

# Conservation

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## Clean Out the Weeds Before They Scatter Their Seed

### Floods on International Waters

#### Serious Losses to Manufacturing and Other Interests in the West

Flood conditions in general have been unusually severe during the current season and particularly serious along the boundary waters from lake Namakan to the Winnipeg river. On the watershed above Fort Frances-International Falls, several large lumber mills have had to curtail operations, while others have been compelled to close down entirely. Such towns as Fort Frances and Rainy River, Ontario, and Ranier and Baudette in Minnesota have sustained substantial damage from flood waters. Sixty-five newspapers in Canada and the United States are absolutely dependent upon the large paper mill of the Minnesota and Ontario Paper Company at Fort Frances-International Falls—one of the largest establishments manufacturing newsprint in America. Some papers have already been compelled to cut down the size of their edition.

The Federal governments of Canada and the United States, as well as the governments of Manitoba, Ontario and Minnesota, are interested in the present situation. The conditions on Rainy lake have somewhat abated during the last few days, but conditions on the lake of the Woods are still serious. The International Joint Commissioners did everything possible to suggest how interested parties, as well as parties operating dams on the watershed, might co-operate to alleviate the flood conditions. Having the whole situation in hand the Commissioners were specially well circumstanced to make suggestions and such as were carried out, have contributed materially to relieve the situation, as well as to assist in making a more equitable distribution of the losses.

In Canada, as well as in other countries where such flood conditions have prevailed, it has fre-

quently been pointed out that flood losses which have occurred to some interests, might largely, if not entirely, have been avoided, if, when building their structures, sufficient weight had been given to such evidences as are afforded by the water-marks and other indications of former high water stages.

### Fires in Hospitals

Special Care Should be Taken to Guard these Institutions

In its monthly statement of fires,

the "Monetary Times" of June 9th refers to two fires in hospitals; one caused by a lighted match in a refuse chute and the other by a rag over an electric light. The lives of helpless patients were endangered by gross carelessness. "Conservation" draws attention to this matter that the experience of these hospitals may lead to the exercise of greater care by the house surgeons, superintendents, nurses, and other attendants, whose duty it is to use every possible precaution, and especially to guard against either fire or alarm of fire.



CHL 132

FLOOD ON LAKE OF THE WOODS WATERSHED  
Canadian Customs House, also Warehouse, at Fort Frances, Ont.



CHL 143

NEW GOVERNMENT DOCK, AT KENORA, UNDER WATER  
The electric light stands are on the top of the dock. The foot of the principal street in Kenora is seen in the foreground.

### Treatment of Sewage Facilitated

#### Many Disposal Plants Being Installed—Great Need for Improvement

The necessity for proper treatment and disposal of sewage cannot be too strongly emphasized in Canada. Many municipalities have been very active along these lines but unfortunately a greater percentage have been extremely negligent. The result of this, as shown in a report on "Water-Works and Sewerage Systems in Canada," recently issued by the Commission of Conservation, is that more than sixty of our inland water systems are at present receiving raw sewage, 180 municipalities contributing to this very undesirable condition. The practice of treating sewage is being recognized as imperative throughout the civilized world and would possibly spread more rapidly throughout Canada were some of its economic aspects better known. Recent experiments have been made in this connection to determine the feasibility of a new process to extract grease and fertilizer base from sewage.

Ordinary sewage sludge from settling basins is greasy, offensive and of so little practical value that farmers will not accept it for fertilizer, even as a gift; yet this sludge contains valuable fertilizing elements and considerable grease. The settling of the sludge and the extraction of the grease is facilitated by the addition of certain chemicals and the process is found to possess the following advantages:

1. The chemical treatment practically pays for itself by the sale of the grease and fertilizer recovered.
2. The sewage is disinfected.
3. The chemical acts as a strong deodorizer and prevents the usual nuisance of treatment works.
4. The fly nuisance is also avoided for the same reason. The process has been thoroughly investigated and tested, with results that seem to indicate that it will not only be successful, but profitable.

