

# Conservation

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## Handicap in the Nation's Trade

### Heavy Charge for Replacement of Fire Losses Must be Provided For

In the competition of nations for the trade of the world, any condition which would prove a handicap must be carefully considered, the causes investigated and every possible endeavour made to secure either their absolute removal or a reduction to the minimum.

Canada, in her present efforts toward obtaining a share of the export trade of Germany, suffers from one of the most serious difficulties with which a nation can contend, namely, that of heavy fire loss.

In the commercial world three items make up the cost of every article, viz., raw material, labour and overhead charges. Raw material is governed in price by market conditions. Overhead charges, however, are a factor of expense which is always open to investigation. The charge against the output of a nation consists of a great many individual items of expense prominent among these is the cost of replacing property destroyed by fire. Canada had a fire loss in 1913 of \$26,346,618 or \$3.20 per capita. The Census Branch allows approximately five persons to a family, and, on this basis, the head of every family in Canada must provide \$16.45 to pay his share of this expense. Using the Census figures of 575,203 as the number of employees engaged in manufacturing in Canada, and assuming that each of these represents a family of five persons, Canadian manufacturers paid out, in 1913, no less than \$8,475,089.00 to provide for replacement of property destroyed by fire.

Germany, on the other hand, has a per capita fire loss of .33, with a family unit loss of \$1.65, and, on the basis of the number of Canadian manufacturing employees, she pays out \$651,075. In other words, Canada and Germany working side by side, and with the same number of employees, Canadian manufacturers must provide, in wages alone, for an additional overhead expense of \$7,824,014.00 to cover fire loss before Canada can compete with her opposition on an equal footing, all other conditions being approximately the same.—D.

## Conservation of the Individual Unit

With respect to the general progress of conservation ideas, it must be remembered that, in the last resort, the highest degree of conservation depends upon the efficiency of the human unit. . . . The greatest need of Canada to-day from the standpoint of its material development, is a higher degree of agricultural and technical education—From address of Hon. Clifford Sifton, at fifth annual meeting of Commission of Conservation

Within a generation of living men, Germany's sun has risen above the horizon, and has blazoned forth, as it is rising toward the zenith, with a splendour that compels our admiration, even though it may fill us with alarm. . . . It was to education, thorough and far-reaching, that their wise counsellors looked for the means whereby their nation should regain and enhance its position in the world, and the faith and hope which inspired them have, as we all know too well, been more than justified.—Dr. Reynolds, at Imperial Education Conference.

The breaking out of the European war, with the consequent disruption of international trade and almost total cessation of imports from Germany, has called attention to the marvellous development of that country within the past generation. Coming out of the struggle with France at the close of 1870 with a disorganized condition of business generally, she yet possessed one valuable asset, viz., that of big men, far-seeing men, men capable of discerning opportunities and of grasping them. Germany's leaders realized that to make their country great, to increase her foreign trade, and to hold her own markets against foreign competition, it was necessary to produce goods of an equal or better quality and to sell them at an equal or lower price.

One of the requisites for this purpose, and probably the most important, was that German artisans and experts should be thoroughly trained for their work. Investigations, analyses and experiments were necessary, and qualified men were required. To meet this need, Germany instituted and developed a system of practical and technical education which has made her schools an example to the world.

Germany is now at war and will no doubt emerge badly crippled industrially. The attention of Canadian manufacturers is therefore being called to the opportunities presented for capturing a share of Germany's export trade as well as for supplying the home market with our own goods.

In June, 1910, the Canadian Government appointed a royal commission on technical schools, for the purpose of investigating and reporting on the needs of Canada in the matter of technical education. The report of the committee of the Privy Council instituting the Commission stated that "industrial efficiency is all-important to the development of the Dominion and the promotion of the home and foreign trade of Canada in competition with other nations, and can be best promoted by the adoption in Canada of the most advanced systems and methods of industrial training and technical education."

