

# Canadian Forestry Journal

VOL. IX. OTTAWA, CANADA, NOVEMBER, 1913.

No. 11

TABLE OF CONTENTS: Page 169.

## THE FIELD OF WORK.

The following opinions are selected because they seem to signify where the work of the Canadian Forestry Association lies. Some people tell us that the public is enthusiastically and overwhelmingly behind us and that all that is necessary is to bring that public opinion to bear to make governments and corporations do right. The indications are that we have with us a respectable and growing body of public opinion but that the great bulk of the people do not know anything at all about the need of conserving our forests and consequently do not care. It is not a case of hostility but of lack of knowledge.

The great work, therefore, of the Association must be publicity and education. The writers of some of the above letters would have these ends secured by making the Association a government department and providing it with ample funds from the public purse. It would be easier on the officers of the Association to get their funds in a lump grant than to collect them in the form of one dollar bills for membership fees from Atlantic to the Pacific. Some of the letter writers below think the Association is of precious little use (and their candor is valuable in keeping us humble and active) but the best friends of the Association agree that it would be of no use at all if it were a government department. Government departments exist to carry out the orders of departmental heads; independent associations exist to let heads of departments know how the people view their policy and their administration. In that way an association performs a real service

which is appreciated and respected by the elected rulers of the country.

The Association has never adopted the attitude of being perpetually 'agin the government' because it has always found governments open to argument and ready to advance as fast as the people.

In order to perform this function toward governments an association must get the people to express their opinion and no one can express an opinion on a subject he knows nothing about. So we come back to the point that the chief work of the Association is education. There is an immense field before it. It is hampered by conditions. It spends half its time in collecting funds to enable it to spend the other half in propaganda work. It fails to collect enough and so it must do its work badly in comparison with what ought to be done. Still it works on lines strictly in harmony with our British and Canadian institutions, and it is performing a work which no other body, governmental or private, is performing to-day.

The greatest obstacle to the saving and utilization of our forests for the good of the whole community is the lack of knowledge of the people that the forests need saving, or, indeed, are worth saving. We need therefore to rally to the cause leading men and institutions in every community not primarily to strengthen the Association but to show their neighbors that forest conservation is not a fad.

### Some Opinions.

*From an Insurance Manager.*

Enclosed find the writer's cheque for \$3.00. The matter has been entirely overlooked and I am pleased that you have this tactfully and pointedly called my attention to my remissness. While I have overlooked

my indebtedness I have not been overlooking the splendid work in the country's interest that is being done by the Canadian Forestry Association. Please excuse brevity as I am hurrying to catch a train. Yours for Canada.'

*From an M. P. P.*

'Have no interest whatever in this question and I desire that my name be effaced from your list.'

*From a Merchant.*

'Enclosed find \$2. I wish you every success, although have not had the pleasure of attending any of your meetings for some time.'

*From a Financial Agent.*

'I find on my desk a reminder from you of some overdue fees to the Canadian Forestry Association. I am sure that more than a year ago I sent you notification of my desire to discontinue my membership. I have come to the conclusion that after we have saved the country the big fellows or those with a "a pull" will get it anyway, so what's the use?'

*From a Manufacturer of Campers' and Lumbermen's Supplies.*

'We acknowledge your favor of the 29th drawing our attention to a membership fee of \$2.00 for the years 1912-13, which has not been paid.

'With reference to same, would advise that we wish our name taken off your membership list, as we cannot see that being a member of the Canadian Forestry Association is of any benefit to us. The work which you are doing is a splendid work, but we do not think it should be subscribed to and carried on by private individuals. Our impression is that it is of sufficient importance to be supported by the Governments of our country.'

*From a Lumberman.*

'It is with pleasure that I acknowledge receipt of your announcement of the Canadian Forestry Convention to be held in Winnipeg commencing July 7th. I heartily appreciate your kindness and regret that business will not allow of any furlough at this time.

'Being an old resident of Ontario I have had considerable experience in the planting and growth of trees.

'The conservation of our timber lands; the replanting of devastated areas not suitable for cultivation and the planting of trees on the farms and in the towns and cities, especially of the prairie provinces, are propositions that have my warmest sympathy. Owing to the pressure of other matters it would not be worth while becoming a member of the Association.'

*From one in the Bush.*

'In looking over my papers I found this letter which does not appear to have been answered.

'I paid one or two years subscription to the Forestry Association but dropped it because I saw no chance of any good - except to the grafters - coming out of it.

'There is only one way to check the ravages of fire in our woods, and that is to burn the brush.

'This is perfectly feasible if done in the right way, and at the proper time. The result would be to lessen by 90 per cent the damage done by fire. The expense would average \$1.00 per M on lumber board measure, and if the Ontario Government had reduced the fees by that sum 20 years ago, and compelled the licensees to do clean work, it would have saved the country an enormous sum.

'I have, by writing to the press and to men in a position to influence the Government, done my best to get something done, but it is useless. Living in the lumber country myself, I am in a position to say that four dollars out of every five paid for fire protection is pure graft.'

## THE PATRONAGE EVIL.

The Toronto News in a recent issue had the following editorial on the need of extending civil service reform to the outside service:—

There is reason to think that the Borden Government is moving towards reorganization of the departments. There is urgent need to relieve Ministers of many petty and vexatious duties. Still there are grave defects in the classification of the inside service. The abler officials are underpaid. Many persons in the service, appointed only for political reasons, are filling places to which they are unequal. The lack of a system of superannuation embarrasses Ministers and heads of departments in dealing with crowded pay rolls and inefficient officers. In the outside service radical reform is necessary to ensure justice to public servants and efficient management of the public business.

It is not true that devotion to public affairs must necessarily be stimulated by office and emoluments. The civil servant is entitled to the same security of employment the same chance of promotion, the same reward for industry and efficiency as the rest of us enjoy in our various pursuits. This he cannot have while the public offices are treated as the spoil of party and the high places of the service are reserved for untrained politicians who must be fitted for their duties by the very men whom they supplant. At best the area of patronage can only be restricted, for judicial appointments, the appointments to public commissions,

to lieutenant-governorships, and to various other places of great trust and dignity can be made only by Government and in these political considerations will always be more or less influential. But it is seldom that scandal arises out of this class of appointments. It is not here that the chief evils of patronage exist. They lie in general partisan control of the outside service, in the activity of patronage committees, in the management of party caucuses and party conventions by the office hunting element.

It is true that all the evils of our politics will not be eradicated by the establishment of a permanent, non-partisan civil service

and the disappearance of patronage as a stimulus to political activity. But there would be a great increase of independent action in the constituencies. Public men would be relieved from dependence upon the mercenary element which now exercises a baneful authority in the political organizations. The civil service would be greatly strengthened in character and efficiency. The independence of Parliament would be materially enhanced, and the great and serious problems of administration and high political debate upon broad questions of policy and principle would become the chief business of statesmen.

## Ontario Forests

*Extracts from the Report of the Minister of Lands Forests and Mines.*

The importance of the forests of Ontario to the welfare of the Province and the Dominion are brought out in a few figures in the report of Hon. W. H. Hearst, Minister of Lands, Forests and Mines, for 1912, which has recently been issued.

