

# Conservation

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## Peace-time Uses of Hydro-aëroplanes

Forest Fire Patrol Offers Field for Experiment—Progress in the U. S. and Canada

One of the peace-time uses of air-craft is for forest fire patrol. In the United States, experiments have been carried out in some of the Western states, under an arrangement between the Air Service and the Forest Service. These trials produced such promising results in the prompt discovery and reporting of forest fires that a greatly enlarged programme for the current year is under consideration.

Col. H. H. Arnold, of the U. S. Air Service, has presented to his Government a report recommending that an air patrol be inaugurated to cover all lands, Government, state and private, in western Wyoming, Montana, Idaho, Washington, Oregon and California. This would require five complete observation squadrons of 18 planes each, or 90 planes, with pilots, observers and complete squadron equipment, each plane to be equipped with radio sets for sending location of fires discovered, and two planes in each squadron to be equipped with wireless telephone sets and cameras. Operators for wireless stations at bases and sub-bases, and the establishment of pigeon lofts at bases and sub-bases would also be required.

A resolution of the Western Forestry and Conservation Association points out that the use of air-planes to protect the nation's forests gives opportunity for the training of pilots and observers, while serving a purpose which, in itself, fully justifies the expense involved.

The experiments along this line in Canada have been comparatively limited, being confined, during the past summer, to two seaplanes loaned by the Dominion Government to the St. Maurice Forest Protective Association. The Quebec Government has also co-operated by aiding the work with a cash grant.

In Canada, the whole question of the Dominion Government's programme of air services is under consideration by the Air Board. As the possibilities and limitations of peace-time uses of aircraft have been by no means fully demonstrated, it is logical that the Dominion Government should take the lead, in co-operation with the

## Forest Protection and the Newspapers

Popular Interest in Forestry should be Stimulated to Assure Newspaper Supply

Newspapers are absolutely dependent upon the forest, through the medium of the paper-maker, for their existence. It is not surprising therefore, that the publishers are taking an active interest in the source of their raw material. Since its inception, the Commission of Conservation has advocated the protection of the forests from fire, the regulation of cutting, the burning of slash, the regulation of settlers' clearing fires under the permit system, and the requirement that railways take adequate precautions against the occurrence and spread of fires due to railway agencies. With the adoption of these measures, towards which an excellent beginning has been made, the forest will have a reasonable chance of existence. It will eventually reproduce itself, and continue the supply of pulpwood. Much, however, still remains to be accomplished in these directions.

Immense areas of Canada are suitable only for forest growth. These should be permanently set apart, existing young growth protected, and denuded areas replanted. The crop—for the forest is a crop—while a long-time investment, would be a paying one, and would assure the continuance of the pulpwood supply. The price of pulpwood and its product, newsprint, to-day, is high, and will very probably remain so, due to the heavy demand and the higher cost of production. The intensified cutting of the forest to meet this demand makes it necessary that every precaution be taken to protect what we have and to take measures for the reproduction or replanting of forests on our cut-over or burned-over lands to add to the supply.

In the interests of self-preservation, the newspapers should do everything possible to educate public opinion on the necessity of taking care of our forests.

provinces, as to services of an essentially public character. Experimentation and demonstration are essential if this wonderful new development, resulting largely from the war, is to play its full part in the peace-time development of Canada.—Clyde Leavitt

## Early Acquisition of Parks Profitable

New York City's Parks Have Been Paid for by Increased Taxes on Adjoining Property—Toronto Parkway Scheme

In city development there are several sound reasons to justify the early acquisition of park lands, not the least of which is their direct effect upon the value of city property, and the consequent increase in the city's income from the taxation of land. In the case of Madison, Wis., new parks not only met all charges, but by reason of the increased value of adjoining property, brought into the city treasury \$10,000 a year in increased taxes. Up to 1914, the city of New York collected, in 25 years, taxes on the property of the three wards contiguous to Central Park, over and above the ordinary increase in the taxable value of the real estate in the remainder of the city, \$65,000,000 or about \$21,000,000 more than the aggregate expense of maintenance and similar expenses during the period 1889-1914. In other words, in addition to acquiring lands valued at \$20,000,000, the city of New York has received \$21,000,000 in cash out of this transaction. The original price paid for the 840 acres forming Central Park was \$6,664,500.

