method of forest exploitation results usually in the deterioration of the quality and quantity of the succeeding forest, if, indeed, the forest is not entirely destroyed and the land rendered wholly unproductive.

The effects of repeated fires in bringing about forest devastation are now quite generally recognized, and object lessons may be seen in all parts of the country. The serious effect upon the composition of the forest brought about by the lack of intelligent regulation of the methods of carrying on cutting operations, are, however, less recognized. For example, white pine, formerly the premier timber tree of Canada, has largely disappeared from great areas where it was formerly plentiful and where it formed the foundation for the early prosperity of the timber industry of Eastern Canada. The methods of cutting were such as to favour the increasing preponderance of the less valuable species.

Similarly, to-day, spruce, the premier pulpwood species, is being steadily driven out of our eastern forests as a result of heavy cutting for pulpwood and lumber, with but little conscious attempt to modify the methods of logging so as to ensure the continuously satisfactory regeneration of this valuable species on cut-over lands. In many cases, all the merchantable spruce is taken, but only a percentage of the less valuable and shorter-lived balsam, and generally none of the hardwood species, of which birch is the most conspicuous example. The inevitable effect of such treatment is to increase the proportion of hardwoods and balsam in the succeeding forest, providing the area is fortunate enough to escape the ravages of successive fires.

Authentic information as to the effects of fires and of different methods of cutting upon the composition and growth of the forest is absolutely essential as a foundation for any intelligent system of forestry practice. One of the resolutions adopted at the Imperial Forestry Conference, referring particularly to the situation in Canada, set forth that, important as are researches in the technology of wood, it is of even greater urgency to carry on investigations, on an adequate scale, into such fundamental questions as seeding and

regeneration, and rate of growth of forest crops.

In Canada, only a comparatively small beginning has been made in this direction, due largely to lack of sufficient funds, the scarcity of trained investigators, and an inadequate appreciation of the need for such information, coupled with pressure for the assignment of qualified technical men to administration as distinguished from research.

Among the governmental organizations which have made at least a beginning in forest research are the Dominion Forestry Branch, Quebec Forest Service, New Brunswick Forest Service, Ontario Forestry Branch, British Columbia Forest Branch, and the Commission of Conservation. In addition, a number of the pulp and paper companies have done some work along similar lines, either independently or in co-operation with the Commission of Conservation.

The investigations under way by the Commission of Conservation involve a study of the present methods of cutting upon the character of the forest, the amount and kind of natural reproduction, the rate of growth which is taking place, and the effect of forest fires upon the future of the forest. The development of the Canadian pulp and paper industry during the past few years is of such importance in the economic and industrial life of the country that too much emphasis cannot be placed upon the necessity for ensuring a perpetual supply of the raw materials so vitally essential to the continued existence of this great industry. To this end, a vast amount of research will be necessary, challenging the best efforts of all the various agencies, both public and private.—Clyde Lawitt.

To Study Forestry Practice in Europe

Quebec Government Sends Members of Forest Service Overseas to Investigate Conditions

The appreciation of the Quebec Government of the necessity for the practice of forestry on its non-agricultural lands, and of the need for thoroughly trained foresters to make its programme effective, has recently been further evidenced. Four of the employees of the Provincial Forest Service, —graduates of the Forest School at Laval University—have recently been sent to Europe by the Provincial Government, to spend a period of six months in making advanced studies of forestry practice and forest utilization in France, Belgium, Switzerland and Germany. One of the men will extend his studies to cover a period in Sweden. Among the lines of investigation to which particular attention will be paid by these men will be methods of lumbering, sawmilling, silvicultural practice, reforestation, aerial photography,

(Continued on p. 44.)

Fur Farming

Rearing of Beaver

IN CONFINEMENT

The beaver is an easily domesticated animal and it has been demonstrated that it will breed in captivity. Beavers will thrive on turnips, carrots, potatoes, etc., with some twigs or bark of cottonwood, willow, birch or maple thrown in by way of dessert.

Litters average about four, and the young are born in May. Breeding females should be kept in separate pens and provided with a warm nest. Beavers begin to breed when two years old.

The pens should be constructed very much as for foxes, but the fences need not be so high. Wooden fences would, of course, be useless; nothing weaker than galvanized iron sheets or heavy wire netting will stop a beaver's teeth. Precautions must be taken to prevent the animals burrowing out. All pens should contain large pools or troughs of water.

ON PRESERVES

Probably a more satisfactory way of keeping beaver would be to fence in an area which would form a natural habitat. The owner of such a preserve could prevent trapping by trespassers on his property and, with this protection, the beavers would increase and thrive without much attention. A limited number could then be trapped by the owner himself, care being taken to comply with the provincial laws.

There are several beaver ranches of this kind in Canada, but most of them have not been long enough in existence to report on the success or failure of the venture.

To Study Forestry Practice in Europe

(Continued from p. 43.)

forest research, wood technology and wood utilization, including the development of markets for hardwood species through small wood-using industries.

While forestry conditions in Europe are widely different from those in Canada, the general principles of the science of forestry are the same the world over, though it is of course necessary to adapt the practice to local conditions in every case. In Europe, the practice of intensive methods of forestry—the systematic growing of wood crops—has been a matter of development through centuries, and foresters from other countries can learn much of direct value to them in a study of methods and conditions there.

A period of study in the forests of Continental Europe is, for example, a regular part of the curriculum of English and Scottish forest schools which prepare men for the practise of forestry in the United Kingdom, India, and other

parts of the British Empire. The desirability of such study was particularly emphasized at the Imperial Forestry Conference, held last summer in London.

