

Conservation

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Conference on Wild Life at Montreal

Discussions Relating to Fur Industry
Principal Feature—Silver Foxes
to Have National
Register

Rarely has such a diversity of interests engaged in the exploitation of a single natural resource been assembled in conference as was represented at the recent Convention in Montreal to consider the conservation of Canada's resources in wild life and particularly in fur-bearing animals. The meeting was held under the joint auspices of the Commission of Conservation and the Advisory Board on Wild Life Protection. Every province of the Dominion was represented and the attendance included many of the provincial authorities in charge of the protection of wild life, as well as fur traders, dealers and manufacturers, trappers, fur farmers, and others commercially interested in Canada's fur resources. The discussions were of the most practical character, covering problems of production and marketing, and many important questions connected with the development of the comparatively new industry of fur farming as a definite branch of animal husbandry.

The remarkable advances in the prices of furs have induced such vigorous exploitation of wild furbearers that the utmost care is essential to prevent the commercial extinction of valuable species. At the same time, every effort should be made to increase Canada's fur production by the development of fur farming along sound, scientific lines. The conference achieved an exceedingly useful purpose in informing the various interests connected with the fur industry respecting the numerous problems that affect such interests beneficially or the reverse. The co-operation of these interests is a primary factor in maintaining our fur resources at the highest point of productivity consistent with their permanent retention.

The convention decided unanimously to establish a national registration of silver foxes and took the necessary steps toward initiating this important work. Such registration will not only very materially enhance the value of the registered stock, but will permit the entry into the United States free of duty of all registered foxes.

Lumbermen Approve Forest Inventory

Work of the Commission of Conservation is Commended by
Representatives of
Lumber Industry

At the 12th Annual Meeting of the Canadian Lumbermen's Association, held at Quebec on February 4 and 5 last, it was resolved: "That this Convention of the Canadian Lumbermen's Association, realizing as it does the great importance to Canada of the preservation and reproduction of the forest resources of this country, hereby endorses the work of the Commission of Conservation in conducting a survey of the forest resources of Canada and the investigation of the forest production, and that the Dominion Government be urged to provide the necessary facilities for the early completion of these investigations."

The work of making an inventory of the forest resources of Canada is a stupendous task, but it is already partially completed. It is very necessary to know what areas are unfit for clearing for agricultural purposes and should remain permanently devoted to raising trees. It is further necessary to know how large our potential forest wealth is and how fast it is being depleted, whether by cutting or by fire. The rate of reproduction has, of course, a vital relation to the question of replacing the original stand. Is the natural reproduction sufficient, or will artificial planting have to be resorted to, in order to perpetuate our forest resources? How long will be required for young growth to reach commercial size? Only careful research can answer these questions. They are too vital to our forest industries to be left to guesswork and, in view of their importance, it is not surprising that the men whose livelihood depends on the forest are urging the Dominion Government to give every support to the Commission of Conservation in its forestry work.

A committee was also appointed to initiate legislation forbidding the use of false or misleading names of furs. Such legislation will protect the purchasers of furs from dishonest dealers.

Anti-tuberculosis Campaign in Canada

Institutional Accommodation In-
sufficient—Work for Tuberculous
Soldiers

The Nineteenth Annual Report of the Secretary of the Canadian Association for the Prevention of Tuberculosis tells of a widespread effort throughout the Dominion on the part of provincial and municipal health authorities in the educational campaign.

The report indicates that the capacity of the institutional accommodation for the tuberculous is 3,500 beds, but it points out that the increase is due largely to the provision made during the past year for tuberculous soldiers. Apart from the work done by the Dominion Government, there is little ground for congratulation in respect to this particular and important feature of the work, as the report states that "only about fifteen per cent of the tuberculous in Canada can now be accommodated in sanatoria and every bed available is much needed and many more are still required." The secretary emphasizes, however, the important fact that the great majority of patients will always be treated in their homes and therefore he points out that the visiting nurse is necessary and essential.

