

Conservation

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The Tide of New Canadians

Over 350,000 Immigrants Arriving Yearly—They Aid Production, Increase Consumption; But Aggravate the Slum Problem

Few people stop to think what the tide of immigration pouring in annually means to this country. During the last fiscal year (ending March 31, 1912) over 350,000 immigrants entered Canada, and month by month the number is increasing. The addition of these producers and consumers to Canada's population means greater demands for all the necessities of life, a larger supply of labor for all productive undertakings and greater civic problems; for, notwithstanding the amount of free land available, a large number of the immigrants gravitate to the cities and add their number to the already large slum population.

The following table shows the number of immigrants entering Canada in the past five years, classified according to the country of origin:

Immigration into Canada, 1908-12

Fiscal Year	Britain	U.S.	Other Countries	Total
1908	120,182	58,312	83,975	262,469
1909	52,901	59,832	34,175	146,908
1910	59,790	103,798	45,206	208,794
1911	123,013	121,451	66,620	311,084
1912	138,121	135,710	82,400	356,231

Ten years ago, the total annual immigration was only 67,379. In that time, therefore, the increase has been slightly over 425 per cent., while in the past five years, it has amounted to nearly 35 per cent.

Western Water Powers

Work of the Commission of Conservation in Collecting Data

The Prairie Provinces' water-powers upon which fairly definite information is available are mostly all confined to the southern portion of the provinces. This is a rather unfortunate coincidence and is likely to mislead the uninitiated regarding the total potentialities of these provinces, as the larger water-powers are situated in the north, on the Athabaska, Peace, Slave, Churchill, Nelson and other rivers. As even a preliminary survey of these rivers will be of great value,

the Commission of Conservation has undertaken this work. During the last two summers, its Hydro-Electric Engineer, Mr. L. G. Denis, has been in the field making measurements of flow, height of falls, etc. Last year, the many rapids of the Athabaska river were investigated and the flow of the Peace and other rivers was measured. This year, the work included many long miles of travel, mostly by canoe, the western limit of the trip being the Peace River canyon in the north-eastern portion of British Columbia, while the northern limit was Fort Smith, on the Slave river. On the return trip the several rapids and falls in the Clearwater river and the upper waters of the Churchill were investigated. The general impression created by these large northern water-powers is that they will undoubtedly become of great value in connection with the wood-pulp industry. The raw material is close at hand, the only retarding factor, at present, being the lack of means of transportation and access. The details obtained by these investigations will be included in the Commission's forthcoming report on the "Water-Powers of Western Canada."

Newspapermen who desire to reprint illustrations used in "Conservation," from time to time, can obtain the plates by communicating with the Commission of Conservation at Ottawa. All that is asked, is that the cuts be returned promptly, so that their use may be made as general as possible.

Contributors to Canada's Wealth

The Amounts Contributed by the Leading Industries

It is always of interest to compare the values of the products of each of the leading industries of a country. Everyone will tell you that Canada is immensely rich, but when you demand particulars, they are not so readily forthcoming as are general statements. Canada has, as yet, made such statistical progress as to permit a close comparison of this kind to be made for a particular year. The following figures, however, are approximations of the value produced annually by our greatest natural resources, and by manufacturing:

Field Crops and Dairy Produce	\$604,800,000
Forest Products	161,093,000
Minerals	102,300,000
Fisheries	29,965,000
Value added to raw products by manufacturing	563,630,000

Crop Rotation Distributes Labor

A Factor in the Solving of the Farm Help Problem

With a rotation of crops there may be an economy of labour. It distributes the labour throughout the year, since different crops are sown at different times and come to maturity at different times. The continuous employment of men may be very advantageous, in that the farmer will be able to secure better help if he is able to offer steady employment.

The careful results of raising single products in extended districts may be seen in the great wheat districts of the Northwest. For many of the men employed in the rush season to take care of the grain crop there is very little true home life. Men are often herded together like cattle, sleep where they may, and subsist in the best way they can. The work is hard while it lasts, and then it abruptly ceases, and the men are left to find work wherever they may. This intermittent labour is demoralizing, especially to the younger men; and the higher the wage and the shorter the period of service the worse it is. The welfare of the workman and his family should receive consideration.

