

# Conservation

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## Increasing the Supply of Land

A Few Practical Ways in Which the Quantity of Tillable Material May Be Increased

Is the amount of land in the world a fixed quantity? "How absurd!" one may be tempted to exclaim. "Of course you may dyke here and drain there, and turn a little stretch of water into land, but what does that amount to? For all practical purposes, certainly the amount of land in the world is fixed."

But it is precisely for practical purposes that it is not fixed. Thirty years ago vast areas in Western Canada for all the good they were, might as well have been on another planet, simply because there were no means of bringing to a market the crops, which they were capable of producing. The development of transportation facilities has made these lands accessible and has thus, for practical purposes, increased the supply of land in the world.

Land, *i. e.* available land, can, however, be increased in other ways. We cannot perform miracles and add to its area, but it is important to remember that area is not the only quality we regard in considering the worth of land. Though an acre is a measure of surface, we assuredly do not think merely of its length and breadth, without regard to its thickness, *i. e.* the depth of soil. If, by deep cultivation, we bring untouched layers into use, we have again, for practical purposes, increased the supply of land.

Moreover, we cannot think of the value of land in terms of its quantity merely, without regard to its quality. When we purchase a farm we require not simply a volume of soil with a certain cubic content, but soil possessing certain valuable physical and chemical properties. If we defined accurately what we mean by the "land" we are buying, we should certainly include these properties, and their impairment through poor methods of tillage is a direct loss of the commodity we have paid good money for. On the other hand, we may increase its amount by intensive cultivation, which, again, is another and most important way of augmenting, for practical purposes, the supply of land.

## A Slum Home in Western Canada

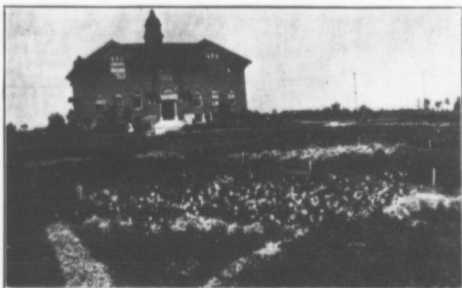


(Cut No. 29)

Here is a photo of a "home" which is almost in the centre of one of the smaller cities of Western Canada. It is occupied by a young German immigrant with his wife and six children. It is situated at the rear of a row of houses and was, at one time, used for a stable. The surroundings of the place are filthy in the extreme. An outdoor closet stands within ten feet of the end of the building, and others can be seen at short intervals all along the fence. Not more than ten feet from the house a stagnant pool of water is used as a duck-pond. The odor is indescribable. There are but two windows in the lower portion of the building so that it is dark and ill ventilated. Old pieces

of carpet, hung as curtains, add to the gloom. The "upstairs" is reached by means of a ladder placed at the end of the building, and is entered through the combined door and window in the gable. This little, sloping, garret-like room is used for sleeping quarters. The place swarms with flies.

Is it any wonder that typhoid is much more prevalent than it should be in that city? Again, is it not rather a paradox that we should insist on our immigrants being healthy when they reach our shores, and then permit them to live themselves in dwellings where healthy, decent living is impossible!—A.D.



(Cut No. 30)

This picture represents a beautiful school garden in the Province of Quebec. Modern educationists realize that the training of the young should not be confined to books. Work in the open air is not only healthful, but stimulates the children's interest in Nature's wonderful life processes.

## Open Markets Cheaper Goods

A burning topic of today, is the "high cost of living." While many reasons are cited for the existing high prices of food stuffs, there are many ways in which the dwellers in towns and cities may economize in purchasing supplies for the table. The majority of city dwellers today draw upon the whole world for their food supply and buy from the retail dealer. The telephone and delivery wagon entrench him in his position. Hence comes the difficulty often encountered in maintaining a public market in many of our towns and cities.

