# onservation

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L. VI.

JULY, 1917

No. 7

## Lake of the Woods Levels

tlement of Vast Importance Manitoba Water-powers

he recent decision of the Interstional Joint Commission regardng the investigation into the Lake the Woods water levels is anexample of the importance and benefit to be derived from the proper presentation and firm adhesion to our justified contentions in international water-power pro-

The Commission of Conservation, all boundary water questions, particular interest in the Lake Woods case, and it is grati-to note that practically all principles contended for have recognized in the recommendis of the Joint Commission to governments of the two coun-

The conclusions were only ned after a most thorough ingation and study covering a d of three years and including mplete field survey of certain ns of the region affected.

e effect on the large water-rs of the Winnipeg river is of cular interest to Canada and ld prove a strong stimulus to industrial development of the nipeg district. Water power is nized as a dominant factor the water level for the Lake of Woods permits the latter and lakes to be used as immense ating reservoirs for the bene-of Winnipeg River water-In this connection it is of est to note that the Commisof Conservation which, long recognized the importance of water-powers and that proper cover should be conserved in upper waters, has strongly mended that the Lake of the s watershed be set apart as a

ngly emphasized the urgent for an efficient co-ordinated n of regulation and control of aters of this drainage system. is provided for in the recent t, which also includes the safeof the interests of navigaforests, and others.-L.G.D.

# Avoid Waste

The world war has taken so many producers from the sources of food supply that the world's consumption of food is greater than the amount available, and, consequently, food reserves are being rapidly

Millions of men are actively engaged in warfare and in the supply of munitions and equipment. They are fighting our battles and we must provide their food. Canada will produce all the food we can consume, but Canadians have never been known as a selfish race. Our allies, therefore, are depending upon us for help and our people will unquestionably respond with generous hand.

The time for planting for 1917 is past, but the time of harvest is yet to come. There is very often much waste at this time, due, in the Interior shows how acute the many instances, to the lack of a demand at market prices. Fruit, situation has been made by the enespecially, supplies much of this waste, and yet, while this waste is trance of our neighbors into the taking place, many families are compelled to go without it for lack of means to pay the market prices. Local organizations could easily arrange to bring the consumers in touch with this surplus fruit that it range to bring the consumers in fouch with this surplus fruit that it fuel by the efficient use of all avail-might not be wasted. The use of such perishable food, which would able water-power. Elimination of otherwise be wasted, will help to increase the supply of exportable

There is also much waste in the kitchens and dining rooms of Canadian homes. The waste in bread alone is a considerable item. Bread has been looked upon as one of the cheaper staple foods and little care has been taken to prevent its waste by drying up, the discarding of crusts, etc. A little thought will show what this waste amounts to when the cumulative result throughout Canada is considered.

Sir Robert Borden has said that Canada is in the war "to the last man and the last dollar." Canada is also in the war to the last pound of food. Canadians are their brothers' keepers, and will feed them, cost what it may. It is necessary, therefore, that we practise economy of the food supply. It is better to deny ourselves from choice than from necessity. There is no denying that there will be a food shortage, and the present is the time to put into practice thrift and rigid economy in the use of food.

#### Cultivate the Corn and Potatoes

Weeds Absorb Plant Food Needed to Sustain the Crop

Corn and potatoes are now planted. It is hoped that they were put flood conditions of 1916 in under ideal conditions. It has been truly said that no amount of cultivation after a crop is planted tivation very shallow. can make up for a lack of proper preparation of the soil before planting. Root and corn crops, however, respond readily to cultivation after

should be cultivated thoroughly and carefully when it is small. Remember that corn roots spread out between the rows and are quite close to the surface of the soil when the corn gets tall enough for the last time through with the cultivator. Consequently, to prevent cutting off and destroying the tiny roots by which the plants feed, care must be taken to make the last cul-

Potatoes should be kept free from weeds. Weeds absorb the moisture and plant food needed by the potatoes to make a good yield. they are planted and up. To kill Potatoes to make a good yield. Hey are planted and up. To kill Potatoes at present prices are very remunerative.—F.C.N.

