

Conservation

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Power to New York From St. Lawrence

Suggested Transmission of Energy at
High Voltage to Industrial Centres
Of United States

At a recent meeting of the American Institute of Civil Engineers, Mr. Percy H. Thomas, a prominent expert authority on long distance transmission, urged the construction of super-power stations to generate electric energy to supply Boston, New York, Philadelphia and Washington and intermediate cities. To achieve this, he suggested that electric energy be obtained from the Cedar rapids of the St. Lawrence and that "super power" plants be erected at the anthracite and bituminous mines of Pennsylvania.

The area it is proposed to supply with electric energy is the most populous and highly developed industrial section of the United States. Such supply would only be possible by the use of a higher voltage than heretofore considered practicable, 250,000 volts, which permits the transmission of electric energy over distances hitherto believed to be beyond economic range. The scheme is of particular interest to Canada, as the proposed market could readily absorb all the power produced by the Long Sault as well as the surplus from Cedar rapids.

Mr. Thomas, in presenting the scheme, stated that the most important advantages of the project are the conservation of coal and the relief of railways from the burden of hauling it. To conserve coal most effectively requires both the development of as much water-power as may be economically justified and the burning of coal in the most economical manner, as well as the use of low grades of coal. Other advantages are mutual support and interchange of power between the various plants, leading to cheaper production.

The proposed system consists of main 250,000-volt line, connecting Washington with Boston, via Baltimore, Wilmington, Philadelphia, Newark, New York, New Haven and Providence. This line would be fed from a group of large stations at the nearest bituminous and anthracite coal-fields. Each group of such powers would feed the main line through a tap line. The energy generated in the suggested power plant or group of plants on the St. Lawrence river would feed the main line by another tap line

The Commission of Conservation

Write to the Commission of Conservation for information respecting the natural resources of Canada. Parliament created it to get this information for you. For a decade, its experts have been investigating Canada's natural wealth and how best to develop it. Its reports and files are filled with information on lands, fisheries, game, minerals, forests, water-powers and town planning and the problems relating to their efficient utilization.



of about 250 miles long which would connect with the main line probably where it crossed the Hudson river. The total distance to New York will be about 300 miles.—L. G. Denis.

Wood Protection

The effect of the lumber scarcity, and its antecedent, the depletion of the forest, is being felt by the ambitious householder who undertakes to make his own repairs and improvements. Costs of material are rapidly mounting, and the expense entailed causes a delay in making repairs.

In many cases, however, the necessity for repairs is due to delay in protecting woodwork. By the use of paint, much of the labour and expense of renewal would be obviated. It is remarkable how little thought is given to the protection of wood where it is exposed to the weather. The alternate absorption and drying out of moisture are conducive to decay. By painting the woodwork, moisture is excluded and the life of the wood will be greatly lengthened.

Grow the Small Fruits at Home

In the process of getting the most out of the backyard garden, many amateur gardeners have overlooked the cultivation of small fruits.

Fresh fruit on the table has almost become a luxury. The high prices which these fruits are commanding, and their growing scarcity on the market, are due largely to lack of help and the enhanced cost of picking and transportation.

The growing of raspberries, currants and gooseberries is very simple, and their value both for use as fresh fruit and for baking and preserving purposes, should make their cultivation much more extensive. There are no fruits that respond more quickly to good treatment, but they will also stand a considerable amount of neglect. Large fruit and productive bushes, however, can only be expected when they are given proper attention.

Soil Fertility in Western Canada

Conservation of the Soil and Rotation
for Drought Areas, Etc., Subjects
for Conference at Winnipeg

"Our farmers are not all conservationists. . . . The fertility problem on the prairies is a somewhat different one from that of the older provinces. We have an abundantly fertile soil, but a scientist has recently estimated that, if we shipped away only 100 million bushels of wheat annually from Saskatchewan we would ship away fertility—nitrogen phosphorus and potash—with a market value of \$23,560,000 not including freight. We are not concerned about bringing back fertility; but we are deeply concerned about the conservation of fertility."