Toronto can well boast of its park areas. In Queen's Park and High Park, the city has two of the finest natural parks in Canada. The total park area, which includes 57 parks, is 1,812 acres. The city's Park Commissioner is planning a boulevard driveway, 63 miles in length, including park driveways, and which he hopes to have approved by the City Council now that the war is over. The main boulevard, encircling the city, will be 33 miles long and the internal driveways will aggregate 30 miles. It is estimated that it will cost approximately \$7,000,000. It will have a width from 100 to 500 feet.

Information gathered by the Town Planning Branch of the Commission of Conservation shows that there is a wide variation in the area of park land in proportion to population provided by the various cities of Canada. A comparison of Canadian cities with United States centres of about equal population shows that Canada has done at least as well in the

## Canada's Fire Loss is Not Diminishing

Main Portion of Total is in Larger Losses of \$10,000 or over—Carelessness and Neglect of Dangerous Conditions Responsible

Fire losses in 1919—\$23,500,000. With the war over, with no munition plant fires, with industry under normal conditions, and with many interests advocating fire prevention, Canada, in 1919, reached the above enormous total of fire waste—a waste equal to \$2.90 per capita of her population.

Of the larger losses, there were 288 of \$10,000 and over. These larger losses are mostly of business properties or manufacturing plants. They make up the greater portion of the total loss, and the effect of this loss is widespread. With the destruction of the factory, employment is discontinued and the workman suffers; business is interfered with and the employer suffers. The keen competition of to-day very often absorbs the market for a product before a business can be re-established, and the owners, realizing this condition, decide not to rebuild.

Many of the smaller municipalities have, as their chief support, one large industry. If fire should destroy this industry the community must almost cease to exist, or, alternatively, secure another, often by burdening itself to pay a bonus.

Employers and workmen are almost universally responsible for fires in factories. Through carelessness or negligence they allow conditions to exist which sooner or later create fire dangers. This carelessness is the result, largely, of home training. The greater number of our fires are in the homes, where little care is taken with matches, ashes, lighted cigarettes, and cigars, etc. The careless man at home is careless at work, and this carelessness is the root of our fire loss problem.

To reduce our fire waste radical measures are necessary. Legislation or rules are of no avail unless enforced. Personal care and responsibility by both employer and employee are essential.—John Dixon

provision of public recreation spaces and a comparison with the largest centres of Europe places this country in a very favourable light.—G. H. Ferguson

### "SIR JOHN MOORE"

On October 10, six geese came to my place. I went out and called to these six geese, and the old gander answered. He knew me. I got twelve ears of corn, and threw one of them at him. Just as I did so the four baby geese jumped in the air, but he called them and they dropped down. Then I threw more ears of corn, and each time the same thing would happen; he would sound that low note, and every time he did so the geese would come down. By the time I had thrown the eighth ear he had convinced them that all was well, and they did not fly up any more. It was interesting to watch him trying to educate them to take the kernels of corn off the ear, but it was strange to them. He would get a kernel off and drop it down, but it was fully fifteen minutes before he got those goslings to take the corn; when they did start, they cleaned off every kernel of the twelve ears. That told me these young goslings had never seen an ear of corn before, and that they had come all the way from Hudson bay without a mouthful and had dropped down there. The old gander had led them all the way down.

My mother-in-law's daughter and I coaxed this old gander and his five goslings into the coop and she held the door while I went in and clamped a tag on his leg. After I tagged him I took him to the door and threw him out—this same old gander who had been telling his boys and girls to eat the corn and to stay there and not be afraid. When I threw the gander out, did he fly to the lake?

To know the Canada goose is to love him forever. You cannot show me any of his actions that one need be ashamed of, not one. This old gander went out, and when he was about two rods away he turned around and looked back. You could hear him calling for the rest of his family in that little catch pen. He came right back to the door until every one of his family had been liberated; he stood right there and fought for them. We caught him the second time, put a cuff on each leg and named him "Sir John Moore" and we put on the tag this verse of scripture: "No good thing will He withhold from them that walk uprightly."