Canada to-day faces a golden opportunity for trade expansion. There is immediate need for the public laboratory and experiment station, for the technically-trained and expert analyst, engineer and tradesman, in order that manufacturing processes may be discovered and applied. This requirement is not for the present only, but will be a continuous demand. The royal commission has made its report and recommendations, strongly advocating the establishment of industrial training as a public policy and suggesting the appropriation of a large sum for the purpose by the Dominion Government.

As the key to securing and holding her share of Germany's export trade, will Canada, through her governments, give to her rising generation the industrial and technical training necessary for them to win?—D.

## The World's Wheat Supplies

### The Canadian Producer's Opportunity in a Situation of Universal Crop Shortage

Public officials have been exhorting the Canadian farmer to sow more wheat this year. But it is doubtful if, even yet, the North American wheat-producer realizes fully what an opportunity confronts him. The farmer, of all men, should not share the exaggerated idea of the importance of Canada and the United States as contributors to the world's food supply, which leads many persons to feel that there can be little pinch or shortage as long as the production of these countries continues unhampered. It is rather the actual predominance of Europe as a food producer that renders the situation serious and places a premium on American supplies. The following facts are significant:

Europe leads the continents in annual wheat production and, normally, raises twice as much as North America, her nearest competitor. She grew over one-half of the record-breaking world's wheat crop of 1913, doubling the combined contribution of Canada, United States and Mexico. European nations now in arms alone grew 42 per cent of the total yield, while the whole of North America produced only slightly over 25 per cent. On the reasonable supposition that shortage of labour, poor tillage, decreased acreage and other adverse conditions will reduce the 1914 wheat crops of European combatants by one-third, over half of North America's entire yield would be required to meet the deficiency.

Europe probably carried over into 1914 a fair surplus from her banner wheat crop of 1913. But what of this year's production? Russia's rosier prospects before the war never promised within 150,000,000 bushels of last year's total, and the war must have caused further huge decreases. Hungary and Italy, great wheat nations, will show a combined shortage of 75,000,000 bushels, while India and Canada fall behind by 50,000,000 and 70,000,000 bushels respectively, as compared with the 1913 harvest. How will the deficiency be met? Canada's exportable surplus has been cut in two. The bumper crop of the

United States will hardly offset the shortage of Russia alone. Consumption must decrease somewhat, but can hardly parallel the sudden shrinkage in production. Canada, United States, India, Australia and Argentina will find every bushel of their 1914 crop required in Europe next spring to meet the shortage of Russia, France, Germany, Italy and Austria-Hungary. If war is prolonged for six months, hindering seeding operations in 1915, the demand will be even more insistent in the spring and summer of 1916.

The moral to the Canadian farmer is simple. Grow wheat. Sow every available acre to a crop of which the world will stand badly in need in the coming months.

The following table shows the respective contributions of the ten leading wheat-producing nations to the record crop of 1913. The countries marked with an asterisk are either directly or indirectly engaged in the war.

*Russia	837,795,000 bus.
United States	763,380,000 "
*India	364,000,000 "
*France	319,373,000 "
*Canada	231,717,000 "
*Aust.-Hung.	226,311,000 "
Italy	214,407,000 "
*Russia in Asia	189,864,000 "
*Germany	171,077,000 "
Argentina	144,000,000 "

## Fire Protection on Railway Lines

Railways Appreciate its Advantage and are Promoting the Work

Much progress has been made this year in reducing the fire hazard along railway lines through the disposal of inflammable debris on rights of way, in accordance with the provisions of the Railway Act. In eastern Canada, a large amount of this work has been done by the various railway companies, led by the Canadian Pacific and Grand Trunk Railways. An excellent example of a good beginning along the Grand Trunk may be seen in the vicinity of Algonquin Park Station, where large quantities of old logs, branches, brush and weeds have been piled and burned, thus very materially reducing the fire hazard in that section of the park. In this case, the work of clearing extends to the land adjacent to the right of way, thus greatly increasing the effectiveness of the protection afforded. In consideration of the joint interest in this work and the fact that it covers a portion of the park area, as well as the railway right of way, the work is being handled on a co-operative basis, between the Grand Trunk Railway Company and the Department of Lands, Forests, and Mines of Ontario.—C.L.