'The revenue collected on account of woods and forests in 1912 was \$1,985,662.78, or \$274,225.91 in excess of the revenue collected last year (1911).'

'The principal increases were in timber dues \$166,673.37, and in bonus \$113,884.14.

'The mileage under license last year was 996 miles less than that of the previous year. The reason for this was that certain licensees had not paid up their ground rent or were indebted for dues, which prevented the issue of their licenses. 307 miles were also surrendered as having been cut out, and were withdrawn from license.

'The output of pine sawlogs, boom timber and square timber brought into feet board measure equalled 487,838,666 feet board measure, which is 96,425,439 feet below the output of 1911.

'The output of timber other than pine showed an increase of 24,093,160 feet over last year. There was also an increase in the pulpwood of 49,612 cords. The most notable expansion was in railway ties. The quantity taken out last year was 4,270,832 ties. The quantity taken out this year was 5,704,459 ties, showing an increased output for the year of 1,433,627 ties.

'Several berths in the Rainy River, Thunder Bay and Kenora Districts that had been damaged by fire or cut over in previous years were sold by tender.

'The only other timber sale held during the year was of two berths on the Jocko River, each having an area of 25 miles, which were in a dangerous position and on which the timber had reached its maturity, and it was considered wise to sell them so as

to get the value of the timber. The sale of this timber established a record for price. The pine timber on Berth No. 1 was sold for \$13.26 per thousand feet board measure in addition to \$2 dues; and the pine timber on Berth No. 2 was sold for \$12.10 per thousand feet board measure in addition to \$2 dues. In the disposal of these berths it was determined to insert a condition in the terms of sale requiring the licensees to remove all limbs, brush, and other debris arising from the lumbering operations under the direction of an officer appointed by the Department of Lands, Forests and Mines. A deposit was required of \$1,000 per mile in each case, which deposit is held as security for the performance of all conditions of sale. The Forester for the Province, Professor Zavitz, was requested to visit the locality, and a special ranger was placed in charge of the cutting to see that the conditions with respect to the disposal of the debris were carried out. The timber will be culled and measured by scalers appointed by the Department.'

'There were on duty last summer (1912) in forest reserves 228 fire rangers; on railways 193; on lands of the Crown 111; which with 10 chiefs makes a total of 542 fire rangers employed.

'The timber licensees are required to place rangers on their limits and pay them. Under this arrangement there were on duty on licensed lands during the summer 350 rangers and 8 supervisors, making a total staff in the forest last summer of 900.'

Among the cost figures given are: wood ranging \$91,753; exploration of timber berths \$1,062; fire ranging \$124,483; forest reserves protection \$83,605. These figures make a total of \$300,903 for this part of the work in Ontario in 1912, and of course they do not include the amounts paid by the timber licensees for their 350 rangers.

# New York State Forestry Association

*By Mr. F. F. Moon, Professor of Forestry Engineering N. Y. State College of Forestry.*

A highly successful meeting of the New York State Forestry Association was held at the New York Botanical Garden on October 17.

The regular program was somewhat curtailed on account of the absence of Mr. Pettis so that the State-wide Fire Law was not discussed nor was the Jones Bill taken up to any extent. Professor Mulford of the Department of Forestry, Cornell University gave an interesting talk on the possibilities of the Farm Woodlot. In the discussion that followed it was brought up that co-operative marketing is in many cases as important as Community production and efforts should be made that will enable the small wood-lot owner to market limited quantities of his products at the prevailing market price instead of letting them go at cut rates.

The question of a forest inventory of New York State was discussed by Professor Moon of the New York State College of Forestry. It was stated that New York State while previously a large producer of timber has at the present time slipped back to 23rd

in the list of the States in timber production in spite of the fact that it has enormous areas of natural forest land. New York State consumes more lumber viz. one and three-fourths billion board feet and more pulp viz. over one million cords per annum than any other State in the Union but out of the total annual lumber bill of \$54,000,000, approximately \$20,000,000 are sent outside of the State each year to purchase raw material.

The report soon to be issued by the New York State College of Forestry in connection with the United States Forest Service on the Wood Utilizing Industries of New York State indicates that the Empire State has 14,000,000 acres better suited to the growing of timber than agricultural purposes. This enormous acreage should be made to yield a revenue instead of lying absolutely idle or at best producing but a fraction of its capacity.

It was tentatively decided to hold the January meeting in Albany and plans for a vigorous campaign to increase the membership were made.

## USES OF SAWDUST.

Flour for trade purposes from sawdust is now in common use. It is an ingredient of dynamite, linoleum, xyolite, etc. The wood flour is ground in a mill, very similar to those which grind corn and rye. Pine and spruce sawdust is used, and after being passed through the stones and the bolting chest, it is sacked or baled for shipment. It is then worth 48s. to 52s. a ton. The flour has a number of uses. It is the absorbent for nitroglycerine, which is the explosive ingredient. Wood-flour dynamite is inferior to that made with infusorial earth as the absorbent; but it serves many purposes and is cheaper. But dynamite is one of the smallest prospective uses for the product. Linoleum makers mix it with linseed oil and give body to their floor coverings. It is not considered quite equal to ground cork for this purpose, as it is

less elastic, but it is cheaper and meets requirements for medium grades. The flour fills an important place in the manufacture of xyolite, a kind of artificial flooring, resembling wood in weight, and stone in other respects. It is used for kitchen floors, and in halls, corridors, cafes, restaurants and public rooms. It is impervious to water, and is practically fireproof. It is used as floor material in some of the German war vessels. It is so used because it is not liable to take fire or splinter if struck by shells.

Many owners of woodlands in Massachusetts, in addition to making a careful selection of trees to be cut, are replanting in every case where their lands are not sufficiently wooded, and many areas that for a century perhaps have been what are known as run-down pasture lands are being planted with suitable trees, either pines, maples or other woods that are best adapted to peculiar local conditions.

## Dominion Forestry Branch Work

The Director of Forestry, now has a permanent staff of thirty-eight in the head office of the Forestry Branch at Ottawa. Eight of these are technically trained foresters engaged either in administrative work or in the preparation of Branch bulletins. Now that the fire season has come to a close, the tedious work of checking fire-rangers' diaries is practically over. Fortunately many of the rangers possess the gift of brevity to a remarkable degree as well as considerable versatility in phraseology, which makes even their diaries interesting in places. One ranger, evidently Irish, reports having 'camped on an island with twenty other Indians.' In another place he 'broke camp at God's Lake in the morning and made Hell's Gate by night.'

The Reserves being actively administered by the Forestry Branch have had a most successful year. On the sixteen Reserves in the four western provinces, from which complete returns have come in for the fire season from April to September, inclusive, the area burnt over this year amounted to only .06 per cent of the total area. The mature timber burnt covered hardly fifty acres, or approximately .0002 per cent of the total area of these Reserves, the loss being but a few hundred dollars. The chief loss was the partial destruction of about 2,700 acres of young timber, which was, however, potentially valuable. A great part of the area burnt on these Reserves consisted of grass lands around the shores of sloughs, or natural meadows, settlers and campers being responsible for most of the fires. That these fires were, in the great majority of cases, extinguished before reaching the timber and that too, with a total extra cost of little over \$200.00, reflects great credit on the administration of these Reserves.