They migrated as usual and, on March 17 following, the boys said, "Look, Dad," and there was Sir John Moore, with the two cuffs on his legs, looking for more corn. Five of his family had returned; he had taken care of them down in the southern states all winter, and brought them back. The last week in April they disappeared and my heart sank when I opened a letter from Fort George, James bay, and found four of the tags. The letter read: "The Indian says that seven geese came into their decoys, and they killed four of them. Each one had a tag on it." You know just how I would feel, although that is part of the game. To the fellow who wants to shoot, let me say this: I am not opposed

to a man shooting a bird or two, but will you not join with us in limiting your bag? Remember, the bird that falls out of the air from our deadly aim gives you and me a little pleasure, but deprives thousands of people of pleasure and recreation in seeing it alive. Let us consider that; let us think it over.—*Jack Miner, Kingsville, Ont., in National Conference on Game and Wildlife Conservation (Commission of Conservation, Ottawa).*

### Danger to Canada's Pulpwood Supplies

Conservation Necessary in View of Depletion of United States Forest Areas

The depletion of the forests of New York and the New England states has resulted in heavily increased demands upon the forests of Eastern Canada, particularly in connection with the export to the United States of pulpwood, pulp and newsprint paper. In the Eastern states the forests are practically all privately-owned, and, for the most part, the methods of logging have been destructive. No adequate provision has been made for such restrictions upon logging methods as will provide for leaving cut-over areas in a condition to produce a second crop. In Canada, on the other hand, the great bulk of the forest area is still in the ownership of the Crown, and is therefore subject to such restrictive regulations as may be imposed by Government authority to perpetuate the forest through wise use.

The destructive methods of logging so generally followed on privately-owned lands in the United States resulted in the shifting of the centre of lumber production from the New England states and New York to the Lake states, thence to the south. Now the Pacific Northwest is rapidly securing the ascendancy.

All this means inevitably that the forests of Eastern Canada will be exploited to the limit of their capacity. If destructive methods are followed, coupled with inadequate fire protection, as in so much of the United States, our forests will rapidly become exhausted, and our great forest industries must gradually decline, with obvious loss to all public and private interests.

If, on the other hand, our forests are managed on correct principles, with a view to their reproduction following cutting, a handsome increase in the development of forest industries may be confidently anticipated, on a permanent basis. Generally speaking, however, this basis of constructive regulation does not now exist, and fundamental information is largely lacking, upon which a correct policy of silviculture should be based.

This situation is particularly important as to the pulpwood forests of Eastern Canada. The permanence of our pulp and paper industry will necessarily be governed only by the capacity of the country to grow successive crops of timber of the pulpwood species,

upon our vast areas of non-agricultural lands.

Recognizing this situation, as it is now recognized also by the pulp and paper industry itself, the Commission of Conservation has, during the past three years, been engaged upon a general investigation of the conditions governing the reproduction and rate of growth of the pulpwood species of Eastern Canada. During the past summer, three field parties have been maintained, under the immediate supervision of Dr. C. D. Howe. The practical value of this work to the pulp and paper companies is recognized by the Laurentide Companies, Limited, and the Riorland Pulp and Paper Company, in Quebec; the Abitibi Power and Paper Company, in Ontario; and the Bathurst Lumber Company, in New Brunswick. All of these companies have contributed materially, in a financial way, toward co-operation with the Commission in the prosecution of investigative work upon their limits. Co-operation has also been maintained with the New Brunswick Forest Service in the conduct of investigative work in that province.—*Clyde Leavitt*

### Reorganization of B. C. Forest Branch

Salary Scale Raised—Returned Soldiers Employed—Research Work Planned

The British Columbia Forest Branch has recently undergone a complete administrative re-organization, which will enable it to handle its large volume of work more adequately, and render better service to the public. The return of technically trained foresters from overseas service, coupled with the acquisition of new men, has rendered this progressive action possible.

In recognition of valuable services rendered, as well as of increased living costs, the salary scales have also been revised upward in a way that will set the standard for other governmental forestry organizations throughout Canada.

One of the features of the reorganization is the establishment of an office of investigations. Its duty will be to conduct studies and researches into the various problems connected with the administration of provincial Crown timber lands. This will include growth studies, volume studies, regeneration surveys, methods and costs of slash disposal, etc.

The Forest Branch has full charge of all phases of Crown timber land administration, including not only fire protection but the enforcement of the timber regulations, scaling, collection of forest revenue, grazing, and the development of domestic and foreign trade in British Columbia timber. The forest revenue of the Province aggregates upward of \$2,700,000 per year and is now to be materially increased, due to the enhanced selling price of lumber, upon the basis of which stumpage prices for timber cut on Crown lands will be increased.

