

Conservation

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Industrial Training

Preparation for Future Re-quires that Technical Education be Provided

In 1910 the Dominion Government appointed a Royal Commission to enquire into the needs and present equipment of the Dominion respecting industrial training and technical education, and into the systems and methods of technical instruction obtaining in other countries. The report of the Commissioners was published in 1913, but has not been acted upon as yet. The following is a brief extract from this report, showing the need of industrial and technical education in Canada:

"Until recently Canada was an interested and debating spectator of the movements for industrial efficiency. The training of young workers to deftness in manipulation and technique, and to an understanding of the principles and sciences which lie at the base of all trades and industries, was not provided for in the courses. When manufactured goods were wanted in increasing quantities and varieties, and towns and cities were growing by leaps and bounds, it was discovered that there had been practically no organization of means for preparing the hundreds of thousands of young people to become the best qualified artisans, farmers and housekeepers in the world. The country's growing wealth was ample for the cost; but the educational work was becoming haphazard in the extreme, and worse than that, was developing into school systems that had few points of contact with or relation to industrial, agricultural or housekeeping life."

In so far as mining is concerned Canada not only would be benefited industrially, but workmen would become better educated, more contented, and the risk of accident would be considerably lessened. The accident death rate among miners is greater in Canada than any other civilized country. This is due, largely, to the hazardous nature of the work and to the class of labour available for employment.

The fatality rate in coal mines in Belgium is the lowest in the world, being but slightly over one per thousand employed. In 1850, the fatality rate in Belgium was as high as it is to-day in Canada. The decrease is the result of the combined efforts of the mine owners, the workmen, and the Administration of Mines, and it is due, to a great extent, to diffusion of technical and professional education. In view of its importance, the government should direct more attention to the education of the workman, so that he may not be a danger to himself or others and that he may become better educated, more skilful, and thus have the opportunity to better his position.—W.J.D.

Paper Mills in Prairie Provinces

Large Supplies of Pulpwood Available if Protected from Fire

Thus far, the pulp and paper industry in Canada has been limited to the provinces of Ontario, Quebec, New Brunswick, Nova Scotia and British Columbia. Now, however, the beginning of a large development in the prairie provinces is foreshadowed by the announcement that a pulp and paper mill is to be erected in Manitoba, at a point 250 miles northwest of Winnipeg.

Each of the prairie provinces contains large quantities of timber suitable for pulpwood, and the present great demand for pulp and paper from Canada will undoubtedly stimulate the development of these important resources in the North-West. Were it not for the enormous damage done in past years by forest fires, those developments might easily rival those of the eastern provinces. Large supplies still remain, however, although to the extent of only a fraction of what they once were. On the other hand, vast areas contain young forest growth, on lands previously burned over, and if fires can be kept out there will be an opportunity for the permanent maintenance of a number of pulp and paper mills in the prairie provinces. Protection of the forests from fire is the one prime essential.—C.L.

Forest Fire Legislation

Prevention of Fires Receiving Attention of Provincial Governments

The great loss of life and property in the Northern Ontario fires of 1916 is causing nearly all the governmental fire protective organizations throughout Canada to take stock anew of the situation and to consider what reforms are necessary to prevent a recurrence of the disaster. As a result, it is anticipated that improved fire legislation will be submitted to several of the provincial legislatures this winter, in addition to the adoption of improved administrative measures under existing legislation.

New Brunswick and Quebec have under consideration the improvement of their forest fire protective services. The loss this year in New Brunswick has been remarkably low, considering the unfavourable weather conditions, but it is realized that, to adequately safeguard the future, additional measures are necessary. In Quebec, the losses in the Saguenay and Lake St. John districts have been heavy, and experience has shown conclusively the necessity for stronger measures outside the territory protected by the St. Maurice and Lower Ottawa Forest Protective Associations.