# Water Power to Save Coal

Reduction of Unnecessary Coal Consumption a National Problem

Canada depends upon the United States for a large portion of her coal supply both for domestic and industrial purposes; she is therefore much interested in the coal conditions obtaining there. A recent communication from Secretary war. One of the remedies urged, particularly applicable to Canada, is the immediate conservation of unnecessary consumption of coal is considered a problem of national interest and of immediate concern. New power requirements should therefore be met, so far as practicable by utilization of hydro-electric energy; this would also apply to present steam generating energy consuming coal or oil in its production. Thus, all water available at water-power plants should be utilized to produce energy up to the capacity of the works and the requirements of the population and industries within transmission distance of the site; every facility should also be given for the efficient development of new sites. In regions where water-power can be made available steam-power plants should be operated only to carry loads in excess of those that can be carried by water-power plants. The adoption of this course, in many cases, would mean cheaper operation, particularly in view of the rapidly increasing price of coal.

Every additional hydro-electric horse-power used in Canada means the yearly liberation of from 10 to 12 tons of coal for domestic heating or other purposes where hydro-electric energy cannot be so effectively substituted.—L.G.D.

Assist in the work of preventing accidents for your own sake and for the good of our country at large.

# Combatting

Constant Patrol the Only Effectual Means During Danger Period

The primitive method of combatting forest fires is to wait until the fire assumes alarming proportions, endangering life and property, and then to organize a firefighting force to try to put it out. Unfortunately this system, or lack of system, still prevails in many parts of Canada. Too frequently these untrained volunteer fire-fight ers have actually assisted the spread of the fire by indiscriminate backfiring. Under the best of circumstances, the chances of extinguishing a large forest fire by human efforts alone are small. In many cases, the best that can be hoped for is that the fire may be checked until assistance comes in the form of rain.

As has been said by a woodsman, whose nationality may be inferred, "The time to put out a fire is be-fore it starts." The value of con-The value of constant patrol of the forests during the dangerous period is becoming more fully appreciated every year. The organizations entrusted with the protection of the forests, such as the Dominion and Provincial forest services, and the co-operative fire protective associations in Quebec, are all devoting their main efforts towards efficient patrol. The establishment of look-out stations for the detection of fires, and the installation of telephones and signal systems by means of which the location of fires may be promptly reported, or assistance summoned are component parts of the patrol The use of aeroplanes has system. been experimented with in Wisconsin for fire detection, but their utility under ordinary circumstances. especially as a substitute for other forms of patrol, has not yet been demonstrated. It is, however, to be anticipated that the application of aviation to fire detection may develop to a material extent with the return of aviators after the war, and with the development of a smaller, slower and less expensive form of hydroplane or aero-

Thousands of dollars have been spent annually throughout the Dominion in fighting fires. which could have been prevented by the expenditure of a comparatively small amount on patrol. By efficient patrol, damage from forest fires can, to a very large extent, be prevented; while fire-fighting comes in after a considerable amount of damage is done. As a protective measure, one dollar's worth of patrol may easily be worth ket for shoddy materials, of which a hundred dollars' worth of fire- woollen rags are the basis, and in-

with the importance of this phase Save the rags.

of their work. The man who puts out a fire with a few shovelfuls of Forest Fires earth or with what water he can carry in his hat, may be performing a greater service than one who, by failure to take such preventive measures, is compelled to organize a large gang of fire-fighters to check a conflagration. The ranger, who, by his influence in the district, can secure the co-operation of the settlers, campers and others to prevent the setting of fires, may have an easy job, but he is of more use to the country than he who, by failing to attend to his patrol duties. is obliged to work day and night fighting fires which need never have reached such proportions.

Not all fires can be prevented: many are started by lightning, and others from causes which are purely accidental. These must be quick-

# Benefits of Fresh Air

Proper Ventilation Essential Coal Should be Secured Nov to Good Health and Efficiency

Fresh air is one of our unlimited natural resources, available at all seasons and at all hours. It is essential to life and good health. Of recent years more attention has been paid to its beneficent influence in this regard, but far too many people regard fresh air as a means for the cure of such diseases as pneumonia and tuberculosis; it is not adequately recognized as the greatest disease preventive known.

Nature has done her part in sup-

# Present Fuel Situation

Last all Next Winter

The following indicates the there will be a greater coal shorts next winter than last, and the fore we should arrange for our fa supply accordingly;

1. Great Britain is short ! 000,000 tons of coal; Fra lacks even more; the coaling Allied warships on the lantic coast, the naval, dome tie and industrial requirement incident to the entrance United States as a belliger all mean that the coal produ tion must be increased.