A study of the whole subject of the public market leads to the conclusion that it is much more advantageous to the city consumer than to the progressive farmer, though there are certain advantages for the latter, such as the building up of a reputation for certain specialties, the placing of a premium upon excellence, and receiving better prices than could be obtained from local retailers. The city consumer gets the products fresh from the farm; and at much more reasonable prices than might be charged by the retailer if there were no local market. Various investigations have shown that in some of our cities, certain staples cost two or three times as much as the farmers received for these products. A recent investigation in a Canadian city of upwards of 100,000 population showed that in no case was the scale of prices of the retailer for farm products as low as that on the public market, and, in some commodities, the price was about double. While there are many city residents who cannot get to the public market to buy, there are many who can, but who are not patronizing it. The difference in cost would pay handsomely. The custom of going to market is as old as city life itself, and as honourable as it is old.

Where a public market has been opened in a town in which it had not hitherto existed, prices to the consumer have been lowered. In towns where they have been allowed to go out of existence, prices have gone up. Markets should be wholly for the use of the farmer and not dominated by hucksters.—F. C. N.

## Protection of Migratory Game

Recent Legislation of United States  
Congress—Ontario Law—Need  
of Action by Dominion

Migratory game birds have, particularly during the last half century, been slaughtered in great numbers in both Canada and the United States. To such an extent has this gone on that some species, notably wild pigeons and some of the cranes, have been exterminated. The countless thousands of pigeons, which even 50 years ago darkened the sky while making their migratory flights, have entirely disappeared. The great railway lines across the prairies have opened up for settlement the finest duck-breeding grounds on the continent, and the result has been their practical extermination in certain sections.

Aside from their value for sport, a large number of species of migratory birds prey upon injurious insects and are, therefore, of great economic importance. That this constitutes sufficient reason for their preservation goes without saying.

Last March, the Department of Agriculture at Washington was given authority by the Senate and House of Representatives of the United States, to formulate regulations prescribing and fixing closed seasons for game birds, which do not remain permanently in any of the States. These regulations were prepared and became law on October 1st. By this law the protection of migratory game birds in the United States is made a federal question, and specific provision is made, for co-operation with any of the States that may enact legislation along similar lines. The regulations provide for a division of the country into zones with special restrictions applied to each. Provision is made for a general five-year closed season for certain species such as the sandhill and whooping cranes, curlew, and a number of shore birds, and, in general, the closed seasons have been carefully defined.

However, it is recognized that the problem is an international one, and the American Game Protective and Propagation Association is actively engaged in an effort to interest Canadian authorities in this very important matter. Protective legislation in either country is of little use unless corresponding protection is provided in the other. The willingness of Ontario to co-operate with the United States in this matter is shown by the fact that, for years, it has had on its statute books a law giving the Lieutenant Governor in Council power to forbid the "hunting, shooting or sale of any migratory game which may at any time be in danger of extinction, for the same period and in the same manner as the same is at any time forbidden

(Continued on p. 4.)

## Recommendations of Forester re Brush Disposal

Twelve Practical Suggestions for Dealing with Serious Problem—Experience of New York may be Applied to Canadian Conditions—Top-Lopping Advisable where Burning is Impracticable.

The following is a summary of the conclusions reached in a report to the Commission of Conservation by Clyde Leavitt, Forester to the Commission. The conclusions apply to conditions in Canada the results of an investigation into the brush disposal situation in the Adirondack region of New York, where conditions are closely similar to those in a large portion of Eastern Canada. The conclusions are as follows:

1. Increasing stumpage values render fire prevention and control essential from the point of view of the timber owner. Decrease in wood supplies renders it still more essential from the point of view of the general public, and, in particular, of the communities and business interests directly dependent upon the manufacture of forest products.

2. Logging slash constitutes the most serious fire menace in existence.

3. Brush disposal is a practicable and feasible method of minimizing fire danger, though secondary to patrol.

4. The method of brush disposal to be adopted in any particular case can be determined only by careful consideration of all the surrounding conditions. It is desirable that the administrative officer have a reasonable degree of discretionary authority.

5. Where brush-burning is practicable both financially and silviculturally, this is the most efficient means of reducing the slash menace.

6. Where brush burning is not practicable for any reason, the lopping of tops may be advisable. In case tops are lopped, financial and silvicultural considerations will determine whether the material should be piled or scattered or left without further attention. The necessity for lopping may under some circumstances be obviated by some other fire-protective measure, such as the construction of fire-lines, etc.