In Ontario, the situation calls for the reorganization of the whole fire-rangefinding service, with more provision for overhead supervision and inspection, and for the regulation of settlers' clearing fires, under the permit system. During the past two years, the provincial government has been making investigations with a view to improvements in the fire-rangefinding service, but the disaster of last July occurred before any of the proposed measures had been made effective.

For Dominion lands in the western provinces, a distinct advance has been made by a recent order issued by the Minister of the Interior. This is to the effect that a provision shall be included in the Dominion land regulations, requiring new homesteaders in wooded districts, or within six miles of a forest reserve, to secure a permit before setting out clearing fires be-

tween April 15 and October 31 of each year. The enforcement of this provision will prevent the setting out of clearing fires during dangerous periods, and will very generally reduce the danger of fire loss to the forest reserves and to forest areas generally, in Manitoba, Saskatchewan, Alberta and the railway belt of British Columbia. This action is directly in line with the previous adoption of the permit system in British Columbia, Quebec, New Brunswick, Nova Scotia, and within the Dominion forest reserves. Past experience has shown that the greatest damage to Dominion forest reserves is due to fires running in from the outside, and that settlers' clearing operations are the most frequent source of such fires.

The foregoing provision, while important, will affect only future homestead entries. To secure complete control of the situation, legislative provision must be made by the governments of Manitoba, Saskatchewan and Alberta, putting the permit system into effect in connection with all settled lands in wooded districts. This matter is now being considered by the respective governments.—C.L.

READ YOUR INSURANCE POLICY

The following, or a similar clause, appears in all policies of fire insurance:

"The company is not liable for losses following, that is to say: Where the insurance is upon buildings or their contents for loss caused by the want of good and substantial brick or stone or cement chimneys; or by ashes or embers being deposited, with the knowledge and consent of the assured, in wooden vessels; or by stoves or stove-pipes being, to the knowledge of the assured, in an unsafe condition, or improperly secured."

Notwithstanding this, in 1915, there were 51 fires from defective and overheated stoves and furnaces; 62 from defective and overheated pipes, chimneys, etc., and 8 by live coals and hot ashes.

Should the insurance companies take advantage of this clause, many victims of their own carelessness would find themselves without any recompense for their losses.

Reducing Incendiary Fire Losses

Necessity for Revision of Laws Respecting Arson

At the last annual meeting of the Dominion Association of Fire Chiefs, held at Windsor, in August, 1916, the Committee on Fire Prevention took up the question of reducing incendiary fire losses, and urged, among other recommendations, that the Dominion Government should adopt laws permitting a moderation of the proof required to establish incendiarism. The report of the Committee in this connection reads, in part, as follows:

"Under present status, a man can be hanged for murder on purely circumstantial evidence, and yet, in case of arson, the criminal must either have been seen setting fire or confess his guilt to be condemned. Every year in New York people are convicted of arson on circumstantial evidence and condemned to long terms in penitentiary, to 20 years' imprisonment in some cases. And yet, here in Canada, fire fiends escape with very little difficulty or are given light sentences. No wonder, then, that we have so many fires and we are morally convinced that large percentage of the fires in this country are criminally set. In the course of their investigations, the Fire Commissioners of Montreal noticed that in fully one-half of the cases the amount of insurance carried enormously exceeded the value of the property insured. Therefore nobody ought to be astonished that so many fires have a criminal origin.

"Lack of individual responsibility for loss by fire is the keynote of the problem. In France, for instance, a man who has a fire is considered a public offender. He is responsible for any loss, damage or injury caused by his own carelessness or negligence. He is responsible for a fire on his premises unless he can prove that the fire was caused by something beyond his control, by some fault in building, or that the fire was communicated by a neighbouring building. If there are a number of tenants, all are alike responsible unless they can prove that the fire caught in the apartment occupied by one of them, in which case he alone is responsible, or unless some of them prove that the fire did not begin in their apartment, in which case they are not responsible. It is therefore obvious that the people of these countries take due precaution to avoid fire. Of course the buildings of old Europe are so constructed that fire seldom spreads beyond the place in which it originates. The individual liability, though sufficient to constitute a lasting lesson, is

not heavy in most cases. These laws could not be applied in America, at least as long as building regulations are not improved because the individual responsibility would be too great."