### N. B. Statistics of Forest Fire Causes

Data Collected show over Two-Thirds of Total Damage caused by Neglected Settlers' and Campers' Fires

According to the New Brunswick Forest Service there were 409 forest fires in that province during 1919, which caused a loss amounting to \$139,754. Thirty-nine neglected settlers' clearing fires caused a damage of \$54,365, or 39 per cent of the total damage for the entire province. The neglected camp fires of fishermen, hunters, campers and picnic parties caused a damage of \$46,391, or one-third of the total.

Another \$14,250 of damage was caused by the careless use of fire by industrial operators, such as portable mills, open burners, roasting plants, etc.

Incendiary forest fires totalled 7, with damage aggregating \$12,770; and 17 fires of unknown origin, with estimated damage \$7,640.

There were 306 railway fires but most of them were of no material importance. The total damage caused by these fires was but \$4,340, or only three per cent of the total for the province. Of this amount, \$4,230 of the damage was caused by fires along the Canadian Government Railways, which are not under the jurisdiction of the Board of Railway Commissioners. Lines in the province under the jurisdiction of the Railway Commission caused only \$110 of damage by forest fires during the year.—*Clyde Leavitt*

### DRY-POWDER EXTINGUISHERS

Although dry-powder fire extinguishers are sold to a gullible public in increasing numbers, they are all, without exception, practically worthless. Tubes costing \$3 each contain materials having an average value of eleven cents. Chemical analysis of thirty-one tubes of various makes shows the contents to consist of approximately 60 per cent common baking soda, 20 per cent fine sand, 8 per cent pulverized chalk and 4 per cent colouring matter, chiefly iron oxide. The inefficiency of dry powder extinguishers was made the subject of searching investigation by a special committee appointed by the British Home Office in March, 1916. Their report contained the following statement: "The use of dry powder fire extinguishers is to be deprecated as not only giving a misleading sense of security but being practically useless for extinguishing or controlling fires."

Of an entirely different character are the small one-quart chemical extinguishers sold under different proprietary names but all containing carbon tetrachloride as the extinguishing fluid. These have the great advantage of being easily handled by women and children. When subjected to heat, carbon tetrachloride generates a heavy, non-inflammable gas that will extinguish fires under circumstances where water would be useless.—*J. Grove Smith.*

## Commission of Conservation

## CANADA

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Assistant to Chairman and Deputy  
Head

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OTTAWA, FEBRUARY, 1920

## MAPLE SUGAR

Sugar, 16 cents per pound. Neither United States nor Canadian refineries can control the situation. *Board of Commerce report.*

The maple groves of Canada offer a potential crop of home-grown sugar, which may be made available to relieve the shortage of imported supplies. The days of warm sunshine and the cold nights will soon bring the sap up into the trees. It is well to be prepared for an early sugar season, by having all the equipment ready.

The high price of sugar will undoubtedly create a largely increased demand for maple products. Heretofore, the latter have been considered more of a luxury by the general public, but, in the portions of Canada where maple sugar is produced, it is generally found upon the table, in graded form, taking the place of imported sugar. Maple products are being used more and more in the confectionery trade and a considerable export trade is developing.

Canada protects the manufacturer of maple products. Under the pure food law the name "maple" cannot be used for any substance unless it is the product of the maple tree. This is a protection to the producer as well as to the buyer of maple sugar and maple syrup.

The sugaring season comes at a time when very few other farm duties are pressing. This time should be employed, and with excellent advantage, in the maple grove, thus adding to the farm income.

## WHAT IS THE MOST IMPORTANT NATURAL RESOURCE?

Water-power development is but one of the important uses to which many of our inland waters may be applied. Too frequently, in reports on water-power resources, it has been the tendency to deal with power development exclusively, without adequately considering such related subjects as domestic and municipal supply, agriculture and irrigation, navigation, fisheries, and riparian rights.

There has been a tendency on the part of many persons interested in the conservation of natural resources to emphasize that this or that particular resource is the most important. Some have con-

tended that the forests are the most important asset, others coal, others maintain that the soil, with its fertility, is the most important, and, of late years, great stress has been laid upon the statement that water is the chief asset—the prediction being made that the nation which has the most and cheapest water-power available is destined to take precedence in the world of commerce. As a matter of fact, however, all these various interests are interdependent. If any one feature of our natural resources is to be placed before others, probably it could be most reasonably urged that a fertile condition of the soil is the most important natural asset to be safeguarded; because, for its sustenance on the earth, man requires food, raiment, and shelter, and these essentials are supplied him, in one form or another, either directly or indirectly, from the soil. It must be manifest, therefore, that the factors which make for the permanence of the soil's productivity are of paramount importance; and hence the subject of water conservation and use of waters as a natural asset, among other things, should be considered in its prime relationship to the subject of the productivity of the soil.—A. F. White