The civic pride of Canadian citizens is growing, and the spirit of the movement is finding its greatest expression in the study of housing and town-planning questions.



FIG. 13  
Fire Hazard in Algonquin Park, Ontario, reduced through the disposal of inflammable material along Grand Trunk right of way and land immediately adjacent.

## Forest Destruction in Trent Watershed

An Example of National Mismanagement and Imprudence

The Trent watershed is a sample area of thousands of square miles in other parts of the eastern provinces, and the conditions in this watershed are by no means extraordinary. They repeat themselves wherever axe and fire have been permitted to destroy the original forest growth, that is to say, wherever lumbering under the license system has been permitted, without safeguarding the property as a producer. The sequence of this mismanagement is everywhere the same. The removal, either of the best or of all timber, without disposing of the debris, leaves a slash which invariably becomes a prey to fire; after this, a loss of interest takes place on the part of the licensee and, what is still worse, on the part of the government. Nature then attempts to reproduce the forest, only to be followed by a repetition of the fires, which kill the seed trees and seedlings of the better kinds. The ground is then re-covered by aspen and birch for a time; but, through repeated conflagrations, it is finally rendered useless for any productive purpose. A similar sequence takes place in connection with the small-farm portions: at first, through the home market made by the lumbermen, a fair living may be made by the occupant; gradually this market vanishes and the soil becomes worked out; the surface wears away, the rocks are exposed, and the people are left destitute and miserable.—Trent Watershed Survey.

## Protection of River Banks

One of the serious losses that has followed the removal of the forests from the watersheds of many streams in the United States and Canada, is due to the washing away of soil by rain water. Competent engineers have estimated that, in flood time, the James river discharges 200,000 cubic yards of earth every 24 hours and that

## British Columbia Forest Protection

Activity of the Fire Fighting Staff Shows Good Results

The fire protective organization of the British Columbia Forest Branch fully justified its existence during the months of July and August of this year. The report of their work says: "All records indicate that the weather has been drier during the present summer than at any other time during the past twenty years. Streams have run dry which have not been seen dry before. In addition, it has been very hot and windy in the southern portion of the province. Between 2,000 and 3,000 small fires have occurred, and it has been necessary to increase greatly the number of fire patrolmen and guards and to employ numerous fire-fighters. Fires have been fought regardless of their size or location, whether in settled country, range lands, scrub, reproduction or timber lands. The result has been that very few fires got beyond control while those which had done so were brought under control before they had destroyed much merchantable timber. Thus the total fire loss for the province has been extremely small, although the cost of protection this year has been about \$350,000. These results prove the value of elasticity of organization, since the forces could be increased quickly wherever weather conditions made such action necessary. Protection has not been restricted to merchantable timber alone but has covered the whole country, and fires have not been able to gain a foothold anywhere.—C.L.

harbour dredging. In addition many hitherto fertile bottom lands along the rivers have been partially ruined by the sand and silt deposited during the flood seasons. Further, the rapid run-off, characteristic of all these rivers, results in a wide difference between the high and low water stages so that until storage basins have been constructed such streams are of relatively little value for power purposes.

While no similar statistics are available for Canadian rivers, it is the fact that large quantities of silt are dredged annually from a number of important streams would indicate that soil erosion is a factor to be reckoned with. A further proof that soil erosion results in a serious annual loss may be found by observing conditions on many farms drained by these streams.

One of the best means of preventing the erosion of deforested stream banks is that of level terracing. Where the banks are high and steep, as many as a dozen terraces may be used to advantage. These facilitate the rapid absorption of heavy rain falls by the soil, thus preventing a run-off of surface water. Such terraces are developed by constructing embankments and by using reversible disc ploughs which always turn the furrow down the slope. This hastens the leveling process, which is further aided by erosion, the very factor that the work is designed to prevent. Deep ploughing and the addition of humus also tend to prevent erosion, by keeping the upper surface open and porous. One of the best means of providing humus is the use of such deep-rooted crops as alfalfa and sweet clover. The use of manure is also effective, but results in considerable waste, as the fertilizing properties of the manure are largely washed down the slopes by heavy rains.