Do not allow Christmas trees to remain in buildings after the holidays. The tree itself ignites readily when the needles are dry. Numerous fires occur in January from this cause.



FIG. 119 A DANGEROUS PRACTICE
Ashes deposited against a wooden fence in a school yard

Care With Ashes

Many Fires Caused by Storing them in Unsafe Places

During the winter months the disposal of ashes from stoves and furnaces demands attention. Though many fires are caused by the disposition of hot ashes against frame buildings, wooden fences, etc., the practice is still continued.

Too much care cannot be given to the disposal of ashes. Either metal containers should be used or the ashes should be placed at a safe distance from anything combustible.

The illustration herewith shows how ashes are stored in the grounds of a large city school. The fence is a high close-board structure, and the playgrounds are surrounded by many frame buildings. Within a few feet of this ash-pile is an apartment block with wooden balconies. Apart from the dangerous practice itself, this instance constitutes a very bad example to the hundreds of scholars attending the school.

TAX ON MATCHES

On Sept. 19, a tax of two hellers (0.40c cent) was imposed on each box of matches sold within the Austrian empire.

Dr. Frank D. Adams, at the last annual meeting of the Conservation Commission, stated that, at a meeting in Montreal which he was addressing, a lady made a very rational suggestion; she said that she had lived in France, and one reason for the rarity of fires there was that people were more careful with matches because the heavy tax on them gave them a distinct value.

Municipal Fire Survey

Knowledge of Conditions Helpful in Fire Fighting

Many fire chiefs have instituted municipal surveys so that those responsible for fire protection of our towns and cities may be better fitted to cope with any outbreaks of fire. Excellent results have been

secured, from the standpoint of both the public and the fire departments. The inspections revealed many dangerous fire conditions, which the lay mind had passed unnoticed. The majority of cases required only that the attention of the owner or occupant of the building be called to the unnecessary risk to secure its removal.

Fire Chief James Smart, of Calgary, has recently undertaken a fire survey of that city, and apparently with great success, as is shown by his report of progress. Chief Smart says:

"The survey of fire conditions in Calgary is about completed and I have every reason to feel that much has been accomplished in reducing the fire hazard.

"Our method of procedure was to have every building and premises inspected by the captain of the fire station covering the district. Instructions were given to note special information that might be helpful in preventing or putting out fire, to note conditions of chimneys and pipes, method of heating, fuel used, disposal of ashes and especially accumulation of inflammable rubbish in basements or yards. In addition, of course, the names of owner and occupant and short description of each building with its street and number.

"As the survey proceeded notices were sent to premises where conditions were reported dangerous, and where the captain had pointed out the required remedy. I am glad to say that in every instance so far the citizens have heartily cooperated in the work.

"An added value of the survey is that each captain is more fami-

Importance of Water Powers

Application to Industry Covers a Continuously Widening Field

The rapid development in the uses of hydro-electric energy clearly indicates that, in the immediate future, the industrial progress of Canada will involve and depend largely upon the utilization of our hydraulic resources. The many points of superiority which electricity has as a source of heat are not always properly appreciated. With the possible exception of its higher cost, electricity has advantages over all known fuels. Electric energy may be transformed directly into heat energy at one hundred per cent efficiency. Its use presents no such difficult problems as are inherent in the utilization of fuel. It does not vitiate the atmosphere. It is clean, safe and sanitary. Greater quantities and more intense heat can be produced in a given space electrically than by any other means. It produces heat directly where it is to be applied. It can be measured and controlled, both as to temperature and quantity, more readily than can any other form of heat energy.

