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WINNIPEG CONVENTION.

The Winnipeg Convention, which begins practically simultaneously with the issue of this number of the Journal, gives every promise of being a great success. Every quarter of the country is sending a man of note to address the meetings, and the invitations which have been issued throughout the West to those who were thought most interested in the deliberations of the Association are receiving a most hearty response. It is evident that the friends of forest conservation are to be found in every walk and vocation of life, and that the active sentiment for an immediate extension of the work of the Association is universal.

The list of speakers, even in its incomplete state, indicates the advanced nature of the discussions. So far there is promise from the following gentlemen:—

- Hon. W. A. Charlton, President Canadian Forestry Association.
- Mr. Vere C. Brown, Supt. Central Western Branches, Canadian Bank of Commerce.
- Mr. Geo. Bury, Vice-President and General Manager, Canadian Pacific Railway.
- Mr. Avila Bédard, M.F., Professor, Laval Forest School.
- Prof. F. W. Brodrick, Professor of Forestry, Manitoba Agricultural College, Winnipeg.
- Mr. S. A. Bedford, Deputy Minister of Agriculture, Winnipeg.
- Mr. R. H. Campbell, Dominion Director of Forestry.
- Mr. W. T. Cox, State Forester of Minnesota.
- Mr. J. S. Dennis, Assistant to the President, Canadian Pacific Railway.
- Mr. W. P. Dutton, President, Great West Lumber Co.
- Mr. E. H. Finlayson, Inspector of Fire Ranging, Dominion Forest Service.
- Mr. Clyde Leavitt, Chief Inspector, Railway Commission.
- Mr. H. R. MacMillan, Chief Forester, British Columbia.
- Mr. G. C. Piché, Chief Quebec Forest Service.
- Mr. Norman Ross, Chief of Tree Planting Division, Indian Head.
- Mr. J. M. Swaine, Assistant Dominion Entomologist for Forest Insects, Ottawa.
- Mr. E. J. Zavitz, Provincial Forester, Ontario.

A feature of the convention which it is expected will be warmly appreciated by the delegates is the exhibit of specimens of the woods of Manitoba and of the insects which are parasitic upon them. Mr. F. K. Herchmer, of the Dominion Forestry Branch will have charge of the former, and Mr. J. M. Swaine, of the Dominion Experimental Farms, of the latter.

A special effort is being made to issue the full report of the Proceedings within

a couple of weeks after the convention. This report will contain the discussion as well as the papers, and will give to those who will be unable to attend the meeting the very best alternative possible. In so far as the edition will permit, copies of the report will be sent to all who apply, after the members of the Association and those attended the convention have been supplied.

Quebec's Planting Operations.

Waste Lands Near Lachute Being Reforested.

About forty years ago near Lachute, Que., there were fields devoted to the growing of barley which was transported to Montreal to be used in the breweries there. Prices were good and the farmers raised the same crop for approximately fifteen years in succession. Then a plague of grasshoppers removed a large part of the virile green growth, with the result that the soil, relieved of the great part of its humus and other binding elements, began to drift in a south-easterly direction under the impelling force of the prevailing wind. At the present time these fields resemble a rolling sea. The sand has been hollowed out in the places in which there are no trees or grasses and piled up long distances away to a height of from 10 to 25 feet.

A description of this locality was given in the May issue of *The Forestry Journal* of last year, and an account given of the work of reclaiming this land undertaken by the Quebec Government under Mr. G. C. Piché, M.F., Director of the Forestry School and Chief Forestry Engineer of the Quebec Department of Lands and Forests. The results of that work to date and the new operations which were undertaken this year were seen by representatives of *The Journal* again last month.

Of the 17,000 two-year-old white pine which were planted a year ago

13,000 are at present living, and of the 18,000 two-year-old white spruce 5,000 have come through the year successfully. The experimental plantation of 3,000 white ash and 800 elms was a little more successful, as these, although slightly frozen, have come through the winter practically without loss.

This year the company of foresters who are working on the sand waste have replaced 4,000 pine and 5,000 spruce which had failed with new seedlings of Scotch pine (*Pinus sylvestris*). It has been found that it is practically useless to plant little trees alone on the hills, as the sand blows over them and erodes around them to such an extent that they cannot live. The remedy for this is to plant beach grass, which affords efficient shelter to the young trees to allow their first year's growth after plantation to go ahead without setback.

Frost injured the pines to a certain extent, but the greatest damage came through the severe drought which prevailed during the first half of May. At that time the plants had part of their rootlets enclosed in a frozen soil. The plants were transpiring very much whilst the roots could not supply enough moisture to counterbalance the drying action.

Continued on page 107.

Railway Fire Protection.

By Clyde Leavitt, Chief Fire Inspector, Board of Railway Commissioners for Canada, and Forester, Commission of Conservation.