The man following a rational rotation and who keeps live stock is in a position to secure the best class of help because he can give employment the whole year through. One thing that was clearly brought out by the Agricultural Survey in 1911, by the Committee on Lands of the Commission of Conservation, was that the labour problem is a very serious one and is becoming very acute in many places. The homegrown help is by all means the most satisfactory and the man who follows a rotation and distributes the work over the year will not be so dependent on outside help as the single cropper is, especially at the rush season.

TO OUR READERS

"Conservation" is being published primarily for the use of newspapermen. In the form in which it has previously appeared it was difficult for the newspapermen to make clippings without mutilating articles on the reverse side of those clippings. It has been decided, therefore, for the present at any rate, to print on one side of the paper only.

Petroleum Resources of Canada

Shale Deposits in the Maritime Provinces—Tar Sands in the West—Petroleum as a Locomotive Fuel

While the actual petroleum resources of Canada are comparatively small, nevertheless the potential resources are considerable.

In New Brunswick and Nova Scotia there are enormous deposits of oil shales which are valuable as a source of oil. On an average these shales will give a higher yield of crude oil per ton than the oil shales worked so extensively in Scotland.

In the vicinity of Fort McMurray and Fort McKay on the Athabaska river, Alberta, there are enormous deposits of tar sands. The bitumen in the tar sand is the residue from evaporated petroleum and it has been estimated that there is 6½ cubic miles of solid bitumen in the tar sands exposed on this river.

Although enormous quantities of oil have evaporated from this district, nevertheless it is probable that accumulations of petroleum exist where the geological structure was such as to prevent its escape. This is also substantiated by the fact that natural gas occurs in quantity in districts where the tar sands are capped by overlying measures.

If large quantities of petroleum were discovered in Alberta, it would be a factor of great importance to the railway interests which operate in the Rocky Mountains and Jasper Parks and in other forest areas in British Columbia and Alberta.

Oil as a Locomotive and Marine Fuel

The Canadian Pacific Railway is now using oil-burning engines on its main line between Kamloops and Field in British Columbia. The Grand Trunk Pacific and some of the Canadian Pacific coast steamships also burn oil, and other boats are being changed from coal-burners to oil-burners. The oil is obtained from the California oil-fields. If supplies can be obtained at the prices now prevailing, its use will be very largely extended. Its cleanliness, the greatly decreased smoke, the decrease in the number of firemen required, the economy particularly in intermittent service, the increased efficiency—two boilers with oil, in steamship service, giving same steam as three with coal—and other considerations make it an almost ideal fuel.

Oil-Mixed Concrete

New Uses Found for Important Building Material

Concrete as a construction material has attained wide popularity. Nevertheless, it has faults which have rendered it of little value for certain classes of work. Perhaps the most serious of these faults is its porous, absorbent qualities. This is evidenced by the damp appearance of concrete houses during periods of wet weather, and in reservoirs that persist in losing water.

How the Discovery was Made

Until recently it has been impossible to produce a concrete mixture that would not absorb moisture. While carrying on experiments with a view to obtaining a non-absorbent, dustless road material, an engineer, Mr. L. W. Page, found that when a heavy, mineral residual oil was mixed with Portland cement paste, it entirely disappeared in the mixture, and, furthermore, it did not separate from the other ingredients after the cement had hardened. The possibilities of oil-cement mixtures for waterproofing were recognized, and further extensive experiments were carried out in order to ascertain the physical qualities of concrete, to which varying quantities of oils had been added. The results are, briefly, these:

(1) Concrete containing oil has been demonstrated to be damp-proof.

(2) The admixture of oil does not affect the tensile strength of the concrete, where the mixture consists of one part of cement to three of sand, with the oil added, not to exceed 10 per cent. of the weight of the cement used.

(3) The compressive strength of the concrete suffers to a slight extent where oil is used in the mixture.

(4) The bond of oil concrete to plain steel reinforcement is much less effective, than where the oil is left out. In the cases where deformed steel or wire mesh was used, however, the bonding was found to be satisfactory.