In addressing the eighth annual meeting of the Commission of Conservation, Dr. W. J. Rutherford, of the University of Saskatchewan, gave expression to the above opinion.

The marked variation in crop yield in the Prairie Provinces, as shown by the following table of production of spring wheat, raises the question as to whether it is not possible to stabilize production, either by the inauguration of more efficient methods of farming, more suitable rotation of crops for drought areas, or other soil conservation measures:

PRODUCTION OF SPRING WHEAT
MANITOBA

| Year | MANITOBA | | |
|------|-----------|----------------|------------|
| | Acres | Yield Per acre | Bushels |
| 1910 | 2,755,818 | 12.35 | 34,009,772 |
| 1911 | 3,081,547 | 20.22 | 62,309,000 |
| 1912 | 2,824,000 | 22.50 | 63,540,000 |
| 1913 | 2,785,000 | 19.01 | 52,943,000 |
| 1914 | 2,901,000 | 14.75 | 42,865,000 |
| 1915 | 2,737,710 | 21.78 | 59,574,000 |
| 1916 | 2,721,898 | 10.88 | 29,605,000 |
| 1917 | 2,445,000 | 16.75 | 40,835,800 |
| 1918 | 2,508,960 | 16.25 | 40,742,100 |
| 1919 | 2,880,301 | 14.25 | 40,975,300 |

| Year | SASKATCHEWAN | | |
|------|--------------|----------------|-------------|
| | Acres | Yield Per acre | Bushels |
| 1910 | 4,226,922 | 15.84 | 66,964,633 |
| 1911 | 5,253,836 | 20.75 | 109,017,000 |
| 1912 | 5,579,000 | 19.16 | 105,885,000 |
| 1913 | 5,716,000 | 21.35 | 121,465,000 |
| 1914 | 5,344,000 | 13.74 | 73,427,000 |
| 1915 | 8,919,292 | 25.12 | 224,050,000 |
| 1916 | 9,016,851 | 16.25 | 147,235,000 |
| 1917 | 8,383,250 | 14.25 | 117,751,200 |
| 1918 | 9,249,260 | 10.00 | 92,493,000 |
| 1919 | 10,567,363 | 8.50 | 89,994,000 |

| Year | ALBERTA | | |
|------|-----------|----------------|------------|
| | Acres | Yield Per acre | Bushels |
| 1910 | 674,665 | 9.98 | 6,726,600 |
| 1911 | 1,324,186 | 21.64 | 28,872,000 |
| 1912 | 1,378,000 | 21.54 | 29,675,000 |
| 1913 | 1,319,000 | 19.00 | 25,130,000 |
| 1914 | 1,500,169 | 21.00 | 31,503,000 |
| 1915 | 2,008,123 | 31.12 | 62,289,000 |
| 1916 | 2,586,798 | 24.25 | 64,539,000 |
| 1917 | 2,845,600 | 16.25 | 46,192,000 |
| 1918 | 2,848,474 | 6.00 | 23,091,000 |
| 1919 | 4,241,903 | 8.00 | 33,935,000 |

Soil Fertility

(Continued from Page 21)

The problem of the conservation of soil fertility, together with other agricultural problems of vital importance to Western Canada, will be the subjects under discussion at the important conference which will be held at Winnipeg, on July 14, 15, 16, in connection with the semi-annual meeting of the Commission of Conservation. The Commission is arranging a thoroughly helpful programme, which will be of particular interest to all leaders in agricultural betterment and to all who are engaged in practical farming. Many leading authorities on soils and crops will contribute papers or addresses. The following subjects will be included in the programme, with a full discussion of related questions:

(1) The rate and extent of exhaustion of soil fertility on western farms;

(2) Conservation of soil moisture and its relation to the physical condition of the soil and to crop production;

(3) Maintenance of organic matter or fibre in the soil with a discussion on the importance of soil fibre;

(4) Rotation suitable for drought areas of the Prairie Provinces;

(5) Soil and crop management;

(6) Other phases of agricultural problems of the West, such as the prevention of soil drifting, suppression of weeds and the uses of grasses and legumes for the purpose of supplying forage for live stock and humus for the soil.