The electric furnace is now being used in numerous and varied industrial processes. Its application has made it possible to manufacture substances that would otherwise not be available for commercial purposes, if combustion methods were the sole means of production. Such well known substances as carborundum, aluminum, and calcium carbide can only be manufactured in the electric furnace. As the rapidly depleting natural nitrate deposits become exhausted, increasing supplies of nitrogen for soil fertilization will be drawn from the air by means of the electric furnace.

In addition to the processes mentioned, many special applications of the electric furnace are in practical use. These include the production of ferro-alloys, melting and refining of steel and in many electro-chemical industries.

While not so apparent as in the case of the special processes using large quantities of electric energy, the use of electric heat also plays an important part in the manufacture of many other products and some 35 or 40 industries could be enumerated where it has become extensively used in such applications as electric welding, melting tanks, soldering devices, oil tempering baths, annealing furnaces, and various types of self-heated tools.—L.G.D.

liar with the lay out of the premises in which he may be called upon to combat fire."

Commission of Conservation CANADA

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CONSERVATION is published 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 the same, together with timely articles covering town-planning and public health.

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OTTAWA, DECEMBER, 1916

BRINGING OUT THE BEST IN THE WORKER

"Multiply by two every cord of wood consumed by the paper making industry in this country, and that much goes to waste." The man who said this runs a mill that cuts nearly 1,000,000 feet of lumber per day, and, when a man saws wood at that rate, he ought to be taken at his word. Sum up all the waste not only of the yellow pine, but of the forests of New England, the Middle West and far North-west and in the South Atlantic and Gulf regions where half of the nation's timber stands, then add the Canadian forests, and who can tell the total loss.

What about the human wastes in those same forests and in the mill towns and the plants where trees are turned into lumber or paper pulp? I have been told that two-thirds of the cost of the product of the forests is labour. If this is only partly true, the alert operator will surely welcome and pay the price for whatever methods will increase the efficiency of that labour even a little. Some are doing just this thing. They are improving the food and the shelter for the workers in the camp and giving better working and living conditions in mill towns and plants. They are after efficiency and they know that to get it the best in men must be brought to the surface.

These alert employers have done much to bring out the best in men, but the emphasis has been upon the physical. True, some attention has been paid to the mind of the worker, but not much. And as for the spirit side of men—where are the employers who have definitely tried to bring to the surface the best of that part of men out of which spring fairness, loyalty, integrity and good will. Industry needs the best there is in the whole man—body, mind and spirit, and the greatest of these is spirit.

Substitutes are being found for muscle, and automatic machinery is compelling the minimum of mind work; but no device can compensate for the absence of the right spirit in the worker. Industry cannot afford atrophied muscles and cannot stand the inactive mind of the automatic worker.

To bring out the best in the workers is a greater feat of conservation than to save tree tops, stumps and sawdust. If a generation ago a small part of the thought and money put into discovering mechanical devices had been devoted to the humanities of industry, great human wastes would have been avoided. Much in this direction is now being done by some, a little by many, but comparatively *nothing* is being done by a host of employers. And these latter are penalizing industry in general as well as themselves by neglecting the waste of body, mind and spirit which should be conserved for the sake of the worker, the industry and society.

WEED ERADICATION

WILD OATS

The weed problem is one of the most serious confronting Canadian farmers to-day. Some weeds are troublesome in every province, while others cause most loss where grain farming is exclusively practised. Wild oats are a terrible pest in the Prairie Provinces and must be dealt with earnestly in order to keep them under control.

Various methods are advocated for their eradication, but one of the very best is the fallow and fall rye method practised and recommended by one of the oldest and most successful farmers of the Northwest.

The infested field should be ploughed deeply (seven or eight inches if possible) as soon as spring seeding is over, and each day's ploughing harrowed or ploughed.