## Settlers' Permits for Fires

This Safety Regulation Should be in Effect in Every Province

During the last session of the legislature of Quebec several amendments were made to the fire act, which are calculated to add materially to its strength and efficiency.

One of these provisions requires that settlers engaged in clearing operations must, between April 1 and November 15 of each year, secure a burning permit from an authorized forest officer before setting off clearing fires. Wherever this provision is properly enforced, it will undoubtedly effect a very material reduction in the forest fire loss. One of the most serious features of the fire situation throughout Canada is the tendency of settlers to burn debris during dry periods, when fire is likely to spread and cause serious damage. A similar provision is urgently needed in northern Ontario, where there is practically no control of settlers' clearing operations.

Another amendment to the Quebec act provides that the debris from settlers' clearing operations must, before burning, be piled in heaps or rows at a distance of at least fifty feet from the forest. On this basis, it is much more practicable to control the fire than where the old method of broadcast burning is employed.

Holders of timbers licenses on Crown lands are required to clear away the debris on a depth of one hundred feet from railway rights of way. This is an excellent provision, but should be made applicable to privately owned lands as well. In many cases, the efforts of railway companies in the direction of fire protection are largely neutralized through the presence of large quantities of the most inflammable debris on lands immediately adjacent to railway rights of way.

Another excellent provision of the new Quebec act is that any fire ranger or other forest officer may summon any male citizen between 18 and 55 years of age to assist in extinguishing any forest fire, the rate of pay being specified, and penalty being provided for failure to obey the summons.

The fire laws of the province of Quebec are among the most progressive in Canada, but larger appropriations are needed to make them fully effective. In particular, provision should be made for a larger staff of inspectors. The present staff is not sufficient to exercise proper supervision over the fire rangers on licensed lands, nor is there adequate provision for the protection of Crown lands not under license.—C.L.

Don't throw ashes against wooden fences or buildings.

## Declare War on Weeds Now

The five weeds occurring most frequently on the 400 farms visited by the Conservation Commission in 1915 were Canada thistle, couch grass, wild mustard, ragweed and sow thistle. One hundred farms were visited in each of four counties, viz., Dundas, Carleton, Waterloo and Northumberland. In many instances, the weeds are very bad and increasing at an alarming rate. In Dundas, 98 per cent of the farmers visited report wild mustard; 88 per cent report sow thistle, with 26 per cent reporting it increasing. In Carleton, 89 per cent report couch grass, 77 per cent report sow thistle, with 22 per cent reporting it increasing. Conditions were as bad in the other counties but these examples serve to show the real seriousness of the problem and the need for concerted effort to deal with it.

To succeed in eradicating weeds one must have a knowledge of two important points; how long the plant lives, and how it reproduces and spreads. Regarding duration of life there are three classes of plants:—Annuals, biennials, perennials.

Annuals come up from seed, bear flowers and seeds and die, all within one year. Biennials grow from seed and produce only leaves during the first year. The roots and sometimes the leaves live through the winter. The second year a flower stalk comes up and seeds are produced, and the plant dies. Perennials are those whose roots ordinarily live on year after year. The plant may or may not produce seed every year; according to conditions.

Practically all annuals reproduce by seeds only. Biennials, also, except during the winter when the roots are in the ground, reproduce by seed. Perennials propagate by means of the roots or by roots and seed.

### MEANS OF CONTROL:

#### Annuals and Biennials

1. Cutting or pulling.
2. Thorough tillage of cultivated crops.
3. Rotation of crops.
4. Spraying with chemicals.

#### Perennials

1. Summer fallowing.
2. Partial summer fallowing and smother cropping.
3. Thorough cultivation with crop.
4. Smothering with tar-paper, etc.
5. Application of salt brine, gasoline, etc.

Farmers, townspeople and municipal authorities alike should put forth every effort to control the weeds before they get the upper hand. Enlist to-day and join whole-heartedly in the fight against our common enemy the foul weed.—F.C.N.