Where the land is not suitable for agriculture, tree planting is a valuable and effective means of holding the soil in place. Whenever it is possible, on considerable portions of land bordering on the upper waters of rivers, such reforestation would further tend to a uniformity of stream flow. These reforested areas act as natural storage basins, and make the construction of artificial storage basins for the deposit of silt and the maintenance of stream flow unnecessary. Such local works would save much valuable soil material and would lower materially the heavy cost of dredging of Canadian rivers.—A.D.

To consider how other countries are meeting their problems, to adapt to Canadian conditions their most successful expedients and policies, and to learn from their failures, is the duty of Canadians to Canada.

## Commission of Conservation

CANADA

HON. CLIFFORD SIFTON  
Chairman

JAMES WHITE

Assistant to Chairman and Deputy Head

CONSERVATION is published about the first of each month. Its object is the dissemination of information relative to the natural resources of Canada, their development and the proper conservation of same, together with timely articles covering town-planning and public health.

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OTTAWA, OCTOBER, 1914

The care and protection of his tools and implements is one of the most important of the farmer's autumn duties.

The removal of forests is largely the cause of floods and freshets and soil erosion; the latter produces one of the great wastes of agriculture.

The bright days of autumn may be profitably employed in the raking of lawns, the burning of dead leaves and in a general clean-up of yards and gardens.

The laying out of streets, squares and parks, and their embellishment by landscape or architectural treatment, though important, are only the commencement of city planning. The installation of the necessary utilities and their effective operation and maintenance are of fundamental importance.

Carelessness is often the cause not only of injury to the workman himself but also of danger to his fellow-workmen. By neglecting to look about him, or possibly by thinking that it is the other's business to be on his guard or to keep out of the way, the careless workman is apt to cause serious injuries to his fellow workers.

The annual migration of birds to the south will soon be taking place. If they are to reach their winter home and return to us in the spring, protection must be afforded them on their way. The United States has "The Federal Migratory Bird Law" for the protection of migratory birds. Canada has excellent provincial laws but the safe exodus of the birds depends largely on the attitude of individual Canadians.

## Development of Natural Resources

National prosperity depends on more than the mere possession of natural wealth. Conservative methods of administering and developing those resources are equally essential. The Canadian people have a splendid national heritage but, unfortunately, they have also an excess of commercial optimism—if that is possible—which manifests itself most frequently and most clearly in a tendency to over-exploit and, consequently, to injure new undertakings of a profitable nature. Recent examples of precipitate development are not wanting. During the present year, the European war has upset the entire commercial and financial world, but, prior to this occurrence, two sections of the Dominion, the extreme east and the far west, had been favoured (?) with a diversion from the prevailing business depression. Prince Edward Island, as the centre of the fur-farming industry, continued to attract much attention, while the discoverers of oil brought Alberta into prominence.

Both of these circumstances are worthy of note in so far as one may gauge their ultimate effect on the resources and productive efficiency of the nation. Prince Edward Island has taken up with enthusiasm an enterprise which is comparatively new but of undoubted worth. It is admirably adapted to the climate of the province and should develop into a sound and permanent addition to industrial Canada. Alberta's fortunes lie in a different direction—in the discovery of a natural resource of primary importance. The geology of the province indicates the possible existence of an oil field which, if realized, will mean much in the economic development of western Canada. To date, however, both fur-farming in the east and oil at the Rockies have created a far greater stir in the financial than in the commercial world. If fox-ranching and the rearing of fur-bearing animals in general is to become a stable industry, it must be by the route of slow, steady expansion. Countless company promotions based on inflated values of breeding stock, can only constitute a hindrance. Similarly, with regard to Alberta's oil, fictitious or real. Investors will lose nothing and may gain much if they abandon wild speculation for the more prudent course of awaiting the result of careful investigation by men of experience and technical training.