The whole matter of the conservation of soil fertility and the prevention of soil drifting is timely and important. It is felt that a gathering of this kind, to present the best and most authoritative facts regarding these problems, will be productive of great good. Farmers and all others interested in agriculture are cordially invited to be present.

Canning Fruits Without Sugar

Much of the Small Fruit Crop May be Conserved by This Method

Due to the scarcity and high price of sugar the possibility of much of the coming crop of small fruits going to waste is greatly increased. There is a method of canning without sugar, and, to secure the best information available on the subject, the Commission of Conservation invited Miss Jeannette Babb, Instructor of Household Science at Macdonald College, to prepare a short paper. Miss Babb especially emphasizes the caution that in sugarless canning the utmost care must be observed, and every rule strictly followed, otherwise loss of fruit and wasted effort may result.

Fermentation and decay are caused by the bacteria, yeasts and moulds, which are ever present in the air, coming in contact with fruit. We must, therefore, destroy these forms of life present in the fruit and in the containers and prevent their further entrance

into the containers, by sealing and sterilizing or boiling. This is what is termed canning.

There are many reasons why canned goods spoil. Some of these are: Because of imperfect jars; use of old or poor rubbers; use of stale products; being too slow; filling too many jars at once; inaccuracy in time of boiling; failure to test jars after sterilizing, and careless storage.

"The equipment necessary for canning is as follows: Wash boiler, or large kettle, with an airtight cover; fitted rack for bottom of boiler; good jars and covers properly sterilized; good rubbers; long-handled spoon or silver knife, strainer or clean cheesecloth for washing fruit, blanching and cold-dipping, boiling water, and clean towels, all of which should be sterile.

"To prepare the jars, test them first for leakage, by filling with water, fitting on rubber, sealing tightly and inverting on a dry table. If no moisture is seen on the table the jar is safe. Sterilize the jars and covers by placing on rack in boiler, cover with cold water, bring water to boiling point, and boil for fifteen minutes. Sterilize the rubbers in a shallow dish of boiling water for five minutes.

"In the cold pack method the importance of the two terms, blanching and cold dipping, should be emphasized. Blanching is to dip in boiling water, and keep under the boiling water for from a few seconds to five minutes, according as to whether the fruit is of the soft or hard variety. Cold dipping means the immediate plunging into cold boiled water, to set the colouring matter, to aid in keeping the fruit whole and to make it easy to handle.

PREPARATION OF FRUIT

1. Select when it is at its best—thoroughly sound, ripe but firm and free from bruises.

2. Grade as to size and quality for sake of uniformity.

3. Can the day it is picked, and as soon as possible after picking, especially where no sugar is used.

4. Clean fruit and prepare as for table use.

5. Blanch in case of hard fruits.

6. Cold dip.

7. Pack products quickly into jars, which have just been removed one at a time from the boiler, using a sterile knife or spoon handle for packing.

8. Fill with boiling water, insert knife to let air out and fill again to top with water running over jar.

9. Put on sterilized rubber, cover, and partially seal at once.

10. When all jars are ready, place on rack in boiler and cover with water of the same temperature as jars, keeping the jars separated.

11. Cover boiler, bring to the boiling point and boil until the fruit is cooked.

(a) Soft fruits require from 10 to 15 minutes where sugar is used.

When no sugar is used we add 15 minutes more to the required length of time with sugar.

(b) Hard fruits with sugar require from 30 minutes to one hour plus twenty minutes without sugar.

12. Uncover boiler at end of time for sterilizing or boiling, allow steam to escape and seal jars tightly immediately upon removing from boiler. Invert until cool.