## CANADA PROTECTS ITS WILD LIFE

There is abroad in Canada an impression that the Dominion Government concerns itself little, if at all, with the actual protection of its wild life. This impression is not justified to-day. While the Dominion Government has left to the provinces the protection of the game, fur-bearing animals, and other wild life within their respective territories, it is nevertheless responsible for the protection of the wild life over an enormous portion of Canada, namely, the Northwest Territories, Yukon Territory, and in the Dominion parks. To carry out our national obligations with respect to the treaty with the United States for the protection of migratory birds, it has also assumed the guardianship of our migratory birds; this is being undertaken with the practical co-operation of the Provincial governments. The legislation governing these matters is administered by the Minister of the Interior. To supervise the enforcement of this legislation, and to advise on such matters affecting the conservation of wild life as might be referred to the Government, there was appointed, two years ago, on the recommendation of the Minister of the Interior, an Advisory Board on Wild Life Protection, which is composed of a representative from each of the departments concerned in wild life conservation, namely the Departments of the Interior, Agriculture, Mines (Geological Survey), Indian Affairs, and the Commission of Conservation. The chief activities of this Advisory Board, up to the present, have been the drafting of the legislation under the Migratory Birds Treaty and the revision of the Northwest Game Act.—C. Gordon Hewitt

## CONFERENCE ON THE FUR INDUSTRY

Under the auspices of the Commission of Conservation and of the Advisory Board on Wild Life Protection the Second National Conference on Game and Wild Life Conservation will be held at the Windsor Hotel, Montreal, February 19th and 20th. A representative gathering of fur farmers, fur dealers and administrative officials will assemble to discuss the various phases of the fur industry in Canada and to promote the fullest and wisest development of the valuable resources of the Dominion in fur-bearing animals. The rapidly growing industry of fur farming has become thoroughly established in Canada and it is anticipated that many fur farmers will attend the Conference. The programme will include papers and discussions relative to, (1) The care and management of foxes and other fur bearers, (2) Registration of silver foxes, (3) The rearing of fur bearers other than silver foxes, (4) Methods of marketing furs and their improvement, (5) Canadian auction sales, (6) Trade names for furs, (7) The sale of game, (8) Game protective associations and other kindred subjects.

It is confidently expected that this National Conference will be of the greatest service in bringing together representatives of the various interests engaged in the exploitation of our fur resources and will lead to a more thorough appreciation of the problems to be solved in placing all phases of the Canadian fur industry on the soundest possible basis.

## DEAR LIVING MAY BREED EXTRAVAGANCE

One deplorable result of the increasing cost of living is that, instead of being a deterrent, it may even be a direct incentive to extravagance. This is so, because, if a man desires to buy anything, he may reflect that it is probably better to buy it immediately rather than defer till the price goes up.

To put it in another way: If money is worth 6 per cent, then \$100 will amount to \$106 at the end of twelve months. But, if the purchasing power of the dollar decreases by 6 per cent during the same period, the investor is no better off at the end of the year than at the beginning. He has lent his money for nothing. At best, he has only preserved his capital from depreciation.

However, this condition should not drive us in despair to squander money on "consumption" goods, i.e., on unnecessary articles which merely minister to one's personal enjoyment. The remedy is rather to invest surplus funds in productive enterprises. If prices rise, the increase may be compensated by appreciation in the value of

## Canada's Exports of Pulp and Paper

Forest Industries Help to Redress Unfavourable Exchange with United States—Pressing Urgency of Protection to our Pulpwood Resources

With the present high rate of exchange between Canada and the United States, so unfavourable to this country, authorities are emphasizing the great importance not only of decreasing our purchases abroad but of increasing Canadian production and export trade.

The important rôle being played in this connection, by the pulp and paper industry of Canada, is inadequately realized. This great industry now ranks third in volume and value with respect to its products exported abroad, and second in the amount of capital invested. During the fiscal year ending March 31, 1919, the total value of pulpwood, pulp and paper exported abroad was nearly \$80,000,000, of which upwards of \$0 per cent went to the United States. In total value, this represents an increase of 31 per cent over the preceding year, and 87 per cent over exports for the year ending March 31, 1917.