In October, 1913, the Calgary Petroleum Products Company discovered oil in the Dingman well, near Okotoks, Alberta. Drilling operations were continued and in May of the present year, oil was again struck at a depth of about 2,800 feet. Shortly afterwards, a strike was claimed by the owners of Monarch well at

Olds, forty miles north of Calgary. On the strength of these successes and especially owing to the rosy reports from the Dingman well, the oil fever spread rapidly over Alberta and scores of development companies were launched.

Few ventures are more speculative than the investigation and development of oil fields, and for that reason, the most conservative methods should rule. But in Alberta, as elsewhere, they have been very little in evidence. Promoters and brokers have had great sayings. The ripples and waves of their operations have extended over the financial west as far as the Pacific coast; on the east, they have broken only on the rock of Manitoba's paternal company laws. Solely on the strength of one well's concerns were organized in a few months with a combined authorized capital of over \$170,000,000—a sum far in excess of the total paid-up capital of all the chartered banks of the Dominion. For a time western Canada's newspapers resembled oil-trade journals; to-day oil finds little mention in their columns. The excitement has almost subsided, frenzy of speculation has come and gone, and its cause has, as yet, attained no commercial importance.

Canada is not an important contributor to the world's oil production. It is to be hoped, therefore, that Alberta will yet prove to possess valuable oil fields. The realization of this hope would add a most important item to the inventors of our national resources and, after a regrettable experience, a saner if more staid development of the regions which geologists have stated to be of oil-bearing structure may now be anticipated.

\*Producing a "white" oil that indicated a reservoir at a great depth below the surface—possibly so great as to be unprofitable.

## The Home Garden

The British Board of Agriculture has advised the householders of Great Britain to utilize every foot of spare land in the planting of gardens for next year, to supply as far as possible their own garden produce. In this way they can assist in relieving any shortage which may develop on account of war conditions.

This suggestion is of equal importance to Canadians. Attached to nearly every home are pieces of ground which at present are merely waste land. With little effort these may be converted into productive gardens. It requires very little space for a garden that, with ordinary care, will supply an average household with vegetables. By cultivating the available ground many Canadian families can reduce their living expenses, and, at the same time, secure vegetables which are absolutely fresh.

To obtain the best results, the ground should be dug up this fall and left loose. Soil should be turned under to a depth of about four inches to permit of its rotting.

If the land has been partially exhausted, the addition of manure is advisable and this should be well dug in. The ground should not be raked after digging, but any growth appearing this autumn should be cut down. Vegetable refuse, in the nature of vines, weeds or dead leaves, should be burned and the ashes spread. This burning also helps to destroy weed seeds.

In the spring, after the wet season is past and the ground has become warm and fairly dry, the garden should be raked over carefully until the soil is broken up fine, when it may be planted as desired.—D.

## Condition of Trade Expansion

In a "Plain Talk on Opportunities for Trade Expansion in South America," Dr. David Kinley, University of Illinois, gives his fellow countrymen some good advice that is equally applicable to Canadians. He says:

"There is too much talk of Government initiative in this matter. We cannot build up trade by writing about it or talking about it, or by determining that 'this country' must do business with some other country. Countries do not trade. Business firms and individuals trade. If, therefore, any manufacturer or group of manufacturers is in earnest about developing trade with South America he must proceed on his own initiative. He should send sensible, responsible agents at once to report upon the conditions under which business can be done. He should find the usual terms of credit, for the conditions and methods of doing business, particularly in granting credit, are not the same in all these countries in all lines of business. These agents should report exactly what articles the people have been accustomed to buy, and what they want in style, quantity, colours, prices, and other details. The manufacturer should then endeavor to meet the wishes of his prospective customers in all respects. All this implies what a recent manufacturer has called a 'network of intelligent agencies.'"

The province of Quebec has a total of 111,400,900 acres of land set aside as forest reserves. This total includes the National and Gaspé parks, in addition to twenty township forest reserves aggregating 267,000 acres. In Ontario, the area of forest reserves totals 11,690,240 acres, with an additional 2,757,120 acres included in the Algonquin, Quetico and Rondeau parks, a total reserved area of 14,447,360 acres.