2. United States officials antipate that next fall there will unprecedented demands rolling stock as well as great difficulty in handling the p duction.

The situation is that United States companies ha placed an embargo on o going out of that country. the United States desires keep coal cars in that count for any emergency that m

The present rather acute sho age of coal in many quarte will not be helped by war e ditions in the United States.

5. Coal prices have generally creased, and, unless there Government regulation, the will reach higher levels.

6. The U. S. Geological Surve as well as other agenc having knowledge of the fact is urging all consumers of co both large and small, to ste their winter's fuel during summer months.

In so far as central and wester Canada is concerned, the situati is intensified by the fact that ow to the coal strike in the west s 200,000 tons has already been from production this year: owing to the shortage of ships a the great demand for iron for the manufacture of munitie much less coal than ordinarily brought up the Great lakes year, so that there are practical no supplies on hand.

From the above it is evident the to be assured of our winter's s ply of coal, and, at the same tin save inconvenience and perha higher prices, we should buy ever and whenever it is available

The Dominion Government appointed a Fuel Controller to t charge of the situation, and the dealer and householder can

Canadians should not consider that 1917 will be the only year that rigid economies must be There is no knowing at this date practised. when the war will end, and even after it has ended there will be urgent need for Canada's surplus of food for many months while Europe is being regenerated.

ly detected and put out while in- plying pure air. Wherever the opcipient. Constant vigilance is the price of success in fire protection .-

#### Save the Rags

Shortage of Wool Increases Demand for this Waste

A serious shortage in wool exists. Almost all countries engaged in the war have taken over the wool supply to provide for soldiers' equipment, while the United States Council of National Defense recently took up with the clothing manufacturers the matter of the saving of cloth by eliminating from the skirts, cuffs on coats and trousers, etc., and all unnecessary pleats and frills. The Council is also advocating the more general mixing of cotton with wool and the more extended use of shoddy.

For this reason the old fashioned rag-bag should come into fashion. The day when rags were not of sufficient value to warrant much attention being paid to them is past To-day there is a heavy demand for woollen rags. Scarcity of new wool has created an increased marcreased prices are being paid for

portunity is afforded, the air is continually changing by natural methods. Man, however, has rendered this effort of nature largely nugatory by building homes, factories and offices almost air-tight, in which the air becomes stagnant and unwholesome. The consequence is that the occupants, continuously breathing the same air, rapidly become drowsy and incapable of giving of their best efforts.

In the homes of our people, greater use should be made of the body-building fresh and pure air. Rooms should be thoroughly ventilated and aired; sleeping rooms especially require that the air be continuously changed. The easiest and most convenient means to accom-1918 styles patch pockets, flaring plish this is by the opening of windows. A cross current of air between two windows gives the best results; otherwise, a change of air may be secured by lowering the upper sash to permit the foul air to escape, and raising the lower one to admit the fresh air. Roll the blind to the top to facilitate the exit of the impure air, or, if pulled during the summer months w down, insert a few inches of netting at the top of the blind.

Public health should be a primary consideration. Pending the improvement of housing and living by filling their bins now with s conditions people can do much to cient coal to last through the secure greater health for them- winter. By so doing they will selves by making use of the open out conditions when the ghting.

Rangers should be impressed this hitherto neglected material. window to admit fresh and pure way congestion occurs next all ith the importance of this phase Save the rags.

## Commission of Conservation

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Chairman JAMES WHITE

Assistant to Chairman and Deputy Head

Conservation is published the first of each month. Its object is dissemination of information tive to the natural resources of da, their development and the er conservation of the same, together with timely articles covertown-planning and public

he newspaper edition of Con-VATION is printed on one side anti- of the paper only, for convenience in clipping for reproduction.