The fire-record in the Fire Districts outside the Reserves, has been even more remarkable, for there the Fire Rangers are not aided in the fighting of fire by trail, telephone line, lookout station, or fire-guard. There are eleven of these Districts each in charge of a chief Fire Ranger and it is to the initiative of these men that much of the season's success is due, the total estimated damage done to merchantable timber by the several hundred fires reported being less than \$1,000. Co-operation in fire-protection has been secured from the campers, packers and Indians, to whose carelessness with camp-fires many of the fires of other years were due. The Chief Ranger in northern Mani-

toba was recently at Norway House when treaty money was being paid to between 800 and 900 Indians. He writes: 'The Chief and councillors assured me that they stood firm for the protection of the timber.' The fire rangers in this district, many of whom are Indians, average 16½ miles, by canoe, each day rain or shine, not excluding Sunday. That patrol work alone can be made effectual when conscientiously performed, is shown from the fact that in the Coast Fir Ranging District, in British Columbia of the 124 potential forest fires occurring in the period from April to August, only one exceeded ten acres in extent before being extinguished by the Rangers, who, in only four cases, had to call in extra assistance.

Of the eight forest survey parties doing reconnaissance work in western Canada this Summer, all but two have completed their work, as a result of which it is not unlikely that substantial additions will be made next year to the areas now included in Dominion Forest Reserves.

Mr. Melrose examined approximately 1,800 square miles of forested land situated north of Battleford, and consisting principally of low sand and gravel ridges with numerous sloughs which towards the north gave place to muskeg. The poplar type covered 40 per cent. of the area giving place to white spruce on the better drained soils, spruce being the ultimate type. Few of the trees have attained full growth for almost the entire area has been burnt over in the last 75 years and on over 100 square miles, as a result of repeated fires, tree-growth has been entirely wiped out.

Mr. Connell, who had charge of a party in the Pasquia Hill region north of the Porcupine Reserve in eastern Saskatchewan, examined over three thousand square miles of country most of which was hilly and covered with boulder-clay (consisting mostly of boulders), making it unfitted for agriculture but very suitable for forestry purposes. There are some fine stands of poplar and spruce although fire had done great damage here, too.

Mr. Roberts, in charge of a party operating northwest of Prince Albert, examined about eighteen hundred square miles of the hilly or rolling sand-lands containing the head-waters of several large rivers flowing towards Hudson Bay. The growth is mostly young poplar and spruce which, if protected from fire, will soon be providing timber to the settlers in that region. G.E.B.

# A Forest Insect Survey in British Columbia.

By Mr. J. M. Swaine, Assistant Entomologist for Forest Insects, Dept. of Agriculture, Ottawa.

The Forest Branch of British Columbia and the Division of Entomology of the Dominion Department of Agriculture working in co-operation have this summer commenced a Forest Insect Survey of the timber limits of British Columbia.

The investigation was made by Mr. J. M. Swaine, Assistant Entomologist for Forest Insects in the Division of Entomology, Ottawa. This Summer's work was primarily a survey to determine the location and extent of forest insect injuries and to decide upon proper control measures for the more serious outbreaks. The territory covered included the Kootenay, Okanagan, Similkameen, Lower Coast and Vancouver Island regions. Several destructive outbreaks of bark-beetles were located and studied, and much practical information was obtained for future control work with a variety of forest insects. A large collection of forest insects and their work was made, which will be of great practical and scientific value.

Much work remains to be done. Information was obtained of several extensive bodies of dying timber which could not be visited this season.

The timber of the Lower Coast and Vancouver Island is not at present suffering from extensive insect outbreaks; but there are incipient attacks which need to be kept under careful observation. Cedar and yellow cypress are quite generally hollow-hearted and stag-headed. These affections are probably always of a fungous origin. No serious insect injury to these trees was found in this Summer's work. In many places the western white pine, *Pinus monticola* is being killed by the mountain pine bark beetle, *Dendroctonus monticolae* Hopk. It was found killing green timber, particularly at Cowitchan Lake and the district about Campbell River. Wherever valuable stands of white pine are held a watch should be kept for attacks by this destructive beetle. Clumps of 'red tops' and scattered 'red' and 'yellow tops' with the bark bearing numerous tubes of gum surmounting vertical tunnels between the bark and the wood, are danger signals, and should receive prompt attention if the timber is to be saved.

The Sitka spruce, *Picea sitchensis* is subject to attack by a destructive bark beetle, *Dendroctonus* sp. near Menzies' Bay this beetle had bored in fire-injured trees about a burn and was this Summer attacking and killing nearby green timber of large size.

The spruce gall insects of the genus *Chermes* are commonly found on the Sitka spruce, and are seriously destructive to

isolated trees or clumps, particularly in lawns and parks of towns and cities. Stanley Park at Vancouver is suffering from a serious outbreak of these pests.

The balsam fir *Abies grandis* is attacked and killed by two species of bark beetle, *Hylugops* sp. and *Eccoptogaster* sp. This injury was more noticeable at Alberni and about Campbell River.

The Douglas fir, which forms the bulk of the timber of the region, is generally in fine condition. Several incipient outbreaks of the Douglas fir bark beetle, *Dendroctonus pseudotsuga*, should be kept under observation, but we know of no considerable body of dying timber. At Cowitchan Lake and Campbell River isolated red top fir had been killed by this species, and it is everywhere abundant in slash and dying trees.

The spruce budworm, which was very abundant in many places a few years ago, is now hardly to be noticed.

Ambrosia beetles of the genus *Gnathotrichus* and *Trypodendron* are excessively abundant in dying trees. Their small black tunnels pierce the sap wood, but rarely penetrate more than five inches. The most injurious of the Ambrosia beetles belongs to the genus *Platypus* of the family *Platypodidae*. It is very abundant throughout the Lower Coast and Island districts in freshly cut logs of Douglas fir, hemlock, spruce and balsam, and drives its tunnels seven inches and over into the wood.

The lower part of the Interior, from the railway belt south to the boundary, harbours a large number of destructive forest insects. The bull pine, western white pine, or mountain pine, lodgepole pine, Engelmann's spruce, western larch and Douglas fir are seriously affected by destructive pests.

The bull pine is subject to attack throughout its range in British Columbia by three destructive bark beetles.

The western pine bark beetle, *Dendroctonus brevicomis* Lec. is particularly destructive. The mountain pine bark beetle is almost as serious an enemy to the bull pine as to the white pine from which it receives its name; The red turpentine bark beetle, *Dendroctonus valens* Lec., is also abundant about the base of green pines attacked by the two more destructive species just mentioned. Serious injury by these species is evident in many places but the most destructive outbreak appears to be about Princeton. The clumps of red-tops, containing from five to thirty-five trees have already become very numerous, although the dying trees have

## FORESTRY IN QUEBEC.

only been noticed two years. These red-tops are, of course, dead trees, the majority of which were killed last season. In the surrounding green trees many trunks were studded with the pitch-tubes of the borers which had left the red tops to attack the green timber. From 1500 to 2000 pairs of beetles were working in the lower fifty feet of attacked trees examined. These trees will add greatly to the size of the red top patches by next Spring. Hundreds of trees have already been killed and the fine timber in the valley of the Simalkameen and Tulameen Rivers, is threatened with widespread destruction. Similar outbreaks, as yet of lesser importance, are starting in several parts of the bull pine country.