The Department of Soldiers' Civil Re-establishment is caring for 1,660 patients in sanatoria, many of whom are acquiring vocational training. The patients are divided into three classes, namely:

- A. Bed cases, suffering from the disease in acute stages and who remain in bed until their temperature is practically normal.
- B. Porch cases, who go to meals three times a day and rest in chairs in the fresh air.
- C. Exercise cases, who commence by taking a fifteen-minute walking exercise daily, gradually increasing to two hours morning and afternoon.

It is interesting to note that patients in class "A" sometimes undertake light work such as lace-making, drawing, weaving, etc., while class "B" do more of this same class of work, and as their strength increases, go on to heavier work. The more extended vocational training is taken up by class "C" who are prepared for it by suitable physical exercises.

Forest Revenue Increased in N.B.

Reorganization of Forest Service
Splendidly Vindicated by
Results Attained

The forest revenues of New Brunswick have more than doubled during the past year. It is estimated that the total will amount to about \$1,500,000. This is nearly three times the forest revenue for 1917 and closely approximates the forest revenue of Quebec. It falls only a few hundred thousand dollars short of the forest revenue of Ontario. This is on a cut of some 343 million feet of logs, ties, poles and pulpwood, supplemented by some minor sources of revenue.

The province of New Brunswick has achieved this highly satisfactory result by a thorough reorganization of its forest service. This is now administered by an Advisory Board consisting of three representatives of the Provincial Government of the timber owners. Patronage has been eliminated and efficiency and economy have been furthered by making the one organization responsible for the various lines of forest work, including fire protection, enforcement of cutting regulations and timber sealing. The staff employed consists of full-time men, who work for the Government only. Hence the sealing has been much closer, and this fact, together with a higher royalty and perhaps a slightly increased total cut, has brought about the immense increase in revenue and thoroughly vindicated the Government's progressive forest policy.

The arts and crafts work includes basketry, carving, art metal work, picture-frame making, engraving, clay modelling and designing. The whole of this work, as well as that of general education, is looked upon as of the nature of occupational therapy and the results, as we have seen, are very satisfactory.

The outstanding features of the year's work are in the province of Quebec, where the Laval Hospital at St. Foye was erected at a cost of \$250,000, and in British Columbia, where a dispensary, financed by the Rotary Club of Vancouver, has been established, to be known as the Institute for Diseases of the Chest.—C. A. Hodgetts

Rat Extermination Urgently Necessary

Various Methods of Killing Recommended are Very Effective in Conjunction when Coordinated Campaign is Launched

The rat is a great nuisance, but not a necessary one. He can be got rid of by concerted action and can be fought and kept within limits even by individual action. If means for the control of the pest are not taken, the rat's fecundity, combined with an increase of his food supply and hiding places as population becomes denser, will most certainly result in his becoming nothing less than a national menace. Indeed, he is that already and rats do an incalculable amount of damage wherever food is produced, stored or transported.

The various means at man's disposal for combatting this cunning and prolific rodent are:

A. The encouragement of the rat's natural enemies:

- (1) Domestic animals, e.g., cats, terriers and ferrets.
- (2) Wild animals, e.g., owls, hawks, snakes, weasels, etc.

As to cats, the ordinary pampered house pet is useless as a rat catcher, while a semi-wild cat is liable to be dangerous to game, poultry and small insectivorous birds. Nevertheless, the fact that the cat has been associated with man since the days of ancient Egypt shows that, on the whole, it has been found more beneficial than harmful. Terriers are commonly used by professional rat catchers and can be trained to be exceedingly expert. Female ferrets are used—the males being too large—to enter the holes of rats and either drive them forth or destroy them there.