## Fur-Farming in Ontario

The Industry under a Handicap—Need of Protective Legislation

Although considerable capital is invested in fur-farming in Ontario, the industry lacks the encouragement and legal security which it enjoys in Eastern Canada, especially Prince Edward Island. A recent case before the Middlesex County Court, occasioned by the killing of a valuable fox which had escaped from captivity, illustrates the difficulties that will constantly arise until fur-farmers secure the necessary legislation to place their industry upon a recognized legal basis. In the case referred to, substantial damages were awarded to the owner of the animal but, in

future, such litigation should be avoided by laws specifically limiting the application of the ordinary provisions of the Game Act to fur-bearers raised in captivity as a definite branch of husbandry.

Prince Edward Island has been foremost in fostering the fur-farming industry. Fur-farmers are adequately protected with respect to the ownership of animals and to trespass, while the recent Act in case before the Prince Edward Island Silver Black Fox Breeders' Association should go far toward establishing reliable pedigree records and providing protection for both vendors and purchasers of breeding stock. Legislation for the same purposes must be provided by other provinces which desire to encourage the development of a successful fur-farming industry.

## Farm Home Conveniences

Much Needed Improvements to Make the Rural Home Attractive

At the last annual meeting of the Commission of Conservation a report of a survey conducted on 400 farms during 1915 was presented. Some interesting data were secured respecting conditions in many rural homes.

Keeping the young people on the farm is one of Canada's national problems. Many causes have been suggested for the yearning for the city. The conveniences of the city home constitute one of the chief attractions. Notwithstanding this, however, very few farmers have introduced these conveniences into their homes.

Of the 400 farmers visited, 53 per cent have young people in their families. With this large percentage of young people it is a regrettable fact that only two farmers out of every hundred have bath rooms in their homes. Only 6.2 per cent have water closets, only 2.5 per cent have a complete service, and only 2.2 per cent have electric light. In these 400 homes, only 16.5 per cent have the water piped to the house, and but 17.5 per cent have furnaces in the home. These conditions are entirely with in the control of the farmers, 86.7 per cent of whom are the owners of farms averaging 126.5 acres.

In contrast with the foregoing, the conveniences which have been supplied by the government and public utility companies and of which the farmer has availed himself stand out prominently. The Post Office Department has carried to 76 per cent of these 400 farmers rural free mail delivery, allowing 77 per cent of them to be supplied with daily newspapers, while 58.2 per cent have the convenience of a telephone.

Only 2.5 per cent have complete sanitary service in their homes, while 5 per cent have automobiles, and 31.5 per cent have either automobile or horse and buggy for the young people.

Much has been said and written of late to interest the farmer in the automobile, but little is heard of such household conveniences as the bath tub, kitchen sink, sanitary closet, etc. The automobile may carry the rural housewife away from her drudgery for a few hours a week, and to that extent proves a blessing, but the price of an automobile would provide a water supply and other conveniences that go with it, and render the home a home both to the housewife and the young people.

Watch the bon-fire and be sure it is out before you leave it.

## Commission of Conservation

CANADA

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

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OTTAWA, JULY, 1916

## Canada's Contribution to Carelessness

Annual Fire Loss Exceeds the Interest Charge on her War Expenditure

In war time, and while many interests are urging thrift and economy, the Canadian people are burning up their created resources at a much greater rate this year than last.

During the first five months of 1916, the fire loss in Canada has exceeded that of January to May, 1915, by approximately \$3,000,000, or \$600,000 per month. At this rate of increase, our fire loss will exceed that of 1915 by \$7,200,000.

Canada has need of all her financial resources. She is borrowing money to carry on the war, and is paying 5 per cent interest thereon. The additional fire loss of 1916 would therefore pay the interest charge on the recent war loan of \$100,000,000 and would pay \$2,200,000 of the principal. Canada's average annual fire loss, of over \$23,000,000, would pay 5 per cent interest on approximately half a billion dollars. Our fire loss is, however, something for which we are receiving no value, either financial or patriotic; it is simply a tax, due in great part to carelessness, which Canadians appear willing to pay, and which they, as a whole, are doing little to avert.