(5) Petroleum residuum oils which conformed to somewhat scientific specifications were found to be the most suitable for this class of work, and considerable extra care is necessary in the mixing of the concrete. In short, the results of the experiments go to show that the use of oil in concrete has enlarged the field of usefulness of one of the most important building materials. Such structures as basement floors and walls, cisterns, silos, reservoirs, roofs and concrete blocks can, in this way, be rendered damp-proof at a comparatively trifling expense.

Cities, like men, have careers, which to a great extent are determined by environment and to a great extent by the innate energy and the habitual ethical standards of their inhabitants. The city can no more escape from the penalties of early heedlessness than a man can remove from his life the scars left by recklessness and wickedness in his youth.—*Deios F. Wilcox.*

Large National Forest Timber Sale

How Timber is Disposed of from National Reserves in the United States

The United States Forest Service has recently made a sale of 800 million feet of timber on the Sierra National Forest, California. Such large and long-time sales of national forest timber as that to the California company are a new development in the Forest Service. Great bodies of mature but inaccessible timber can be put on the market only if sale contracts are let on terms which will justify a very heavy initial investment in transportation facilities. In entering into such contracts, however, special safeguards to protect the public against monopoly and to prevent an undue speculative profit are employed. To open up this area, will require the construction of 70 miles of logging railway, which will also place on the market a large amount of national forest timber not included in this sale. The company is given a cutting period of 22 years to remove the timber, and a readjustment of stumpage prices every five years, is provided for. Brush will be so disposed of as to minimize the fire danger and seed trees will be left to ensure a future crop. The adoption of this policy of wise use will greatly increase the forest revenues and will, in the long run, leave the forest in better shape than before. For several years the Forest Service has been selling in the neighbourhood of a million dollars worth of National Forest stumpage per year, but this combined with what is cut for free use is only about one-eighth of what might be cut without reducing the permanent stock of the forests.

The foregoing indicates the profits that will accrue to Canada when it is possible to make similar sales of timber in the areas that have been segregated as forest reserves.

USE OF SAWMILL REFUSE IN GAS PRODUCERS

It Prevents Clogging with Tar as in the Case of Anthracite-Burning Plants and Produces a Gas of Much Higher Efficiency

In a recent number of an engineering publication an engineer gives his experiences in using different kinds of fuel in a gas producer plant of 840 h.p. capacity. At first, various kinds of anthracite were used, but had to be discarded on account of clogging the whole system of pipes and engines with tar. Coke was next tried, but was found unsatisfactory, both because a lower quality of gas was produced—*from 80 to 110 B. t. u.*, as compared with 125 B. t. u. for the gas generated from anthracite—and also because the producers filled up with ash which fused, causing cavities that could not be poked out.

It was noticed when burning coke

that the quality of the gas was improved by feeding in barrel staves. This led to the use of sawmill refuse as a fuel. The material used was "cypress hog," consisting of about 50 per cent. of chips discharged from the "hog"—a machine used to destroy sawmill refuse. The moisture content of these chips ranged from 30 to 55 per cent. From this fuel, a gas ranging from 130 to 135 B. t. u. was obtained. When "pine hog" was used, a gas showing 161 B. t. u. was produced.

The quality of the gas was found to be much more uniform than when the other fuels were used and no trouble was experienced with clogging from tar or carbon deposits. As a matter of fact, the dry scrubber, found to be necessary with the other fuels mentioned, was discarded and the tar extractor is only occasionally needed.

Utilization of

By-Products

An Important Feature of Modern Industry

By-products are a very important factor in modern industry. The old practice of discharging industrial by-products into the nearest stream, is not only a disgusting one, but it is exceedingly unprofitable as well. The modern manufacturer seeking for increased dividends looks about him for means to use his waste materials.

For example; the refuse of the oil refinery is converted into perfumes, flavouring extracts and mineral oils. The slag of iron furnaces is utilized as ballast on railroads, or is converted into paving stones, slag-brick or cement. The by-products of the meat-packing industry are so turned to account as to actually pay for converting the animals into food. The blood is transformed into albumen for bleaching, the offal into fertilizers, the hoofs into glue, the horns into buttons, knife-handles, etc. The hooves become ivory and gelatine, the hair is made into mattresses and felting, and the various fats into butterine, oleomargarine, etc. The by-products from the coking of coal may be transformed into gas for power, ammonia for refrigeration, ammonium sulphate for fertilizers, pitch for paving, roofing and as a binder for coal briquettes, carbolic acid, benzol, benzine, lubricating and other oils and aniline dyes. Recently too, a European forestry engineer has made the boast that he can utilize every particle of the tree but the rustle of the leaves.

