

Conservation

Published monthly for eight months in the year
by the Commission of Conservation, Ottawa, Canada.

VOL. II

FEBRUARY, 1913

NO. 1

Water-Works Inefficiency

Starting Divergence in Cost of
Supplying Water to Canadian
Cities—Waste Excessive

Ninety-five and a half million dollars are invested in waterworks systems in Canadian towns and cities. The annual outlay for maintenance, exclusive of interest, amounts to \$3,435,199. There are, in all, 5,215 miles of mains in use, and the total daily consumption of water passing through these, reaches 360,477,638 imperial gallons.

These are the figures obtained by an investigation just completed by the Commission of Conservation, the results of which are being published as a report on the Water-Works of Canada. They indicate something of the magnitude of the investments that are placed in Canadian public service utilities. By far the larger number, of these plants are owned by the municipalities themselves, but there are a few of the smaller ones that are owned and operated by private individuals or corporations.

A Glimpse at the Details

An examination of the details going to make up these totals present some interesting conditions. Thus, the estimated cost of supplying water varies from seven cents per 1,000 gallons for the municipalities of Nova Scotia, to 23 cents per 1,000 gallons for those of Saskatchewan, with costs in the other provinces ranging

Continued on Page 2

Those Weeds!

In 1910 one hundred farms were surveyed in each of the provinces of Manitoba, Saskatchewan and Alberta. Wild oats were found on practically all the farms visited in Manitoba; on seventy-one per cent. in Saskatchewan; and on only three per cent. in Alberta. In 1911, the same farms were visited in Alberta. Thirty-one per cent. of them reported having wild oats, while in 1912 eighty-two per cent. reported having wild oats on their farms and eleven per cent. say they are increasing. In Alberta in 1910, stinkweed was not reported, less than five per cent. reported it in 1911, while, in 1912, twenty-two per cent. reporting having it on their farms.

In 1911, less than five per cent. reported Canada thistle, while twenty-seven per cent. report it in 1912.—F. C. N.



The diminishing supply of fur from the more valuable wild fur-bearing animals will soon be increased by the fur farmer

The Speculation in Silver Foxes Prices of Foxes for Breeding Purposes Exceeds that for Their Fur Value—Short Selling Practised—Prince Edward Island the Centre of the Industry

A return of three hundred per cent. on the capital involved is what silver-fox farmers in the Maritime provinces received during the past year according to a report on Fur-Farming in Canada soon to be issued by the Commission of Conservation. The fur value of a silver fox varies from about \$300 to about \$2,500 according to the quality of the pelt, but the prices paid for foxes for breeding purposes far exceed this. In 1910, foxes were sold for breeders at from \$3,000 to \$4,000 per pair, i.e., not far above their fur value. In 1911, prices rose to \$5,000 a pair and about littering time, early in 1912, one pair sold for \$20,000. In the latter part of 1912, old breeders were variously valued at from \$18,000 to \$35,000 a pair.

This remarkable rise in the prices has been due to the keen demand for breeding stock by persons or companies wishing to establish themselves in the fox-ranching business. So keen is this demand for "breeders" that not a fox fit for breeding purposes is being slaughtered for its fur. Ultimately, the value of the silver fox must be determined by its fur value and not by the prices now being paid for breeders. It is plain, also, that, in the course of a few years, the numerous ranches in process of formation and which, at the present time, are creating such a demand for breeding stock, will be producing pelts for the market. The resultant increase in supply is certain to lower the prices paid for skins of this kind in the fur markets. While there is undoubtedly a sound basis for building up a paying industry in fox-farming, the public should weigh the matter very seriously before investing their money in companies whose capitalizations are based on the remarkably high prices now prevailing for breeding stock. It should not be overlooked that nearly all those who have made large fortunes in the business have done so by selling stock for breeding purposes, not for their pelts.

It is estimated that in October, 1912, there were about 800 silver foxes in captivity in Canada, of which about 650 were in Prince Edward Island. The principal points at which the industry is carried on are around Alberton, Summerside, Charlottetown and Montague in Prince Edward Island; Quebec city in Quebec; Port Elgin in New Brunswick and Wyoming in Ontario. Each pair of foxes produces one litter a year consisting of from one to nine pups, and averaging about 34 pups to a litter. They are sold for delivery in the first week in September and the fur is at its best the last week in December. So high is the speculative fever running in the industry that many of the unborn pups of 1913 have already been purchased and are partly paid for.—M.J.P.