It is strange that, though man harbours the cat, he should generally show such an antipathy to small wild carnivora. Few creatures are more beneficial to man than the owl. He preys principally on rats, mice, gophers, squirrels and other noxious rodents. The damage he does to poultry is negligible. Even the hawk, though he does take a chicken occasionally, does infinitely more good than harm. Only the Sharp-skinned and Cooper's hawks and the Goshawk are exceptions to this rule. The weasel and his congeners may indeed wreak sad havoc in a poultry-house, yet, if proper precautions are taken, they can be excluded and their bloodthirsty inclinations turned against vermin. As to snakes, the common species found in Canada are all non-poisonous. They certainly destroy many field mice and, if given a chance, there is no reason why they should not be valuable allies against rats.

B. Traps.

Rats are exceedingly cunning creatures and no trap has yet been devised which has been more than temporarily successful in any one locality. No doubt many rats can be caught with them by a skillful man, but, as a means of extermination, they are not to be seriously depended on.

C. Poisons, e.g., arsenic, strychnine, squills, etc.

Mr. E. G. Boulenger, Curator of Reptiles, Zoological Gardens, London, states that, to kill rats, he has obtained the most satisfactory results with squill poison, which, in the small quantities necessary for rat destruction, is harmless to domestic animals. It is best used by soaking bread in a solution of the poison mixed with milk. Barium carbonate, of which 1½ to 2 grains kill a rat, though 10 to 15 grains are harmless to a chicken and 100 grains to a dog, is next best. It should be mixed with tallow and smeared on bread as it makes the rats thirsty. It can be used effectively with squills. After it has been put down, bowls with squills and milk should be placed where the rat will go to drink.

Strychnine is too dangerous for general use. Phosphorus and arsenic are also very dangerous, and are less successful than squills and barium carbonate.

Since the war, the suggestion has been made that poison gas should be employed against rats. No doubt this would prove very effective in confined spaces, such as cellars and the holds of ships.

D. Bacterial cultures.

In Denmark, where a vigorous, national campaign has been waged against rats, a virus discovered by Dr. Neumann, of Aalborg, has been found very efficacious. Cultures of Neumann's bacillus are put up in tins under the name of "rat-in". It is simple to use and has been found to be an attractive bait. Its harmlessness to domestic animals has been demonstrated. Among rats, however, except in isolated instances, it produces a virulent epidemic, with a large field mortality. Experiments with this culture in Scotland, Germany, and India are also reported to have proved satisfactory.

Rabbit Rearing a Neglected Resource

Rabbits are as Profitable as Poultry and can be Raised in the City and on the Farm

Rabbits are valuable for their meat and for their fur. Their flesh is wholesome and tender and, when properly cooked, it is difficult to distinguish it from chicken. Not only are their pelts dyed to imitate more expensive skins, but those derived from some of the more handsome breeds are used in their natural colour. Rabbit fur is moreover, extensively employed in the manufacture of hatters' felt.

In northern France and Belgium, rabbits are as commonly kept on farms as poultry. It is therefore, only natural that several of the best utility breeds should have been developed in that part of the world. Enormous quantities of rabbits are consumed every year in England; indeed, the home supply has to be greatly supplemented by imports from Australia. In cities, pigs are objectionable

because they are malodorous and chickens because they are noisy; rabbits are clean and quiet, as well as easily kept. True, they will not devour the house garbage in any considerable quantity, nor is it good for them, yet they can be cheaply fed. They will eat many weeds, such as dandelions, couch grass, shepherd's purse, vetches and plantain. From the table they can be given the leavings of cereals, cooked potatoes, and milk. But their staple diet should be hay, wheat or oat straw, clover and carrots.

Rabbit hutches should be divided into a sleeping chamber, which should be tight and free from draughts, and a more open space, protected by wire netting. A small hutch may have a floor space 6 by 2 feet and the floor should be raised off the ground. For larger rabbitries, courts are used; these may be either paved or grass courts surrounded by a fence sunk deeply enough into the ground to prevent the animals burrowing out.

Boys and girls generally take an interest in feeding and caring for these animals. Work of this kind would have an educational value and would have the further merit of enlisted the sympathies of the younger generation in the campaign for greater production. Rabbit-rearing on a more extensive scale can also be made a profitable occupation for adults.