## Metal Products And Imports

### Statement of Trade with Germany for 1913-14 in Minerals and Mineral Products

Although the present war was primarily a quarrel between Continental powers, it has developed into a war for the existence, integrity and supremacy of the British Empire, involving the question of ocean transportation and overseas trade.

Germany has built up a great industrial system at home and a vast overseas commerce. Her foreign trade has increased from \$1,678,780,000 in 1893 to about \$5,000,000,000 in 1913. Under present war conditions she has lost, temporarily, nearly all this trade and it must be filled from other sources.

In 1913 Canada imported about \$14,475,000 worth of goods from Germany and \$1,525,000 worth from Austria. Our first duty is to produce, in so far as possible, all goods imported from Germany and from Austria, and to purchase from Great Britain and other parts of the Empire what we cannot supply ourselves.

The next step is to set out to supply a large part of the goods exported by Germany to other countries.

The following tables give a summary of the value and classes of metal and mineral products imported in 1913-14:

Acids and salts of acids	\$ 436,336
Barytes and cinnabar	300,595
Electrical apparatus	204,358
Glass and manufactures of	276,223
Metallic minerals and manufactures of	3,514,940
Paints and colours	199,917
<b>Total</b>	<b>\$4,952,436</b>

  

ACIDS AND SALTS OF ACIDS	
Year ending March 31st, 1914	Amount
Acids	827,152
Alum in bulk	22,003
Antimony salts	223,871
Arsenic sulphide	891
Chloride of lime and hypochlorite of lime	4,316
Potassium cyanide, sodium cyanide and cyanogen bromide	264
Potassium bichromate	808
Muriate and sulphate of potassium	74,227
Potassium nitrate	2,709
Potassium persulphate	7,226
Sulphur dioxide	2,054
Sulphur dichromate	2,137
Sulphuric acid	8,564
Sulphur nitrate	228,737
Sulphur sulphide	299,065
Tartaric acid and crystals	42,353
<b>Total</b>	<b>\$456,346</b>

\*The total imports in 1914 amounted to \$243,907. Of this amount \$147,997 was imported from the United States and \$100,708 from the United Kingdom.

ELECTRICAL APPARATUS	
Year ending March 31st, 1914	Amount
Carbons, electric light, and carbon points	\$43,308
Electrical apparatus, insulators electric batteries, telegraph and telephone instruments, etc.	141,275
Electric motors, generators, etc.	15,790
Other electrical apparatus	4,128
<b>Total</b>	<b>\$204,358</b>

METAL AND MINERALS AND MANUFACTURES OF	
Year ending March 31st, 1914	Amount
Brass and manufactures of	\$130,380
Copper and manufactures of	52,206
Gold, silver and aluminum leaf, Dutch or Schleg metal leaf	31,350
Other gold, etc.	37,244
*Iron and steel, manufactures of	2,824,900
Lead and manufactures of	10,441
Tin and manufactures of	29,763
Zinc and manufactures of	108,736

## Harvesting the Potato Crop

The best time for the harvesting of potatoes depends upon condition of soil, weather and freedom from disease. If potatoes are free from disease and the weather is favourable, they should be dug as soon as the tops have died. If, however, the soil is of a sandy or gravelly loam, they may be left in the ground for a short time without much danger of injury.



Potato Plough

A blighted crop or may as well be left in the ground, as most potatoes which are diseased will show signs of rot before being taken up in October. If they are to be dug, however, it is best to delay the digging as long as possible, and then to store the potatoes in a cool, well-ventilated cellar, where the disease may be checked.

Potatoes in wet soil should be dug sooner than those in dry, well-drained soil. They should be thoroughly dry when taken to the cellar or storeroom. If the tubers are stored when wet, the conditions are favourable for the development of any disease with which they may be affected and for the contamination of healthy potatoes.