An Efficient Farm Power

Something about the Electric Plant
of an Ontario Farmer

Farmers everywhere are interested in improvements in farm power. The old way of grinding roots and cleaning grain, etc., by hand-power has become obsolete. The windmill and the gasoline engine have done a great deal to lessen the labour problem on the farm, but both these powers have disadvantages that have prevented their universal adoption. Consequently, more than ordinary interest is centred on experiments that are being made from time to time with electricity as a farm power.

A number of farmers in Ontario have developed private electric power-plants, and the results of their work should prove of value to many others. For this reason there is given, herewith, a brief descriptive outline of Mr. F. L. Green's plant at Greenwood, Ontario.

The dynamo is driven by water-power developed on the farm, and furnishes between four and five horse-power. The interest on the cost of installation is, therefore, practically the only cost in providing the power.

The power developed is put to the following uses:

- (1) Lighting a grist mill, house, stables and dairy.
- (2) Operating a milking machine that milks 45 cows, separating the milk, and running a pasteurizer, churn, etc.
- (3) Running a small circular saw and an emery wheel.
- (4) Connections are being made to use the vacuum pump of the milking machine, so as to use it for a vacuum cleaner in the house.

The cost of installation, including special water wheel, dynamo, motor and wiring,—but not the building of the dam, amounted to about \$600.

Concerning the advantages of the power Mr. Green says:

"It is a surer power than gasoline engine—and compared with steam it is much more convenient—. The insurance companies do not object to it as much as to gasoline.

"Where a farmer has a small water-power and can afford to build a dam and put in a small water wheel properly, there is no question but that electricity will give better satisfaction than any other power, and it really does not require as much mechanical skill to run it as a gasoline engine does."

Power Sites in British Columbia

Physical Features of the Rivers—The Quesnel has Many Advantages

British Columbia is rich in water-powers. Most of the rivers are mountain streams, and consequently possess the advantages and disadvantages for power purposes that usually characterize such. Many of them, near their sources, are torrents subject to wide variation in flow. The generally rocky nature of the mountain river-beds renders the construction of dams a comparatively simple matter, but the wide variation in the stream flow makes either natural or artificial storage basins a necessity, in order to utilize to advantage, the potential energies of these rivers. As the hot sun of summer melts the glaciers and thus creates a heavier run off, many mountain streams are always at their maximum flow during the summer months.

Potentialities of Quesnel River

Keeping in mind these conditions, it is of interest to consider specifically some of the streams, the power-sites on which have been examined with a view to their possible development. One of these is the Quesnel river, a tributary of the Fraser. At its junction with the latter river, the Quesnel flows through a deeply cut channel. The river valley in general passes through a district composed of gravelly foot-hills, thinly timbered with birch, poplar and other small growth, the whole watershed having been swept by a forest fire years ago. The river is comparatively short for the volume of water it carries. It divides into two branches some seven miles from its sources; the north branch taking its rise in Cariboo lake, and the south, much the larger, in Quesnel lake. The total length of the river is approximately 70 miles. The South branch passes through two rocky cañons which present excellent opportunities for power development. The upper cañon is about an eight of a mile in length, and is at the foot of a series of rapids that reach almost to the lake, nearly three miles above. It is about 300 feet deep and has precipitous and rocky banks, making the construction of power development works comparatively easy. A thirty-foot dam combined with the present available head could give a total head of 150 feet.

Three miles lower down is a second and similar cañon. It is about one-quarter of a mile long, and its physical features correspond in general to the upper. A feature that makes the South branch of the Quesnel remarkable as a water-power project is the dam at the outlet of Quesnel lake. This dam was constructed for mining purposes at a cost, it has been stated, of \$400,000, and is of material assistance in improving the storage and regulation facilities of the lake.—G.H.F.

WATER-WORKS INEFFICIENCY

(Continued from page 1)

between these extremes.

In Saskatchewan, where the cost of delivery is higher than in any of the other provinces, the amount of water used is much less. In the city of Moose Jaw, for example, the daily consumption rate is only 15 gallons per head of population. All the water is metered and no flat rates are levied. The meter rates range from 10 cents to 25 cents per 100 cu. ft., somewhat below the average for the province. In the matter of meter rates however, there is an exceedingly wide variation in Saskatchewan. In one small town these rates range from 25 cents to 75 cents per 100 cu. ft.