Future of Pulp and Paper Industries

Depletion of Supplies Already a Grave Problem—Practice of Forestry Essential

While there will inevitably be a large development of the pulp and paper industry in the Rocky Mountain states and a great increase of existing developments in the Pacific Northwest, including particularly Oregon, Washington, and British Columbia, pulpwood supplies in Eastern Canada and the eastern states will always have the material advantage of higher value, owing to proximity to the great centres of population, with consequent saving in freight rates upon the manufactured products.

Authorities in Canada are already becoming alarmed at the increasing difficulty of securing, in the eastern provinces, adequate supplies of pulpwood readily accessible to existing developments. Already, in too many cases, pulpwood placed in the water for driving does not reach the mill until the second year after cutting. This adds to the cost of transportation and to loss by sinkage en route, and is inevitably reflected in higher prices to the consumer.

Great areas of the most accessible pulpwood lands have been so denuded by wasteful methods of logging and by fire, that they are now in an absolute or relative condition of unproductiveness. This is exactly the reason why the pulpwood supplies of the eastern states are so near exhaustion that many mills are largely dependent upon imports from privately

owned timber lands in Canada. This heavy exportation from private lands in Canada of course correspondingly decreases the supplies that would otherwise be available for manufacture in Canadian mills.

It is obviously of the greatest importance to Eastern Canada that its great pulp and paper industries shall be permanent, rather than transitory, as is proving to be the case in the eastern states. To accomplish this end, however, it is necessary to make fully effective the view point that the forest is a crop, which can, with proper care, be produced time after time upon the same land. This means the practice of forestry.—Clyde Leavitt

Misleading Reports about Water Powers

Instances of Contradictory and Exaggerated Reports on Power Possibilities—Methods Employed in British Columbia

In an official report descriptive of certain areas in British Columbia, occur two references to Long River, tributary to McLeod lake. One explorer characterizes it as "a large stream" with "an enormous amount of power," while the other explorer states that it is "a small stream" and that "there is not sufficient water to use this for power purposes."

An engineer of the Ontario Hydro-Electric Power Commission was told by prospectors that the falls on the Kawashkagan river were capable of developing 30,000 h.p. at low water, and a surveyor assured him that the Kawashkagan would yield as much power as the Kamistikiwia. Accordingly, the engineer undertook a hard journey to investigate but found only 317 h.p. instead of the 30,000 h.p. reported.

These instances demonstrate the great importance of accurate data respecting water-power possibilities. It is also necessary that judgment be not formed on measurements taken during high-water stages. For this reason, the field engineers of the Commission of Conservation, engaged in compiling data for the report on "Water Powers of British Columbia," were not sent out when the streams were either at or near their flood stages. The effect was to curtail the season during which investigations could be carried on and thus to delay the publication of the report but, as over-estimates, occurring in an official report dealing specifically with water powers, would be particularly dangerous, it was a case where time had to be sacrificed to accuracy.

CENTRAL POWER STATIONS

The present coal consumption, for power purposes, in the United Kingdom is at least 80,000,000 tons yearly. By proper co-ordinated and centralized systems of power production and distribution for the whole country, it is estimated that 55,000,000 tons of coal per annum might be saved, in addition to other important advantages.

**Commission of Conservation
CANADA**

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BALSAM AS PULPWOOD

There is a considerable prejudice against the use of balsam in the manufacture of newsprint, caused largely by insufficient knowledge of the species. Some companies claim that balsam cannot be driven for any great distance because of the loss from sinking when the logs are in the water for any length of time, while other companies are actually driving balsam for quite a considerable distance. There are companies which have been allowing only ten per cent balsam in the annual cut of logs, regardless of the fact that the species forms upwards of fifty per cent of their total stand. The greatest trouble in the use of balsam seems to be the presence of pitch pockets caused by the efforts of the tree to heal wounds while growing. When the wood is reduced to pulp, the pitch gets into the pulp and may cause trouble on the screens and paper machine. In spite of this, however balsam can be used, as demonstrated by many companies, some of whom are using it indiscriminately in mixture with spruce, with quite satisfactory results. With the available supply of spruce decreasing so rapidly as to cause more or less alarm, and with balsam forming such a large percentage of the forests of Eastern Canada, particularly so in the young growth, the various governments and companies should and must see to it that this species is fully utilized if Canada is to maintain its position as one of the leading pulp-producing countries of the world.—C. R. Mills