It is well recognized in theory that railways should themselves be required to take such measures as may be necessary to safeguard public and private property from destruction by fires due to railway operation. This theory has been translated into practice to a far greater degree in Canada than elsewhere on this continent.

It is also becoming recognized by the more progressive railway officials that the extension of the Governmental powers of regulation to cover matters of fire protection is not as a matter of fact a hardship upon the companies, so long as only reasonable requirements are made, but that, on the contrary, such regulation merely makes a necessity of what would in any event be dictated by good business policy, having due regard to the best permanent welfare of the railway companies themselves. A distinguishing characteristic of the modern progressive railway official is his regard for the future interest of his company, in contradistinction to the old-time railroad man, whose sole thought was in so many cases for the present, regardless of the future.

The prevention of railway fires means greatly reduced litigation and damage claims and, inversely, tends toward a much more friendly feeling on the part of the general public toward the companies. It means also decreased loss of the company's property and increased attractiveness of the line from the tourist point of view, thus conducing toward greater revenues. Forest growth in proximity to the track also means in the long run greater supplies at lower prices, of the tremendous quantities of wood material necessary for ties and other uses in connection with railway operation. It means also that instead of barren wastes producing no revenue, large non-agricultural sections of the

country will produce successive wood-crops forever, thus maintaining numerous settlements along the line and constituting a perpetual source of business and therefore of freight and passenger revenue to the railway.

At the end of June, 1912, the total length of railways operating in Canada was over 27,000 miles, leaving the Dominion in the unique position of having the largest railway mileage per capita of population of any country in the world, despite the rapid peopling of the western provinces, during the past ten years. At the same time there were approximately 7,000 additional miles of line actually under construction. A very large proportion of this 34,000 miles of line is subject to the Board of Railway Commissioners.

The powers granted to and exercised by the Railway Commission as to fire protective measures have been gradually modified and extended, culminating May 22, 1912, in the issuance of Order 16570, covering all phases of railway fire protective work. The essential requirements of this Order are as follows:—

(*First.*) The use of fire-protective appliances on coal-burning locomotives, calculated to prevent so far as possible the escape of live sparks or cinders from stack and fire-box. These appliances to be inspected at least once each week by railway employees. Frequent check inspections are also made by the inspectors of the Operating Department of the Railway Commission. The best modern appliances are prescribed, and experience shows that the frequent inspections made by the railways themselves result in the early discovery and rectification of most of the defects in netting mesh or other appliances. In this way the occurrence of fires is very largely prevented, though

not entirely so, as there seems as yet to be no satisfactory appliance that will wholly prevent the escape of live sparks from stacks under extreme conditions.

(*Second.*) The extinguishing of fire, live coals and ashes deposited upon tracks or rights of way outside of yard limits. Fortunately there now seems to be very little trouble from this source.

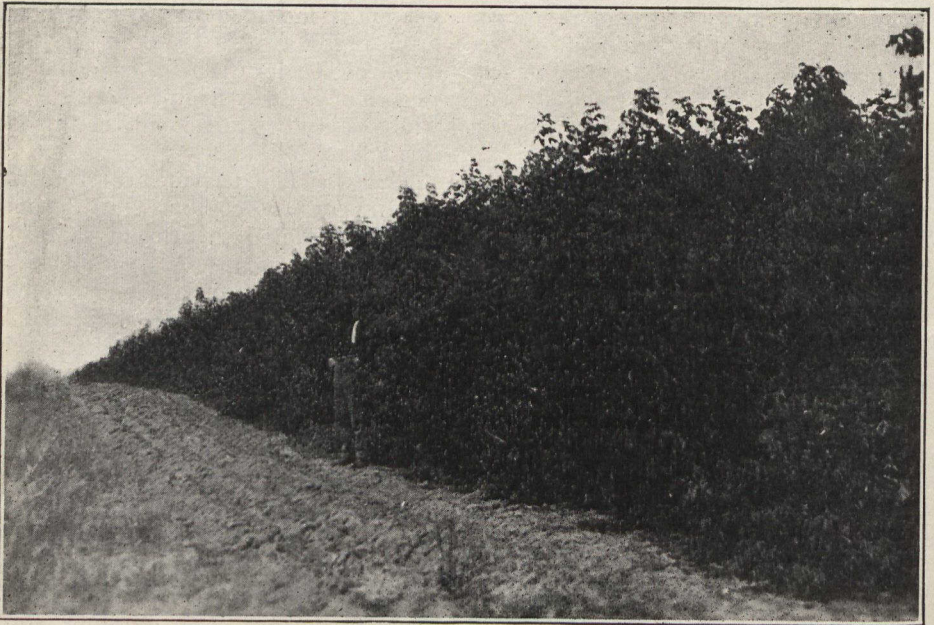
(*Third.*) The non-use of lignite coal. There are vast deposits of lignite in the prairie provinces, and much trouble has been experienced in the past through fires caused by the use of this fuel on railways. It finally became necessary to prohibit its use entirely as locomotive fuel.