Waste of Water

In eastern Canada the consumption rate is more uniform, but there are indications of considerable waste in many cities. Last year an Ontario city employed experts to ascertain the causes of waste. They found some serious leaks in mains, as well as wastage by individual users. The expert engineer in his report states that:

"Water is pumped at the present time at the rate of about 130 Imperial gallons per capita daily. At least three-fourths of this water is wasted without benefit to any one. Some of this wasted water no doubt escapes from leaks in the pipe system, but probably most of it escapes from leaky plumbing fixtures in the houses and shops of the city."

One hundred and ninety gallons of water weigh nearly one ton, so that this city is each and every day in the year, pumping four and half tons of water for each family of five persons. The average consumer may truthfully say that he is not using that amount of water, but he is PAYING for that amount and, if of the well-to-do class, probably for more than that amount.

And it is not unique in this respect. There are very few cities on the North American continent in which enormous water waste can not be found and this, despite the well-known fact that it is only necessary to install meters to put a stop to it. The Canadian who is really patriotic can not do better than consider carefully this question particularly as far as it affects his own municipality. It is axiomatic to water-works experts that, fifty gallons of water per head of population is ample and that—unless water is used for irrigation or similar purposes—all that is pumped over and above that amount is wasted.

A Modern Diogenes

The question of an efficient staff is, perhaps, the most vital problem that has to be handled at the present time—a staff that understands its business and is prepared to attend to it.—R. H. Campbell, Director of Forestry in Canada, in referring to the question of forest administration at the Fourth Annual Meeting of the Commission of Conservation.

Coal Mining in Nova Scotia

Advanced Method Followed—Department of Mines—Regulates Operations—Lower Benches of Old Mines being Developed

Conservation in the mining industry has been developed to a greater extent in Nova Scotia than elsewhere in Canada. In connection with the coal mining industry, in that province, the following is worthy of note:—

The coal lands are disposed of under a leasehold system, the period being twenty years, (except in special cases), with the option of three renewals, making in all eighty years. Under these conditions, there is little incentive to fevered haste to rob and ruin valuable coal-seams, and more care is exercised in gaining a thorough knowledge of the conditions of its occurrence, that the method best adapted to its extraction may be determined. The long period lease also gives confidence to capital and permits larger outlays to be made, in order to prevent as little waste as possible in the mining and utilization of the coal.

Government Approval Necessary

The method of mining to be adopted in the different districts is generally understood and, before a mine can be developed, or a new section of a mine opened up, it is necessary that the plans be submitted to, and meet with the approval of the Department of Mines. In addition to this, the Government requires all operators to make yearly returns showing the extraction obtained, etc. The information thus obtained is not only of value in determining the rate of exhaustion of the coal-fields, but also allows a comparison of the methods and thus tends to standardize the methods employed.

As a result of the systematic manner in which mining is carried on in Nova Scotia, large sections of coal have been mined with but very little loss.

With regard to the order in which coal seams are worked it is the practice generally to mine the highest workable seams first and to leave large pillars in advance work to support the weight of the superimposed strata. Where superimposed seams are worked contemporaneously the work in the upper seam is kept well in advance of the lower and pillars are never drawn in the lower seam until all the pillars in that section of the upper seam are removed and the roof has been allowed to settle.

Precautions in Submarine Mines

Submarine mining is carried on to a considerable extent in Cape Breton and, with the exception of the flooding of the mine at Port Hood, no accidents have occurred and no coal has been lost. Generally speaking, few submarine pillars have yet been extracted but the pillars left are of such dimensions that it will be possible, where sufficient cover exists, to recover

these pillars in retreat after the boundaries of the mines have been reached. Where seams of usable size and quality extend seaward beyond the limits of a submarine property, drawing the pillars should be forbidden. If the company's lease does not provide that the pillars be left in place, compensation for the pillar coal should be made.

In the Pietou coal-field the conditions are not so favourable for the high extraction of coal as those met with in Cape Breton coal areas. This is due to the thickness of some of the coal seams being such as to make it impossible to mine all the seam at one lift; also the high dip of the seams quickly increases the depth of cover over the workings, and as the workings extend to the dip, timbering, haulage, pumping and ventilation problems are made more difficult. To that above, may be added the fact that some of the seams are liable to fires due to spontaneous combustion; also, the top bench of the coal seams in several of the mines has been removed a number of years ago.