More and more will be the industry of the future seek to prevent waste. Competition demands it. Common sense demands it. "Industrial wastes" must become an obsolete term.

The lack of adjustment between city and country must be remedied, but the remedies lie in fundamental processes and not in the treatment of symptoms. Undoubtedly very much can be done to even out the economic situation and the distribution of population; and this needs careful and continuous study by commissioners or other agencies created for the purpose.—*Dr. L. H. Bailey.*

Disposal of Coal Lands

Leasehold System Superior to Granting Lands in Fee Simple

The coal areas in Nova Scotia, Manitoba, Saskatchewan and Alberta, are, at the present time, disposed of under a leasehold system. From the standpoint of conservation this is an ideal system and it would be a deplorable mistake if it were changed in any of the above mentioned provinces.

The advantages of a leasehold system are as follows:—

1. The government obtains a revenue from every ton of coal produced.

2. The government retains a right to the coal areas. This would not be the case if they were disposed of fee simple.

3. There is less likelihood of conflict between surface rights and coal rights.

4. As the leases are given for immediate development, it is not possible for private interests to hold coal lands for speculative purposes.

5. The government has the power to insert clauses in all leases for the purpose of preventing wasteful mining operations and also requiring the operators to give complete information relating to the work.

Farm Drainage

Something About Its Cost and Its Advantages

Through under drainage may cost from \$20 to \$40 per acre but it will pay for itself in from one to three years because:—

1.—Land is ready for seeding earlier in the spring.

2.—The soil is warmer in the early spring. The seed, therefore, germinates more promptly and begins a healthy growth at once.

3.—There is no drowning out of crops due to heavy and continued rains.

4.—Fertilizers are not lost by surface washing.

5.—More air circulates through drained than through undrained soils, and all crops require pure air for their best growth.

6.—Roots of plants go deeper in drained than in undrained lands. This not only gives them greater feeding range, but makes them more drought resistant, because they are nearer the water line in dry seasons.

7.—Frosts do less injury to crops. The drains make it possible to get better catches of grasses and clovers and minimize the losses from late spring and early fall frosts.

8.—Drained land is more easily worked than undrained. The cost of man-power, horse-power and machinery is thus materially reduced.—*Central Experimental Farm Bulletin.*

Mine Rescue Apparatus in More General Use Government Should Place Such Apparatus on the Free List

Canadian coal mines have had a rather high death rate from accidents. In mining, perhaps more than in any other work, "accidents will happen," but that fact should not act as a hindrance to taking every possible precaution to prevent them. In the last two years, Canadian coal mine operators have expended considerable sums of money in establishing mine rescue stations and in equipping them with the latest and best apparatus for guarding against loss of life incident to mine fires and explosions. This lifesaving apparatus is not manufactured in Canada and, when imported, duty is collected upon it. This duty is refunded if the importer makes application in the proper form, but putting these articles on the free list would be more convenient and advantageous, particularly as business men have an antipathy to going through the required form to secure the refund.

The official figures showing the refunds of duty made on this account indicate the increasing interest being taken in mine rescue work in Canada. In the fiscal year ending March 31, 1910, no refunds were made, in 1911 they amounted to \$267, and in 1912 to \$4,580.14. The installation of equipment to save lives in mine accidents is a laudable work and deserves every possible encouragement.

Forest Conservation in Southern India

Southern India is doing much in the way of forest conservation according to a report on the commerce and development of that portion of the British possession made by Consul Jose de Olivares of Madras. This report says that the development of forest conservation within the last 25 years has been marvelous. From 10,000 acres the area of reserved lands under control of the forest department had increased to 20,030 square miles, in 1910-11, of which 18,769 square miles constituted actual reserved forests. During the same period revenue from forests has grown from \$389,200 to \$1,223,366 and expenditures on conservation and development from \$291,900 to \$1,043,884. In 1910-11, the net profits from the working of the forests amounted to \$179,482. The department devotes practically its total receipts to the improvement of the forests.