(*Fourth.*) The establishment and maintenance of fire guards in the prairie sections. The application of this requirement has so far been limited to portions of Alberta, Saskatchewan, and Manitoba, where there is danger of grass or stubble

fires. The Chief Fire Inspector is given full authority to prescribe how, when and where fire guards are to be constructed.

(*Fifth.*) Regulation of burning of inflammable material along rights of way. The Railway Act requires that railway companies shall at all times maintain and keep their rights of way free from dead or dry grass, weeds and other unnecessary combustible matter. It has been found that a certain amount of regulation is necessary, in order to prevent the burning of debris at dangerous times by irresponsible employees, thus constituting a serious fire menace.

(*Sixth.*) The last of the special requirements is with regard to the reporting and extinguishing of fires by railway employees. Where the fire danger is not great, the situation is sufficiently taken care of as a rule, by the requirement that conductors, engineers, and trainmen shall take particular pains to report any fires



Snow fence consisting of row of maple trees along railway right of way. Forest planting is gradually replacing the old style of wooden fences to protect railway tracts against drifting snow. Note plowed fire guard to protect trees against fire.



Railway right of way previous to clearing. The Railway Act requires that railway rights of way shall be maintained free from combustible matter.

found burning along the right of way; and that sectionmen and other regular employees along the track shall promptly extinguish any fires reported to or found burning by them. The railway company must employ additional labor if such action is necessary to the extinguishment of a particular fire. It will be noted that the whole field organization of the railway is made a part of the fire-fighting machine.

In order to fix definitely the responsibility for extinguishing a particular fire, the Order provides that any fire starting or burning within 300 feet of the track shall be presumed to have started from the railway unless proof to the contrary is furnished. The burden of proof is thus put squarely on the railway company. The idea is to get the fire out first, and then talk about it later, if necessary.

Where the fire danger is serious, special patrols are necessary. Here, advantage is taken of the provision of the Order that the railway company

shall provide and maintain a force of fire-rangers fit and sufficient for efficient patrol and fire-fighting duty during the fire season, all the details of the establishment and maintenance of such force to be subject to the supervision and direction of the Chief Fire Inspector or other authorized officer of the Board.

This requirement for the establishment of special patrols at the expense of the railways themselves is the most progressive and perhaps the most radical feature of the Order, and constitutes its chief distinguishing characteristic. So far as known, neither the National nor any State Government in the United States has enacted legislation along this line which approaches this so far as placing the burden of fire protection upon the railways themselves is concerned.

As previously noted, the requirements as to the use of fire-protective appliances are enforced through a special staff of inspectors in the Operating Department of the Board.

For the enforcement of the balance of the Order and the inspection of the work of the railway companies, a co-operative plan has been developed whereby certain officials of the Dominion Forestry and Parks Branches, and of the Governments of British Columbia, Ontario, Quebec and New Brunswick have been appointed officers of the Fire Inspection Department of the Board, with authority to deal direct with the railway companies and to vary the requirements up or down as the local conditions at any time or place may require or permit. It is expected that a similar arrangement will be made in Nova Scotia. In this way, a perfectly elastic system of administration is provided, so that necessary protection is assured at a minimum of cost to the railway companies and with a minimum of red tape and loss of time.

A special point is made of relieving railway companies of the necessity for special patrols when weather conditions are such that special patrol is not necessary. This is likely to be the case in the early summer while vegetation is in a green and non-combustible condition.

The gradual decrease of fire danger may be expected to take place through the extension of the use of oil fuel on locomotives. The use of oil-burners has for over two years been in effect on 115 miles of the line of the Great Northern Railway in British Columbia. Along the main and branch lines of the Canadian Pacific Railway in British Columbia oil-burners have during the past season been installed on approximately 338 miles. Similar action has been taken with regard to the 134 miles of the Esquimalt and Nanaimo Railway on Vancouver Island. The present total of oil-burning passenger lines in Canada is therefore at the present time approximately 587 miles. So far, the use of oil fuel has been confined to British Columbia on account of the cheap water transportation

from the extensive oil fields of Southern California. It is however expected that the use of oil will be further extended in British Columbia and probably also into some portions of Alberta.

There are two points which should be emphasized in connection with the question of railway fire protection in Canada. These are the requirement of special patrols by the railway companies, and the establishment of a field organization for the administration of the Order, with full authority in the hands of the local inspectors to take any necessary action without delay.