7. The lopping of tops does materially increase the amount of debris which reaches the ground or forms piles resting on the ground in sufficiently compact form to absorb and return moisture; the time required for decay is thus lessened by one half to two thirds. The slash menace as an element of fire danger disappears in direct pro-

Paraguay has valuable forest resources, the most important of which is quebracho, particularly rich in tannin.

portion to the rapidity and completeness of this process of decay. Piling or scattering, following lopping, is desirable, but is generally considered to be impracticable in the Adirondacks on account of expense. This would apply also to a large section of Eastern Canada, unless such disposal is required under a Government license, and allowance is made for the added cost in the dues to be paid.

8. With closer utilization, the relative efficiency of top-logging as a fire protective measure decreases. In other words, lopping is much more necessary in an old-time lumbering operation and will have a greater relative effect in decreasing the fire danger, than in the case of a pulp operation, where a far larger percentage of the branches will in any event be brought into contact with the ground, as a necessary part of the operation.

9. The beneficial effects of top-logging far outweigh the disadvantages due to any possible injury to soil, reproduction or old growth.

10. Lopping to only a 3-inch diameter limit in the top materially decreases the cost of the operation. The law has recently been changed to require lopping only to a 3-inch diameter limit. This is a result of the report of the State Forester, following the field investigation of last fall. The general consensus of opinion is that the average cost of lopping under the original law was approximately 15 cents per cord for pulpwood or 30 cents per cord for saw timber. Under the law as it now exists, the cost should be very materially less than this.

11. The question of brush disposal and of fire prevention in general should be given much more careful attention in Canada by all concerned than has been the case in the past. This is entirely practicable in the case of issuance of new licenses by Dominion or Provincial Governments, as well as in the case of renewals of existing licenses.

12. Patrol is the most important and the most essential element in any plan of fire protection. This must be provided, regardless of what other methods are adopted. The construction of roads, trails, telephones, lookout stations, and other permanent improvements of a similar character is essential to an efficient patrol system.

Much of the cork used throughout the world comes from Portugal, which harvests about 50,000 tons a year.

## Beetles Ravage Oregon Forests

Bureau of Entomology Recommends  
Remedial Measures—Scourge  
Apparently Now Checked

By a prompt campaign against a flourishing colony of bark beetles on the Okechona national forest in central Oregon, the government is eliminating a danger which threatened to destroy millions of feet of timber.

Some authorities claim that the amount of timber killed each year by insects is equalled only by the annual loss from forest fires. Among the most destructive of these insect enemies are the bark beetles, one of which, the mountain pine beetle, is responsible for most of the damage in the Okechona forest. This deadly insect is less than a quarter of an inch in length, but bears the ponderous scientific name of *Dendroctonus monticolae* which, being interpreted, signifies "killer of the mountain pine."

Its methods of operation are interesting. The mature beetle bores through the bark of the tree and excavates a gallery in the inner living bark and in the outer surface of the wood, in which it lays its eggs. When hatched, each young larva, or beetle-grub, makes channels into this growing portion of the trunk, feeding up on the inner bark. When full grown the larva, after passing through a dormant, or pupal stage, becomes a beetle. This beetle then drills out through the bark in July, and, emerging into the world, seeks a fresh tree and starts a new generation. With this "chain-letter" method, it soon infests a large area. The galleries or channels of the larvae girdle the tree and kill it, and the beetle's presence is usually discovered, as it was in the Okechona forest, by a patch of red-brown, dead pine-trees in the midst of a mountain-side of green.

In fighting this forest scourge, the method recommended by the Bureau of Entomology is followed. The simple removal of the bark of infested trees between October and July, while the larvae are still in the tree, is sufficient to kill them. The lumber may then be sold while it is yet sound. On the Okechona forest, however, there was no market, and the forest officer<sup>2</sup> found that the cheaper and more effective method of control was to cut the trees and burn them before the new broods of beetles could emerge. In 1912 the infestation was given a decided check by the cutting of 3,500 trees. This summer the attack on the insects was resumed with renewed vigor, and 42 laborers, in charge of a forest officer, cut more than 40,000 trees. As a result of these vigorous measures, the government apparently has the beetles under control.—Ex.