OTTAWA, JULY, 1917

#### Mosquitoes

Abolish Breeding Places to Eliminate the Pests

One of the worst summer pests with which humanity has to contend is the mosquito, and yet those who suffer most usually do least to abolish the cause. Most people enyour to protect themselves from quitoes, but the place to secure greatest results is where they

losquitoes breed in stagnant er. Rain-water barrels, old tin s or pails partly filled with er, and stagnant pools offer wele breeding places. These should either drained or protected. ole at summer resorts and pers in wooded districts are h troubled with mosquitoes and pest greatly minimizes the per who would spend their ners in the open air.

prevent them breeding, stagwater, if it cannot be drained should be sprinkled with lowle kerosene, which will quickly a film over the surface and ent the larvæ coming to the ace to breathe.

or protecting the person from uitoes, many substances may ed to rub on the hands and nal. one being composed of one each of eastor oil, alcohol and der water; another, one ounce of citronella and four ounces en used to good effect and the is not objectionable.

# Drowning Accidents

CLIFFORD SIFTON, K.C.M.G. Many Lives Uselessly Sacrificed Through Carelessness

> Each year many lives are lost by drowning accidents. Carelessness and bravado are the chief causes, consequently many lives might be saved by the exercise of caution.

Learning to swim is of course the first essential in the preventing of Manure as drownings, but, even in this, there is an element of danger, as the learner is often tempted to go beyond his depth before fully competent to take care of himself. To keep within his depth is the only safe way for the beginner.

Carelessness in the use of rowboats and canoes has claimed many victims. Ordinary common sense only is necessary to overcome these drowning accidents. These frail craft are only intended for the use of those who know how to use them, and safety depends upon the occupants refraining from moving about.

The use of high-speed motor boats of late has added its chapter to the record of lives lost by drowning. Lack of speed restriction on our inland lakes and rivers has encouraged the "speed fiend," and consequently many accidents are due to his running down or swamping rowboats and canoes, as well as collisions with other motor-boats.

These accidents are avoidable, and the most elementary application of 'safety first' principles would save to Canada many needlessly wasted lives.

#### Costly Toys

Parents Responsible for Much Fire Loss and Many Deaths of Children

\*\*\* \* \* residence was almost completely destroyed by a fire, caused by a child playing with matches. The house was soon a mass of flames and the blaze beyond control. The fire threatened to spread to other frame buildings, but the firemen succeeded after a hard fight in confining it to the house in which it started."—Ottawa Jour-

"Great oaks from little acorns grow" may be said to have its application in the small beginnings of our great conflagrations. All fires uid vaseline, while oil of cassia are the same size at the start, circumstances alone being responsible for their control. If means for exre are many powders on the tinguishment are at hand, the fire et which are more or less effi- may be quickly put out, otherwise insecticides. The foresters of no one can tell where a fire will end. ommission of Conservation, in In far too many cases, playing with surveys, have used a powder, matches has resulted in fires and fascination for human nature, as irrigating ditches.

is evidenced by the throngs which Great Waste gather to witness a fire. This has its counterpart in the young child. who early learns that the match will provide fire, and consequently con ceives a deep-rooted desire for them. Parents have a great responsibility in the matter of not only teaching their children the in keeping the matches away from them and in a safe place.

# **Fertilizer**

Equal Results Secured with Fresh and Rotted Manure

Perhaps one of the most remarkable results obtained in our experiments with fertilizers has been the discovery that, as far as ordinary farm crops are concerned, fresh and rotted manure, applied at the same rate, have given practically equal yields. The explanation for this is not easy to find, since rotted manure, weight for weight, is very considerably richer in plant food than fresh manure. It probably lies in the better inoculation of the soil with desirable micro-organisms for the conversion of soil plant food into assimilable forms by the fresh manure and the greater warmth set up by its fermentation in the soil affecting beneficially the crop in its early stages. But, be this as it may, we have the practical deduction that there is no concomitant gain from the use of rotted manure, in the ordinary farm rotation, for the labour involved in rotting it and the large losses in organic matter and plant food that inevitably accompany the operation. quicker the farmer can get the manure into the land or onto the land the better, for it is never worth more than when first produced.

The manurial value of clover need not be dwelt upon at any length. Our work in this connection is fairly well known throughout the Dominion. It has been of an exhaustive nature and has yielded most satisfactory results; indeed it would be difficult to overestimate its value to Canadian agriculture. Chemically, physically and biologically, the growth and turning under of clover improves the soil, and we have been enabled to demonstrate over and over again that a erop of clover in the rotation has a manurial effect equal to an application of farm manure of ten to fifteen tons per acre.-Dr. F. Shutt at Eighth Annual Meeting of Commission of Conservation.