GAME PROTECTIVE ASSOCIATIONS

The Commission of Conservation has taken the lead in educating public opinion in Canada as to the importance of conserving our wild life resources and in promoting measures to effect such conservation. The work that has already been accomplished has only served to indicate how much greater an effort is necessary. The assistance of all organizations concerned in the protection of wild life is essential. In a country so rich in game animals, it is surprising how few associations there are of those interested in their protection. There are a few associations of sportsmen scattered through the Dominion, but how many of these ever endeavour actively to pro-

mote wild life conservation or exert themselves except when their immediate interests are involved? Such associations of sportsmen should become active centres of propaganda for wild life conservation, not confining themselves to merely selfish interests, but dealing with the subject in a broad, public-spirited manner. Further, we should like to see associations of persons interested in wild life conservation, both sportsmen and nature-lovers, organized throughout our organizations. The effect of such organizations would be incalculable. Not only would they serve to educate the public, but they would be able to assist the governments in the effectual enforcement of the game laws. Where we now have one game protective or sportsmen's association, there should be at least ten. The possibilities of mutual cooperation between such associations and the governments are indefinite. In no way could an endeavour to promote nation-wide effort in the conservation of wild life meet with greater success than through the assistance of such organizations of sportsmen, of guides and of nature-lovers—in a word, of all who are directly interested in the adoption and carrying out of all measures that have for their object the preservation of our wild life resources.—C. Gordon Hewitt

RAILWAY FIRE HAZARDS

In 1909, the forests of Canada provided 11,000,000 tons of freight for Canadian railways. By 1916, this had been increased to 16,000,000 tons. These figures are a measure of the importance of forests as revenue producers for railways. In addition, railways require immense quantities of timber and lumber for the construction and repair of their lines and equipment.

The officials of privately owned railways have been subject to the regulations of the Railway Commission as regards fire prevention for a number of years and have shown commendable public spirit as well as excellent business insight in their willingness to comply with them. So long as coal is burned by locomotives which pass through forested regions, the danger of fire will always be serious. All brush and inflammable material must be kept cleared for a distance of from 100 to 300 feet from the centre of the track. Speeder, or velocipedo patrols must be maintained in forested regions. Special appliances to check sparking must be installed in all locomotives and provision made for competent inspection and repairs. All of these factors involve a large expenditure, but the risk falling off in the number of fires on protected lines has demonstrated the wisdom of it. Constant vigilance is the price of safety. For example, in 1918, the first year inspection of locomotives in New Brunswick was enforced it was found that 89 per cent of the locomotives were defective. In one year, this was reduced to 29 per cent.—A. Donnell

**Farm Accounting
and the Income Tax**

Farmer's Account Book Published by
Commission of Conservation
Demonstrates its
Usefulness

A Saskatchewan farmer writes to the Commission of Conservation "Received your Farmer's Account Book and think it is a very simple, handy book and I found it very useful in keeping track of everything on the farm. I entered it up about every week and do not see how a farmer can intelligently fill out his income tax returns without a book such as this." Many other farmers have written commending the book for this and other reasons.

The Commission of Conservation issued the *Farmer's Account Book* primarily to promote better farming through encouraging better business methods on the part of the farmer. The imposition of the Federal income tax has incidentally provided another, and very important, argument in favour of its use by all farmers, except such as have already a satisfactory system of keeping accounts.

It will not be out of place, therefore, to give a few hints regarding the manner in which the data noted in the account book should be used in filling out the income tax return.

