

Conservation

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Overcoming the High Charges for Heating

Possibilities of Central Heating Plants Should be Thoroughly Investigated

The annual coal consumption in Canada for domestic purposes is nearly 7,000,000 tons which, if we allow a cost of \$15 per ton, represents a yearly expenditure of some \$105,000,000. With increasing population and the gradual extension of settlement northerly, this consumption will naturally increase; any effort, therefore, having for its object a substantial reduction in our domestic heating bill, is worthy of public attention.

The hope of relief, entertained by some, through electric heating from our water-powers, has been definitely shattered by the fact that, outside of the question of cost, the demand would far exceed the supply available. For instance, in Quebec and Ontario, alone, assuming a population of some 5,000,000, a total of probably not less than 10,000,000 h.p.—and costing from \$150,000,000 to \$200,000,000 per annum—would be required to supply electrical heat. The power available within the more thickly populated portion of these two provinces, even including Canada's equity in the great possibilities of the St. Lawrence and Niagara rivers—the greatest water-power rivers in the world—only amounts to about 5½ million horse power.

The possibilities and economic efficiency of central heating plants appear particularly applicable to Canadian conditions or to any country with long winters. Due to the initial cost of the underground distribution piping system, the plants usually involve heavy overhead expenses; when the plant is used intensively and during long periods each year, the charges can be spread over longer periods than would be the case for systems only used during shorter periods, as in certain localities in the United States. Another economy would result from the possibility of using the cheaper grades of coal, instead of the expensive anthracite now commonly used in Eastern Canada. Suitable boilers with automatic stokers and smoke-consumers would overcome some of the present disabilities in the use of the inferior fuels.—L. G. Denis.

Our National Wastes

WEEDS

It is impossible to estimate even approximately the loss caused by weeds to Canadian agriculture. A bulletin recently published in the United States estimates the annual loss due to weeds in that country at more than \$300,000,000. Not long ago a western paper stated that the annual loss to farmers of Saskatchewan due to weeds was not less than \$25,000,000. If there is this loss in one province, the total in all Canada must be tremendous. There are many districts in the Dominion that stand high in weed production.

Weeds cause a direct, actual money loss such as those due to drought, hail or frost. There is also a loss in depreciation of property badly infested with weeds.

We do not know the full reason why weeds reduce crop yields, but it is well known that weeds deprive crops of moisture, plant food and sunlight, which cause decreased yields. A crop of grain or grass and clover seed which contains weed seeds will not grade No. 1, and there are certain weed seeds which it is well nigh impossible to screen out. Every time a sample of grain or grass seed drops a grade the price is lowered.

Weeds cause much extra work. They must be handled a number of times in a grain crop, and extra ploughing and cultivating are necessary in a weed-infested field if a crop is to be obtained. Net profits are reduced because of increased cost of production and of cheapened product. In a sense, farming is a war on weeds. This warfare must be unremitting and relentless if the farmer is to emerge victorious. Many men make a start to clear their farms of weeds but quit too soon. The campaign is stopped when success is in sight. The plan of attack must be carefully made and faithfully carried out. Every farmer should be his own weed inspector and his own weed eradicator.

Lack of careful planning with reference to weeds is too frequently evident throughout Canada. One man puts in a short or systematic rotation of crops; still others fail to give the land sufficient preparation for their crop, or sow seed that is foul with weed seeds. It is because these things have not been given sufficient consideration in the past that the evil conditions of to-day prevail. The weed problem is one of national concern and calls for active co-operation on a large scale. Every member of the community is affected and should lend assistance. Farmers, weed inspectors, owners of vacant property, township and county councils, and governments must work together if weeds are to be held in check.

The problem is how to get rid of weeds and keep them out. First, follow a short rotation of crops; cultivate the land thoroughly and often; prevent weeds going to seed; clean all seed before it is sown.

