# Conservation

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## Accidents in Ontario

### Care and Safety Appliances Would Save Many Lives and Costly Disability

The first annual report of the Ontario Workmen's Compensation Board contains interesting data concerning the cost of accidents in that province. Under the Act governing the Board's operations it is compulsory for employers to report all accidents by which employees are prevented from earning full wages. This has had the effect of securing very full reports.

For the year 1915, 17,033 notices of accidents were received by the Board. Of these 9,829 came under the Board's jurisdiction, and 7,600 were finally disposed of. The time lost due to these 7,600 accidents amounted to 170,711 days, or equal to the combined labour of a staff of 569 men for a year.

Only temporary disability resulted from 8,544 accidents, but in 1,033 cases permanent disability followed, and 251 of the accidents resulted fatally.

The value of safety appliances is very strongly emphasized by comparisons between the cost of the necessary safeguards and the monetary cost of the accidents resulting from their absence. For instance, automatic locks on two elevators, at a cost of $3.50, would have saved two lives and $6,179 in compensation. Countersinking 21 set-screws on pulleys and fly-wheels, at a cost of $7.35, would have saved three lives and $5,619 compensation. The removal of protruding nails, pieces of broken glass and metals, would have saved 126 injuries, while the wearing of goggles, costing $150, might have saved 38 workmen from permanent injuries to the eyes and $42,846 in compensation.

The foregoing presents in a striking manner the need of care to prevent accidents. Many of our larger industries are organizing safety associations to further impress upon the employers and workmen the advantage of safety appliances and the use of every precaution in their work; much good has already resulted.

Such a record of accidents, causing a constant and ceaseless drain upon the productive resources of Canada, is unnecessary. Enlistment is making heavy demands upon the labour of Canada, and there is already a severe shortage in some branches of industry. Yet, in one province alone, in 1915, accidents injured 17,033, permanently disabled 1,033, and killed 251 of our producers.

## Wasteful Coke Production

### Many Industries Might be Established to Utilize By-products

The coke produced in Western Canada is made almost entirely in beehive ovens. The volatile combustible contents are consumed and all of the valuable constituents of the coal except fixed carbon, which remains as coke, are wasted. These wasted constituents consist of gas, tar and ammonia. In by-product ovens the tar, ammonia and all of the gas, except that used for heating the ovens, are recovered. In the carbonization of coal by the two different classes of ovens mentioned, high temperatures are used. Low temperature carbonization is still only in the early stages of its technical development, but, helped by the war demands for high yields of light oils, it is now being energetically pushed forward in Great Britain and has an assured future as an adjunct of the older systems of high temperature carbonization, especially in view of the growing demand for light oil as motor fuel.

Coal gas residuals form the bases of many industries. Owing to the great development of by-product coke ovens and gas plants in Germany and the application of modern chemistry to the utilization of their by-products, these industries have been controlled largely by that country. In the readjustment of industrial and trade conditions after the war, it is desirable that as many of these industries as possible be established in Canada and in other parts of the British Empire.

There are two large by-product coke ovens in Canada which produce 67 per cent of our coke output. These plants are situated at Sault Ste. Marie, Ont., and at Sydney, N.S. Since the outbreak of war, the latter plant has been installing a benzol recovery plant. While large quantities of tar are recovered from local gas plants, no industries have been established for the refining, separation and use of the products obtainable from it.

Not only is the saving of the by-products from the coking or carbonization of coal a measure of conservation, but the sale of these residuals reduces the cost of production in a degree corresponding to the efficiency of the recovery methods adopted and the market value of the products.—W.J.D.

## Game as a National Asset

### No Longer a Legitimate Source of Food--Game Preserves Necessary to Protect What Remains

Judging from the rate at which the wild creatures of North America are now being destroyed, fifty years hence there will be no large game left in the United States nor in Canada, outside of rigidly protected game preserves. It is therefore the duty of every good citizen to promote the protection of forests and wild life and the creation of game preserves, while a supply of game remains. Every man who finds pleasure in hunting or fishing should be willing to spend both time and money in active work for the protection of forests, fish and game.