13. When cool screw tight again, wash outside of jars, label and put away in a cold, dry, dark place.

NOTE.—In sugarless canning, the utmost care must be observed, and every rule strictly followed.
—Jeannette Babb, Instructor Household Science, Macdonald College.

The British Columbia Forest Service is installing nine sets of Marconi wireless telephones. Four sets will be used on land, and the remaining five sets will be placed on the larger patrol launches of the department.

Coal has been reported at Lampman, Saskatchewan, which should produce an important addition to the fuel supply of Saskatchewan and Manitoba. The coal is reported to be of a high carbon content. It consists of seams varying from 4½ to 15 feet in thickness, at a depth of 210 feet. If the commercial product approximates to the reported analysis, this coal will be one of great value to the consumers of these provinces.

The flax industry of Canada is growing so rapidly that it has been found necessary to bring in flax workers from Ireland.

Deforestation and Bridges

The effect of the removal of the forest cover on the watersheds of our waterways is more widespread than is generally supposed. Not only is the snowfall allowed to melt more quickly and heavy rain fall permitted to reach the streams more rapidly, but in doing so carries with it much lumbering waste and other forest debris. Such material causes serious jams, forming itself into closely-woven masses against the abutments and piers of bridges; the pressure of the water behind these jams carries away the bridges and their approaches, and floods much surrounding territory.

The rapid rise of the streams in response to the precipitate run-off also requires the provision of greater clearance between the abutments of bridges, whereas the tendency has been to reduce the spans, thus emphasizing the possibility of their destructions by freshets. Mr. James W. MacKenzie, Assistant Road Commissioner of Nova Scotia, says:

"It seems to have been the custom for years, as wood became scarce, to narrow up and confine the streams in smaller vents. If it is a fact that the clearing of the

country is the cause of the water running off suddenly in case of heavy downfalls, our bridges must be enlarged to carry the increased streams, and this has been my experience during the last twenty years.

The most destructive summer freshet experienced in the counties of Antigonish and Pictou for the last twenty years, was the freshet of August 2nd, 1908. Some forty-six bridges in Antigonish county and fifty-six in Pictou were carried out, and in some sections every structure in wood was cleaned away. I took particular notice that, where the lumber trimmings had been thrown into the stream, the destruction was the greatest.

Steps should be taken to prevent lumbering and mill refuse being washed into the streams, and to remove obstructions in the streams on which jams may form.

Alberta Coal on Winnipeg Market

Summer Shipment of Coal to Storage Will Permit Continuous Operation of Mines

This summer an attempt on a large scale is to be made to place Alberta coal on the Winnipeg market. Difficulty has been experienced in this market extension work by the lack of storage capacity in Winnipeg, and the unwillingness of the consumer to purchase his coal during the summer, when it could be delivered direct from the cars. To overcome this objection, to early ordering, storage sheds, with a capacity of 20,000 tons, are being erected. These sheds will permit the shipping of Alberta coal to Winnipeg during the slack season and storing it against the rush period. This will have a twofold effect. First, it will relieve the traffic congestion of the autumn, when the railways are handling the grain traffic. Secondly, it will permit the operation of the mines during a period when, owing to the absence of a market for the output they were ordinarily compelled to close down or operate with a reduced staff.

This latter difficulty has had rather a widespread effect, and has militated against the ability of Alberta coal to meet competition. With the closing down of the mines for a portion of the year, the overhead charges of the entire year have had to be absorbed by the period during which the mines were operating, thus increasing the cost of production to a considerable extent. The enforced idleness of the miners also had an unsettling effect, and created difficulty in securing and retaining efficient operatives.

This new enterprise of Alberta coal mine operators will be watched with interest, and it is hoped that, with successful operation, the partial dependence of the western cities upon United States coal will be materially relieved.