As each crop of oats appears it should be cultivated or disced up to the 10th or 12th of August when the field should be given a final preparation and seeded about Aug. 15th, at the rate of one and one-quarter bushels of fall rye and packed or harrowed after seeding. The oats that germinate with the rye will be winter-killed, and those coming up in the spring will not ripen before the rye is ready to harvest. The better the soil is cultivated and prepared to receive the rye crop the greater will be the number of oats germinated and winter-killed. If necessary this treatment can be repeated. Fall rye is a sure crop, the grain brings a good price, and it is the one crop which will ripen ahead of the wild oats.—F.C.N.

Fox Breeding Conditions

Opinion of an Expert as to Value and Quality of Pelts

Mr. Alfred V. Fraser, New York agent of C. M. Lamson and Co., London, England, the world's largest fur commission house, lately visited a majority of the fox ranches on Prince Edward Island, with a view to securing the pelts for his firm's sales. Mr. Fraser was impressed by the industry's stability and considers the fox in the domesticated animal list permanently. He believes that the production of large dark-coloured skins will not be overdone, and that, for the next few years, the darkest animals should be kept for breeding and the lighter coloured culled out and marketed. The market prefers the black and nearly black skins.

Prices are much lower now than formerly but will probably advance again when the war is over. The average value of the foxes seen by Mr. Fraser is probably between \$200.00 and \$300.00. In several ranches, where the foxes are black or nearly so, and are vigorous and well grown, the average value is several times higher and, in a few instances, the skins of individual animals will exceed \$1,000.00. They are of higher value than the average wild fox because they are killed when prime, and are darker coloured.

Mr. Fraser believes that, to rear foxes successfully, the farmer must be a prime stock feeder and keep his animals growing thrifflily from birth to maturity. The practice in many ranches of restricting feed until the foxes are four to five months old he considers harmful. His opinion is worthy of consideration as he himself is a live stock breeder. He states that any defects in the food will be evident in the skin structures first, and the skin of any animal is the evidence of its feeding.

The stability of the industry was considered doubtful when the skins were placed upon the London market some years ago. Lamson's formerly held the opinion that, unless wild fox blood was continually introduced, the skins would deteriorate. Mr. Fraser is now convinced that no new blood is required as several ranchers had their foxes in uniformly excellent condition, and of an average size in excess of wild foxes, while the colour was very much superior to that of any wild animal.

Mr. Fraser's visit has done much to restore confidence among the breeders. He met several hundred fox owners and saw more than a thousand foxes. In some ranches he examined silver foxes bred from cross or "patch" fox parents, which were of good quality and

constituted a profitable enterprise considering the capital invested. This result is in conformity with the report made by the Commission of Conservation in 1912, entitled "Fur Farming in Canada."—J. W. Jones.

Training the Boy

Future Results Depend Upon Proper Direction of the Young Mind of To-day

Sir Clifford Sifton stated at the fifth annual meeting of Commission of Conservation: "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."

Many influences are operating to increase the efficiency of our people, and especially is this the case with that human unit—the boy.

To the boy of to-day we must look for future results. When called upon to undertake the burdens of civic and business life, the effects of his training as a boy will be apparent in his character and habits, his initiative and action. Canada's future greatness depends upon the proper direction of the young mind of to-day, and upon her leading men of to-day rests the responsibility of providing for this training.

Many voluntary organizations are devoting earnest attention to boy training. The Boy Scout Association is one of these. Young as this movement is in years, many rising young men of to-day show in their characters and habits the influence of their Boy Scout training. This movement, however, as well as similar ones, is hampered by the dearth of suitable leaders, many of whom have been claimed by the war. An English paper recently stated:

"On the shoulders of the Scoutmasters a great responsibility rests, for it is to them that is committed the important task of moulding the characters of the lads and teaching them those habits of thought and action that fit them for the occupation of a better and more responsible sphere of life. 'Scoutmasters,' said Chief Scout Sir Robert Baden-Powell recently, 'are the backbone of the movement, and the finding of suitable men is our greatest difficulty.'"

Canada will require of her future leaders a high degree of efficiency, and that this may be accomplished it is essential that the men of to-day become interested in boy work, and assume their responsibility as Canadians to the rising generation.