Don't permit rubbish, paper or greasy rags to accumulate.

Don't fill an oil or gasoline stove after dark, nor do so while the stove is lighted, as the flame might set fire to the vapour in the air, causing an explosion.

## Conservation of Halibut Fishery

Valuable Pacific Coast Industry Requires Prompt Protection

In February last a bill "to protect and conserve the halibut fisheries of the Pacific coast and to establish closed seasons in halibut fishing in certain waters thereof" was introduced in the United States Senate. The object is, in part, to prohibit the catching of halibut during the spawning months of December and January. Such a measure, while ensuring the propagation of the fish, would impose small hardship on the fishing interests, as the winter months are unfavourable for fishing operations, and in spawning season the halibut is in poor condition for food purposes. In view of the obvious necessity for international co-operation, the proposed bill, if carried, will become operative only when Canada enacts a similar measure.

Those interested in the halibut fishery are convinced that prompt protection is essential. The evidences of approaching exhaustion are mainly the greater time and trouble required to secure a catch and the scarcity of fish on banks where they were formerly plentiful. Aside from the immense annual catch, the fishery is rendered peculiarly susceptible to depletion by the small extent of the banks, the large size of the fish, its slow growth and the late maturity of the females.

Effective measures to conserve any fishery must be based upon complete knowledge of the habits and life history of the fish concerned. Canadian authorities have accordingly undertaken a thorough study of the halibut and, when the results of the inquiry are available, it will be possible to decide upon the most effective method of preserving this valuable fishery as a permanent asset.

## Rubbish Heaps

Many Serious Fires Traceable to Such Accumulations

More fires originate in rubbish heaps than from any other source. To permit rubbish to remain in the building not only invites a fire to visit your home or place of business, and render your family temporarily homeless, or cripple your business at a time when you can least afford it, but also endangers the lives of your family or employees. In addition to destroying an average of \$23,000,000 in property value in Canada each year, fire caused the death of 141 persons last year.

The home is built to protect our loved ones, and we want to do

everything to insure absolute protection to those who live in it.

That rubbish heap in the attic, storeroom or basement is a menace to your household, because there is always a possibility of fire starting in it, and it may start when least expected.

Consider what might happen, and then, without delay, eliminate the menace of the rubbish heap.

## After-Harvest Cultivation

Illustration Farmers Speak Highly of Results Secured Thereby

The following extracts are from the report on Illustration Farms given at the annual meeting of the Conservation Commission in January, 1916:

Five of the farmers chosen to conduct illustration work had been practising after-harvest cultivation previous to the visits of the Commission's instructor. Since his visits, twenty of the farmers have adopted this practice. Eighteen state that it has helped to keep down weeds, and that it has increased their yields and the profits from their farms.

George R. Barrie, (Galt, Ont.): "Our experience with after-harvest cultivation has proven to us that it helps greatly in keeping down weeds and the land is in a better condition to withstand the drought next year."

W. T. Hands, (Perth, Ont.): "Excepting clover seed production and seeding this is in my opinion the most important illustration. We find it pays from every standpoint and as proof that this part of the work has been noticed many of the farmers in this district are demonstrating its value for themselves and the acreage increases yearly. Three years ago this was not done."

Thos. Hall, (Brooklin, Ont.): "If one wants good crops he has to gang plough and cultivate after the harvest."

Thomas McDowell, (Shawville, P.Q.): "After-harvest cultivation was not practised in this community until three years ago and now many farmers are doing quite a lot of it and find it very profitable for it usually insures a good catch of grass and clover, leaving the land quite porous and fertile."

Albert Schurman, (Central Bedouque, P.E.I.): "I notice many of my neighbours are taking up this practice."—F.C.N.