Near the town of Tsingyuan, China, a large irrigation project is being carried out. Canals have which was found very the death of children in Canada. into the neighbouring districts, and the distribution of the deal o

# in Logging

sary to Supervise Logging

danger of lighting matches, but also United States Department of Com-A recent report issued by the merce calls attention to the very large amount of waste which occurs in converting standing timber into lumber. Waste in logging occurs in a number of forms. many cases, the tree is cut unnecessarily high, leaving a large amount of the most valuable material to rot in the stump. Young trees are frequently not protected from falling timber. Immature and defective trees are cut and rejected. Large limbs, tree tops and lodged trees are left to waste. Small bodies of timber in comparatively inaccessible places are often left standing. Trees broken in falling are generally left, as are also short log lengths. In the United States National forests, where modern methods of scientific forestry are practised, this loss is about 10 per cent, but in general practice 15 to 20 per cent s not too high an estimate in considering the logging industry as a whole. Undoubtedly, the same percentages would apply also to Canada, unless, indeed, they should be increased.

The forest resources of Canada are by no means inexhaustible; in fact, our resources of saw timber are only about one-fourth those of the United States. One of the most practicable and effective means of conserving these resources is to avoid all unnecessary waste. That great waste still occurs in our woods cannot be questioned, and a good deal of it could be avoided.

The great bulk of logging in Canada is on Crown timber lands, under regulations imposed by Dominion or Provincial authority, as the case may be. In most cases, these regulations are inadequate either to prevent unnecessary waste or to provide satisfactorily for the re-establishment of the forest on eut-over lands. Further, the enforcement of such regulations is for the most part also inadequate, due to lack of sufficient inspection of the right kind, on the ground. The establishment of technical forest services, with adequate staffs of trained foresters, in direct administrative contact with all cutting operations on Crown lands, will be necessary before a satisfactory solu-tion of this problem may be anticipated. A beginning has been made in this direction in Canada, but much still remains to be accomplished. Just at present, foresters are not available, due to the very heavy percentage of enlistment from this

out."

# Good Roads

Much Needed Information Supplied by Ontario Report

To assist smaller municipalities to avoid the expensive and annoy ing mistakes which have been made by many municipalities during the process of street improvement, the Ontario Department of Public Highways has prepared a special

The work is the result of information secured by a survey of 33 cities and towns in Ontario. the introduction Mr. McLean, Deputy Minister of Public Highways, outlines the growth of city streets from the country corners to the modern urban thoroughfare. expenditure involved by street improvement is discussed and the mistake of undertaking work of this nature, without consideration of a general plan, condemned. Lack of intelligent and experienced supervision also accounts for much of the expenditure of public funds for no adequate return.

The selection of the type of pavement best suited to local conditions is of great importance, the chief factors in which are: The size and wealth of the municipality, the amount and class of traffic, the class of street, whether business residential, etc., and the materials

available locally.

Another matter to receive consideration is the selection of materials. covering all classes of pavements from the gravel or broken stone surface to the most durable as well as the most expensive forms, such as creosoted wood block, brick and stone block. Streets of cities, towns and villages are classified, and the materials best suited to their construction are shown under the different headings.

The treatment of gravel and macadam roadways with oils and tars is described; the advantage of rounded corners at intersections in order that motor traffic may turn easily and safely is illustrated; the paving possible in avoiding land damages by the establishing of permanent grades and street levels in new subdivisions is shown; and the two important items of drainage and foundations are discussed.

The history of street improve-ment from the laying of the first roadway is given and the methods used in the construction of pavements, sidewalks, curbs, gutters, street railway track allowances and pedestrian crossings are described. Detailed costs of materials, labour, pavements, sidewalks, curbs and gutters are furnished. Special features such as the construction of bridges, subways, driveways, etc., are fully described and the costs of these various works supplied where possible

Tabulated data show the extent

of paving in the municipalities, the cost of different classes of paveand Their Cost ments prior to 1915, and the cost of the different sections of pavements laid in 1915, forming a valuable record of pavement costs prevalent throughout Ontario. addition to being a report, interesting and instructive, it will prove a valuable book of reference to those Copies may be obtained by applying to Mr. W. A. McLean, Depart-

# Protect the **Young Forests**

Future Timber Industry Depends on To-day's Fire Prevention

"The fire was confined to the connected with street improvement. brush; no damage was done." How often do we see this in the reports of forest fires? The "brush" rement of Public Highways, Toronto. ferred to is nearly always compos-

ests become of commercial va no one can predict. If the hist of stumpage values in the past 1 be accepted as a guide, it may safely assumed that it will entry sufficiently to more than cover expense of protection.