If the grain field is weedy, seed it heavily to clover and grass; mow the annuals and biennials before they seed, and pasture closely to keep down perennials; follow by a hoed crop or smother crop and most varieties of weeds will be checked.—F. C. Nunnick.

For Future Canadians

A country with forests,—and no country is more richly blessed in this regard than Canada,—has a distinct obligation to see that these forests are conserved so that future generations shall not seriously lack one of the most important contributions to culture and comfort. Finland can teach us a good lesson in the proper care of the forests. Finland, like Canada, must depend in a large measure on the product of the forest to main-

tain and improve her economic status. To neglect this source of wealth is to invite national bankruptcy. It is most astonishing to us that Canadians have so largely failed to realize the absolute necessity for a proper forest policy for the whole Dominion.—*Pulp and Paper Magazine.*

From 510 salmon, taken in nets between 2nd June and 5th August, 2,800,000 eggs were secured and placed in hatchery at Tadoussac, Quebec.

Business Interests Heavy Fire Losers

Charged with Greater Portion of Fire Waste—Need for Enforcement of Drastring Legislation

Canada closed the year 1920 with a fire loss of approximately \$27,400,000, equal to \$3.42 per capita on an eight million population, or \$17.10 per family—a new record, and one worthy of much thought.

An analysis of this fire loss discloses certain facts which are not creditable to the business life of the country, and which account, in part, for our high cost of protection in Canada, as compared with Europe. One-half of the fire waste was due to 72 fires, practically all in commercial property. Fires causing damage of \$10,000 and over numbered 301, and these again were largely in business property.

A question which every business man should study is, "Why these fires?"

Are we more interested in what we earn than in the means by which we earn it?

Are we so intently watching sales that we cannot devote sufficient attention to the plants which make the sales possible?

True, the average business man carries insurance, but this is charged up to cost of production, and the people pay the insurance. Is it fair to the public, however, to charge more insurance cost than necessary owing to failure to protect the plant from fire?

With modern methods of fire protection available, no business man should be permitted to increase unnecessarily the cost of living through neglect or carelessness in eliminating fire dangers. Section five of the Criminal Code as amended says: "Every one is guilty of an indictable offence, and liable to two years imprisonment, who by negligence causes any fire which occasions loss of life or loss of property." The rigid enforcement of this section would probably do more to reduce the fire waste than any other influence which might be brought to bear.

Maskakee lake, Sask., is being developed for epsom salts, glauber salts, magnesium carbonate, sodium chloride and potassium salts. The evaporating plant will produce from 25 to 30 tons of salts every 24 hours.

Christmas Tree Trade Not a Wood Waste

A Legitimate Trade that Yields
Quick Returns to Farmers
and others

Each year, the question is raised as to whether it would be in the public interest to prohibit the exportation of Christmas trees from Canada to the United States.

In the first place, the great bulk of Christmas trees so exported are cut from privately owned lands. In many cases, they are cut from pasture lands upon which the farmers desire to check tree growth in order to maintain the pasture. In other cases, trees are cut from swamp areas or muskogs where the growth is very slow, but where growth in the open is favourable to the symmetrical development of the tree, thus rendering it particularly suitable for Christmas tree purposes. In neither of such cases would the prohibition of the export of Christmas trees have any noticeable effect in increasing the supplies of lumber-suitable for pulpwood or lumber.

It has not been seriously suggested that residents of Canada should be prohibited the use of Christmas trees. These trees are usually available locally. If, however, exportation to the United States were to be prohibited, there would be many farmers or other owners of private lands along the International boundary whose market for Christmas trees would be cut off entirely or greatly reduced. In such cases serious objection would be raised to the action suggested. The selling of Christmas trees affords farmers and others an opportunity for winter work and revenue. The systematic growing of trees for pulpwood or lumber involves a long-time element, which makes this usually a matter for governments or long-lived corporations. In either case, it is a business proposition. There is no reasonable doubt that the farmer can secure a larger revenue from the sale of Christmas trees than would be the case were he required to let the trees grow to sizes suitable for either pulpwood or lumber.