The western white pine is seriously affected by the mountain pine bark beetle. An outbreak has been running in the Sugar Lake and Mable Lake regions for about eight years and a large body of fine timber has been killed. The killed trees have since been rendered valueless by the tunnelling of the larger wood borers. At the time of the visit there in July the beetles were leaving the red tops, attacked last season, and entering the green timber in large numbers. The same species was killing lodgepole pine in that district. Unless control measures are undertaken very soon the white pine of Sugar Lake will be very largely killed.

There are outbreaks by destructive bark beetles in Douglas fir and lodgepole pine. The Douglas fir bark beetle is killing a moderate amount of fir in the Creighton Valley. Lodgepole pine is subject to attack by bark beetles, which in many places kill more or less timber. The most serious outbreak known to us at present is in the Shookumchuck valley above Wasa.

Considerable injury to reproduction was located. The most serious cases were attacks on cones of Douglas fir and bull pine by caterpillars. A small species feeds largely within the seeds of bull pine cones, leaving them entirely filled with powder-like excrement. A large species feeds irregularly cutting tunnels around the green cones destroying many of the seeds. Such injury was found at various places in the Interior and also to Douglas fir on Vancouver Island.

The control of the destructive bark beetles is discussed at length in the Report on the Summer's work shortly to be published. The most important control measure is to fell and bark the recently infested trees and in certain cases to burn the bark. The methods to be followed in each case depend upon the habits of the beetles concerned, and should be conducted according to the advice of a forest entomologist.

It is a mistake to strip the woods off from steep land and then plow it. Better by far keep timber growing on it. It is worth far more for forest culture than for cultivation.—  
*Farm Journal.*

The Secretary recently visited the City of Quebec and later on other parts of the province and there learned that forestry is making steady progress.

The policy of township forest reserves to which reference was made in the September issue of the Journal is becoming constantly better understood, and this promises to soon become an important feature of the work. One of its most valuable aspects is the interest which it arouses in the people of the township and their determination to protect and improve their own property. Anything which gives the people of the country a direct knowledge of and interest in forestry is one of the most valuable aids to forestry progress, and the effect of this system of township reserves will soon be perceived far beyond the borders of the community in which they are situated.

The method of dealing with sand lands in old settled parts of the province is proving its value. In case any of our readers have forgotten how this is done it may be explained that Quebec has adopted what has been termed the 'Massachusetts system' of dealing with those lands in settled communities which are fitted only to produce forest trees. By this system the province pays a nominal price of \$1 per acre for all the lands in a given district which it is intended to re-forest. The Provincial Forester then examines the tract, decides what trees it is advisable to plant, and arranges for their planting. The plant material is supplied by the provincial nursery and the government pays the cost of the work. The care and necessary cultivation of the plantation devolves upon the government for fifteen years from the time of purchase, at the end of which time the original owner may regain possession of his lands upon payment of the cost of planting and cultivation. In order, however, that the owner will have a definite basis, it is agreed that no matter what the cost has been to the government, the re-purchase price by the original owner will not exceed \$10. per acre.

This is not a compulsory law, but so far there has been no difficulty in securing lands to be planted under these conditions. In fact at present the Department cannot begin to overtake the work that is offered in different parts of the province.

There seems likely to be a development of this line of very great promise, which is the acquirement by municipal organizations, particularly by towns and cities of the complete areas of these sand portions and the maintenance of these as municipal forests. This could be done by one of several methods. For instance, the city might purchase the land outright from its present owner, and then turn it over to the government for the fifteen year period; or it could act under the advice of the Forestry Department, do its own

planting, and receive the profits from the same as soon as the thinning process began. In any event in order to secure continuity and uniformity the government would probably regulate the general direction of the management and cutting of the timber.

### PROF. RECKNAGEL'S BOOK.

A book which has merited notice long ere now but of which a review has been delayed is *'The Theory and Practice of Working Plans'* by Professor A. B. Recknagel, of the Forestry Faculty of Cornell University—New York, John Wiley & Sons; Montreal, Renouf Publishing Co., \$2 net.

The author, who is a graduate of Yale Forest School, has been in important positions in the U. S. Forest Service and has lately spent a year in Germany, studying at first hand the systems of forest organization in that country, is by his experience specially fitted to deal with the complicated subject.

The presentation of the theme is logical and clear. Following his title faithfully, the author takes up first the theory of management under 'Foundations of Working Plans,' and follows it with 'Practice of Working Plans'. In Part I, after discussing the ideal of the forester, the 'Normal Forest', Professor Recknagel describes methods of forest reconnaissance which would lead to the first essential in any proper forest management, viz., that the manager should know accurately what he has within the boundaries of his tract. In this connection some very interesting tables and plots are shown.

Having arrived at a trustworthy estimate of his forest, the forester's next step is to determine the system under which he will manage it. The next portion of the treatise is therefore given to a consideration of the three conditions governing all systems of management, viz., the unit of organization, the silvicultural method of management, and the final object of management.

The statement of the principles of the various methods (some twenty in all) which have been worked out in Europe is most lucid, and will be a delight to the American student of forestry, to whom, on account of the difficulties of foreign texts, many of the leading points of continental practice have been denied.

Realizing that American forests are in very poor condition for management to-day Professor Recknagel next speaks of the regulation of yield in special cases. He then presents the working plan document, which contains the various plans which will have to be followed in the course of the regulation, and whose keynotes, says the author, are simplicity and brevity, and may embody merely the silvicultural management, or may cover all the activities in a forest. In the 'Outline of American Practice' which he suggests,

the author follows this latter plan, and embodies all the uses to which the forest may be put in addition to lumber and by-products.

From his wealth of reading and European experience Professor Recknagel is able to present in the latter portion of the book, 'The Practice of Working Plans' a most complete synopsis of the state of management plans in Prussia, Bavaria, Saxony, Wurttemberg, France and Austria. These pages bring home to the reader the practical advantages and disadvantages of the plans outlined in the theoretical discussions.

Passing to American conditions the author describes the work of the United States Forest Service in the development of the basis of working plans. The reproduction in the book of many of the forms used in reconnaissance gives the reader a clear conception of the actual operations of today.

All in all, the book should prove of great value to the student and practising forester for whom Professor Recknagel says he has written. In itself through the appreciation which will doubtless be accorded it by American foresters it should do much to dissipate the fear expressed by the author in the preface that the application of the most advanced methods of management 'is of the far distant future, if ever.'

R. L. C.

### C. P. R. FORESTRY WORK.

Mr. A. H. D. Ross, M. A., M. F., Lecturer in Forestry in the University of Toronto, and Consulting Forester for the Canadian Pacific Railway, reports a most interesting Summer's work.