Canada is beginning to washout the depletion of its for If we protect the young g which nature is striving to lish, our forest industries will ways be supplied with raw terial.-R.D.C.



Cut No. 100

Harvesting Clover Seed

#### Grow Your Own Clover Seed

The Agricultural Survey of 400 farms in Dundas county during 1916 by the Commission of Conservation revealed the fact that Unfortunately, this attitude toonly three and one-half per cent of the farmers grew their own clover seed. It was also learned that a majority of the farmers were sowing only about half enough seed should enable them to realize the required to insure a good crop of clover.

It has long since been established that home-grown seed gives best reand what is the very obvious conclusion? Much is said to-day about what about the high cost of farming which means costly production? the farmer will grow his own clover price, he will be much more likely to sow an adequate amount of seed per acre to insure a good stand.

A thin looking second crop of red clover will often yield a good the ordinary mower with a flat table attached to the cutter bar: a windrows. By making a few simwith the ordinary grain thresher if a clover huller is not available. Save a piece for seed each year. Sow plenty of seed per acre. Harvest better and bigger crops. FCN

ed of young growing forests, which have not as yet attained merchantable size. One would be quite as much justified in saying: thousand acres of wheat was destroyed by hail, but as the crop was not ripe, no damage was done. wards young timber is prevalent even among lumbermen and members of forest protection services whose contact with the length of time it takes to grow a forest erop, and its prospective value. Too often, little or no effort is made to stop forest fires until sults. Put all these facts together timber of merchantable size is endangered. The writer was out with a forest ranger in British Columbia the high cost of living in cities, but not long ago, when a fire was noticed on a mountain-side covered with the finest stand of young It should and can be reduced. If Douglas fir and red cedar one could wish to see. When the ranger's seed instead of buying it at a high attention was called to it, he said, "Let it burn; it's only young stuff." This particular stand was about 20 years old. The largest Plenty of clover on farms means trees were 3 to 4 inches in diameter abundance of good feed for stock and 20 to 25 feet high. It is true and maintained fertility of the soil. that it had no present value for that it had no present value for timber, but, in another 30 years, it would, in all probability, return of seed. It can be cut with 20,000 board feet per acre; at the present stumpage value, it would then be worth at least \$1.75 per man follows and rakes it off into 1,000 feet, or \$35.00 per acre. Since 20 out of the 50 years of growth ple adjustments, it can be threshed had been attained, the present value of the stand can safely be placed at two-fifths of the final merchantable value, or \$14.00 per acre

What the value of standing timber will be when these young for- agricultural products.

#### HUMAN WASTE Elimination of waste in pro-

tive enterprises is one of the importance in the development Canadian industries. Human v age in modern industry excee other forms of waste, and y has not received one-tenth of attention given by employer other forms of wastage. Effi cy systems have been installed manufacturers without but very few have established system to develop human effi ey. The percentage of wast any industry will always de upon the average unit of in gence in the force of men ployed. The man upon whom can depend to carry out your tem is always more impothan your system. A good nine times out of ten, will make poor system work well, but number of poor men, will make any good system work

In modern industry, the hu factor has not been given at Waste in machinery material has been carefully ch ed by most industrial firms. human waste has not been counted for in most accoun systems. Yet the cost of the hu scrap heap is greater than the machinery or material. In human waste is a greater mena the development of modern dustry, along lines profitable the nation in competition foreign countries, than any form of waste. - G. L. Spr. Principal of Hamilton Tech School.

### Efficient Agricultu

With the most efficient ag ture in the world, Denmark is voted almost exclusively to and herds. It not only obtains highest average results per act the cultivation of the soil, but uses the agricultural producti raw material for a national it try in further manufacture. in the finished form of by contain more labour value of raw material that Denmark the output of its agriculture herding industry. Two-third the population are engaged in cultural pursuits or in han