As a matter of fact, the waste in connection with pulpwood and all saw timber operations in all our forest outwings, many thousand times over, any possible loss which can be figured in connection with the Christmas tree trade. The annual loss from preventable forest fires is in the same category. Before any government can take the matter of the Christmas tree trade so seriously as to contemplate prohibiting exports, it should provide really effective forest fire protection and take steps to eliminate unnecessary waste of merchantable material in connection with logging operations on Crown timber lands.

The agitation for the enforced discontinuance of the Christmas tree trade, in whole or in part, shows a very healthy anxiety for the public welfare. However, this

very commendable anxiety would much better be directed toward promoting increased efficiency in forest fire protection and a reduction of the truly staggering losses which take the place each year through unnecessary waste of merchantable material in connection with logging operations.—*Clyde Leavitt.*

Definiteness Needed in Forest Contracts

Use of Botanical Names Would Overcome
Difficulties in Interpreting
Conditions

The more general appreciation by governmental forestry branches of the advantage of administering our timber lands along lines of scientific forestry practice should be an incentive to foresters to promote the adoption of more specific terms than heretofore customary in descriptions of trees or timber. In the past, no little confusion has resulted in different interpretations being placed upon the nomenclature adopted in forest legislation; it would, therefore, be of advantage that a standard terminology be followed.

A matter under discussion at present is as to whether licenses issued but a few years ago, in which a condition appeared reserving "pine," included jack pine or only white and red pine. More recent forest legislation included a classification of "spruce and other soft woods." "Soft woods" is, of course, a very indefinite term, and may mean anything. With the high prices of all kinds of timber this broad classification has become a very live problem, one in which both the public and the timber trade are intensely interested.

The "pine" controversy has demonstrated that while a certain designation may seem sufficiently specific to define what is presently intended, with changing conditions the use later of a certain timber species for some industrial purpose may render the term ambiguous. For instance, with the increasing use of jack pine for pulpwood purposes, a pulpwood concession which contained a restriction reserving "pine" would very largely reduce the amount of pulpwood available, if the interpretation of "pine" were to include jack pine.

To overcome what may at any time become an acute situation, more definite names should be applied to timber species. Undoubtedly, the most satisfactory terminology to be used in legislation would be the recognized botanical names, since common names are too often varied by local conditions.

The Dominion Forestry Branch has published a pamphlet "Native Trees of Canada," the nomenclature adopted therein might with advantage be followed as a standard throughout Canada.—*A. V. Gilbert.*

New coal deposits are to be developed on an island near Nanaimo, B.C.

Stream Driving of Hardwood Logs

Experiments Conducted to Enable
Utilization of Hardwoods for
Pulpwood

A live question to-day in both forestry and lumbering is that of the marketing of our hard-wood crop. The main problem in connection with the utilization of hard-woods is that of transportation from woods to mill.

In the Muskoka region many experiments in the driving of hardwoods have been conducted, and with gratifying results. All drives have been short, under 50 miles, but the operators are reaching out to acquire timber at still further distances, and they are confident of the feasibility of driving it. In the region where they wish to operate, there are considerable areas of first quality yellow birch, and it is good forestry practice to remove this mature timber to permit the growth of new timber.

The common usage in preparing the hard-wood logs to drive has been to fell the trees and, to dry the timber, they are left in the woods. The bark is peeled off the trunk, but the leaves are left on to assist in drying out the moisture. The bark is usually piled around the bole of the tree to keep the wood from checking badly. The following season, the trees "bucked" into logs which are hauled to the river bank, and there they are piled high and dry so that they do not lie in the water in the spring. When the drive commences they are "dumped" into the river and floated down with the soft-woods. The hard-woods, however, must not be allowed to remain in the storage booms, along with the soft-woods, as, otherwise, many would sink while waiting to be sawn. They must be sorted out and sawn first, though this sorting involves some extra trouble.