During the last two years the Company has had reconnaissance parties at work from Vancouver to Halifax, and now has on file much valuable information regarding the timber resources of the country tributary to its lines which could not be obtained from the provincial authorities. It is hoped that the good example set by the C. P. R., under the energetic leadership of Mr. R. D. Prettie, Superintendent of Forestry for the Company with headquarters at Calgary, will spur others on to a systematic method of stock-taking and a study of the best methods of making provision for future supplies of timber.

In southern British Columbia, the Company has twelve tie-and-timber reserves aggregating over half a million acres, and during the past summer had made detailed reconnaissance surveys of more than half the area at a cost of less than ten cents per acre. The character of the work done equals the best done anywhere on the continent and has been highly commented upon by some of the leading foresters of the U. S. Forest Service.

## CANADIAN FORESTRY JOURNAL,

Published monthly by the  
CANADIAN FORESTRY ASSOCIATION,

Canadian Building,  
Ottawa, Canada.

Devoted to the cause of forest conservation.

Subscription \$1 per year.

Advertising Rates on Application.

## REPORTS OF WINNIPEG MEETING.

Copies of the detailed Report of the Winnipeg Convention were mailed to all our members over a month ago. Those who have not received their copies should notify the Secretary as soon as possible as there is a large demand for this Report and copies are going rapidly.

## CONTENTS: Page.

Editorial . . . . .	161, 162
Patronage Evil . . . . .	162
Ontario Forests . . . . .	163
N. Y. State Forestry Association . . . . .	164
Dominion Forestry Branch . . . . .	165
Forest Insects in British Columbia . . . . .	166
Forestry in Quebec . . . . .	167
Prof. Recknagel's Book . . . . .	168
C. P. R. Forestry Work . . . . .	168
Notes . . . . .	169
Commercial Forestry—Mr. Ellwood Wilson . . . . .	170
Slash Disposal . . . . .	171
Western Farmers and Trees . . . . .	172
With the Forest Engineers . . . . .	173
Development in British Columbia . . . . .	174

## CANADIAN FORESTRY ASSOCIATION.

Patron, H. R. H. THE GOVERNOR GENERAL.  
Honorary Pres., Rt. Hon. R. L. BORDEN.  
Honorary Past Pres., Rt. Hon. Sir WILFRID LAURIER.  
President, Hon. W. A. CHARLTON.  
Vice-President, WM. POWER, M. P.  
Secretary, JAS. LAWLER, Canadian Building,  
Slater St., Ottawa.  
Treasurer, Miss M. ROBINSON.

Directors: William Little, Hiram Robinson  
Aubrey White, E. Stewart W. B. Snowball,  
Thomas Southworth, Hon. W. C. Edwards, Geo. Y.  
Chown, John Hendry, Hon. Sydney Fisher, R. H.  
Campbell, J. B. Miller, Gordon C. Edwards, Dr. B. E.  
Fernow, Ellwood Wilson, Senator Bostock, F. C.  
Whitman, G. C. Piché, Alex. MacLaurin: Mgr. O. E.  
Mathieu, Bishop of Regina; A. P. Stevenson, Wm.  
Pearce, C. E. E. Ussher, Denis Murphy, C. Jackson  
Booth, Wm. Price, J. W. Harkom, A. S. Goodeve,  
W. C. J. Hall, J. S. Dennis, J. B. White, E. J.  
Zavitz, Geo. Chahoon Jr., R. D. Prettie.

## Territorial Vice-Presidents:

Ontario:—Hon. W. H. Hearst.  
Quebec:—Hon. Jules Allard.  
New Brunswick:—Hon. J. H. Flemming.  
Nova Scotia:—Hon. O. T. Daniels.  
Manitoba:—Hon. R. P. Roblin.  
Prince Edward Island:—Hon. J. A. Matheson.  
Saskatchewan:—His Honor G. W. Brown.  
Alberta:—Hon. A. L. Sifton.  
British Columbia:—Hon. W. R. Ross.  
Yukon:—Geo. Black, Commissioner.  
Mackenzie:—F. D. Wilson.  
Keewatin:—His Honor D. C. Cameron.  
Ungava:—His Grace Mgr. Bruchesi, Archbishop of  
Montreal.

## CHANGE OF ADDRESS.

Since the *Canadian Forestry Journal* is now issued monthly our mailing lists are revised with like frequency. Members who have changed their addresses, or who do not receive the *Journal* regularly and promptly are requested to write to the Secretary. Do this now before you forget it.

## THE BROILLIARD MONUMENT.

At the 1913 Annual Meeting of the Canadian Forestry Association the sum of \$25. was voted toward the monument to Broilliard the eminent French forest engineer. The Secretary is in receipt of a letter from the President and Secretary of the Committee announcing the inauguration of the monument at Morey (Haute-Saône) France on Oct. 1. The function was carried out on a large scale and in a manner worthy of the man and the profession.

## TO PROTECT OTTAWA'S WATER SUPPLY.

In connection with the decision of the City of Ottawa to take its water supply from Thirty-One Mile Lake in the Gatineau country lying north of Ottawa in Quebec, the character of the watershed becomes of importance. The report of Sir Alexander Binnie the consulting engineer on the possibility of the water being contaminated in the future shows that the whole drainage basin is well wooded, not more than three per cent being cleared and the total population does not exceed one per square mile. With the selection of this scheme out of several proposed the necessity for the creation of a park on this drainage basin becomes apparent. The land is not suitable for agriculture. It is necessary that settlements be kept away from it if Ottawa's water supply is to be kept pure, so that here is the best reason for the establishment of a permanent forest. The matter should be taken in hand at once and go on with the development of the water works project.

# Commercial Forestry

*Synopsis of Address by Mr. Ellwood Wilson, Forester of the Laurentide Paper Company before the Society for the Protection of New Hampshire Forests.*

All large industries Mr. Wilson said, were accustomed to look at the financial side, and the chief question the forester was asked was 'Will it pay'? Paper manufacturers had till within the last few years paid little attention to forestry but had regarded the woods more as mines than as agricultural holdings. Up till a few years ago no manufacturer would use anything but spruce, but now in some districts they were using practically as much balsam fir as spruce.

Mr. Wilson pointed out that the conditions were so different in America from those in Europe that it was impossible to apply here methods used there. On this continent the large paper companies either owned their holdings outright or leased them for long terms from the government, and the first question which every forester was asked was how long would the present supply last. In some cases this was a very difficult question to answer by making an inventory because there were no maps and no information as to the exact size of the holdings, which ran all the way from one million to four million acres. There was then, of course, the necessity of overcoming the antagonism of the old ideas as to forest utilization, but the constant trend of affairs had convinced the holders of the necessity of knowing about the supply for the future.

Another point that had held back the forestry movement among these concerns was the fear that some other material than wood might be used to make paper, or that some other country like Japan or India might make paper from some quick growing wood like bamboo. However, after considering these things Mr. Wilson felt that wood would continue to be used for a long time to come, and that it would pay to operate the forests on that expectation.