Among the products of the Madras forests are such commercial woods as teak, rosewood, ebony, mahogany, sandalwood, cedar, pine, bamboo, erool, muthu, jambae and orupoo. The timber removed from the forests in 1910-11 amounted to 3,041,426 cubic feet and of fuel extracted 22,157,061 cubic feet. There were cut also 89,216,767 bamboos. In addition the forests yielded minor products, including grass, to the value of \$431,238.

Facts and Figures for Farmers

The yearly profit from your business is the difference between the cost of production and the value of the output. To increase your net returns you must widen the margin between cost and selling value.

Large implements pay in so far as they reduce the cost of production without impairing the efficiency of the work done.

Thorough cultivation pays in so far as the resultant crop values are relatively greater than the increased cost of production.

At the Central Experimental Farm in 1911, there was spent on each acre of land under crop, over \$14 (including rent, manure, seed, twine and use of machinery) in order to get maximum net returns. Are you spending enough on the cultivation of your crops for best results?

Cost per Acre of Some Operations

Again, count the various operations required to prepare for and harvest a crop of grain, and calculate what larger implements would save you on a 10 acre field. Would it pay?

1.—Ploughing with single plough.....	\$2.00
Ploughing with two-furrow gang.....	1.25
2.—Discing with small disc (3 cuts necessary).....	0.90
Discing with large disc (2 cuts necessary).....	0.80
Discing with double cut-away disc (1 cut necessary).....	0.45
3.—Seeding with two-horse seeder.....	0.22
Seeding with three-horse seeder.....	0.18
4.—Cutting grain with 6-ft. binder.....	0.28
Cutting grain with 8-ft. binder.....	0.20
5.—Cutting hay with 4½ ft. cutting bar.....	0.31
Cutting hay with 6-ft. cutting bar.....	0.20
Cutting hay with 7-ft. cutting bar.....	0.18
6.—Cultivating roots with single cultivator (once over).....	0.62
Cultivating roots with double cultivator (once over).....	0.45
7.—Harrowing with two-horse harrow.....	0.15
Harrowing with three-horse harrow.....	0.12

Jack Pine for Pulp

Canada's Jack Pine Areas will Assume a New Importance

That jack pine pulp is entirely suitable for the manufacture of news print paper has been clearly demonstrated at the U.S. Forest Products laboratory, at Wausau, Wis., where experiments have been conducted in co-operation with the American Paper and Pulp Association. The rapid increase in the price of spruce makes the discovery of a satisfactory substitute of great im-

portance at this time. From 1900 to 1909, the price of spruce increased from \$4.83 to \$9.32, or 93 per cent. In Eastern Canada are large areas of non-agricultural land where the old forest has been cut over and burned over repeatedly, until the more valuable species have been driven out and jack pine constitutes a heavy percentage of the stand. These areas have, in general, been considered as waste lands. It now appears, however, that such lands will take on a new importance and will amply justify the expenditure of money for protection from future fires in view of the certainty that large revenues may be secured either now or later, from the utilization of the jack pine for the manufacture of pulp. The importance of this timber will necessarily increase with the exhaustion of the supplies of other species within reasonable distances of the markets.

Sea-Fisheries of Eastern Canada

The Commission of Conservation has just issued a report on the "Sea-Fisheries of Eastern Canada" that is of more than passing interest to all who are interested in the fisheries of Canada. The volume, which is bound in cloth and illustrated in colors, consists of a report of the proceedings of the Committee of the Commission on Fisheries, Game and Fur-bearing animals, which was held in Ottawa on June 4th and 5th last. At this meeting, a number of experts delivered addresses on different subjects relating to fisheries, and these were thoroughly discussed by the members of the Committee.

The following is a list of the addresses which the report contains:—

Chairman's Address, by Dr. C. C. Jones;	
Whitefish of the Great Lakes, by M. J. Patton, M.A.;	
Conservation of the Oyster, by Joseph Stafford, M.A., Ph.D.;	
The Lobster Fishery of Canada, by W. A. Found;	
Oyster Fishery of Prince Edward Island, by Hon. J. A. Matheson, K.C.;	
Needs of the Fisheries of Nova Scotia, by Dr. Howard Murray;	
Sea-Fisheries of Eastern Canada, by J. J. Cowie;	
The Shark Fishery of Canada, by E. E. Prince, LL.D.;	
Fish Culture in Canada, by W. A. Found;	

The appendices contain a number of useful statistical tables respecting fisheries, especially whitefish and shad.