Notwithstanding the above mentioned disadvantages, the top coal and the bottom coal which had been previously left in the mine is now being recovered so far as is economically possible.—W.J.D.

NOTE.—This article will be followed by articles on "The Economic Use of Coal in Nova Scotia," and "The Utilization of By-Products in the Iron and Steel Industry."

Housing Pointers

You must not forget that some of the problems which confront you are not to be permanently solved; the city is ever on the move. The garden suburb of to-day is the manufacturing district of tomorrow. So you must look to it that your improvements keep pace with the growth of the city and at times even show an intelligent anticipation of such growth.

Furthermore, it is not sufficient to provide suitable and sanitary buildings. Many thousands of the working classes are far from grateful for being put into them. This phenomenon has repeatedly evinced itself in other great cities. You have not only to provide improved conditions of housing, but you have to educate the working classes to such an extent that they will insist on living in a decent and sanitary manner.—Duke of Connaught, before First Canadian Housing and Town Planning Congress.

So Much for Appearances

Popular taste is by no means a correct guide to the food qualities of fish. Thus, for example, practically no market can be found for the British Columbia white-fleshed salmon, in spite of the fact that they have a superior flavour to the pink-coloured species. Large numbers of these fish are thrown back in the streams, or are given to the Indians by the fishermen because no market is available for them.

Timely Hints For Farmers

1. The long winter evenings can be very profitably spent in reading, and in planning the coming season's operations.

2. Organize a farmer's club in your immediate district. Such clubs tend to create a friendly community spirit, and they help to interest the young people in farm life and farm work. Meetings may be held in the school house if available, or in the homes of the neighbourhood at least once or twice a month. The interchange of ideas at such meetings will doubtlessly save much time and increase the returns from the coming summer's work. Then, too, a good farmer's club can market the farm products of the neighbourhood much more cheaply, and can buy goods to better advantage than it is possible for the individual farmer to do.

3. This is a good season for cleaning rough land or the wood-land, especially in places where there is black muck or peaty soil that is liable to burn during dry weather. Do not make the mistake of supposing that burning the peat off the clay is an advantage. One acre of peaty land is worth two that have had the peat burned off. By burning the brush, decayed logs and stumps in the winter time, fire danger in the summer is lessened and young trees are given a better chance to grow.

4. The year's firewood should be looked after now. Look over the wood-lot. There may be enough dead or fallen trees for the summer supply. The wood should be drawn to the house, cut, split and piled in the woodshed. Such work should never be left for the busy days of summer, when too often the already over-worked housewife or daughter is called on to cut the wood. Do it now.

5. If new buildings are to be put up in the summer, plan for them now; draw all the material while there is good sleighing. If new fences are needed, or old ones in need of repair, this is a good time to get out posts and rails.

6. If 50 acres of land are cultivated, a silo is a profitable investment. Plan for one now. If good timber can be had on the farm get out the lumber; or, if a concrete silo is desired, the material should all be ready for use when the warm weather comes. Good ensilage turns winter into summer so far as succulent feed for the cattle is concerned.

7. Straw for feed and bedding should be under cover. Cattle fed around a straw stack require twice as much feed to keep them warm, as cattle that are comfortably stabled. The poor straw-fed animals should be a thing of the past.

8. Keep up the milk flow of the herd during the winter months. Feeding counts. Use ensilage, roots, alfalfa or clover liberally. The dairy herd has paid for many a comfortable farm home, and is

still keeping them neat and attractive. Plan to have some cows fresher at this season; prices for butter, etc., are better now than in the summer and calves are better raised in the winter. For increasing the herd select only the best calves; one good cow is better than two scrubbs.

9. Take care of the manure, draw it out and spread it if the ground is level and the snow not too deep. If the snow is deep put the manure in small piles about 8 yards apart and spread it later. If the ground slopes much, keep the manure in a shed until spring time.

10. Feed roots to all kinds of live stock. Cattle, horses, hogs, poultry all thrive on them. Roots act as a tonic and make other feeds more palatable.

11. Watch the root-house, cellar or pit; heated or frozen roots are worthless. Keep the potatoes from sprouting. So long as they are not frozen, the cooler that roots and potatoes can be kept the better. A temperature of 33° to 35° F. is best.

12. Seed grain should be cleaned now. If 10 bushels are required, take that quantity out of 20 bushels. The seed should be plump and large. The better the seed sown, the better the crop yield. Sowing only the best seed pays.—J. F.