## Agriculture in the School

Many Opportunities Available for Correlating Farming Interests With School Work

In the public schools of most of the provinces of Canada, nature study and agriculture are included

in the prescribed course of work, but the opportunity of correlating school subjects with practical life on the farm is not always fully utilized. In rural and village schools, particularly, the interest of children in their school work should be aroused and held by its intimate contact with agriculture. A few suggestions are offered herewith for impressing upon the pupils the utility value of the subjects taught.

In connection with the teaching of arithmetic the following topics might be used as a basis for problems and general instruction: Neat methods of compiling farm records, e.g., milk and egg production, receipts and expenses, time sheets, etc. These records will form the basis for numerous problems.

Cost of production, rent, labour, wear and tear of machinery; marketing of farm products; computation of profits; measurement of fields, wood-piles, lumber, ice-houses, etc.; invoices, cheques, receipts and commercial forms; taxation; mortgages.

The teaching of reading and the study of literature offer exceptional opportunities for arousing the interest of the pupil.

The best literature is replete with selections calculated to inspire a love of outdoor life and an interest in the plants and animals with which the country child comes in daily contact. Whittier's *The Barefoot Boy*, Burns' *To a Mountain Daisy*, and Lowell's description of a day in June are examples, and every teacher will be able to pick out scores of other pieces of merit.

## FEDERAL TRADE COMMISSION HEARING

E. T. Allen, forester of the Western Forestry and Conservation Association, representing 13,000,000 acres of standing timber, presented the case of the timber owners to the Federal Trade Commission at Washington, D.C., on March 14. Mr. Allen contended that, unless conditions improved, timber owners would be unwilling to carry their holdings. He declared that only a general reorganization of the entire industry could save the situation. Elimination of profits of too many middlemen was suggested by Mr. Allen. Timber owners, he contended, have given up all idea of holding timber for speculative purposes. The increased carrying costs are mounting faster than stumpage values. Mr. Allen contended that the carrying of raw material for the lumber industry has become a project of such vast magnitude and difficulty that it is a great factor in the situation and must receive equal consideration with manufacturing problems.

—Timberman.

Don't throw away lighted matches, cigars or cigarettes.

## New Brunswick Forest Survey

### Classification of Land to Facilitate Settlement on Suitable Areas

Three field parties are now at work in New Brunswick, in connection with the forest survey and classification of Crown lands. The project is under the supervision of P. Z. Caverhill, Provincial Forester, subject to the general direction of the Minister of Lands and Forests. The size and importance of the undertaking is indicated by the fact that the Crown lands in this province comprise 10,000 square miles and return a direct revenue to the provincial treasury averaging more than \$500,000 annually from timber alone, in addition to large revenues from the sale of hunting and fishing privileges.

The best agricultural lands are naturally along the valleys, where settlement has, for the most part, been concentrated. In some cases, however, settlement has extended to the uplands. Some of these lands are well suited for agriculture, but, in other cases, the settlers have apparently been attracted primarily by the timber or by the desire merely to locate a home and have settled on lands wholly unfit for permanent agricultural use.

There is considerable pressure upon the provincial government for the opening up of new lands, to provide for immigration and for the surplus native population. An important feature of the Act of 1913 was the provision for a classification of soils, with the object of directing settlement to lands really suitable for farming purposes. This wise provision is now being carried out, and the result will no doubt be to reduce to a minimum settlement upon non-agricultural lands. The evil effects of such settlement may be seen in every province of Canada, and are due to the previous absence of a definite policy for the directing of settlement to lands really fit for that purpose.

The province of New Brunswick has undertaken to avoid the recurrence of such tragedies as were discovered by the Commission of Conservation to have been enacted in certain portions of the Trent watershed, Ontario, where settlers were allowed to locate on poor, sandy soils, then chiefly valuable only for their timber. With the removal of the timber and the exodus of the lumbering industry, these settlers have been left stranded, with no opportunity to make a comfortable living, and faced with the necessity of constantly lowering their standards.