One lumberman informed an officer of the Commission of Conservation that he had been much pleased with his first experiment at driving birch logs. Out of 3,000 logs rolled into the river at a point which he had hitherto considered it impossible to successfully drive birch, all but 60 reached the mill. This sinkage loss of only 2 per cent is remarkably small.

Another method now being tried is to make the logs when the tree is felled and haul them immediately to the river bank. At the peeling season they are peeled, and, after being allowed to dry for a few weeks only, are sent on with the drive. They, of course, do not check so badly as logs that have been left in the woods for a season; they evidently dry out to some extent also, as operators are having a degree of success with this method.

These successful experiments should interest pulp-wood operators in Ontario and Quebec who desire to use the hard-woods for pulp and to, thus, secure more spruce and balsam reproduction on cut-over lands. The present method

of taking the spruce and balsam only and leaving the hard-woods, results in the conversion of the cut-over area into a forest of hard-woods, the latter smothering the pulpwood species. Pulpwood operators are consequently interested in the question, and have been themselves experimenting with the driving of hard-woods.—*A. V. Gilbert.*

Disposal of Lumbering Slash

Various Methods Adopted, with ob-
ject of Minimizing Fire
Danger

The Dominion Forestry Branch is the pioneer in systematic slash disposal in Canada. On all timber sales in the Dominion forest reserves, this is one of the terms of the contract. Slash disposal is now generally in effect in timber sales on unlicensed lands in the Dominion forest reserves. Operators find that, once their men become familiar with the work and recognize that it must be done, the cost is by no means prohibitive and competition with timber cut under other conditions is quite possible. The stumpage revenues to the Government are somewhat smaller by virtue of this requirement, but forest officers regard this as a good investment. On Dominion Crown lands under license, slash disposal is not effective, these lands not being under the jurisdiction of the Forestry Branch. In consequence, the fire hazard in forest reserve lands is greatly increased.

In British Columbia considerable progress has been made toward slash disposal in the Coast region, and a beginning has been made in the Interior. This is largely the result of co-operation between the B.C. Forest Branch and the operators, though there is now legislation under which slash disposal may be made compulsory, the cost for the most part to be divided between the operator and the forest protection fund. On the coast, broadcast burning is the rule, this involving comparatively little additional expense.

In the eastern provinces, however, broadcast burning is not feasible to any great extent, partly because of damage to the remaining undensified timber, and partly because, in many cases the soil itself is highly inflammable. As a rule, under such conditions, slash must be piled for burning, and this necessarily involves material expense, in addition to the cost of burning, which has to be done under careful supervision.

Trees on the Farm

Farm forestry makes farming pay better by—

1. Marketing timber profitably.
2. Supplying timber for farm needs.
3. Furnishing employment for men and teams in winter.
4. Making waste lands yield a profit.
5. Increasing the sale value of the farm.

Commission of Conservation CANADA

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Deputy Head

CONSERVATION is published monthly. Its object is the dissemination of information relative to the natural resources of Canada, their development and proper conservation, and the publication of timely articles on housing and town planning.

The newspaper edition is printed on one side of the paper only, for convenience in clipping for reproduction.

The Commission of Conservation was created in 1909, by Act of Parliament, to promote the economic use of Canada's natural resources. Authentic information respecting the character and extent of such resources, and with reference to the problems associated with their efficient development and their conservation, is freely available on request to the Commission.

OTTAWA, FEBRUARY, 1921

Housing and Town Planning Conference

A housing and town planning conference will be held in Toronto on February 15th and 16th under the auspices of the South-western Ontario Town Planning Association, the Housing and Town Planning Association of Toronto and other organizations. At a meeting held at the City Hall, Toronto, on Thursday, December 30, the following committee was appointed to make the necessary arrangements: Mr. J. P. Hynes (Chairman), W. S. B. Armstrong (Secretary), Mrs. L. A. Hamilton, Mrs. Irwin, Controller Gibbons, Rev. Peter Bryce, and Messrs. G. Frank Beer, N. D. Wilson (Toronto Harbour Commission), H. L. Seymour, Thomas Adams (Town Planning Adviser to Commission of Conservation, Ottawa), Gordon Philip (London), W. H. Breithaupt (Kitchener), with representatives to be appointed from Hamilton and Bradford.