Assisting the Commission

Until within the last few years, practically nothing was known respecting the flow of the large rivers in Western Canada. Recently however, a considerable body of valuable information has been brought together, as the result of special efforts made by a Hydraulic Office established by the Department of the Interior, at Kamloops, B.C.

Engineers from this office have been operating in the field under the capable direction of P. A. Carson. The engineers engaged upon this work are: C. G. Cline; E. M. Dann; C. E. Richardson and H. J. Keys. It is expected that some of the information gathered by these men and relating to the flow of rivers like the Columbia, the Fraser, the North Thompson, the South Thompson and the Adams, will be published in a report to be published by the Commission of Conservation dealing with the Water-Powers of Western Canada.—A.V.W.

The Unthinking Match

A match doesn't think with its head. When you use it, your head has to do all the thinking. Don't trust the match to fall where it cannot start a fire and thus make you responsible. The progeny of matches—cigarette or cigar stubs and camp fires—have no heads at all. Do not trust them, either. Do the thinking. Put them out.

Seed Growers' Meeting

The programme for the Ninth Annual Convention of the Canadian Seed Growers' Association to be held in Ottawa on March the 6th and 7th has just been issued. The question of "good seed" is one which is engaging the attention more and more of the leaders in agricultural thought and practice throughout the Dominion and one which is of great national concern. Seed which is more productive, free from seeds of noxious weeds and which is capable of producing plants suited to thrive under the various conditions which are met with in Canada is an enormously important factor in successful agriculture. The various factors which go to influence the production of this seed will be dealt with both by experts and practical growers at the coming convention. The first day will be devoted to the receipt and discussion of reports from officers who have been engaged in carrying out the work of the Association in different parts of Canada and who may be expected to present some very interesting information. On the second day the question of producing seeds of field roots and vegetables in Canada instead of having to import these from European countries will be dealt with, as will also such matters as rates of seeding in cereal grains and statistics showing the extent to which the average farmer gives attention to the matter of cleaning and grading the seed which he sows. Among those who will address this convention may be mentioned the names of Mr. G. H. Clark, Seed Commissioner; Mr. W. T. Macoun, Horticulturist, Dominion Experimental Farm; Prof. C. A. Zavitz, O.A.C., Guelph, Ont.; Mr. F. C. Nunnick, Agriculturist, Commission of Conservation; Mr. E. D. Eddy, Seed Branch, Ottawa, and the Secretary, Mr. L. H. Newman, Ottawa. The convention will be held in the Canadian Building, Slater street and will begin at 10 a.m., on each of the days mentioned. All who are interested in this movement should do their best to be present at this convention.

Demand for Foresters

The remarkable expansion of forestry work in Canada during the past year is evidenced by the fact that all the men who will finish forestry courses next spring at the University of Toronto were offered employment months in advance of their graduation. If the class were several times as large there would still be no difficulty in their finding employment in Canada. The organization of the new Forests' Branch in the Department of Lands of British Columbia and the natural growth of work in the Dominion Forestry Branch, Department of the Interior, are largely responsible for this situation. At the present time the supply of Canadian foresters is far below the demand and this condition will continue for several years at least.—C.L.

Report on Forests

At the Fourth Annual Meeting of the Commission of Conservation held at Ottawa, January 21st and 22nd, the report of the Committee on Forests was approved, covering recommendations with regard to the following points:

Approving the plan of co-operation in effect between the Board of Railway Commissioners and the Dominion and Provincial Governments for the enforcement of the fire regulations of the Board; urging the establishment of a fire-protective service along the Intercolonial and National Transcontinental railways similar to that provided for in the fire regulations of the Railway Commission; urging the Government of Nova Brunswick and Nova Scotia to organize separate branches devoted especially to forest fire work and to appoint technically educated provincial foresters as has been done in British Columbia, Ontario and Quebec; calling attention to the necessity of considering the requirement of brush disposal in the issuance of new licenses and the renewal of old licenses by Dominion and Provincial Governments; approving the organization of co-operative associations of land holders and the principle of contribution by the Dominion or Provincial Government to the benefits received, by urging the Dominion and Provincial Governments to begin a systematic study of the extent and character of forest resources; emphasizing the necessity for the collection of complete fire statistics; approving co-operation with the Government of Ontario in an examination of forest conditions west of Sudbury and south of the Clay Belt; approving the proposed extension of the Dominion Forest Reserves and the establishment of a game preserve in the southern portion of the Rocky Mountains Forest Reserve and in south-eastern British Columbia adjoining the Glacier National Park; urging that all appointments in the forest services of the Dominion and Provincial Governments should be based solely on capability and experience; urging the Government of Ontario to undertake a systematic classification in the Clay Belt in advance of settlement to the end that settlement may be properly directed, and that non-agricultural lands may be reserved from settlement and entry.—C.L.