The first, and most important, thing to notice is that the farm accounts must be kept absolutely separate from the household accounts. Farm expenses are allowed as deductions from income, but household expenses are not. For example, feed purchased for stock is a farm expense, but provisions bought for the family is a household expense. Similarly, insurance premiums paid on the barn, granary, etc., and depreciation and repairs on these buildings are charged to the farm, but similar expenses on the house are personal, just as they would be in the case of a city man.

Secondly, it must be noted that, with one or two exceptions, the Income Tax Branch takes no account of either receipts or expenses other than cash. The exceptions are: under *Gross Income*, the item "Value of Products Consumed on Farm"; under *Expenses Claimed as Deductions from Income*, the items "Board of Farm Help" and "Depreciation," also "Rent," if paid wholly or partly in kind. Wages for members of the farmer's family are not allowed to be claimed as a deduction unless paid in cash. Increases in live stock is not required to be declared as part of income, neither is the loss of live stock through death permitted to be deducted. Hence, even if the farmer opens and closes his books on the first of January so that his business year corresponds with the calendar year (which is not at all necessary), the total farm receipts and expenses as shown on page 25 of the Account Book will not correspond with the similar items to be declared on the income tax return.

The differences, however, simplify rather than complicate the task of filling out the return, as it is not necessary to make an inventory. The cash receipts and expenses are kept track of on pages 1-18 of the Account Book and may be readily picked out and transferred to the form supplied by the Income Tax Branch. The only troublesome item is likely to be "Value of Products of Farm Consumed on Farm." This can best be filled up from the household accounts, if such are kept, as it includes all the butter, eggs, milk, meat, poultry, vegetables, etc., raised on the farm and consumed in the house. In cases where such products are traded at a store for other articles, transactions of this nature should be entered on the books as though the storekeeper had paid the farmer in cash and then the latter had immediately spent the money in the same store. For example, if three pounds of butter is traded for a pair of gloves, the value of the butter must be entered as a cash receipt and credited to the farm. The gloves, being an article of personal use, cannot be charged against the farm as a business expense. They should be entered in the farmer's own personal account, if he keeps one, but, so far as the farm is concerned, they are a receipt, a part of the farmer's income, and not an expense at all.

If a farmer bears these two simple rules in mind, namely: (1) Keep all business expenses separate from household and personal expenses, (2) Disregard, with exceptions above noted, all receipts or expenses other than cash, he cannot go far astray in filling out his income tax return from the data supplied by his *Farmer's Account Book*.—P. M. Baldwin

THE CAUSE OF FAILURE

To be successful, farming must be made a business. Failures in farming are as often due to neglecting the business side as to any other cause. Farmers who neglect to keep exact records of their receipts and expenditures should ponder the following extract from the February "Teller," issued by the Sterling Bank.

"When asked recently by the National Association of Credit Men what in their opinion was the chief cause of business failures, 10,000 merchants replied almost to a man: 'Failure to keep books.' About the same time, another investigation among 6,000 merchants taken at random from all parts of the country, showed that only 10 per cent kept records that told them: What they had in stock; what profit they were making; what their expenditure was for selling, advertising, and other items of overhead; what particular part of their business was profitable or unprofitable. Every farmer who does not keep books should make up his mind to begin. Send to the Commission of Conservation for a free copy of the 'Farmer's Account Book.'

Canada's Fur Trade Shows Development

During the War our Exports have Increased and Now Substantially Exceed our Imports

Much has been said and written about the lure of gold in stimulating settlement and exploration. In the history of Canada, however, it was the quest for furs that provided an incentive to the traders who threaded the tangle of lakes and streams, traversed the prairies and stormed the rugged mountain passes that barred the way to the Pacific ocean. True, the outstanding leaders in the task of exploration were fired by higher motives than mere love of gain. Nevertheless, the magnificent profits to be realized in the fur trade formed the economic basis which equipped and sustained the work of discovery.