The principal subjects to be discussed will be:—

- (1) Practical steps to be taken in promoting town planning in cities;
- (2) Proposed town planning legislation;
- (3) Municipal finance in relation to town planning;
- (4) Housing;
- (5) The planning of Greater Toronto;
- (6) The formation of an Ontario Housing and Town Planning Association.

It is proposed to have an exhibition of town plans and dwellings in connection with the conference. The Commission of Conservation is co-operating with the local organization and will provide a large part of the material for the exhibition.

His Honour the Lieutenant Governor will open the conference on the 15th and a number of prominent speakers will take part in leading the discussions.

Copies of the programme and further particulars can be obtained from the Secretary, Mr. W. S. B. Armstrong, 307 Lumsden Building, Toronto.

Canada's Resources Need Development

At the annual meeting of a leading Canadian bank held recently, one of the speakers directed attention to the need for more thorough investigation of Canada's natural resources as an essential prelude to the greener development of these resources. The essence of his statement was to the effect that, in this matter of securing greater knowledge and greater development of natural resources, Canada should wake up.

During the past decade the staff experts of the Commission of Conservation have been engaged in the constant study of the extent and character of Canada's resources and of the problems associated with their more efficient utilization. Results of the Commission's studies have indicated very clearly that, in regard to many of the Dominion's most valuable resources, the interests of true conservation demand an immediate extension rather than a restriction of development. It has, therefore, been an important feature of the Commission's work to promote such development by giving the widest possible publicity to the data it has obtained relating to the extent, situation and character of potential resources. The publications issued by the Commission cover a wide diversity of subjects and have been compiled especially for the purpose of rendering them of practical value to the business interests engaged in the development of water powers, forests and other resources.

Forestry Department at B.C. University

An important recent development in forestry is the inauguration of a Department of Forestry in the Faculty of Science, University of British Columbia, under Prof. H. R. Christie. A five-year course will be given, during the first two years of which the instruction will consist of general arts and science subjects, as in the courses in chemical, mechanical, mining and civil engineering. During the last three years, the student will specialize in forestry, this being definitely recognized as a branch of the engineering profession. Prof. Christie was for a number of years in the British Columbia Forest Branch, also with the Canadian Engineers in France. He is a graduate of the Faculty of Forestry, University of Toronto. The establishment of the new School of Forestry at Vancouver should mean much in the future development of forestry work in the western provinces, particularly British Columbia, which has had to bring her forestry experts from outside the province. The existence of progressive forest faculties is largely responsible for the progress of the forestry movement in Canada.—*Clyde Leavitt.*

Marten and Fisher Kept in Captivity

Experiments of British Columbia
Fur Farmer may have Important Results

The success achieved in the breeding of silver foxes has led some fur farmers to experiment with other fur-bearers. The rancher has a great advantage over the trapper, in that he can kill his animals when the furs are prime and thus realize the best prices. As the best fisher pelts are selling for \$100 each, while marten may bring over \$50, there is sufficient financial inducement to rear these two related species. Unfortunately, the majority of experimenters have found it difficult or impossible to get these animals to breed in captivity, a condition which has been attributed to lack of exercise.

Mr. G. H. De Ley, Louis Creek, B.C., has succeeded in raising two generations of marten on his ranch. From a pair of wild martens, he raised a litter of 3, two females and one male; when one year old the young females gave birth to 2 and 4 young, respectively, and all were raised to maturity. Mr. De Ley has supplied the Commission of Conservation with the following account of his methods, which should prove interesting to fur farmers everywhere, as well as to all persons interested in the protection and conservation of wild life:—

"My opinion on the raising of marten and fisher is that they are too much petted and generally too much confined. These animals require much larger runs than generally recommended and, considering the actual value of their fur, it may be possible to allow, say, 1/20 acre per animal and still be profitable to raise them.