During the past year, over 1.5 million cords of raw pulpwood was exported to the United States, valued at upwards of \$1,500,000. Wood pulp exports for the year are valued at around \$35,000,000, of which most went to the United States.

With exhaustion of United States supplies of pulpwood in the eastern states already in sight, and with the industry growing by leaps and bounds in Canada, the question of future supplies becomes of the most pressing urgency, that invested capital may be protected and communities founded upon this business may not, after a time, be compelled to migrate, as has so frequently been the case in the United States.

The first essential is much more adequate protection of our forests from destruction by fire. The next great requisite is such modification of existing methods of logging as will leave the cut-over lands in better condition to produce a crop of the more valuable species. This involves a careful study, in advance of logging, by practical foresters, in order that the methods best adapted to the particular locality may be adopted.

For the mixed pulpwood forests of hardwoods and conifers, some plan of transporting and utilizing the hardwood species must be devised, otherwise these forests will continue the present process of rapid conversion into hardwood species alone, rendering them less and less valuable for the production of pulpwood. This is one of the greatest problems now before an important portion of the pulpwood industry.—Clyde Leavitt.

the property and of the goods produced. Moreover, greater production will tend to overtake the present scarcity and thus stabilize the price level.—P. M. Baldwin

## Fish Poisoned by Industrial Wastes

**Pollution of Streams is Double Waste**  
—Loss of By-products and Injury to Aquatic Life

Dr. Victor E. Shelford, of the University of Illinois, has conducted a series of experiments to determine the effect upon fishes of various pollutions. His researches indicate the following conclusions:

(1) Pollution is likely to be most injurious during periods of low water or during winter when ice prevents aeration.

(2) The most sensitive period of a fish's life is probably just after hatching.

(3) The effect of poisons on the minute animals which form the food supply of fishes is as important as the effect upon the fishes themselves.

(4) Many wastes, e.g., sawdust, sewage, etc., cover the river bottom and make conditions unfavorable for eggs.

(5) Fish will turn back from acid effluents and from sulphuretted hydrogen, but they sometimes show a preference for water polluted by tarry wastes and, of course, succumb.

(6) If, through extensive pollution, a river is depleted of its fish life, natural recovery will only be very slow even though the pollution is stopped. To re-stock with the fish only is not sufficient. The entire association of plants and animals must be revived.

Many of these effluents which destroy fish life could not only be rendered innocuous, but could actually be made beneficial, through the extraction of by-products. Yet, if it be suggested that this be done, one is frequently met with the objection that the by-products recoverable are not sufficiently valuable to cover the cost of installing and operating the necessary plant. But the real value of the by-products is their market value plus the value of the fish catch and other savings effected through the neutralization of the pollutions.

The principal wastes discharged into our streams are: Sewage and the wastes from gas plants, oil refineries, textile factories, paper mills, tanneries, chemical industries, etc.

Now sewage, for instance, can be made to yield considerable quantities of fertilizer and grease, as well as moderate amounts of ammonia and glycerine and, if the residual effluents be aerated, the danger to fishes would not be great, whereas untreated sewage gives rise to large quantities of carbon dioxide and ammonia, which are injurious to fish life. As sewage should be treated in any case, out of consideration for public health, the question of extracting by-products is not one of profit, but of greater or less expense as compared with other methods of treatment.

The wastes from gasworks are especially important, including such substances as creosote, naphthalene, carbolic acid, benzene and ammonia. From these, again, are derived many valuable dyes, drugs, explosives, antiseptics, etc.

## PROS AND CONS OF SWEET CLOVER



**SWEET CLOVER TEST ON AN ILLUSTRATION FARM IN DUNDAS COUNTY, ONT.**  
In this picture, the man is shown standing in the seedling of common red and timothy.

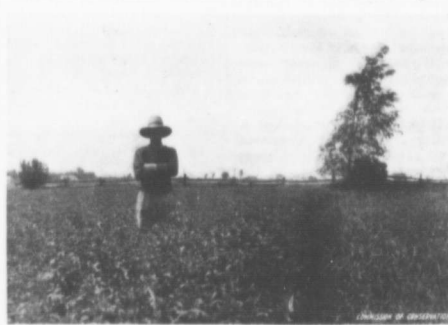
Although opinions differ widely regarding the usefulness of sweet clover, its utilization as a feed for all classes of live stock has increased rapidly in many parts of the country. Some of its advantages are:

- (1) It is rich in protein;
- (2) Does not bloat cattle as readily as other clovers;
- (3) Is an excellent milk producer;
- (4) Furnishes pasture early in spring;
- (5) Is a nitrogen gatherer;
- (6) Is a valuable crop for honey bees;
- (7) Is a splendid green manure crop;
- (8) Grows in many places where alfalfa or red clover fail;
- (9) Prevents erosion of the soil.