In the settled and civilized regions of North America, there is no real necessity for the consumption of wild game as human food; nor is there any good excuse for the sale of game for food purposes. The operations of market hunters should be prohibited everywhere, under severe penalties.

The highest purpose which the killing of wild game and game fishes can hereafter be made to serve is in furnishing objects to overworked men for tramping and camping trips in the wilds, and the value of wild game as human food should no longer be regarded as an important factor in its pursuit.—*Code of Ethics, Michigan Wild Life League.*

## Waste of Fertilizer

### Canadian Farmers Do Not Appreciate Value of Manure to Their Land

The survey of 100 farms in each of four counties in Ontario in 1915 revealed a condition of extreme carelessness with a valuable product of the farm. Manure is one of the chief fertilizing elements used on Canadian farms. Few farmers were using chemical fertilizers, the numbers being: Dundas county, 8; Waterloo, 37; Northumberland, 39; Carleton, none.

The percentage making use of farmyard manure was 100; yet, of the 100 per cent, an average of 76.7 per cent admit "exercising no care to prevent waste of manure"; also, of the 400 farmers visited, only two exercise good care to prevent manure waste.

Mgr. Choquette, of the Commission of Conservation, in an address before the last annual meeting, referred to the need of our farmers understanding better the nature of the soil which they till. He instanced the farmers of France, Belgium, Switzerland and Italy, and said: "Several times I have heard Belgian peasants speak of nitrogen, phosphoric acid, potash and lime, as ably as a professor. 'Here,' said one of them to me, 'is a field which needs nitrate; it would grow nothing without that. Over there I shall put, rather, some phosphate with a little potash.' I took an extreme pleasure in their conversation, and I asked myself if our Canadian farmers, even the best educated among them, would be able to show as much knowledge."

This appreciation of the value of fertilizing elements by European farmers stands out in strong contrast with that of Canadian farmers.

When only two out of the 400 farmers visited in the older counties of Ontario exercised good care to prevent waste of manure, and 76.7 per cent admit exercising no care, the situation surely calls for the prompt attention of those interested in promoting better agriculture and the conservation and utilization of farm products.

# Trees as Snow Guards

### Railways Planting Trees to Protect Lines from Drifting Snow and Sand

The railways of Canada are taking an increasing interest in the planting of trees and shrubs to secure better control of drifting snow and drifting sand, both of which interfere seriously with the operation of trains.

East of Montreal near Vaudreuil, in Quebec, light drifting sand has given trouble to the Canadian Pacific Railway since the very thin sod was plowed up. Hot boxes resulted to rolling stock and passengers suffered from dust. The ordinary right-of-way fence was covered by the sand, and cattle could stray out on the track. Snow fences were used to some advantage, but in a bad season these would be almost covered up.

In 1915 a number of grasses, including Brome, were planted but perished from the heat, which is excessive on these exposed sand beds. This spring, 3,500 cuttings of cottonwood (*Populus deltoides*) and 1,000 one-year transplanted jack pines were planted. An examination made after the trees and cuttings were in the ground a month showed that approximately 95 per cent were making good progress.

The cottonwood was placed in rows two and one-half feet apart, the distance between the rows being four feet. The jack pine was planted in rows six feet apart, distance between the rows five feet. The distance from the last row to the centre of the track is about 150 feet. All the planting parallels the track.

It is hoped that the vigorous growth of the cottonwood will protect the jack pine until such time as the latter can take care of itself. If the results prove satisfactory, other situations along the company's line will be planted in the near future. The unusual amount of rain which has occurred this spring and early summer has contributed very materially to the prospects of success.

For a permanent snow fence which would grow rapidly and have sufficient foliage, 6,000 Norway spruce and 15,000 caragana were planted. The former were five-year transplants, of from 20 to 24 inches height, of heavy sturdy crown and well-developed root system. The caragana were from 30 to 48 inches in height and about three years of age. The caragana, as well as 1,500 lilacs used in mixture for snow breaks, are from the nursery of the company at Wolseley, Sask.