FOREST CONDITIONS OF NOVA SCOTIA

"Forest Conditions of Nova Scotia" is the title of the latest report issued by the Commission of Conservation. It is based on information gathered from a reconnaissance forest survey of the Province, made by Dr. B. E. Crompton, assisted by Dr. C. D. Howe and Mr. J. H. White. The work is unique in so far as Canada is concerned, and will doubtless prove of value and interest to those concerned with Canadian forestry.

Heat and Power from Sawdust

Utilizing a Product that has Hitherto Been Wasted

An application has been made to the city of Vancouver by ten prominent saw-mill owners for a franchise to sell steam heat, and electric light and power generated by burning saw-mill refuse. The application came immediately after the report of a committee of the City Council dealing with the smoke and saw-dust nuisance due to burning mill refuse in the city.

It is proposed to install plants for burning the refuse at each of the various mills, thus permitting a wide zone of distribution and enabling steam heat to be furnished at much lower pressure than from one central plant. The intention is to establish an auxiliary oil-burning apparatus at each mill for use in case of accident to the main plant and also whenever the supply of refuse runs low.

The problem of disposing of refuse without a loss has confronted mill owners for years and with coal selling at \$7.50 a ton retail in Vancouver, it is thought that this scheme for utilizing it will prove successful. It is estimated that these mills have 114,000 cords of refuse and sawdust to burn each year. The approximate cost of installing each burner is placed at \$30,000, and the annual operating cost at \$5,000.

Harmonizing Mining Statistics

Greater Co-operation between Dominion and Provinces Would be an Advantage

While Canadian statistics respecting minerals are more accurate and complete than those respecting some other resources, an improvement in their compilation could be made by better co-operation between the Provinces and the Dominion. At the present time, statistics are collected by the several Provincial Departments of Mines and by the Federal Mines Branch. Unfortunately, there is a lack of uniformity in the schedules of the various Provinces and, the Provinces do not require the same information from the mine owners as the Dominion. Consequently, the statistics collected are not uniform in character and cannot be compared on a common basis.

The Federal Mines Branch secures statistics from all mine operators in Canada, but the returns are made voluntarily and are, therefore, not as complete as if they were required by law.

If a conference of the Federal Mines Branch and of the various provincial Departments of Mines were called, it is possible that a uniform system for all the provinces could be adopted by mutual consent. Such an arrangement would permit of comprehensive national mining statistics and would remove the present anomalies and apparent contradictions.

FARM PHOTOGRAPHS THAT TALK



This well is a long way from the house, the woman has to carry the water up the hill, and the conditions are anything but sanitary.

See article entitled "Conserving Human Energy."



In this house there is water on tap. The windmill on the barn is geared to elevate water to the raised tank. Note that the well is protected by the pump house.

Conserving Human Energy

Woman's Work on the Farm—It Can, and Should Be Made Easier

Much is said and written in this day regarding the improvement of live stock, the selection of seed, the modern methods of tillage and advancement in the various branches of agriculture. Great as the need is for these things, the requirements for conserving the strength of the woman on the farm should not take second place. On too many farms conveniences and labor-saving devices for the women are given very little, if any, attention at all by the men. Thousands of pure-bred animals are better housed and receive more intelligent attention than many of our farm women. The farmer, oftimes hardened by the rigors of his daily toil and fierce competition, is unresponsive to the spoken or silent appeal of the wife for more convenient surroundings, and is guilty, unintentionally perhaps, of lamentable neglect of things more vital than stock, crops and profits.

The Water Supply and the House

As an example of what has been mentioned, the situation of the source of water supply for the farm home can be cited. It is often at a considerable distance from the house, and the water has to be carried by the woman. At a conservative estimate, the woman shown in the above illustration has, in carrying the water needed each year at the house, to walk as far as Montreal is from Toronto, and it is up hill at that. This is not an isolated case, but one of many. Where the water has to be carried so far, the chances are that not as much is used as should be, to keep things clean and in a sanitary condition. A small expenditure of time and money would install a system

whereby water would be on tap in the house and many miles of weary and needless trudging avoided.