Many street accidents may be prevented by the provision of municipal skating rinks and coasting slides.

Live Stock and Soil Fertility

Good Management Essential to Successful Results

Farmers are being repeatedly urged to keep more live stock on their farms. Many reasons why they should do so are given, chiefly that stock farming is profitable and that it will increase the fertility of the soil. Certain points are often insufficiently emphasized in the discussion of this question. If stock farming is to be profitable, the stock must be of good quality, and must be given proper and intelligent care. Scrub stock never did and never will yield the profitable returns which are to be derived from pure bred or high grade stock. Those who are in the stock business, or who contemplate going into it, cannot afford to overlook this consideration. Canada has too much *poor* stock; what we need is more *good* stock.

If the fertility of the soil on the stock farm is to be increased or even maintained, wise management in connection with the rotation of crops, the care and use of the manure, and the tillage operations must accompany the keeping of the stock. Meat and the various dairy products cannot be made from nothing any more than can grain and hay, and, if these are sold from the farm, the fertility taken from the soil in their production must be restored. A test conducted on two Iowa farms, one a grain farm and the other a stock farm, where pure-bred stock was kept, showed that the soil on the grain farm was more fertile than on the stock farm. This was largely due to the rotation followed and judicious management by the grain farmer. The live stock farmer, however, made \$799 over the five per cent interest on his investment, while the grain farmer lacked \$380 of even making interest on his investment. It must be remembered, also, that the stock farmer had a larger investment upon which to allow interest. These men were both good farmers and it was not poor management that led to the difference in profits. The man who made the greater profits could afford to invest a part of same in purchasing and applying to his soil what is required to maintain fertility and still be ahead, or he could arrange his rotation in such a way that his soil would not become impoverished.

Good management must go with the keeping of good stock if profits are to be made and soil fertility maintained.—F.C.N.

From 180 to 200 pounds of roses, of about 200 roses to the pound, are required to produce one ounce of altar of roses.

Losses in Heating

Value of Storm Windows in the Saving of Fuel

Owing to the rising price of coal and the need for heating our dwellings in winter, the cost of fuel is a large item of expense to the householder. Anything that can be done to reduce this cost without suffering inconvenience from the cold should be welcomed by all. The average householder has but little knowledge of the principles and application of heating, and there are many portions of Canada where the saving of fuel by the use of storm windows (commonly known as double windows) is not fully appreciated.

Heat is lost from a building in two ways, by (1) radiation, *i.e.*, that transferred through walls, windows and other exposed surfaces by conduction and lost, and (2) convection currents, or leakage, namely the losses through the openings around window, doors, etc.

By the opening of outside doors much heat is lost. This to a great extent, can be overcome by the use of storm or outside doors. Better still is the storm porch, which allows of one door being closed before the other is opened. This porch may be removable, to permit of the use of all verandah space in summer.

The radiation losses are usually of greater importance than the convection. As losses due to radiation from walls, floor, ceiling and doors are determined by the structural features of the house, they are largely unavoidable. The most serious radiation losses are from windows and the saving of heat resulting from the use of storm windows is largely due to the layer of dead air—one of the best non-conductors—between the inner and the storm sashes. Storm windows also prevent uncomfortable drafts.

The great heat loss from single windows is demonstrable. A square foot of window surface radiates as much heat as $2\frac{1}{2}$ square feet of an 8 inch brick wall surface. Storm windows reduce the loss to nearly one half of this amount. In addition, they reduce the loss due to leakage and save from 10 to 15 per cent of the fuel bill.—W.J.D.