The following methods of planting were carried out: Where the distance from the track to the right-of-way fence is over 50 feet, a "standard" break was put in, viz., one row of spruce was planted 8 feet apart, and in front of this, caragana were placed two and one half feet apart. The distance between the rows is 6 feet. If there was only 50 feet between the track and the fence, one row of Norway spruce was planted 6 feet apart, or two rows of caragana four to six feet apart. On several situations one row of caragana was planted.

The open-grown Norway spruce is the best tree that can be used for snow breaks in eastern Canada. It is of rapid growth, is comparatively free from enemies, and branches close to the ground. It will require protection from fire. It is expected that the Norway spruce will be effective as a snow break alone in five years.

*Caragana arborescens*, the Siberian pea tree, when well trimmed, at its present height ought to provide a good mesh for snow break the second year after planting. Caragana is hardy, free from insect activities, not attacked by cattle, of quick growth and beautiful foliage. It sprouts well.

At some of the company's stations, spruce, caragana and lilac were used for wind break and for improving the grounds.—B.M.W.

# Varieties of Grain

### Farmers Should Know the Names of Seeds They Sow

Twenty per cent of the 400 farmers visited in the Agricultural Survey in Ontario in 1915 did not know the name of any variety of grain sown on their farms. In Dundas county, where 100 farms were visited, of a total of 86 farmers growing barley only 11 knew the variety grown. Fifty-two per cent of the 400 farmers visited in the province were growing barley and only 18 per cent knew the name of the variety.

Only 64 per cent of all the farmers visited knew the name of the variety of oats they were sowing. Those who do not know the variety used may be sowing grain unsuited for their farms. There is very little excuse for the prevalence of such conditions. Every farmer sowing an unknown grain lives within reach of some farmer who grows a known sort of proved excellence, from whom seed can be obtained. Farmers wishing to obtain seed for next year should arrange for it early and choose a variety which has been tested and proved to be good. The Central Experimental Farm at Ottawa and the various Agricultural Colleges have carried on such tests for the benefit of farmers, the results of which may be obtained free upon application.—F.C.N.

# Making Use of Untillable Land

### Most Farmers Have Land Which Could be Used for Sheep Raising

Fifty-seven per cent of the 400 farmers visited in 1915 by the Commission of Conservation in the four counties of Carleton, Dundas, Northumberland and Waterloo possess untillable land other than that in woods. The average amount per farm of untillable land, of those having such, ran as high, in one county, as 53 acres; the lowest average in any one county was 15 acres.

Only 14 per cent of all the farmers visited kept sheep. In one county only four farmers among the 100 visited were keeping sheep, averaging only four to each of the four farms. In this particular county, on 72 of the 100 farms visited, there were over 1,000 acres of untillable land and only 16 sheep, when there might well have been 16 sheep on each farm. No class of live stock is so well able as sheep to turn to good account untillable and otherwise waste land. It has been well demonstrated by experiments that the keeping of a small farm flock headed by a pure bred ram is a profitable undertaking. They need very little care and yield two crops a year—lambs and wool. Expensive buildings are not necessary, as sheep require only to be kept dry and protected from stormy weather, with a little extra care at lambing time.

Fewer bad weeds would be found on Canadian farms if more sheep were kept, as sheep will eat almost all classes of weeds.

Every Canadian farmer is not urged to go into sheep husbandry, but much idle land could and should be utilized as sheep pasture. It will pay. Those interested should write to the Ontario Department of Agriculture, Toronto, for bulletin No. 214, or to the Sheep Branch of the Dominion Department of Agriculture, Ottawa, for the splendid bulletins published on various phases of the sheep industry.—F.C.N.

### HOW TO PREVENT FIRE

Keep waste paper, packing material and rubbish cleaned up.

Make frequent *personal* inspections from a fire standpoint.

See that your electric wiring is standard, and be careful in the use of electric devices.

Have all smoke-pipes and chimneys inspected and properly repaired before starting fires for the winter.

Be careful about the use of matches. Provide safe receptacles for them both before and after use.

Feel your *personal responsibility* as to possible loss of life and property by fire and act accordingly.