On some farms water is available as a source of power, and may be harnessed to do work now being done by hand, the only cost being the installation of the apparatus. The windmill is a very cheap source of power because there is no outlay for wages, food or fuel. The following regarding the gasoline engine is taken from an article by Dr. C. J. Lynde, of Macdonald College, on Farm Power:

"Gasoline Engine and Man Power.—A man works at the rate of about 1-10 horse power. That is, the ordinary man in one hour does one-tenth horse power hour of work. In a day of ten hours, he does one horse power hour of work. If we consider a man's time to be worth at least one dollar a day, it costs one dollar to do one horse power hour of work by man power.

"A gasoline engine uses one pint of gasoline per horse power per hour. If we take gasoline at 20 cents a gallon, a pint costs 2½ cents. The cost of one horse power hour of work done by gasoline engine, therefore, is 2½ cents.

"When one horse power hour of work is done by a man the cost is one dollar; when done by a gasoline engine it is 2½ cents. This illustrates the great advantage of a gasoline engine."

One or other of these three is within the reach of many farmers who are without them to-day, but who could, and should, install them for the sake of saving the time and energy of the woman on the farm.

Skyscrapers and Health

It has been said that New York is being pushed up into the sky to make room for the scum of the earth. That is an American view of the American craze for skyscrapers, as it is exemplified in New York, a city that leads the world in the production of "the modern

towers of Babel." It is, too, rapidly becoming the leading centre to which the flotsam and jetsam of every nation gravitates.

There are signs that some Canadian cities are becoming imbued with the sky-scraper spirit. It is a tendency that should be checked. Canada has ample room for well boulevarded, airy cities, but there is no room for abnormally high buildings. They constitute a distinct menace to the health and welfare of the city dweller.

In Europe, where population is much denser than in America, building laws are much more strictly enforced. Consider, for example, the city of Frankfurt, which has a population of 350,000. The city is divided into three districts. In the central district, buildings 65 feet high and containing five stories may be erected. Not more than three-quarters of the site may be built on. In the middle district, buildings may only be of four stories including the basement, and, in the outer district, the limit is three stories. Frankfurt is only one of many cities in Europe which possess wise building laws that are strictly enforced. Canada would be wiser to learn city planning from such sources rather than from the "mushroom cities" of America.

The gas fields of the Maritime provinces are being steadily developed. The Maritime Oil Fields, Limited, has had four drilling plants at work, and has been arranging to extend its operations in both Nova Scotia and New Brunswick. This Company has already invested over \$500,000. The city of Moncton, N.B., is supplied with natural gas at rates that make it cheaper than coal.

The famous Malpeque oysters come from Richmond, or Malpeque bay, Prince Edward Island. A recent survey of the bay by the Provincial Government showed that it had an area of 14,700 acres, a large part of which is now barren. Under the new leasehold system, this area will now be made available for planting, so that in the course of a few years Malpeque oysters should again become plentiful.

Protection for Timberlands

What the Railway Commission Has Done to Prevent Fires Set by Locomotives

The Canadian Board of Railway Commissioners has recently prescribed regulations for the prevention of fires and for regulating the operation of locomotives in the dry season in the province of British Columbia.

This order provides that every locomotive must be fully equipped with spark arresters of a specified size, with sheet-iron dampers, overflow pipes and division points. The company must examine, at least once a week, the nettings, dead plates, ash pans, dampers, slides and fire-protective apparatus of each locomotive and keep a record of each inspection for the Government's special inspectors who are to make an independent monthly examination. The board of railway commissioners is given power to remove from service any locomotive found defective in fire-protective apparatus. The roads are prohibited from burning lignite coal without special permission from the board, and between April and November, the burning of ties and other refuse along the tracks is forbidden. Any fire starting or burning within 300 feet of the railway track shall be presumed to have started from the railway.

A measure is being discussed by those interested in the protection of Maine timberlands from fire. It will probably be introduced in the legislature of that State during the coming winter. If passed, it will give the State Board of Railway Commissioners authority similar to that held by the Canadian Board.

A total of 57 ocean steamers entered the port of Montreal during September. This was one more than arrived the preceding month.