**Commission of Conservation
CANADA**

HON. W. C. EDWARDS
Acting Chairman

JAMES WHITE
Assistant to Chairman and Deputy
Head

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

OTTAWA, JUNE, 1920

Canada's Need

"What is the need of Canada at the present time? We have a great debt in this country. How are we going to meet it? We are told to produce. We can produce in the factories, on the land, and in the mines of this country. We have great natural resources that only need to be developed in order to enrich this country; and if we could only develop those resources to the extent of one-fourth of their value at the present time we would have no trouble in meeting our obligations as a nation. There is no cause for any person in this country to be discouraged about the future of Canada. All we need to do is to move around this Dominion to realize the great resources we possess; and we cannot help but become prouder of our country and cannot help but glory in the fact that, in Canada, we have as great wealth and as great opportunities as are to be found in any land in the world to-day. What is requisite is to encourage the development of those resources, and, given an opportunity to the people to take advantage of the wealth that is in the country, there will be no need for the Government to worry about the future of Canada and no need for the honest, capable and ambitious citizen of Canada to worry about it either."

-W. A. Buchanan, M.P., in House of Commons.

Halibut to the value of \$100,784 was caught in the northern waters of British Columbia in March, as compared with \$39,787 last year.

In return for certain concessions, a company proposes to bore for oil in Prince Edward Island, spending \$300,000 within the next ten years on operating and development work.

The Dominion Government has segregated Southampton, Mansel and Coats islands, in the northern portion of Hudson bay, as reserves for reindeer and musk ox. These islands are reported to be suitable as to situation and climate and to have sufficient food available.

Fur Farming

RAISING SKUNK

In view of the rising prices of furs, all fur-bearing animals capable of being reared in captivity are being made the subject of special study. Many prospective fur-farmers are seeking information regarding the skunk. This animal has not, in Canada, been very extensively or successfully reared in captivity. It has, however, been demonstrated that the farming of skunks is quite feasible. The question is mainly one of adequate returns. With the choicest skins selling at over \$10 apiece, the time would seem to be at hand when skunk raising might be profitably undertaken, though experiment is needed to establish it on a secure commercial basis. A few of the more important facts covering the fur-bearer are summarized below.

Traits.—The skunk is neither timid nor vicious and is easily domesticated. The animal is a fairly good burrower, but it is not fond of climbing. Its unsuspicious nature makes it easy to trap. It is generally nocturnal in habit.

Food.—Skunks are practically omnivorous. In their wild state, they devour large numbers of insects, including grasshoppers, crickets, beetles and caterpillars. In captivity, they may be given meat, fish, cooked cereals and vegetables and milk. The cheapest way to obtain food would be to arrange with a rubbish hotel to remove the garbage. Putrid or tainted meat should, however, be carefully avoided.

Breeding.—Only black or "star black" males should be used for breeding. There may be one male for each half-dozen females. The mating season in Canada would usually be March. The period of gestation is about eight weeks. There are from 6 to 12 in a litter. The young are born blind and nearly naked. They may be weaned when two months old.

"Descenting."—The abominable fluid which the skunk uses as a means of defence is contained in two sacs, one on either side of the vent. At about five weeks old, these sacs may be cut out and the animal rendered as harmless as a cat. The operation is not absolutely necessary as tame skunks are unlikely to use their scent unless badly frightened by some intruder.

Pens.—Wire fences for skunk ranches should be of 1 inch mesh. No 16 gauge, poultry netting, about 3 feet high, with an overhang at the top and sunk 3 feet into the ground at the bottom and then turned inwards. The dens may, in suitable soil, be artificial borrows, which the skunks will adapt to their own requirements. But almost any sort of hole or kennel, so long as it will be dry, will serve.

Fells.—The fur of skunks raised in captivity is said to be inferior to that of the wild animals. This has been attributed to lack of exercise. The darker the skin and the shorter and narrower the strips,

the more highly is it esteemed. Careful selection should result in fixing the desirable characteristics. Skunk skins should be "canned" for market. In the trade, the fur is often sold as "sable".