### QUEBEC FOREST NURSERY

The provincial forest nursery at Berthierville, Quebec, has this year shipped out 400,000 forest tree seedlings, in addition to those utilized by the forest service on Crown lands. Of these, 250,000 were sold to the Laurentide Company, for planting on their property near Grand'mere, P.Q. This shipment supplements the large supply available from the company's own nursery at Grand'mere, the capacity of which has been increased materially. Another progressive concern which is undertaking forest planting is the Riordon Pulp and Paper Company, which, like the Laurentide Company, employs a forester, and which has purchased 20,000 tree seedlings for planting on their property in the vicinity of St. Jovite, P.Q. The third large shipment from the Berthierville nursery was to the Perthius seignory, which purchased 50,000 young trees. This is the sixth year during which plant material has been secured from the Berthierville nursery for planting on this seignory. The balance of the 400,000 total was disposed of to colleges and private individuals. Gradually, the necessity for planting is becoming recognized, to secure the re-establishment of the forest where sufficient seed trees are no longer available for natural reproduction.—C.L.

# Save the Trees

### More Attention Being Paid to Their Protection by Railways and Others

That the shade tree increases the value of property, and adds much to the beauty of surroundings is being more and more appreciated. Municipal corporations are encouraging the planting of trees in greater numbers, as well as protecting those they already have. Many estimates have been made as to the actual cash value of a growing shade tree, but all conceede that its aesthetic greatly exceeds its monetary value. In the transfer of real estate, a favourably situated shade tree will enhance the value of the property out of all proportion to the intrinsic value of the tree. From a financial standpoint, therefore, the shade trees should be protected.

Several railways are giving careful attention to the trees. Not only are they protecting, by special patrols and otherwise, the forests along their lines, but, at no inconsiderable expense, they are protecting them on their rights-of-way. One railway line was diverted from its originally planned route to save two handsome maple trees. Considerable attention and much favourable comment has been bestowed upon this considerate action of the railway corporation.

# Commission of Conservation

CANADA

SIR CLIFFORD SIFTON, K.C.M.G.
Chairman

JAMES WHITE
Assistant to Chairman and Deputy Head

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, AUGUST, 1916

## POTASH IN WOOD ASHES AND FELDSPAR

Hardwood ashes contain from 18 to 46 per cent of potash, while ashes from conifers contain from 14 to 20 per cent. The yield of ashes from wood is about 1.6 per cent in weight and one cord of wood weighs approximately 2,100 lbs. Assuming that four-fifths of the potash in the ashes is leachable, the amount of potash recoverable from one ton of wood containing 15 per cent of potash is four pounds.

The present price of potash in trade centres in the United States is nominal. The rate per ton is quoted at from $400 to $500, but none is available. The price for the most common form, the muriate, or chloride, containing 80 per cent of the pure salt (equivalent to 52.7 per cent of $K_2O$) was $38 per long ton in July, 1914.

Canada possesses many deposits of feldspar with potash contents ranging as high as 15 per cent, thus constituting a considerable resource of potash if an economical process of extracting it can be developed.

Several chemists are actively engaged upon this problem in the United States. Chemically it has been solved, but capital is still hesitant about investing heavily in any of the dozen promising methods which have been worked out on a scale little beyond simple laboratory experimentation.—W.J.D.

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The process of re-breathing air that has already been used, if long continued, leads to asphyxiation and death. Much of the so-called "delicacy," susceptibility to cold, languor, headache and nervous depression are due to the same cause. *Sir Morrell Mackenzie.*

# Fires Caused by Sportsmen

### Carelessness Responsible for Heavy Losses this Year

In addition to the more common causes of fire, carelessness on the part of fishermen has been responsible for serious losses, several destructive fires in Canada having originated in this manner during the current year. In April, a large matting plant in Manitoba was destroyed with a loss of $300,000, due to embers blown from fishermen's fires. Serious forest fires were raging in New Brunswick during the latter part of May, and it is definitely known that at least two of the fires originated as a result of neglect on the part of fishermen.