"The runs should be provided with obstacles and hiding places in the shape of hollow logs, stone and brush piles, scrubby or low-growing trees or bushes or some tall weeds. Sweet clover, for example, may be encouraged to grow inside the enclosure. There should be also running water or a concrete trough about 4 feet in diameter in each pen, this trough to be provided with inlet and overflow pipes. The enclosure should be boarded close up to about 3 feet to prevent undue excitement, and netting further up to 6 or 8 feet.

"Outside the enclosure should be planted some shade trees cut back to about 8 feet above the ground to induce the branches to spread out and provide a thick shady growth. Alder, birch, cedar spruce and poplar are very good for this purpose.

"The animals should not be made too tame and should not be fed three times a day regularly. Food should be provided either in two meals a day or a full day's ration at once; this will keep them more active and on the lookout and consequently keep them in better breeding conditions.

"In my opinion no harm will result in withholding food for one day and feeding them double rations the next. In the wild state, these animals remain several days without food and then, after a successful hunt, will fill themselves to capacity.

"In captivity, when hungry, the animals will run around the enclosure and take any amount of exercise and, to supplement their activities, the food should be provided alive in the form of squirrels, woodchucks, chipmunks, sparrows, crows, gophers, etc."

Talc and its Uses

One of Our Most Adaptable Non-Metallic Minerals

Among Canada's more useful non-metallic minerals, talc is probably the most adaptable and widely used, entering into the finishing process of some of the most common commodities.

Talc, sometimes designated soapstone, asbestos, French chalk, mineral pulp, talcay and verditite, is found in Cape Breton and Inverness counties in Nova Scotia; Frontenac, Hastings, Leeds, Lennox and Renfrew counties and Kenora district in Ontario; Beauport, Brome and Megantic counties in Quebec, and in the Leech River section of the Victoria mining division of British Columbia. In colour it ranges from white to greyish green, while to the touch it has a soft and apparently greasy or slippery feeling. It is a non-conductor of heat and electricity and is resistant to most chemical action.

Its chief uses are as a filler in the finishing of book papers and as a dressing for white cottons, also in the finishing of window blind cloth. Talc is largely used in the manufacture of rubber goods and to overcome the friction between inner tubes and covers of bicycle and automobile tires. Finely powdered white talc is used in the making of enamel and other paints, while the poorer grades are dusted on roofing paper and tar felts before rolling, to prevent sticking.

In the preparation of toilet articles, however, talc is most generally known, being the base for talcum powders, tooth pastes and powders, shoe, glove and other lubricating powders, and as a filler or loader for the cheaper grades of toilet soap.

The coarser grades of talc are used for electric switchboards, laboratory table tops, sanitary fittings stove and furnace linings and acid tanks, as a dressing for fine leathers and as a lubricant.

Talc, owing to the ease with which it can be carved, is often used in the production of statues and ornaments, and can be sawn into slabs for surfacing. The adaptability of talc is constantly finding new uses for it, and an increasing production is evident. In 1919 18,642 tons were mined, of a value of \$116,295. The greater portion was exported to the United States and Cuba, but a considerable portion was marketed in Canada.

Fur Breeders Assn.

The following provincial representatives comprise the committee recently formed for the purpose of organizing a Canadian Fur Breeders Association:

Saskatchewan, Manitoba, Alberta: M. Snow, Winnipeg; A. M. Doyle, Winnipeg.

Ontario: W. J. Taylor, Woodstock; W. H. C. Ruthven, Alliston; S. Coll, Ridgeway; A. Bray, Ridgeway; J. M. McGillivray, Toronto.