There were two types of men managing companies. One looked only to the earning of as large dividends as possible without much regard to the future; while the other one saw his work as a part of a broad scheme, and who was willing to look ahead and plan for the future. He was happy to say that in the paper industry this latter type was often found, and that paper companies especially in Canada had to a great extent urged governments to do their duty in regard to the forests.

Mr. Wilson pointed out that they had now by an inventory of a good part of the woodlands in Quebec, come to the conclusion that

the supply available by the streams and present means of transportation was good for fifty or sixty years more. His hearers might say that forests grow, but Dr. Fernow had just told them that there was no increase in the amount of timber in a virgin forest as the decay and death of trees balanced the new growth.

He was positive after his experiments in this matter that there was only one way to handle this question, and that was to begin to plant on a large scale. Mr. Wilson on this point said, 'I am quite sure that the financial return will be adequate, and when you think of the huge cost of these plants which must be situated where water power is cheap, where there is an easy way to get the wood out of the forests, namely by floating it on the rivers, and that it is necessary to provide them with raw material, it seems that their dependence on wood, their interest will soon bring them to this conclusion and that they will soon begin to plant on a large scale.'

The company by which he was employed used one and one half million trees per year. They had been for four years experimenting with species which grow quicker than our native ones, and while it was too soon to say what the results would be, still he hoped that in a few more years they would have begun to plant as many trees as they cut. His hearers might say that it took a long time to grow trees, but he did not think the time element would play such a very important part in this question, because these immense plants, owned by large and self-perpetuating corporations which would endure as long as other human institutions, should go on practically in perpetuity. And planting even without considering the sure rise in the value of timber would give a proper financial return. They had now planted nearly 100 acres and found that it could be done as low as five or six dollars per acre. Of course they did not know as yet whether the native species would do as well in pure stands as they did when growing naturally mixed in the woods. They were also trying plantations of different kinds of trees in pure and mixed stands and on different soils. He felt that when the forester learned the practical bearing of his work and when he could show the lumberman and the paper manufacturer that there were actual returns in dollars and cents from forestry then the field would be enormously increased.

The great question of fire protection was the first one to be met and that had practically been settled in the Province of Quebec by the formation of the pioneer co-operative society, the St. Maurice Valley Forest Protective Association, and the broad-minded and helpful attitude of the Minister of Crown Lands, Hon. Jules Allard, and his Chief of Fire Protective Service Mr. W. C. J. Hall. This Association had charge of over seven million acres and had two successful years behind it.

Canada was well placed in regard to care of her forests. These for the most part were still Crown Lands, the right to cut the timber being licensed to companies and individuals, and the cutting carried on under the supervision of the government. The immensity of the territory, the lack of trained men and the difficulty of dealing with settlers had hampered the work. A new era was dawning, however, and the Dominion Forest Service and those of the provinces of Quebec and British Columbia were doing splendid service. It was hoped there would be no backward steps and that the government would take the lead in conserving the forests and looking after fire protection. At present in Quebec the licensee paid not only the annual rental and stumpage dues, but bore all the expense of fire protection, stock taking and measurement.

Another interesting question was the amount of growth after lumbering. It had been found over large areas that the average cut per acre counting all territory good and bad was about 3 cords or 6M feet b.m. per acre. The government regulations did not allow the cutting of any trees under certain diameter limits. The result was the smaller trees had been left under the supposition that they would supply the seed necessary for natural regeneration. But measurements in many different sections showed that not enough timber was coming on to make a second trip into this cut-over section profitable. A second cut would amount to only one, or at the very most two cords per acre after thirty or thirty-five years, so that from the standpoint of the future crop the diameter limit and natural reproduction were not efficient. Another drawback was that under this system only soft woods which could be floated were taken out, leaving the large hardwoods which were really weeds, to grow and propagate. For this reason planting was a necessity and should be begun at once. Mr. Wilson concluded, 'I think that the only method of perpetuating a sufficient supply of timber, and I agree with Dr. Fernow that the government is the agency which should take it up.'

### SLASH DISPOSAL.

At the Winnipeg Convention the question of slash disposal was keen-

ly debated. Mr. W. R. Turnbull of Rothesay, N.B., an old and enthusiastic member of the Association was prevented from attending at Winnipeg, but felt so strongly on this subject that he sent the subjoined letter giving his views:—

According to a recent bulletin of the Canadian Forestry Association 'Canadians are cutting timber each year at the rate of about 100 board feet per acre.' 'The fire loss is estimated to be 950 board feet per acre per annum.' In other words nearly ten times as much timber is destroyed by fire as accrues to the benefit of the country.

I have been in the New Brunswick woods a good deal and I believe this enormous loss can be prevented in **just one way** and that is by compelling the lumbermen by law to burn the tops and all the branches of every tree that is cut down, and **at the time** the tree is cut down. The practical lumberman will doubtless object to this, saying that the green branches will not readily burn, and that it would cost too much money to employ men to do this work.

In the first place the green branches and tops will burn, provided a large fire of dry wood is first started, and the green branches gradually fed on the fire and kept well packed down by attendants that understand the proper methods. In the second place it would cost money, no doubt, but the lumberman could be compelled by law to expend this money and the resulting saving would accrue not only to the country as a whole, but eventually to the lumberman himself.

I would propose that at every lumber camp in Canada, a government employee be stationed, during the cutting months, to see that the law of burning tops and branches at once, be carried out. Or what would suffice as well, and be less costly to the Government, would be traveling inspectors who could possibly visit twenty or thirty camps in a given district and report at once the negligence of any lumberman who had not destroyed his tops and branches—the negligent lumberman to pay a heavy fine, many times the cost of doing the work of burning.

If such a law was made and enforced large forest fires would soon be things of the past. In woods that have been **cleaned** of dead wood and old cuttings, and contain little but living green trees it is almost impossible to start a fire in any month of the year, and the country would lose little by hunters and careless campers if the lumberman were compelled to do his duty by the country and by himself.

### WHY EVERY WESTERN FARMER SHOULD GROW TREES.

By Mr. J. J. Ring, Crystal City, Man.

Protection is one of Nature's first laws, and seems to be the first law of nations. Then, why not protect our homes by planting trees for windbreaks and shelter belts. They add to the comfort of the home by providing surroundings of a restful and beautiful character.

We can not over-estimate the value of tree planting in the prairie provinces. The economic value of the shelter belts cannot be expressed in dollars. For many reasons, an ample, properly located windbreak should be grown around the farm home. Its protecting arms embrace the dwelling house, and the barns, stables and sheds. The strong, hardy, beautiful trees are set for defense, and when the winter blizzards come charging across the prairies and find the farm home entrenched behind a living rampart of trees, the fierce breath is robbed of power to worry and destroy. The wind rolls over; the snow is held back in the lee of the shelter belts; the farm-yards are free of snow banks. Who can put a money value on the shelter belts?

If possible they are of more value in the summer. When the dry, blighting hot winds, and the fierce cutting sandstorms attack our homes, we are comparatively safe behind the invincible, swaying home-guard of trees. Can a price be put on the comfort and enjoyment our families and friends receive from the cool refreshing shade and shelter of trees?