**Reduction of
Water Charges**

Introduction of Water Meter Reduces Bills of 80 per cent of Consumers

The objections to a meter basis for a water supply as against the antiquated and wasteful flat rate, usually comes from those ignorant of the details of operation and of the distribution of expense in connection with a waterworks system. These individuals often secure the greatest benefits from the change in having water charges based more proportionately on service rendered or the amount of water consumed.

The reduction in consumption effected by meter service is remarkable and the cost of the meters is often more than balanced by the reduction of expenditure for extensions that would otherwise have been necessary.

The difficulties and opposition to be expected in making the change were recently illustrated in a Connecticut city where the Water Commissioners decided to install meters to eliminate the waste. The water consumption had reached 133 gallons per day, per capita; the maximum amount of water available from the existing sources of supply had been reached; another source would have had to be developed at great expense but for the reduction effected by the introduction of meters. The meters reduced the consumption to 78 gallons per capita per day and it is now estimated that the present supply will be adequate for some 20 years.

To quote from the Water Commissioners' report: "The Commissioners immediately brought up on themselves the severest criticism. They persevered in their work, however, although by so doing they incurred much odium and were roundly abused. But experience now shows that their course was fully justified. There has been an enormous reduction in the consumption, and the almost total absence of complaints about water bills during the recent collection indicates that the people are satisfied with the present system."

"It was not the purpose of the meters to compel consumers to stint themselves in the use of water, but to compel the careless consumers to stop avoidable waste and leakage. The discovery and stoppage of hundreds of leaks by the consumers, in co-operation with the water department, has shown that the metering of the services has had the desired effect. Statistics of the November collections from metered services within the city show that 80 per cent of the consumers are paying less than on the flat-rate basis, 18 per cent are paying more, and 2 per cent are paying the same as before".—L. G. Denis.

**A Word of Caution
About Fur Farming**

Business Still in Experimental Stage—Prospective Fur Farmers Must Be Pioneers

The tenor of inquiries received by the Commission of Conservation indicates that some persons imagine that fur farming is an easy business to undertake. This is a serious mistake. Success in fur farming demands a combination of favourable local conditions, moderate capital, perseverance in the face of difficulty and discouragement, enthusiasm for the work and a sympathetic understanding of wild animals. Fur farming is not as simple as raising chickens and not even everyone who attempts chicken-raising is successful.

The fox has been kept in captivity for some years and it has been demonstrated that it can be successfully and profitably raised. Its habits have been studied and much is definitely known as to its management. But, with regard to other fur-bearers, comparatively little is known, though the right kind of man can achieve success with mink, skunks, muskrat, beaver, etc. He must, however, expect to depend on his own wits and to solve difficulties for himself, without having a store of previous human experience to guide him.

**Protectors of Our
Forests and Crops**

In a recent test case the State of Missouri challenged the constitutional right of the United States to enforce the Migratory Bird Treaty Act. Hon. Mr. Justice Holmes, who delivered the opinion of the U.S. Supreme Court, took a wide vision of modern conditions and requirements. Reciting the objects of the treaty, Justice Holmes said that numerous species of birds, in their annual migrations, traversed many parts of the United States and Canada, that they were of great value as a source of food and in destroying insects injurious to vegetation, but that they were in danger of extermination through lack of adequate protection. After dealing with the authority vested in Congress to enact the legislation he said: "The case before us must be considered in the light of our whole experience, and not merely in that of what was said a hundred years ago; we must consider what this country has become. . . . Here a national interest is involved, nearly the first magnitude is involved. It can be protected only by national action in concert with that of another power. The subject matter is only transitory within the State and has no permanent habitat therein. But for the treaty and the statute there soon might be no birds for any powers to deal with. We see nothing in the Constitution that compels the Government to sit by while a food supply is cut off and the protectors of our forests and crops are destroyed."