MINING INSTITUTE MEETING

The Annual Meeting of the Canadian Mining Institute will be held in the Chateau Laurier, Ottawa, on March 5th, 6th, 7th, 1913. The Institute is an organization of Canadian mining engineers who meet annually at various places in Canada for the consideration of matters of interest to those engaged in the mining industry. At the coming meeting it is expected that engineers from the various mining regions of Canada, as well as several American engineers will be present. Papers will be read and discussed on mica, graphite, the treatment of Cobalt and Porcupine ores, etc., etc.



Rev. Rural Dean, Alex F. Robertson

Pleading the Gospel of Good Farming

Any leader or public servant, to be truly efficient, must be in full sympathy with; must understand; and must live the daily life of those for whom, and with whom he works. It follows that, if they are to be of greatest service, ministers in rural districts must know agriculture and the social and economic conditions of farm life. Such a man is Rev. Rural Dean Robertson of Cookshire, Compton Co., Quebec. Born and raised in the adjoining county of Stanstead, he knows much about practical agriculture and local conditions. Being a careful student and reader, he is well informed in the science of farming. During his long pastorate at Cookshire he has taken a very keen interest in everything that stands for advancement and progress in agriculture. Last summer he organized an excursion to Macdonald College farm in which over 200 farmers participated. In the autumn of 1912 a Farmer's Club was formed at Cookshire, with Dean Robertson, who was largely responsible for its organization, as first president. He arranged a series of meetings, and secured, as speakers, some of the best authorities on agriculture in Canada. The Agriculturists of the Commission who visited this Club on January 24th say it was, in every way, one of the best meetings they have yet attended. Then, there is the Women's Institute too, which has been organized lately in Cookshire. Dean Robertson was instrumental in getting it off to a good start.

In the matter of improving and re-directing the rural school system of Quebec, he takes a live interest, and is going about it in the right way. A strong committee was appointed at the last Club meeting to prepare a statement, setting forth in logical and definite form, the changes and improvements the farmers think should be made. This will be sent to the Minister of Education who has promised his assistance when he knows what the farmers want. The social side of farm life is not neglected. The Club and the Women's Institute

have planned to join in a banquet as a fitting finale to their series of winter meetings.

The valuable work which Dean Robertson is doing is worth while considering as an example of what should be done by every minister labouring in a rural field. It is the kind of leadership needed. It will help the farmer in his task of making a living, living a life and in solving the problems of the larger community.—F. C. N.

CENSUS LESSONS

Striking Facts Brought Out by Latest Census

No. 1.

According to the census returns of 1911, the province of Ontario has a population of 2,523,208, an increase of 340,261 for the census period 1901-1911. The greater portion of this increase is so far as the rural districts are concerned is accounted for in New Ontario. Thus the increase in Algoma district was 30,227; in Nipissing district 45,821; and in Thunder Bay and Rainy River districts 38,262 or a total increase in these four districts of 114,310. These increases are largely accounted for by the rapid exploitation of the mining areas of New Ontario that has taken place during the past ten years. The growth is, therefore, scarcely analogous to the development of rural population as that is commonly understood.

In older Ontario the bulk of the increase in population is shown in the cities, many rural districts showing a marked decline. The city of Toronto made an increase of 160,843; the city of Hamilton, 29,335; the city of Ottawa 22,836; the city of London, 8,324; and the city of Peterborough, 5,474. These five cities therefore account for 226,812, or over 66 per cent. of the total provincial increase. More than that, the increases in these five cities taken with the increase in the four districts of New Ontario already referred to, reach 341,122, or 861 more than the total increase for the Province.