Care with fire should be one of the first considerations of any hunting or fishing party. Protection from wind is a simple matter when it is necessary to have a fire, and, when it has served its purpose, it should be thoroughly extinguished. In the woods the ground should be scraped clear of all leaves and other combustible matter for a space large enough to prevent the fire spreading. When leaving a fire, it should be thoroughly drenched with water to assure its being extinguished. Trampling a fire out is never positive, as a high wind fans into life again embers which may have been simply trampled into the ground.

When the results of carelessness are brought to their attention, it is surely incumbent upon our sportsmen to give proper attention and care to their camp fires, and relieve Canada of this unnecessary fire loss.

# Grain for Seed Purposes

### Too Many Varieties Grown on Canadian Farms

When selecting a variety of wheat or oats to sow on their farms, many farmers seem determined to obtain something different from that which their neighbours are sowing. This idea is entirely wrong when it comes to choosing a variety of grain for seed purposes. While visiting 160 farms in Waterloo county in 1915, the Commission of Conservation found that 28 varieties of oats were being sown, and 16 varieties of wheat. In Northumberland county 18 varieties, and in Carleton county 19 varieties of oats were found. Previous surveys disclosed similar conditions in other provinces. Many farmers are suffering a distinct loss by not sowing proper varieties. The most suitable variety for any of the farms visited in 1915 by the Commission may be found among the first two or three at the top of the list of those tested at the Central Experimental Farm, Ottawa, or at the O.A.C., Guelph.

Sow a variety which has been tested and tried, and which has given good results for years, and if your neighbour is sowing the same variety it will be so much the better—for him.

Do not try every new variety that is brought to your attention by beautiful illustrations in seed catalogues or by the persuasion of agents. The testing is being done for you at the institutions for that purpose and the information you want in this connection can be had free by writing to your nearest Dominion Experimental Farm or to the Central Experimental Farm, Ottawa, or to your nearest agricultural college.—F.C.N.

# Boy Scouts and Forestry

### Changes Made to Suit Canadian Conditions

To meet Canadian conditions, the Dominion Council of the Boy Scouts' Association has authorized a Forestry badge, in lieu of the Woodman badge. The conditions under which this badge may be secured by the boys are very comprehensive and will do much to interest Canadian boys in the Canadian forests and the wild life found therein. The conditions for passing the test are:

The scout must—

1. Identify the principal native tree species in own locality, and explain their principal distinguishing characteristics.
2. Identify five kinds of shrubs.
3. Describe the principal uses of ten species of Canadian woods. Visit a wood-using factory, if practicable.
4. Explain the aim of forestry, and compare with agriculture and unregulated lumbering.
5. Tell what are the effects of fires on soil, young forest growth and mature timber; principal causes of forest fires and how best to overcome them; three general classes of forest fires, and how to fight each.
6. Describe how the forest lands are protected and administered in own province.
7. Describe the general features of a lumbering or pulpwood operation; how the cutting is done in the woods; method of transportation to the mill, and of manufacture there. Visit some portion of woods operation, or saw-mill, or pulp or paper mill, if practicable.
8. (Optional). Discuss one or more of the enemies of trees, such as insects (leaf-eaters, bark-borers, wood-borers), or decay (fungus diseases), and tell something of how damage from these sources may be lessened or overcome.

# Briquetting Coke Breeze

### Valuable Supplement to Ordinary Furnace Fuel thus Obtained

In the *Journal für Gasbeleuchtung*, Behr describes experiments made during the past six years in the briquetting of coke breeze. The best results were obtained by compressing the breeze, after the addition of finely divided hard pitch, and heating the mass to 300 degs. —400 degs. Cent. Experiments with other binding media, such as both thin and thick tar, with an addition of sawdust and coal dust —all failed in respect of ease of ignition. With regard to the uses of the briquettes, a small size, 2½ by 2½ inches, may be used in all cases where the layer of fuel is not less than 8 to 10 inches. Good chimney draught is obviously desirable, *i.e.*, such as is required for ordinary 2-inch coke. The best results, however, are obtained in closed iron stoves, central heating plants, etc., in which from 50 to 100 per cent of the fuel ordinarily used can be replaced by coke briquettes. When the coke briquettes first were introduced they did not give great satisfaction, but these were a large size, 4 inches in diameter, and not so hard as the later briquettes. After the small 2½-inch briquettes had been introduced, many householders regarded them with favour, and now at times the output does not meet the demand. The result of the introduction of the briquetting plant at Kolberg has been not only to dispose entirely of coke breeze produced on the works, but it has been brought from other plants to manufacture into briquettes.—W.J.D.