Our Game Birds Getting Scarce

Natural Food and Cover Diminishing
Too many Bags Offsets Bag
Limits Regulations

In the United States, there is no sinner or abler advocate of game conservation than Dr. William T. Hornaday, Director of the New York Zoological Park. In a recent letter, he sums up the present situation in the States as follows:

"First—We see glorious Federal and state laws for the protection of the insectivorous and non-game birds well observed in most places, but in some places shamefully abused by alien shooters. That abuse is because it is an utter impossibility for any state to put into the field enough wardens to watch every alien who goes out hunting with a license in his pocket.

"Second—We now see game-bird hunting reduced, very largely, to the hunting of ducks and geese, with a very little shooting of six shore-birds, quail and grouse.

"Third—We see all American quail, ruffed grouse, pinnated and sharp-tailed grouse on a steep toboggan slide going swiftly toward sure abolition.

"Fourth—We see in the near future no wild game remaining, save water-fowl, rabbits, hares and white-tailed deer, and a trace of introduced pheasants. Any one who thinks that quail and grouse of any species whatever can be hand-made propagation keep the sport of shooting them on a permanent basis, makes a sad mistake. It cannot be done!

"Fifth—We see that the propagation of pheasants on game farms is worth while, though it is not a great factor in the production of sport.

"Sixth—As we have all said many times, guns and gunners are increasing at an enormous rate, while many kinds of game are growing more and more scarce; and the open seasons are entirely too long.

"Seventh—We have seen that bag limits are not saving the upland game birds, partly because there are ten times too many bags!

"Eighth—For land game we see all kinds of natural cover and food diminishing through drainage, cultivation, timber-cutting and fires. We see the natural enemies of the game holding it at great disadvantages, and the hard winters steadily are becoming harder and more destructive to feathered game.

"Finally, we see that the resident hunting license fees in the various states, one and all, without a single exception, are ridiculously and absurdly below the real value of the sweeping, wholesale privileges that they confer."

Dr. Hornaday's study of the situation leads him to recommend the following remedies:

"1. From this time henceforward all shooting of game must be diminished at least 50 per cent!

"2. This can be best, most easily and most justly be accomplished

by permitting no man to have a license, or to go hunting, even on his own land, more often than one year out of every two years.

"3. All licenses to hunt either small game or large game now should be doubled, or even tripled, in price.

"4. No state that maintains deer hunting should license any man to kill a deer for a smaller fee than \$5.

"5. A license fee should everywhere, save by bona fide explorers and natives in the far North, be paid on each bag game animal killed; and of all places in which this is necessary Alaska needs it most! The existing (non-resident) license fees in Alaska, for everything except the shipment of moose heads, are ridiculous and exterminatory, and if continued for the future they would be a crime. No Alaskan will admit this, however, even when the big game of that territory becomes extinct.

"6. In view of the cost to the nation of the adequate enforcement of the Federal laws for the conservation of wild life, after increasing its rates, each state henceforth should turn over to the Federal government for conservation purposes only, 10 per cent of its annual receipts from hunting licenses.

"In various states many open seasons now should be closed from two to ten years each. Full specifications would make a long chapter dealing with each of the forty-eight states. It should begin with the upland game birds and embrace many species of birds—game and pseudo-game, many game mammals, and the fur-bearing animals of many localities. If this is not applied immediately to many fur-bearers in many places the whole series very soon will disappear from the map of North America, and the fur dealers and trappers can take this fact or leave it. I have said all that I have to say.

"Professor Henry Fairfield Osborn, author of *The Age of Mammals*, now solemnly says:

"We are now at the end of the Age of Mammals.

"It is my fear that man's rapacity and greed for wild life now is so great that nothing will avail to save for the next century anything more of it than nee catered remnants of a once glorious fauna—rats, mice and English sparrows."

While the situation in Canada is not as bad as in the United States, it is also true that a larger proportion of our area is unsettled and difficult of access. Unquestionably, the situation demands incessant watchfulness that our game resources be not unduly or dangerously depleted.

A Dominion park has been established along the new Banff-Windermere highway, to be known as Kootenay Park. A portion of the land has been transferred to the Dominion by the province of British Columbia, and a portion of the Railway Belt will be included.