Canada is not only a great fur-consuming country, but is also one of the leading fur-producing countries of the world and, provided we take proper measures to conserve our wild life, is likely always to remain so. Although here, as elsewhere, furs are often worn for ornament, our rigorous winter makes furs almost a necessity for many persons. The farmer who drives many miles to the elevator over the wind-swept prairies, appreciates the value of a warm coonskin and knows that no covering devised by the ingenuity of man is so effective in excluding the cold as the natural protection with which the wild animals are endowed.

Before the war, we were importing more furs than we exported. For the fiscal year 1913, our total imports of this commodity amounted to \$7,993,651 and our exports to \$5,415,119, thus leaving an unfavourable balance of over 2½ million dollars. During the war, we have had a favourable balance, small at first, but rising to \$9,214,584 for the fiscal year 1919. For that year our exports amounted to \$13,737,621 and our imports to \$4,523,037. The increased value of our exports is largely due to the enormous rise in prices but also indicates a considerable increase in the number of pelts exported. It is gratifying to note that, in spite of the higher prices, our imports have actually decreased in value. This would seem to indicate that there is an increasing domestic consumption of our own furs.

In 1913, our imports from the United States were \$4,228,456 and our exports to it, \$2,343,183, showing a trade balance in favour of the States of \$1,885,273. For the fiscal year ended March 31, 1919, the figures, as given in the Annual Report of the Dept. of Trade and Commerce, are: imports, \$3,801,605; exports, \$9,743,464; balance in Canada's favour, \$5,941,859.

Our imports from Great Britain have declined from \$1,294,462 in 1913 to only \$148,456 in 1919. Meanwhile, our exports have increased from \$2,795,791 in 1913

to \$3,763,955 in 1919. Taking into consideration the rise in prices, these figures indicate an actual decrease in quantity.

Undressed furs form much the largest item in our exports, over 98 per cent of the whole, and also about 78 per cent of the imports.

In Russia, in pre-war times, great fur sales were held at Irbrit, Nijn-Novgorod and Moscow. In Germany, the great market was Leipzig, where the big Easter fair used to attract fur-buyers from all parts of the world. Montreal should take its place beside these centres as a great fur market and the Montreal Fur Sales Board seems to have selected a propitious moment for launching the enterprise, before the channels of trade, which have been dislocated by the war, again settle down into well-worn grooves.

Methods to Protect Windows from Fire

Essential Qualities of Good Shutters—Every Building Has Own Peculiar Fire Problem

The types of modern window protection from fire may be divided into three classes, namely, water jets or open sprinklers, metallic shutters, and metal or metal-covered frames in combination with wired-glass. Open sprinklers, or "water-curtains" have been subjected to no very severe tests, although they are often advocated even to the exclusion of shutters. This dependence does not appear to be justified, as water is diathermanous and permits radiant heat to pass through it readily. The greatest value of open sprinklers lies in the reinforcement they provide for other measures of window protection, such as fire-resistant shutters and wired-glass windows.

Shutters have proved their efficiency in many fires, but they are unsightly. For rear walls of warehouses and factories they may be objectionable, but, in a building occupied by tenants, any systematic method of closing them would be hardly practicable. A further objection is the fact that, if such shutters are closed at night, internal fires may attain serious proportions before discovery. Rolling shutters of the normal open automatic type do not possess these objections, but they are far more costly to install. Shutters in any form should combine the following requisites: (a) Fire resistance; this is dependent upon the material of which the shutter is made and upon the way in which it is installed. (b) The ability to resist radiation of heat. (c) Capability of being opened from the outside. The last-named feature is essential, that firemen may have access to interior fires or that the shutters may be opened to permit the escape of entrapped inmates.

Where the danger of exposure is not sufficient to necessitate the use of shutters, or, if their appearance is objectionable, wired-glass in metal or metal-covered

frames forms a more pleasing though less efficient type of protection. Wire-glass windows, however, readily admit radiant heat, and are not to be recommended for severe exposures unless used in combination with shutters or outside sprinklers.