## REVENUE FROM CROWN TIMBER LANDS

Since Confederation, in 1867, Quebec has derived a total direct revenue to the provincial treasury of more than $40,000,000 from the sale of cutting privileges on Crown timber lands. The revenue from this one source now averages well over $1,500,000 annually. The area of Crown land under license to cut timber is approximately 44,500,000 acres, while 78,000,000 acres remain unlicensed. About 6,000,000 acres of timber land in the province are in private ownership.—C.L.

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Don't hang electric light cords on nails. The insulation soon wears off and exposes the live wire. A short circuit therefrom might start a fire.

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The secret of good ventilation is to renew the air in a room at least three times each hour, day and night, without creating a draught.

# Niagara Water Power Shortage

### Canada's Hydro-Electric Resources Sure to be of Immense Value in Future

The immense possibilities of Canada's water powers is again strikingly illustrated by the power shortage at Niagara Falls on both sides of the river. The man in the street has frequently been told that the power which it is possible to develop from waters of the Niagara river is practically inexhaustible, and now he is faced with statements in the Press that "all available power has been used."

The apparent contradiction is explained when it is understood that some 8,000,000 horsepower may, *theoretically*, be obtained by utilizing all the water and all the fall between lakes Erie and Ontario, but owing to the need for carrying the ice through the river, as well as other demands, it is absolutely impossible to use even the larger proportion of this 8,000,000 horsepower.

Under the Boundary Waters Treaty, Canada is allotted 36,000 cubic feet per second and the United States 20,000 cubic feet per second. The present shortage implies that the Treaty water, which has so far been allotted to the various power companies at Niagara Falls has been utilized and the power therefrom marketed.

Various factors, hitherto, have resulted in limiting the use of Niagara waters for power purposes, the chief being the widespread sentiment, both in the United States and Canada, for the preservation of the scenic beauties of the Falls and River, which, as is known, have been regarded as a national heritage of the whole people.

About one-third of the fall in the Niagara river occurs in the lower rapids. Keen competition is now being evidenced in the attempt to secure development privileges in this lower river.

Niagara power on the United States side is largely consumed by the electro-chemical industries, some of which, of their kind, are the largest in the world. The electro-chemical industries before long will no doubt be seeking other situations. Some such industries are already utilizing large amounts of Canadian electrical energy.

There are many large river systems in Canada which permit of the development of power at low cost, and at prices which doubtless will compare favourably with the cost of Niagara power. Special problems resulting from seasonal variations in river conditions, as well as difficulties in the distribution of manufactured products, will, no doubt, be solved satisfactorily by the electro-chemical industries once the time has arrived seriously to deal with this problem of additional supply of power. Then the value of Canada's national water power wealth will be more clearly manifested.—L.G.D.

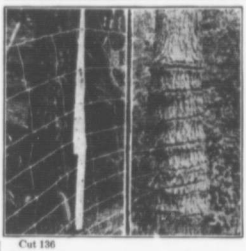
# Fire Prevention Displays at Autumn Exhibitions

One of the first essentials to a reduction of Canada's enormous fire losses is education of the public in *care with fire*. Many interests are working towards this end, and much more attention is being given to the subject.

The annual autumn exhibitions throughout Canada offer a valuable medium for this educational purpose. The Fire Chiefs' Association of Canada might provide displays of fire protection and fire prevention equipment, and also place before the attendance some facts and figures showing approximately what each citizen in Canada is paying toward the cost of the fire waste. Our rural population could be given information as to the beneficial results of cleaning up their premises, the safe construction and cleaning of chimneys and pipes, the uses of chemical fire extinguishers, the need for care in the use of lamps and lanterns, and the security to be derived from the proper installation of lightning rods on their buildings.