Quebec: R. B. Lindsay, Montreal; M. Palmer Chizzola, Montreal; McGill Burroughs, Quebec; H. A. Harding, St. Paome; A. L. de Martigny, Montreal.

New Brunswick: E. H. Barter, St. Stephen; F. Colpitts, Salisbury; W. T. Chapman, Moncton; C. T. Munroe, Petitediac; R. L. Todd, Milltown.

Nova Scotia: Dr. E. A. Randall, Truro; G. A. Wootton, Halifax; Sheriff R. B. H. Davison, Amherst; D. G. Harlow, Bridgetown.

Prince Edward Island: Major D. A. MacKinnon, Charlottetown; W. Chester S. McLure, Charlottetown; Dr. J. A. Allen, Charlottetown; J. E. Milligan, Northam; J. W. Callbeck, Summerside; F. L. Rogers, Alberton.

Pacific Coast: W. R. Drury, Whitehorse, Y.T.; Major Dunwaders, Fintry, B.C.

The members hope that the new Association will be Dominion-wide in scope and usefulness and every effort has therefore been made to ensure that adequate representation be given to the different provinces on the committee charged with the responsibility of organization.

The temporary officers of the committee are Mr. J. W. Callbeck, of Summerside, P.E.I., Chairman, and Mr. F. L. Rogers, of Alberton, P.E.I., Secretary, both of whom are successful and widely known fox ranchers.

A strong and well organized Fur Breeders Association can render much useful service in promoting the welfare of the fur breeding industry and the solution of the many problems with which it is from time to time confronted. The industry outside of Prince Edward Island is widely distributed, and it is hoped that during the course of the coming year the scattered individuals engaged in the various provinces in different branches of fur farming can be brought into touch with the organization efforts now being made so that they may derive the fullest advantages from the Association's activities.

Irish Cobbler is Favourite Potato

Tests of Potatoes Show Outstanding Advantages of this Variety

During the past four years the Commission of Conservation has been conducting illustration work in Dundas county, Ontario. One branch of the work has been that in connection with 16 farms chosen

Important Forest Trees of Canada

Note: This is the first of a series of short articles on the important forest trees of Canada, which will be published in "Conservation" to promote wider knowledge of the distribution, qualities and uses of the various species and more general appreciation of the opportunities for greater development of Canada's forest resources. It is hoped, also, that by using the names recognized by the highest authorities in the Dominion, the confusion which exists in regard to both the scientific and common names of many of our trees will be lessened.

Yellow Birch

(*Betula Lutea*)

The yellow birch has, during recent years, assumed much importance from a commercial standpoint, chiefly because it is being used more and more as a substitute for oak.

The yellow birch is very easy to distinguish in the woods in younger trees up to 8 inches diameter by its characteristic bark. This yellow, lustrous bark is parted in ribbon-like strips and hangs in fringes from the tree. The bark of yellow birch is not readily detachable like that of the paper birch, and the white bark of the latter easily distinguishes it. In old mature trees, the bark of yellow birch has lost its yellowish fringes and splits into plates which curl up at the edges. This feature makes it resemble black birch (*B. lenta*), a tree occurring only along the Canadian boundary, and the two species are sometimes mistaken on this account. As the leaves of some of the species of birch resemble each other, one should be familiar with these in order to identify them.

There is approximately 20 billion board feet of yellow birch standing timber in Ontario, Quebec and the Maritime Provinces. Almost half of this is in Quebec, where the cut for one year reached 43 million board feet. The inventory of the forest resources of Ontario now being prepared by the Commission of Conservation will bring to light further details with regard to the yellow birch

supply. The yellow birch is found from Newfoundland and the Maritime Provinces westward to the east side of Lake Superior, also from Fort William west along the Canada-United States boundary to the Lake of the Woods.