The work of land classification in New Brunswick is being carried on in connection with the timber estimate and mapping of Crown lands. The country is covered systematically and examinations of the soil are made at regular intervals. Beyond

any doubt, the result will be the opening up of new lands for settlement and the establishment of new communities under conditions which will ensure comfort and a reasonable standard of living. This, in turn, will mean a permanent increase in the population of the province, by providing for the native surplus as well as for immigrants.

The Commission of Conservation has co-operated with the provincial government in laying the foundation for the land classification work, through the detail of several experts, who have just returned from an extended trip to the several localities in which the field parties are now operating.—C.L.

## Canada's Forests and the War

### Much Timber will be Required for Reconstruction Work in Europe

The economic importance of the forest resources of this continent will be greatly enhanced as a result of the war. Enormous quantities of timber are necessarily used for military purposes, in addition to what is unavoidably destroyed in the fighting zone.

The shortage of tonnage has made

it impracticable for the needed supplies of timber to be furnished on any large scale from Canada or the United States, and, as a result, heavy cutting has become necessary in the belligerent countries. While England is not generally regarded as a forest country, and has made relatively little progress in public forestry, there is still in England and Scotland a considerable amount of timber, mostly on royal and private estates. The imperative necessity for utilizing this timber has resulted in the despatch of a battalion of Canadian woodsmen to cut it for war purposes. Very large quantities have also been cut in France and in Russia. In Belgium, the Germans have cut a large proportion of the timber and have used it in military operations or shipped it to Germany.

The result of all this over-cutting will mean a heavy shortage of timber for reconstruction purposes after the war, when it should be possible to make large shipments from this continent. This will mean a largely increased drain upon Canadian forests, and serves to emphasize the necessity for still more complete conservation of this tremendously valuable asset, if Canada is to take full advantage of her opportunities for world-service in this direction.

The greatest enemy of the forest is and always has been fire. It has been estimated that the average annual forest fire loss in this country is sufficient to pay the interest on the recent Dominion loan of \$100,000,000. To reduce this loss, it is necessary not only to grant larger appropriations for fire-ranging services, but also to reorganize such services in a number of cases, with a view of securing a dollar's worth of protection for every dollar spent. It has been stated on competent authority that at present more money is wasted on forest fire protection, for lack of proper organization and supervision, than is expended advantageously.

The importance of the forest in the internal economy of Canada is shown by the fact that the average total value of forest products of Canada is in the neighbourhood of \$180,000,000, or an average wealth production of about \$25 per head of population. Nearly \$8,000,000 in direct revenue is received annually by the federal and provincial governments from the sale or lease of cutting rights to publicly owned timber lands and from royalty and stumpage payments made upon timber so cut. Some 5,000 wood-using industries in Canada are directly dependent upon the supply of timber cut from non-agricultural lands.

The importance of preventing the continued destruction of this great resource can scarcely be over-emphasized.—C.L.

Don't use an open light when looking for escaping gas.



Cut 13A

What happens when settlement is permitted on non-agricultural land. This tract in New Brunswick was under cultivation thirty years ago, but the land was too sandy and stony for permanent agricultural use and was finally abandoned. It is again growing up to timber.



Cut 13B

Contrast the above with this picture, taken in a new settlement near Anderson, N.B. The soil is excellent for farming, and the settlers are assured of permanently good returns for their work. The classification of crown lands, now under way, will segregate lands chiefly valuable for agriculture and make them available for settlement.

The Committee on Lands recommends very earnestly, to individual farmers and to all local, provincial and Dominion authorities concerned with the matter, that no effort be spared to reduce, as quickly and as far as practicable, the prevalence of weeds, and to bring about generally, on the farms, cultivated fields and seeds which shall be reasonably clean;

Further, that steps should be taken to introduce to the people, and the scholars in our schools, methods of carrying on the work of weed extermination.

From Report of Seventh Annual Meeting of the Commission of Conservation.