**SAFETY FIRST**

**The New Watchword of Modern Industry**

The "safety first" movement embraces every branch of industry, and has, as its object, the reduction of the number of accidents among industrial workers. It may be said to consist of two parts. The first deals with the use of all kinds of safety appliances and the second, with the prevention of accidents by the education and co-operation of the employees. In Canada, the Provincial Factory Inspection Acts and Mine Regulation Acts, to a certain extent, deal with the former, but, as yet, little has been done by corporate enterprise with regard to the latter.

The movement originated with the United States Steel Corporation, and, up to the present time, it owes its effectiveness and achievements almost entirely to corporate enterprise. The co-operation of the men has also been obtained to a marked extent, chiefly by the formation of "Safety First" committees on which the men are represented and which make suggestions concerning the work.

Re-wards are given when suggestions are adopted and, in the case of the Steel Corporation, the majority of the most useful hints have come from the employees. The "safety first" policy has also been adopted by many of the Canadian and American railways and has been the means of effecting a marked diminution in the number of accidents. During eighteen months of its operation on the Chicago and Northwestern railway there has been a reduction of 51½ per cent. of the injuries. In the case of the Steel Corporation a reduction of 43 per cent. in the annual loss from accidents has been effected. Financially this represents a saving of over \$2,000,000 to the country, and, at the same time, a gain in working time to the company.

In Germany and in the United States, National Safety Bureaus and Museums have been established for giving information concerning safety appliances and for exhibiting the same.

It is pleasing to note that in July the Canadian Copper Company appointed a safety engineer in connection with a "safety first" policy for their mining and metallurgical plants. Although well trained rescue corps have been established at coal mines in Canada for the prevention of certain classes of mine accidents, this is the first decided step in the "safety first" movement among metal mines in Canada.—W. J. D.

Contrary to popular belief, forest fires seldom travel more than two or three miles an hour. Even in extreme cases, it is questionable whether they burn at a rate of more than six to ten miles an hour.

**Slash Burning in British Columbia**

The present efforts of the British Columbia Forest Service are in the direction of co-operating with the loggers in the burning of slash. Too much cannot be said in favour of the progressive manner in which the leading loggers and timbermen of British Columbia are co-operating with the Government for fire protection. Early this spring a number of camps were visited by representatives of the Forest Branch, the question of slash burning was discussed and circular letters were sent to all loggers asking their co-operation in slash burning. As a result about 5,000 acres were burned this spring. Representatives of the Forest Branch are now visiting the areas in question securing data on the cost and methods of burning. The experiences gained will be used to encourage further burning this fall. This process will be continued until slash burning becomes general in British Columbia as it is now in the neighboring State of Washington.—H. R. MacMillan, Chief Forester, Lands Department of British Columbia.

**Forest Production in Europe Compared with Manitoba**

**Dominion Director of Forestry Draws Instructive Parallel**

The annual rate of production of timber in a European forest is from 250 feet board measure per acre, up to as high as 1,000 feet board measure. If only a production of 100 feet board measure per annum were reached in the present Riding Mountain, Duck Mountain, and Porcupine Hills Reserves in Manitoba, the aggregate area of which is 2,415,840 acres, it would mean an annual cut of 241,584,000 feet board measure, a cut equal to the total present cut of Manitoba, Saskatchewan and Alberta, and, if the production were 200 feet board measure to the acre it would be 483,168,000 which exceeds the present cut of lumber in Nova Scotia or in New Brunswick, though this includes only a portion of the Old Province of Manitoba, and excludes all the new area added in the north.—R. H. Campbell, Dominion Director of Forestry, at Winnipeg Convention of Canadian Forestry Association.

**Nova Scotia Needs Provincial Forester**

**Experienced Men Scarce—Forests Chiefly in Private Hands—Timber is Province's Greatest Resource**

The death of professionally trained foresters in Canada is well evidenced by the fact that although the Parliament of Nova Scotia made provision at its session last winter for the appointment of a Provincial Forester, it has not yet been found possible to select a man with the desired training and experience, to fill the position.