It would be interesting to know to what extent the emigration of Ontario farmers to Western Canada is responsible for the rural depopulation of Ontario, and also what percentage of British and foreign immigrants remain in the cities. In any case it is obvious that the rural population of Ontario is declining rapidly, while the urban is increasing with still greater rapidity. The phenomenon is one that is common to many parts of America to-day, and it means that new social, economic and industrial adjustments must be made with as little delay as possible in order to lessen the hardships incident upon all such changes. Housing problems in cities must be taken up with greater earnestness in order to prevent the development of slums and shack town districts, and what is just as serious a menace—the sky scraper districts. Better and

cheaper methods of urban transportation must be provided in order to make it possible for the city worker to live in a suburban home, where he can cultivate a garden and do something towards supplying his own primary wants. Healthy occupation along these lines will tend to lessen the number of secondary wants that the average city dweller has come to have and the supplying of which demands the services of many thousands of people. On the other hand, country life can easily be made more attractive. The frequently quoted phrase, "better business, better farming, better living" sums up that side of the question fairly accurately. The problem is a national one and the cities and the country should work together to solve it.—A.D.

An Offer to Farmers

Have Your Crop Rotation Planned by an Expert

Draw a sketch of your farm, giving the number of acres in each field, the kind of soil and the kind of crops grown on it for the past three years. Also specify the line you are particularly interested in, namely, dairying, beef production, sheep or hogs, or grain growing. Distance from the market has also to be considered. Send this to the Commission of Conservation, Ottawa, and they will make suggestions that will be a material help in deciding the best crop rotation for your farm.

Fire Protection in British Columbia

The organization of fire protective work in British Columbia has been much more effective during the past season than previously. The Forest Act of 1912, provides for regulating the operation of railways, removal of slash along roads and other dangerous places, the construction of fire-breaks on logged-off lands, requiring permits to burn slashings, establishing a dry season and providing for patrol and fire-fighting forces. The patrol during the summer of 1912 consisted of 17 divisional wardens and about 150 district wardens and patrolmen. The cost of patrolling and fire fighting amounted to about \$175,000. Funds for this purpose were obtained by a tax of one cent per acre on all timberlands in private ownership, under lease and under license, with an equal amount raised by general taxation.

During the season of 1913 the efficiency of all lines of work, including fire protection, will be materially increased by the establishment of the district system. The Province will be divided into districts with a district forester in charge of each, who will be responsible for the general supervision of all lines of work, subject to the direction of the Chief Forester, Mr. H. R. MacMillan.—C.L.

Resolutions Respecting Fisheries

Passed at Ottawa by the Commission of Conservation on January 22, 1912

WHEREAS the present fisheries protective service is admittedly susceptible of much improvement.

THEREFORE BE IT RESOLVED that the immediate necessity of a re-organization of the service be called to the attention of the Minister of Marine and Fisheries and,

That in our opinion the following considerations should be recognized in such re-organization:

(a) The desirability of employing permanent officials paid sufficiently large salaries to enable them to devote their whole time to the work.

(b) The advantage of having each official, on appointment, a stranger in the district to which he is appointed, and where practicable, to have him moved to a new district periodically.

(c) The immense gain in the efficiency of the protective service in having all appointments made on the sole ground of the capability of the appointee to discharge the duties of his position.

Instruction for Fishermen

RESOLVED THAT the Government of Canada should provide instruction for fishermen in the pursuit of their calling in a similar way to that in which it is providing instruction for farmers, and further,

That the Biological Board of Canada be re-organized so as to provide for the permanent employment of a staff of scientific fisheries experts thereon.

Revision of Oyster Regulations

RESOLVED THAT it is expedient that the regulations regarding oyster fisheries be revised to the end that they be adapted to the conditions arising from oyster culture operations now being entered upon in Prince Edward Island, and especially that the regulation providing that oysters may be fished for and dealt in only from October 1 to March 31, be amended so as to permit oysters from private beds to be fished for and dealt in at any time of the year, thus preventing a glut in the market during October and November.

Eastern Railway Fire Protection

Mr. E. J. Zavitz, Provincial Forester for Ontario, has been appointed Provincial Fire Inspector by the Board of Railway Commissioners, and subject to the general supervision of the Chief Fire Inspector will direct the enforcement in Ontario of the railway fire regulations of the Board. Similar action as to Quebec has been taken by the appointment of Mr. W. C. J. Hall, Chief of the Forest Protection Branch, Department of Lands and Forests, Quebec. It is anticipated that co-operation with the Railway Commission will be extended to the provinces of New Brunswick and Nova Scotia through action by the respective Provincial Governments.—C.L.