Quebec is setting the pace in this direction, with the prospect that a number of scholarships may be established, under which several Quebec foresters will be sent annually to Europe for intensive study of particular problems. The value of such a programme in developing and broadening out men for wider and more useful fields of activity at home is self-evident. The four men sent this year to Europe by the Quebec Government will, upon their return, take positions of responsibility in the Forest School at Laval and in the Quebec Forest Service, thus at the same time strengthening the courses of forestry instruction and increasing the effectiveness of the Provincial Forest Service in solving its problem of how best to retain the great areas of non-agricultural Crown timber lands of the Province in a condition to produce successive crops of the more valuable timber species. To accomplish this within the limitations of practice set by the surrounding economic conditions will tax the best efforts of a large staff of the most thoroughly trained and experienced foresters, for a period of many years.

The example set by Quebec in this direction may well serve as an object lesson to other Government agencies, Dominion and provincial, which are engaged in the administration of Crown timber lands.—*Clyde Leavitt.*

Damage to White Birch

During the late summer, it became increasingly noticeable that leaves on the birch trees generally were becoming brown, drying up, and falling off.

Mr. C. B. Hutchings, of the Entomological Branch, has been devoting considerable attention to this question and has found that the damage was being caused by a very small caterpillar, *Bucculatrix canadensisella*, which feeds on both the top and the bottom of the leaf, but preferably the top. While some damage was also caused by plant lice, it was small compared to that from the attacks of this caterpillar. Both the yellow and white birch are affected, with the latter perhaps showing it more plainly. While the damage became wide-spread last summer, it need not be assumed that it will result in destroying the birch trees.

It is well known to entomologists that an insect pest assuming serious proportions often precedes the appearance of a parasite which may completely check the activity of an insect or at least confine its attacks within limits that prevent it being a serious commercial danger. The Entomological Branch is of the opinion that this is quite possible in the present instance.

Conservation of Timber

Recently there appeared in several Canadian papers an illustration, taken somewhere in the Rainy river district, of a skidway of logs left in the bush to rot, after logging operations had been completed. While instances of this kind occur in different parts of Ontario, it is not believed that any large amount of timber is left in the woods in such skidways. Such occurrences are the result of forgetfulness; woods operators are not usually guilty of such gross carelessness when it represents a plain reduction of profits.

The same cannot be said of single logs scattered throughout the woods. During the first logging of white pine in Ontario for square timber, and later, when only choice logs were taken out, great numbers of the inferior logs were left in the woods. Operators stated that they could not be brought to the mills at a profit. Due to increased values of lumber, a large percentage of these logs would be of considerable value at present. Not only would such logs be valuable if made in the woods to-day, but the fact is that many of these logs, after lying in the woods for years, are still in such good condition that they are now being taken out at a profit. They are generally rotten on the outside, but, as many of them were of great size, a large portion of very choice wood material is still sound. Some idea of the quantities of this material left in the woods may be formed from the fact that one lumber company bought a large timber license within the past few years for no other reason than to secure the "down" pine on it.

Farmers Require Fire Protection

Their Isolation Renders Fire Extinguishers Necessary to Save Life and Property

Farm homes should be provided with fire protection, in the form of extinguishers or water pails. When a fire breaks out the farmer cannot call in the services of an

organized fire department, and the water supply is usually scanty; neighbourly assistance can, therefore, only be concentrated on endeavouring to save the contents of buildings.

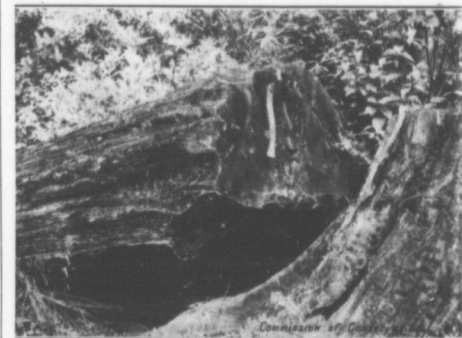
Fire extinguishers of many designs and qualities are available. The soda-acid type, however, is recommended. This must be kept from freezing, but it is the most satisfactory and serviceable. Dry powder extinguishers are not reliable. The National Fire Protection Association circular on this subject says:—

"In view of the fact that several so-called fire extinguishers, consisting generally of sheet metal tubes filled with mixtures of bicarbonate of soda and other materials in powdered form, have been widely advertised as suitable for use for fire extinguishing purposes, this committee has to report that in its opinion all forms of dry powder fire extinguishers are inferior for general use, that attempts to extinguish fires with them may cause delay in the use of water and other approved extinguishing agents, and therefore their introduction should not be encouraged."

A few pails, kept for fire purposes only, and always filled with water, should be on hand. It is generally admitted that more fires are extinguished by pails of water than by all other means combined. To overcome freezing of the water where the pails are kept in stables or outbuildings, calcium chloride, in the proportion of five pounds to the gallon of water will depress the freezing point to 40 degrees Fahrenheit below zero.

When fire protection is required it is needed badly. A little precaution against fire may save the farmer and his family being turned out of his home some intensely cold night this winter.

Ten woollen yarn plants in Canada, in 1918, employed 858 workers, and produced goods to the value of \$6,499,445. Salaries and wages amounted to \$521,968 and the investment to \$3,767,390.



WHITE PINE LOG 23 YEARS AGO AND LEFT AS DEFECTIVE ACCORDING TO STANDARDS AT THAT TIME
In some cases, lumbermen are now hauling such logs to their mills.