The farm animals, poultry and our wild birds enjoy the protection. We find from long experience that we can raise better and finer flavored garden vegetables in the shelter than in the open. To get the best results from small fruits, flowers and shrubs, we must have shelter.

### TREE PLANTING IN NORWAY.

The western coast of Norway was heavily wooded a few centuries ago, but now this coast strip has become bleak and desolate with the passing of those forests. To restore the forest glories of the west coast the Bergen Tree-Planting Society was founded in 1900. It has set itself a tremendous task demanding vast expenditures of money, time and labor but, nothing daunted, the society has enlisted the aid of the Government and wealthy citizens and has already made substantial progress. In the thirteen years of work carried on, this society has planted nearly 37,000,000 trees, two-thirds of them on a tract of 10,000 acres in the two Bergenhus counties. Stimulated by such an example 144 smaller societies have been organized in these counties, and last year they set out 2,276,00 trees.

### THE UNTHINKING MATCH.

A match doesn't think with its head. When you use it, your head has to do all the thinking. Don't trust the match to fall where it cannot start a fire and thus make you responsible. The progeny of matches—cigarette or cigar stubs and camp fires—have no heads at all. Do not trust them, either. Do the thinking. Put them out.

### RAILWAYS AND FORESTS.

Every acre of forest land in North Carolina is worth more to the railroads for the timber value than the people who own the land. The railroads get more from hauling the timber than the man who owns the timber receives from selling it. . . . The railroads try harder to prevent forest fires than the people do.—Mr. B. E. Rice of the Norfolk Southern Railway at North Carolina Forestry Conference.

### REVENUE FROM FORESTS IN U. S.

Receipts from the national forests of the United States were nearly \$2,500,000 for the year ending June 30, 1913. About half of the receipts were for timber. During the year the Government let contracts totaling \$4,000,000 for the sale of timber to be cut at once or in the future. Of the gross forests' receipts, 35 per cent. go to the States in which the forests are located, to be used for schools and roads.

### WASTE FROM WOOD.

The possibility of more thoroughly utilizing the enormous quantity of waste resinous wood produced in the lumbering industry has been disclosed by an investigation just completed by the bureau of chemistry of the United States Agricultural Department. The annual waste, it is estimated, is not less than 8,000,000 cords. This, according to the investigators, can be manufactured into paper pulp, turpentine, resin oils, pine oils, wood alcohol and other products to a value of nearly \$300,000,000. The investigation shows that the industries of paper making, wood distillation and resin oil production can be developed in combination.

'Their development not only will open a profitable field of industry,' says the bureau's report, 'but should prove a big factor in the conservation, of natural resources. In addition, by the utilization of waste and fallen timber, the injury to the forests by fire and insects will be materially reduced.'

# With the Forest Engineers.

(Contributed by the Canadian Society of Forest Engineers.)

Mr. E. G. McDougall (Toronto, '11) has been engaged in reconnaissance work for the British Columbia Government along the Cariboo Road and the 52nd parallel. The country here is a plain or plateau, flanked by ranges of hills adjacent to the Fraser and Clearwater Valleys. The plain is semi-arid, with many alkali lakes in the southern part, except for some small patches of prairie, and some rocky barrens in the higher ranges; the country is all wooded, but contains little saw-timber of present commercial value, apart from local uses. Yellow pine finds its limit just north of the Bonaparte River; north of that point the forest growth consists of fir and lodgepole pine on the plain and spruce and balsam at higher elevations with aspen very abundant on the burns. Much valuable timber has been destroyed by fire, while on the other hand the lodgepole pine appears to have encroached considerably on land that was formerly prairie.

As the country is largely covered by surveys, the plane table is not used, and as a map holder it is replaced by a common checker-board. A vest pocket premo is the camera used, but on many occasions a panoram Kodak would have paid for its transport. Mr. McDougall has one assistant as cook and packer, and four horses.

Subsequently to writing the above, Mr. McDougall writes: Since writing you last, I haven't seen much new country, and most of the side incidents have been distressing rather than amusing in character. Pack rats and field mice have levied toll on our provisions. Can any of your correspondents describe a mouse-proof cache that can be quickly constructed for use in a temporary camp? Has anybody tried the experiment of packing a cat or a ferret? A settler here says he had luck with a tame weasel, but such an asset is not available to us campers.

## In The St. Maurice Basin.

Mr. Ellwood Wilson writes of the work of the Laurentide Company as follows: 'During August and September the Forestry Department of the Laurentide Company have pushed nearly to completion a close examination of 370 square miles of timber limits. These maps have been made in great detail, showing the boundaries of all burns, muskegs, and standing timber. In the stands of timber strips have been run, covering 3 to 5 per cent. of the total stand, caliper trees and making close estimations.

'In addition to this, somewhat over two acres of jack pine, with an average diameter of about  $3\frac{1}{2}$  in., have been laid out in an experimental plot. A fire-line has been cut around it; one half has been left in its present condition as a control; the other half has been thinned, basing the thinnings on the size of the crowns, so that the trees would have sufficient light, but the stand would not be opened too much. It is desired to see what effect these thinnings will have on the timber. Each tree has been calipered and listed and it is proposed to repeat the calipering each year and keep careful records of growth. This work will be extended to other areas during the coming year and various methods of thinning will be tried.

'Over a portion of their limits, toppling will again be tried by the Company. Careful cost records will be kept and the effect on reproduction and rapidity of decay on the brush will be watched.

'This Department has just brought to completion the first accurate and detailed map of the valley of the St. Maurice River covering some seven million acres. Of this nearly two million acres have been surveyed by this Department; the balance has been compiled from work of the St. Maurice Industrial Company, under Mr. de Carteret, and the rest from Government surveys.

'This Company now has a nursery, covering over half an acre, with 40,000 seedlings ready for planting next spring. These comprise Norway and white spruce, red, white and jack pine, with a few Colorado blue spruce. Experiments are being carried out with different species of trees. The Laurentide Company has planted this year about thirty acres, bringing its total plantations now to some fifty acres.

'In September Messrs. Small and Wilson of this Company made a trip to the site of the proposed dam, which the Quebec Government intends to build on the upper St. Maurice River. This will form a lake somewhere in the neighborhood of 303 square miles, will control the flow of this important river, making it uniform at all times of the year, and will do much to increase the prosperity of the region.

'The country on the head-waters of the St. Maurice River is very flat, and mostly muskeg, and the timber begins to be of the sub-arctic type. White pine, cedar and white spruce are absent, the timber consisting almost entirely of small black spruce and jack pine, with some balsam fir. Black

spruce will probably average six to seven inches and is of very slow growth indeed.

Examinations showed that it took balsam from seventeen to twenty-seven years to make one inch, black spruce from seventeen to fifty years to make one inch. There is a very large burnt area but reproduction is good.

The St. Maurice Fire Protective Association has had a very successful year. Over 275 forest fires were extinguished with practically no damage; seven lookout towers have been constructed and telephone lines have been commenced. The success of co-operative forest fire protection has been established beyond a doubt.