SETTLERS' CLEARING FIRES

The Lower Ottawa Forest Protective Association has recently secured four convictions of settlers for failure to observe the Quebec law which prohibits the setting out of land clearing fires during the summer season without first securing a permit from a forest officer. Several more cases are still to be heard, so that the total convictions for 1916 may be in the neighbourhood of 10 or 11, within the territory protected by this Association. In 1915, 39 convictions were se-

cured, and 40 in 1914. Where properly enforced, the permit law has proved thoroughly effective in checking one of the most serious menaces to the forest wealth of the country. Experience shows also that such enforcement meets with the hearty support of the great body of the settlers themselves.—C.L.

BRITISH COLUMBIA'S FISHERY RESOURCES

By virtue of its salmon and halibut fisheries, British Columbia occupies first place among Canada's provinces in the annual value of fisheries production. During the last year, these two species, jointly, contributed approximately \$12,700,000, or over 87 per cent of the total output of British Columbia's fisheries. It is evident, therefore, that, if British Columbia is to retain its predominant position in the fishing industry, her salmon and halibut fisheries must be accorded effectual protection against depletion, and it is a matter for serious concern that both the halibut and the Fraser river salmon fisheries have reached the stage where rigid protection is urgently required. In both cases, international action between Canada and the United States will be necessary to secure the desired result, and steps should be taken without further delay to arrive at agreements whereby halibut and salmon fisheries will be subjected only to such exploitation as will not impair their permanent value and productivity.

CARE WITH MATCHES

The November supplement to the Canadian Official Postal Guide contains the following timely warning respecting the enclosure of matches and solid alcohol in parcels going overseas:

Postmasters are requested to take every opportunity of warning the public against enclosing matches or solid alcohol in parcels, particularly in parcels going overseas.

It will be readily understood that the presence of any easily ignited articles in a parcel mail might cause a fire on board ship which might result in a terrible catastrophe.

In this connection attention is directed to section 190, on page 44 of the Postal Guide, which states that "the person who encloses any inflammable, explosive, dangerous or destructive substance or liquid in any mailable matter sent by post, is guilty of an indictable offence."

(Revised Statutes, Chap. 66, Sec. 122.)

In view of the countless fires resulting from carelessness with matches, the foregoing instructions should be strictly observed, not only by the postmasters to whom they are specifically issued, but by the general public.

Study Your Soil

To Secure Maximum Crops a Knowledge of the Land is Necessary

The soil is the farmer's capital—his workshop. Upon it is founded the whole business of farming, and upon its fertility will depend in large measure the success of the farmer's operations. Too often it is not given the proper care nor is sufficient intelligence exercised in its use.

The plant derives certain substances necessary to its development from the soil; the most important of these are nitrogen, phosphoric acid and potash. The farmer should know whether his soil contains these in sufficient quantities to meet the requirements of a maximum crop providing good cultivation is given, or if he is not getting satisfactory yields, he should find the cause. No two farms have been treated and cropped in past years in exactly the same way, which means that even adjoining farms may be entirely different so far as soil requirements are concerned. To bring it up to a state of profitable productivity one farm may need a rotation different from the other or a different fertilizing treatment. Bulletins, books, experts and governments help the farmer in many ways, but they cannot be expected to furnish every detail in a manner to fit his every need. The farmer himself should learn what his crops require, learn what his soil contains, learn what is lacking in his soil, learn how to supply the deficiencies, and then he may safely look for increased yields and greater profits. It involves study; but the farmer must work out many of his own problems on his own farm under his own conditions, by trial, by test, and by experiment.—F.C.N.

Careful inspection and prompt repair of defective flues, and asbestos or metal protection for all woodwork near stoves and pipes would materially reduce the number of fires in Canadian homes.

Adding moisture to the air reduces the amount of heat necessary for comfort. As much as 20 per cent of the coal bill can be saved by adding moisture to the air. Air should never contain less than 40 per cent and preferably 50 per cent of humidity.

The Farmers' Union of New South Wales has passed a resolution requesting the state government to push with the utmost vigour its scheme for handling wheat in bulk. Hitherto the Pacific trade in grain has been handled in bags, but since the war there has been difficulty in securing the bags. The bulk handling scheme includes the erection of terminal elevators.