The forests of Nova Scotia are principally in private ownership, and, to a very large extent, in the form of small holdings and farmers' woodlots. The need is for a man to educate the general public to the necessity for adopting such methods of forestry practice as are suited to the local conditions, as well as to advise the Provincial Government with regard to the proper handling of its 1,417,000 acres of Crown lands, which yield to the Provincial treasury an annual revenue of a little over \$17,000. The relatively small size of this revenue is due to the fact that only the poorest of the timber lands escaped alienation during the period, happily now past, when non-agricultural timber lands were sold outright, instead of being licensed for cutting under Provincial control. This condition is evidenced by the fact that but 5,297 acres out of over one million four hundred thousand are under license, a large percentage of the balance consisting of barrens, either natural or due to fire.

The forest survey conducted for the Province by Dr. B. E. Fernow, in 1909 and 1910, demonstrated that fully two-thirds of the area of the Province consists of non-agricultural land covered with forest growth or not fit for any other use than timber growing. It also showed that this forest resource, which furnishes not less than four to five million dollars in value of product annually, and might, with proper management, produce double this, is in danger of exhaustion within the next two decades, unless adequate measures are taken to perpetuate it. Dr. Fernow also concludes, however, that in no portion of this continent, and of the Dominion in particular, are the chances for the immediate inauguration of a definite practical forest policy so favourable as in Nova Scotia, because of the presence of an intelligent, well-distributed population.—C. L.

The forests of Norway are mostly in private or municipal ownership, the nation owning 28.5 per cent. of the total forest area. The national forests of the United States occupy only about twenty per cent. of the total forest area of the country.

**Comparative Fire Losses of Different Countries in 1912**

(Cities over 20,000 population).

	No. of cities reporting	Population	Per capita loss
Canada .....	5	957,372	\$2.88
United States .....	300	32,326,633	2.55
England .....	12	7,164,849	0.54
France .....	6	4,425,696	0.84
Germany .....	9	2,659,575	0.20
Ireland .....	2	699,802	0.57
Scotland .....	2	485,091	0.49
Italy .....	3	2,82,082	0.90
Russia .....	2	3,485,583	0.84
Austria .....	4	2,658,978	0.30

The above table shows that Canada's fire loss per capita is higher than in any other country from which records are available. The United States is not a bad second. The North American continent, as a whole, has an unenviable pre-eminence over Europe in this respect. Even Italy, which has the greatest loss of any of the Old World countries, has less than one-third of Canada's rate to her debit.

Unless there is loss of life, our Canadian public regards destruction by fire with altogether too much complacency. We are apt, unthinkingly, to assume that the loss is made good by the insurance companies, and to give the matter little thought unless it concerns us directly. A little reflection will show that, in the last analysis, the cost of insurance is borne by the general public. Numerous fires mean high insurance rates, and these in turn mean higher cost of production, which is paid for by

the consumer in the form of higher prices for goods. In addition to this, we must remember that fires in mills, factories, warehouses and offices, usually throw a number of people out of work, and disturb business in various ways, e. g., in the cancelling of many orders or protracted delay in their fulfillment.

We cannot, in justice, blame our Fire Departments for the present unfortunate state of affairs, nor can we say, usually, that they are ill-equipped. The causes of many fires are often obscure but, in many cases, somebody's carelessness is at fault. While the prevalence of wooden buildings is a contributory factor, many of our larger structures are not built with a due regard for safety. The enforcement of good building regulations is a measure of prevention that should not be overlooked in dealing with this problem. We must endeavour to strike at the root of the evil.

## Karakule Sheep Breeding



(Cut No. 23)  
Half-bred Karakule lamb and mother.

The production of Persian lamb, that lustrous, tightly curled fur so much in demand for winter caps, has been for generations monopolized by the herdsmen of Bokhara, southern Russia, Persia and Afghanistan. Now, an American investigator claims to have imported into the United States Karakule sheep which he hopes will enable Americans to produce the much prized fur themselves.

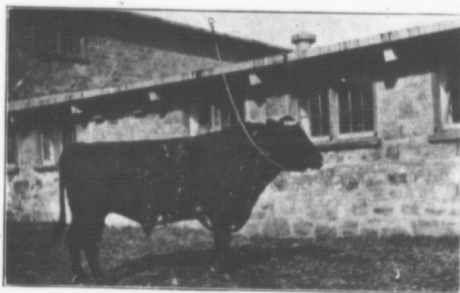
According to the investigator, there are several varieties of the Karakule sheep, some of them having a considerable admixture of an Afghan fine-wool strain, which is very objectionable. A close examination of these will reveal an underlayer of short, dull, fine wool concealed beneath the long, lustrous, coarse outside covering. If animals of this type are imported for Karakule sheep breeding, the result will be failure.