Town and village residents also require to be interested in fire prevention. School teachers and school children could secure valuable object lessons from a proper display and explanation by uniformed firemen.

The display of the Ontario Board of Health illustrating in a graphic manner some features of the fly nuisance produced much favourable comment, and no doubt secured results. A similar display in the interests of fire prevention would also be beneficial and instructive.



Cut 136
Right and wrong ways of attaching fence to a tree

## PROTECTION OF TREES

In many cases, when running wire fencing, it is advisable to attach it to trees, instead of setting down fence posts to carry it. If the fencing is attached directly to a growing tree the wire is soon overgrown and embedded in the wood, injuring, and, in many cases, killing the tree. To fasten the wire fencing to the tree, and at the same time protect it from injury, a strip of board, an inch or an inch and a half in thickness, and three or four inches wide, should first be securely nailed upright to the side of the tree. The fencing should then be fastened by staples to this strip. In this manner very little damage is done to the tree, and the wire fencing may be removed at any time.

## CANADIAN FISHING INDUSTRY NOT PROGRESSING

The excessive rise in prices which has characterized practically all staple commodities during recent years has had the effect largely of impairing the usefulness of statistical records, in so far as such refer to the monetary standard, as a reliable indication of progress or decline in respect to the output of any industry. This is particularly true with regard to the fishing industry.

A glance at the statistics representing the money value of the output of Canadian fisheries shows a gradual but steady increase per annum for the whole of Canada. It will be found, however, on consulting the index number maintained by the Department of Labour, that the substantial increase since 1890 in the value of the annual output of our fisheries is largely a matter of a rise in prices and that the actual increase in the quantity of fish caught is insignificant. Applying this test particularly to the Atlantic provinces it will be found that the increase in the value of the total production is apparently accompanied by a decrease in the volume of the catch.

Aside from the fact that a close consideration of the statistical data reveals lack of progress in one of our leading primary industries, it may be pointed out that statistics extending over a long term of years are of little or no use in revealing economic facts and tendencies unless due allowance is made for such important economic phenomena as the striking rise in prices during the past 15 or 20 years.

# Railway Fire Protection

### Material Results Secured Through Active Work by Railways

Satisfactory progress was made during 1915 in the railway fire protection work, which has been handled during the past four seasons under the regulations of the Board of Railway Commissioners. The co-operation of the various federal and provincial fire-protective organizations has been given freely, and, with very few exceptions, the railways have also co-operated heartily and effectively.

A total of 686 fires in forest sections is reported as having originated within 300 feet of the lines of railways subject to the Railway Commission's jurisdiction. Of these, 43.4 per cent are definitely attributed to railway agencies, 27.8 per cent to known causes other than railways, and 28.8 per cent to unknown causes. Of the total area burned over, amounting to about 37,263 acres, 33.1 per cent is chargeable against the railways, 20.9 per cent to known causes other than railways, and 46 per cent to unknown causes. The total damage done is estimated at $74,256. Of this, the railways are definitely charged with only 11.2 per cent, while 24.2 per cent of the damage is due to known causes other than railways, and 64.6 per cent to unknown causes. Thus the railways, exclusive of Government lines and a few railways having provincial charters, are directly charged with less than half of the total number of fires reported as having originated within 300 feet of the track; these burned over less than one-third of the total area reported, and did only one-tenth of the total estimated damage. This showing is distinctly favourable to the railways, especially when it is considered that this 10 per cent of damage totals less than $8,400. These figures show that the railways have been remarkably efficient in extinguishing their own fires, as well as those due to outside causes.

Of all fires reported, the causes are as follows: locomotives, 33.9 per cent; railway employees, 9.5 per cent; tramps, etc., 11.4 per cent; settlers, 12.5 per cent; other known causes, 3.9 per cent; unknown causes, 28.8 per cent. It will thus be seen that the carelessness of tramps and settlers constitutes a very serious source of fire danger along railways, these two elements combined accounting for nearly one-fourth of the total number of fires reported.—C.L.

The open air is the greatest disease-preventing and disease-curing agency known.