Wasting Our Water Powers

Inefficient and Obsolete Plants Not
Developing Power Available

Canada occupies an outstanding position in regard to water-power wealth, not only with respect to the aggregate power at sites already developed and in use, but even more so to that awaiting development. The total of our potential load-water, 24-hour power is estimated at some 19,000,000 horse-power.

Although the greater amount of power is produced in large and efficient plants, there are many inefficient small plants. Each of these plants, however, is valuable as a producer of energy and, owing to the number, the aggregate amount of power they represent is considerable; moreover, these smaller plants are usually situated in the more thickly populated areas, where power is at a premium.

It is interesting to note how conditions in some of the small plants can be improved at a relatively low cost, as illustrated by the reconstruction of a small hydro-electric plant of some 400 h.p., operating under a head of 14 feet.

The original plant was destroyed by a washout, and, in the design of the new plant, all modern and efficient practice and methods were utilized. The new plant is showing marked increase in efficiency over the old, due to the increased efficiency of the units and of the method of operation. The plant has carried for the past two years more than twice the load that the old plant normally handled and has not yet experienced the shortage of water which formerly occurred each year in the late summer and winter months. The results at this plant illustrate what reconstruction can accomplish for small plants operating wastefully, either through antiquated equipment, leaky dams or other inefficient works. —L. G. Denis.

Fire Loss in 1919

| | |
|--|--------------|
| Paid to insurance companies | \$40,000,000 |
| Unkept of fire departments and interest on investment in equipment | 8,700,000 |
| Losses not covered by insurance | 5,800,000 |
| A total of | \$54,500,000 |

This was a direct charge against the production of Canada for 1919, and it was paid by those who produce; it was the penalty for neglect of one of the first essentials of property protection—fire prevention.

Canada is not in any position to continue this policy of *laissez faire* in regard to the fire waste. Houses are scarce and building costs are exceedingly high. To relieve the housing situation, governments and municipal councils are advancing money or pledg-

ing public credit for building purposes.

Regardless of this condition, however, reports of Provincial Fire Marshals show that, last year, fires occurred in 5,792 dwellings in Ontario, and in Saskatchewan, 603 dwellings suffered from fire.

Undoubtedly the greater proportion of the monetary loss resulted from fires in large properties, but these dwellings where fire occurred were the homes of employers or employees in various industries. It is only reasonable to suppose that the careless home holder will be the careless worker; that the same degree of neglect of precautions against fire will be evident. Private dwellings provided by far the greatest number of our fires; each of these fires is a potential conflagration, and no authority exists for a compulsory inspection of dwelling houses for fire dangers. With such a record as the above, fire departments and fire inspectors should be provided with such authority, and employers should in every manner promote education in fire prevention among their employees.

Transmission of Furs by Mail

The game guardians of the various provinces, in their endeavours to control the illegal taking of furs and to collect reliable statistics of fur production, have been handicapped in the past because parcels containing furs have been accepted for transmission by mail without a permit being required. The 1920 edition of the Canadian Postal Guide (No 200), contains a regulation to the effect that furs, skins, plumage, etc., will not be accepted, even during the open season, unless the packages are plainly marked to show the actual nature of the contents and the name and address of the sender. During the close season, it will also be necessary for the sender to secure from the game warden a permit covering the shipment. The Deputy Postmaster General has directed the attention of each postmaster to these requirements.

Although the strict enforcement of this regulation should minimize illegal traffic, the regulation itself is not entirely satisfactory to the Provincial authorities. In Nova Scotia, for instance, the law requires that no package should be shipped unless accompanied by a proper tag, whether during the close season or not.

At the recent Fur Industry and Wild Life Conference held in Montreal it was shown how exceedingly difficult it is to obtain reliable statistics of Canada's fur production. The suggestion was made that the Post Office Department should make a return of all furs accepted for transmission. If this were done, great assistance would be rendered in preparing the data on which to frame improvements in the laws relating to the taking and selling of fur-bearing animals.