The right kind of sheep, from

which the genuine Persian lamb is produced, are the Arabi and the Doozbai. These are closely related, but the latter is larger. The investigator affirms that his experiments have proved that by crossing a good ram of one of these breeds with a ewe of some long-wool common variety such as the Lincoln, lambs can be obtained with a more lustrous and more tightly curled fur than if both sire and dam were Karakules of an inferior kind.

Canadians will be interested in these experiments, particularly as it is reported that there is some prospect of the new industry being established in Prince Edward Island, with headquarters at Charlottetown. It will be interesting to see if the island province will still further augment its resources by adding the production of Persian lamb to its already famous silver foxes.

## SUGGESTION FOR TETHERING A BULL



(Cut No. 23)

The above picture shows how a bull may be let out for exercise without his becoming a danger or a nuisance. A cable is stretched across from one building to another, and the animal is fastened there to in the manner depicted in the illustration, in such a way that he is free to move up and down the yard. It will readily be seen that it is impossible for him to get the chain wound round his legs.

## VACANT LOT MARKETS

Vacant city lots, as a general rule, do not contribute much towards the welfare of the public. Why should they not be used as distributing centres by farmers and market gardeners on certain days of the week? Why should people living miles from the public market in a large city have to travel long distances to buy vegetables and fruits grown in the surrounding country? Vacant lots in different localities could be used by individual farmers instead of all going to one central market. No doubt arrangements could be easily made with the owners for the use of the lot and with the market inspector regarding fees. If the housewives in a district where a farmer made a stand as above mentioned knew that he would be there with a load of fresh fruit or vegetables upon certain days, there is little doubt that the produce would be disposed of to the advantage of both producer and consumer.—P.C.N.

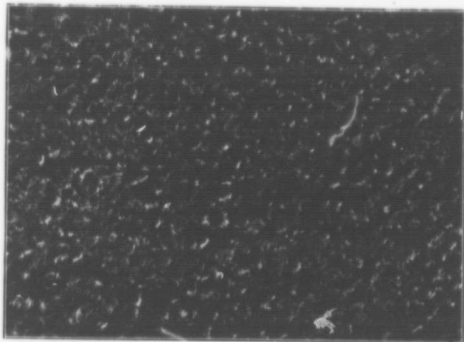
## PROTECTION OF MIGRATORY GAME

(Continued from page 2.)

in any two or more of the United States of America, one of such States being New York, Pennsylvania or Michigan."

Each province provides for the protection of game within its own borders, but, in the case of migratory game, involving as it does international questions, legislation by the Dominion Government is also required if efficient protection is to be extended to this important national resource.—A.D.

If there had not been a single accident to a train in the United States in 1912, 82 per cent. of the persons who were killed and 90 per cent. of those who were injured on railways would have been killed and injured just the same. If there had not been a single collision the same statements would apply to 96.5 per cent. of those who were killed and 95.3 per cent. of those who were injured.



(Cut No. 23)  
Sample of Karakule fur with considerable admixture of objectionable fine wool and open curls.

The steel towers that support electric power transmission lines are being increasingly used by forest rangers as fire lookout stations on national forests. With the harnessing of the mountain streams a network of these lines is gradually being woven over the forests and, in the absence of other convenient lookouts, the rangers find the steel towers helpful in their fire patrol work.

Germany is said to have an over-supply of foresters; so that well-educated men have hard work to secure even inferior positions.

In an experimental test track near Janesville, Wis., an inspection just made showed that hemlock and tamarack ties put in the track without preservative treatment were decayed after 5½ years' service. Those which had been treated were practically as good as when first laid.

The ocean is estimated to contain 300,000,000 cubic miles of water. About 3% of this volume consists of salt in solution.

A good road is a road which is good in bad weather.

## TO NEWSPAPERMEN

"Conservation" is a press bulletin for newspapers to clip from. Our cuts will gladly be loaned to Canadian journals. Please order by number.