Miscellaneous metals and minerals and manufactures of

299,011	Total	\$5,514,940
*The principal iron and steel manufactures of are		
Iron and steel plates or rolled shapes	\$132,294	
Riblets of iron and steel	68,728	
Form-iron, spangle-iron and ferro-manufacture	194,999	
Cutlery	372,890	
Machinery	257,689	
Locomotive tires and car wheels (steel in the north)	148,050	
Talms	291,743	

An examination of the above tables will show the relative value of the mineral products and manufactures of imported, and a study of conditions will indicate whether they may be produced in Canada or not.—W. J. D.

## Harvesting Turnips

One of the quickest and easiest methods of harvesting turnips is to top with the ordinary hoe, walking between two rows and working to each side, drawing the tops to the centre. The roots may then be taken out with a sharp-sharpened plough, as shown in the illustration.

The turnip harvester shown herewith is made as follows: Remove the mouldboard from an ordinary iron plough and lengthen the steel share to about one foot

### Digging the Potatoes

Where a considerable quantity of potatoes are to be dug, a quicker process than that of the fork is required. One man with a fork will take out not more than half an acre per day, while a good potato-digger will dig from five to six acres per day.

For those with only a few acres of potatoes, a good digger is shown in the accompanying illustration. This may be made as follows: Take the mouldboard and sole-plate off a plough and use the landside and standard as a foundation for the attachment of the heavy sole-plate and rear fork. This fork should be made of one-half or five-eighths round iron. It should consist of five prongs:

each prong should be about two feet long and should turn up until the back of the fork stands a foot from the ground when the plow is on the level. The prongs should start about two inches apart and gradually diverge to three inches apart; the outside prongs should be the highest. Where the two outside prongs curve out from the stem, they should be sharpened to present a cutting edge where they would enter the soil and follow the plough. With this simple digger, economical and speedy work may be done and the grower can take full advantage of fine weather for digging and picking his potato crop.—J. F.

The share should slant gradually downward to four inches below the level of the sole of the plough. The sole of the plough should run on the surface and the point of the



Turnip Harvester

share should do the cutting of the roots. Attached to the standard are two projecting irons, one inch by eighteen inches, made in the form of a crotch. These turn the turnips on to the tops in the centre of the row.—J. F.

## The Seasonal Fire Hazards

### Will the Autumn and Winter of 1914-15 Repeat the Annual Story of Fire Loss?

Defective and overheated stoves and furnaces were responsible in 1913 for no less than 137 fires.

Defective and overheated pipes and chimneys resulted in 150 fires. Lamps and lanterns upset and exploding were the causes assumed for 49 serious fires.

The above figures bring out in detail some of the more prominent and at the same time preventable causes which contribute to the enormous total of Canada's fire waste.

With only ordinary care, any and all of these simple causes may be overcome. This care is required of the average householder or occupant of the private house and farm.

With the coming of autumn, bringing cooler weather and shorter days, this fire danger once more becomes prominent. Furnaces and stoves will be put into commission, and more and more of the outside work of the farm must be performed by the aid of lantern light, with its attendant risk.

If pipes and chimneys were not carefully cleaned and inspected when heating was discontinued in the spring, this work should be thoroughly done now. Stove and furnace smoke pipes should be taken down and cleaned; all pipes which are corroded should be replaced. Pipes, which appear perfectly sound under a covering of enamel or graphite, will be found to have corroded from the dampness inside and, in many cases, will go to pieces when being removed. When pipes are replaced they should be thoroughly secured against any danger of their falling. Necessary repairs to stoves and furnaces should be made at once.

Chimneys also should receive careful attention. They should be well cleaned, and all soot and ashes removed from the bottom. Close examination should be made of the brickwork to detect open spaces where mortar may have fallen out or bricks crumbled, especially near woodwork or in unused attics.

Hooks suspended from rafters or shelves at a safe distance from wooden walls provide places where to hang or stand lanterns, and thus avoid the danger of their being kicked over or upset. The greatest caution should be exercised in the handling of lamps in the home. Children should be instructed as to their danger and every measure taken to avoid accidents.

To assist in the reduction of our heavy fire losses is the urgent duty of every Canadian, and a reduction in the number of fires resulting from the above causes will materially affect the total.—D.