#### Developments in British Columbia.

Mr. MacMillan, Chief Forester for the far western province, writes:

'We have recently succeeded in putting into effect here one of the recommendations of the Canadian Forestry Association, that is, that all land before settlement should be examined by the Forest Branch to determine whether it should be opened up for settlement or reserved for timber purposes. Before applications for land are dealt with in the Coast District they are now referred to the Forest Branch for examination. We anticipate that this policy will not only save a great deal of wasted effort and misery by preventing people from settling on non-agricultural land but will also prevent the taking up of valuable merchantable timber under the guise of settlement.

'At the present time the members of the Forest Board are spending a great deal of their time in the investigation of the royalty situation. As you know the Government is now arranging to revise the royalties paid on timber held under license with a view to adopting a policy which will ensure that the public will receive, when the timber is cut, a fixed proportion of its stumpage value.'

Mr. F. W. H. Jacombe, in charge of the library of the Forestry Branch at Ottawa, has accepted the appointment of head of the Canadian responsibility district (or, for short, 'district head for Canada') of the Special Libraries Association. The membership of this association includes representatives (to the number of some three hundred) of the libraries of Canada and the United States connected with banking, insurance, manufacturing and other industrial concerns, government departments and commissions, municipal and legislative reference libraries and various other classes of libraries.

#### NUT GROWING.

The *National Nurseryman* of Rochester, New York, gives considerable attention to nut growing in the northern states. In a recent issue it recommends for planting in these states the American chestnut, the shagbark hickory, the American black walnut, the butternut and the American hazels. The English walnut has been little tried, but there are several very successful plantations in Pennsylvania. Nearly all of these do well in the Maritime Provinces and in southern Quebec and southern Ontario, but so far very little has been done in developing this industry.

#### CANADIAN FORESTRY ASSOCIATION.

The Canadian Forestry Association is the organization in Canada for the propagation of the principles of forest conservation. This it does by means of conventions, meetings, lectures and literature.

It is a popular organization supported by the fees of members, assisted by some government grants.

There is a vast field of work before the Association which is only limited by the funds at the disposal of the Association.

Those who are not already members are invited to join and assist in the work. The membership fee is one dollar per year, and this entitles the member to attend and vote at all meetings and to receive the Annual Report and the *Canadian Forestry Journal*. Women as well as men are eligible for membership.

Applications for membership and requests for literature and information may be addressed to

The Secretary,  
Canadian Forestry Association,  
Canadian Building, Ottawa, Can.

#### OBJECTS OF THE ASSOCIATION.

- (1) The exploration of the public domain, so that lands unsuitable for agriculture may be reserved for timber production.
- (2) The preservation of the forests for their influence on climate, soil and water supply.
- (3) The promotion of judicious methods in dealing with forests and woodlands.
- (4) Tree planting on the plains and on streets and highways.
- (5) Reforestation where advisable.
- (6) The collection and dissemination of information bearing on the forestry problem in general.

# The UNIVERSITY of TORONTO

AND

## UNIVERSITY COLLEGE

WITH WHICH ARE FEDERATED

**ST. MICHAEL'S, TRINITY AND VICTORIA COLLEGES**

FACULTIES OF ARTS, HOUSEHOLD  
SCIENCE, MEDICINE, EDUCATION,  
- APPLIED SCIENCE, FORESTRY -

For information, apply to the Registrar of the University, or to the Secretaries of the respective Faculties.

**HARDY NORTHERN  
FOREST TREES**  
and shrubs at forest  
prices.

Native and foreign tree seeds.



**Edye-de-Hurst & Son,**  
Dennyhurst, via Dryden, Ont.  
SHIPPERS TO H. M. GOVERNMENT, ETC.

*Correspondance Française.*

TIMBER CRUISES } Forestry Dept.  
FORESTRY SURVEYS }

**Montreal Engineering Company, Limited**

Consulting & Operating Engineers

164 ST. JAMES STREET, MONTREAL  
R. O. Sweezy, General Manager

THE GENUINE  
SMITH **STUMP PULLERS**  
  
W. SMITH GRUBBER CO.  
CATALOG FREE-DEPT. 8, LA CRESCENT, MINN.

### **FOREST ENGINEERS.**

Forest Surveys      Logging Maps  
TIMBER ESTIMATES  
Water Power      Water Storage

**CLARK & LYFORD**

403 Crown Building, VANCOUVER

# University of New Brunswick

FREDERICTON, N.B.

## DEPARTMENT OF FORESTRY

*Established in 1908*

Four years' course leading to the Degree of Bachelor of Science in Forestry. Special facilities for practical forest work.

Tuition \$50.00 per annum. Other expenses correspondingly moderate.

*For further information address:—*  
**DEPARTMENT OF FORESTRY**

University Calendar furnished on application. — — —

**C. C. JONES, Chancellor**

# THE NEW YORK STATE COLLEGE OF FORESTRY

at

## SYRACUSE UNIVERSITY

**Syracuse, New York**

Undergraduate course leading to Bachelor of Science; Post-graduate course to Master of Forestry; and one and two-year Ranger courses. Summer Camp of eight weeks in Catskills. Ranger School held on the College Forest of 2,000 acres at Wanakena in the Adirondacks. State Forest Experiment Station of 90 acres and excellent Forest Library offer unusual opportunities for research work. :: ::

*For particulars address*

**HUGH P. BAKER, D. Occ. Dean**

# BILTMORE FOREST SCHOOL

BILTMORE, - - NORTH CAROLINA

THE Biltmore Forest School is for the time being the only technical school of lumbering and forestry in America. The Biltmore Forest School has four headquarters, viz,—spring quarters in North Carolina, near Biltmore; summer quarters in the lake states, near Cadillac, Michigan; fall quarters on the Pacific side; and winter quarters in the forests of Germany. The course of instruction covers any and all branches of forestry and lumbering. The auxiliary courses are cut to order for the benefit of the students. No attempt is being made to give a thorough training in general science. The course comprises twelve months at the school, followed by an apprenticeship of six months in the woods, and leads to the degree of Bachelor of Forestry.

*Write for catalog of Biltmore Forest School, addressing—*

**THE DIRECTOR, BILTMORE, N. C., U. S. A**

# YALE UNIVERSITY FOREST SCHOOL

NEW HAVEN, CONNECTICUT, U.S.A.

A two years' course in forestry is offered leading to the degree of Master of Forestry. The Forest School is a graduate department of Yale University requiring for admission a college training. Graduates of universities, colleges, or scientific institutions of high standing are admitted upon presentation of their diplomas, provided they have taken courses in the following subjects in their undergraduate work: at least one full year in college or University Botany, and at least one course in Zoology, Physics, Inorganic Chemistry, Geology, Economics, Mechanical Drawing, French or German and the completion of Mathematics through Trigonometry.

Candidates for advanced standing may take examinations in any subject but are required in addition to present evidence of a specified amount of work done in the field or laboratory. The school year begins in early July and is conducted at the school camp at MILFORD, Pennsylvania.

*For further information address*

**JAMES W. TOWNIEY, Director**  
NEW HAVEN - - - - - CONNECTICUT