Some of its disadvantages are:

- (1) If allowed to grow too large the stems become hard and bitter;
- (2) It is harder to cure into hay than ordinary clovers;
- (3) Stock must become accustomed to it before they will eat it readily.

Sweet clover has been grown by a number of farmers in Dundas county, Ont., where illustration work is being conducted by the Commission of Conservation. One man writes: "I have had it one year as



**SWEET CLOVER TEST ON AN ILLUSTRATION FARM IN DUNDAS COUNTY, ONT.**  
In this picture, the man is standing in the sweet clover, which came through the winter in much better condition than the clover and grass, though both seedings were sown under the same conditions and with the same nurse crop.

pasture. After the cattle learned to eat it they stayed right on it and it furnished a lot of good pasture." Another says: "It has been very successful on gravel but hard to get a stand in sand. The cattle like it as both pasture and hay and do well on it. I find it extra good for milk production and it will grow where other hay will not grow at all." Another states: "The growing of sweet clover has been a benefit to me. It grows on soil where I cannot grow any other hay or pasture crop. I like it as well as any of the other clovers for hay for cows. It grows a bountiful crop but is hard to cure as it has to be cut before the hottest weather comes. As a pasture, it produces more milk than any of the clovers I have tried. I had 400 lbs. of seed from three-quarters of an acre. I have not had any winter-killing yet."

When common red clover or alfalfa can be grown easily on all parts of the farm it may not be advisable to sow sweet clover. There are, however, many places in Canada where clover and alfalfa will not grow well but where sweet clover will yield good crops. The accompanying illustrations demonstrate this fact very clearly. Prejudice should not prevent the use of a crop that would be profitable under such circumstances.—F. C. Nunnick

## Canadian Dairying Faces Big Problem

**High Prices of Feed and Labour Great Difficulty—Situation—Our Cheese in High Esteem in British Market**

Co-operation has been the chief factor in the success that has been attained by the Canadian dairy industry. It was not until the development of co-operative cheese factories and creameries within the past 30 years that the markets for Canadian butter and cheese became more than a local importance. But for twenty years at least Canadian cheddar cheese has held a premier place on the British market, the most important and exacting in the world. Canadian dairy butter has never been held in high repute by the export trade and a distinct prejudice had to be overcome by the creameries. Consequently, butter has not attained the status of cheese in the markets of Great Britain, where both Dutch and Irish butter normally command slightly higher prices.

In 1917, there were 3,418 factories in Canada producing cheese, butter and condensed milk. These factories handled nearly 3,000,000,000 pounds of milk in that year.

The value of the products marketed was more than \$41,000,000. Ontario and Quebec, combined, produced 97 per cent of the factory-made cheese and nearly 74 per cent of the creamery butter. But the western provinces are steadily increasing their output, especially of butter. As the need for restoring the fertility of the soil of the prairies becomes more urgent, dairying is certain to develop rapidly, for no other branch of farming is so useful for maintaining the productivity of the soil. The exceptionally high prices of feed and labour during the recent years have given a temporary set-back to the industry. The

labour problem is, perhaps, especially difficult, for dairy farming demands skilled labour throughout the year. Even with the assistance of milking machines, cream separators, testers and other modern equipment the human element still remains the crucial factor, for the industry is to be successful. The Dominion and Provincial Departments of Agriculture, the Agricultural Colleges and the leading dairymen of the country have been occupied with the solution of these problems. They are also taking active means to banish scrub stock and to find better methods of utilizing such by-products as skim milk and whey. Under such leadership the solution of these and other problems may well be hoped for and Canadian dairying will continue to be one of our greatest national industries.—Donnell

Canada probably has in use a greater proportion of aluminum transmission lines than any other country. A recent survey by the Commission of Conservation shows that on all lines in the Dominion operating at 10,000 volts and over there are 13,000 wire-miles of aluminum and 8,000 wire-miles of copper.