It is to be hoped that the question of transporting hardwood logs from the woods to the mill will soon be solved by operators, so that yellow birch may come into the market in quantities that will compensate for the scarcity of oak. Birch is easily the most important of our hardwoods, and the yellow birch forms the bulk of birch lumber in use. It is used largely in furniture, flooring, and planing mill products, including sashes and doors, also for vehicle stock, agricultural implements and in the spool industry. Large quantities of veneer are cut from yellow birch and only an expert can distinguish it from mahogany when it is thus finished. Other species of birch are the common paper birch (*Betula papyrifera*) and the western birch (*Betula occidentalis*) which is found in British Columbia.

The following manner of distinguishing birch is suggested by the United States Forest Products Laboratory: In birch, the medullary rays on a cut showing end grain are very fine, invisible without a lens. The pores are several times larger than the rays, usually being visible to the unaided eye as minute holes. The pores in birch are considerably larger, but the rays are considerably finer, than in beech and maple, with either of which it may be confused.

for the purpose of illustrating improved methods of farming. Among the lines of work followed have been variety tests of farm crops. The results of the tests with potatoes are very valuable. During the seasons of 1917-18-19, the Irish Cobbler and Green Mountain varieties were grown side by side and during 1920 the Dooley variety was grown in addition to these. The Irish Cobbler is now unmistakably the favourite variety in the county. Each year since they were first tried on these farms the farmers conducting the illustration work have not been able to meet the demand from the neighbours for seed.

The Irish Cobbler has given the highest average yield, has been freer from rot than any of the other varieties tried, and is an excellent table potato. One of the farmers conducting the test reports: "The Dooleys and Green Mountains yielded 27 bushels each from the bag planted, while the

Irish Cobblers yielded 40 bushels from the same amount of seed." Another writes: "The Dooleys and Green Mountains rotted badly and the Irish Cobblers were about all we had to fall back upon." Another says in his report: "The Cobblers are still our favourites as regards both yield and freedom from rot."

Seed grown in New Brunswick has been tried out along with home-grown seed. In most instances the New Brunswick seed gave higher yields but in some cases where the home-grown seed had been carefully selected there was little if any difference.

Varieties of proven merit should be chosen, the seed should be taken from high yielding hills and only the smooth tubers free from scab and rot used for planting. Attention to these matters will certainly mean increased yields and greater profits.—F. C. Nunnick.

Conservation in the Public Schools

Teachers Find the Commission's Reports of Interest and Assistance to Pupils

The work of the Commission of Conservation in promoting the most efficient use of Canada's resources is very largely of an educational character. The following extract from a letter from a school teacher in British Columbia is published with the object of directing attention of teachers throughout the Dominion to the educational assistance which the Commission of Conservation endeavours to render through the medium of "Conservation." It is one of the most important purposes of this bulletin to make available information which will be of value to teachers in giving their pupils an adequate idea of Canada's resources:

"I read the articles to my scholars, and add such information as I can, making very interesting lessons, especially those dealing with the natural resources of Canada and their conservation.

"On taking charge of this school I found that our Department of Education has very greatly enlarged its 'course of nature study,' so that several of your books, with their illustrations, will be exceedingly helpful. Natural resources are also dealt with in geography, so the work of your Commission should be of great interest to our schools."

It is the desire of the Commission of Conservation to co-operate in the fullest measure with every educational institution in order that a knowledge of Canada's resources and of the principles of conservation may be given the widest possible dissemination.

Importance of the Maple Sugar Crop

Maple sugar and maple syrup are two products which are capable of much greater development in Canada. There is a market for all that can be produced, and maple products are legally protected to an unusual extent.

Nature supplies the raw material, in the sap of the maple tree, and as the run occurs at a time when other farm work is not pressing, much more attention might be given to securing this crop. The sap from the maple trees is one of nature's endowments to the Canadian farmer and one from which a considerable addition to his income may be secured with little effort.

The Publications Branch of the Department of Agriculture, Ottawa, has issued a revised edition of the bulletin "The Maple Sugar Industry in Canada" which will be sent on request.

Two million dollars is to be spent by the Imperial Oil Co. drilling for oil in Alberta during the present year.