As a rule, with light exposures of first-class construction 75 feet or more distant, open sprinklers should be sufficient, except for a risk particularly dangerous in itself. If the exposure is moderate at 40 or 50 feet and the building is not specially hazardous, wired-glass would be preferable. If the exposure is severe and within 25 to 40 feet, tin-covered shutters should be used where attractive appearance is not essential. If the exposure is less than 25 feet distant, tin-covered shutters in combination with wire-glass or open sprinklers may be used.

Canada's Stake in Pulpwood Industry

Business Shows Rapidly Increasing Investment and Large Export Trade

From April, 1914, to August, 1919, Canadian pulp and paper companies floated a total of \$40,752,876 of various forms of securities. Of this amount, \$1,199,876 only was placed in Great Britain; \$17,800,000 was placed in the United States and \$20,753,000 in Canada. Of this balance of \$1,000,000 which is uncertain, probably about \$800,000 was placed in the States and \$200,000 in Canada. The \$20,000,000 placed in Canada was floated subsequent to November, 1917, the period during which Canada absorbed three great Victory loans.

The "Census of Industry" gives the total investment in pulp and paper mills in Canada in 1917 as \$186,787,405, being an increase of \$53,050,692 or 39.6 per cent over 1915.

These figures reveal that the investment in our pulp and paper industry is very large and that it is rapidly increasing. Indeed, it may be truly said that the manufacture of pulp and paper is one of our "key" industries. We must always import many commodities from foreign nations and these must be paid for with our own exports. Very industry which produces a large surplus for export is vital to the nation's welfare.

The researches undertaken by Dr. C. D. Howe for the Commission of Conservation indicate that pulpwood is of such slow growth that the trees of the smaller diameter classes cannot be depended on to reach commercial size within a period during which the lumberman can afford to hold his limits. This demonstrates that the provincial governments must assume direct responsibility for assuring the perpetuation of a very valuable source of revenue. The vigorous prosecution of further research is necessary that whatever regulations be framed may be founded on a sound basis.

Subsoil Waters are Valuable Resource

Need for Legislative Control to Prevent Depletion—Investigations in United States

In the Fraser River flats in British Columbia are a number of artesian wells. The total investment in the development of these wells has quickly grown to a considerable volume. Individual farmers, who were the persons chiefly concerned have created important interests in the underground water supply.

Several of these interests have been encroached upon by the boring of other wells in the neighbourhood, to such an extent in some cases that wells which formerly gave a good supply are now dry. This condition has brought a recognition of the need for legislative control. It is realized that the subterranean reservoirs are limited and that a consumer who permits his "gusher" to flow continuously is causing injury to his neighbours.

In the United States, this question of the conservation of underground water supplies has assumed great importance in certain sections. In Southern California it has been a fruitful source of expensive litigation. It is not only in semi-arid regions, however, that the depletion of subsoil waters has become serious. According to Dr. W. J. McGee, Secretary of the United States Inland Waterways Commission, "throughout the inland portions of the eastern United States, the average water-table has been lowered 10 to 40 feet, so that fully three-fourths of the springs and shallower wells have failed, and many brooks have run dry, while the risk of crop loss by drought has proportionately increased."

The same investigator has assembled the records of 35,000 wells throughout the United States and has concluded that "it would appear that the actual loss of water attending the lowering is 10 per cent of the aggregate volume within the first hundred feet from the surface—a national loss of substance comparable with the destruction of forests and the uses and wastes of petroleum and natural gas, and far exceeding the consumption and waste of coal and metal."

INTERNATIONAL TOWN PLANNING CONGRESS

Delegates, appointed by the Governments of Great Britain, France, Belgium, Italy, Holland, Denmark, Norway, Sweden, Switzerland, Spain, Serbia, Greece, Egypt, India, South Africa, Australia, Canada, the United States, and the republics of South America, will be present at the International Town Planning and Housing Congress to be held in London during June of the present year.

The proceedings of the congress will occupy nine days, special trains being made available so that the delegates may have an opportunity to inspect the progress that has been made in housing schemes.