During the portions of two seasons the plan has been in effect, fire protection has been more efficient along railway lines than ever before, and it is confidently expected that still more satisfactory results will be secured in the future. One of the most satisfactory and most encouraging features of the situation has been the fine degree of co-operation with the Fire Inspection Department of the Board that has existed on the part of most of the railway officials concerned.

SECURING THE SETTLERS' SYMPATHY IN FOREST FIRE PROTECTION.

On the Dominion Forest Reserves, many of which are more or less surrounded by settled regions, the fires which most menace these Reserves are those which have escaped the control of the settlers in clearing land, many of whom underestimate the fire danger, or do not realize the immense damage done by a prairie fire which sweeps into the forest and destroys all the timber in the vicinity.

Consequently, to emphasize the importance of this danger and to secure the settlers' co-operation in eliminating it, has been one of the chief aims of the Dominion Forest Service. The accompanying cuts illustrate one of the most successful ways of achieving this result. These 'fire-posters' as they are called, are printed in a dozen different languages so that no immigrant, whatever his nationality, can plead ignorance of the fire danger. The old



Danger!

Forest Fires

MEAN ACTUAL LOSS TO ALL

WHY waste our own Money and impoverish our Land?

TIMBER PAYS OUR TAXES

If it is destroyed WE PAY the difference.

The Dominion Government wants your help in preventing Forest Fires. The best kind of fire protection is the good will of the people. We want your co-operation.

Get a copy of the law from your local Fireranger and have him explain it to you, THEN follow its instructions.

REMEMBER, FIRE is your own WORST ENEMY

BE CAREFUL WITH FIRE

style of poster contained merely a digest of the forest fire act. The new style of poster asks in a pointed way for co-operation and gives reasons for so doing. It is always printed in large type so that 'he who runs may read,' a decided improvement on the small-typed posters of previous issues.

Another method of securing the settlers' co-operation which has proved successful consists in supplying the settlers in the neighborhood of forest reserves with tool chests, containing in compact form the shovels and other equipment necessary to the successful fighting of forest and prairie fires. Thus, in the event of a fire, no valuable time is lost searching for tools, and the settlers can at once throw this chest into a buggy and proceed to the scene of the fire.

To further facilitate the rapidity with which this co-operation can be effected, the



LOST

A WHOLE LOT OF MONEY—MILLIONS OF DOLLARS YEARLY—GONE UP IN SMOKE LARGELY THROUGH CARELESSNESS.

BECAUSE :

- SOMEONE** left a camp fire burning!
- SOMEONE** dropped a burning match!
- SOMEONE** dropped a cigar or cigarette butt or knocked ashes out of a pipe!
- SOMEONE** was careless clearing land!

TIMBER GROWS, VALUE GROWS

IF EVERYBODY IS CAREFUL, BUT

ONE FIRE MAY SWEEP OUT THE GROWTH AND THE WORK OF YEARS.

EVERYBODY BE CAREFUL WITH FIRE

R. H. CAMPBELL,
DIRECTOR OF FORESTRY

ANYBODY DESTROYING OR REMOVING THIS WILL BE PROSECUTED.

look-out stations now being erected in the Reserves have telephone connection not only with the ranger stations, but also with farming communities in the vicinity of the Forest Reserves.

As a result of all this, not only are forest fires more easily brought under control, but also are there less such fires to control, and once the co-operation and protective organization has been perfected to such an extent that all incipient forest fires can be nipped in the bud, the problem of fire-protection on western Reserves will be solved.

G. E. B.

Considerations in Woodlot Growing.

B. R. Morton, B.Sc.F., in Charge of Woodlots, Dominion Forestry Branch, Ottawa.

There is no part of the farm which will pay bigger returns for so little expenditure of time and labour as the woodlot, and there is no part of the average eastern Canadian farm which

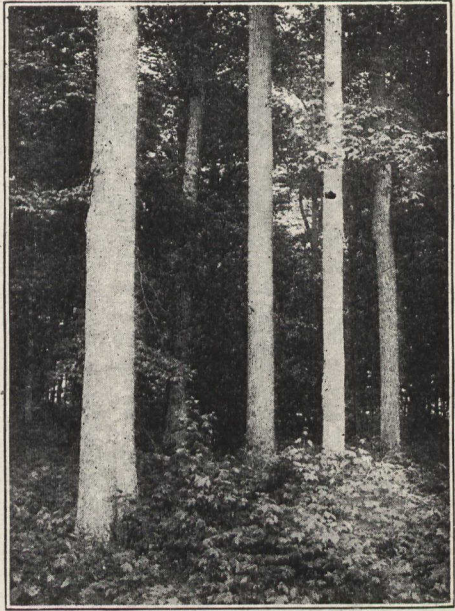
is so much neglected. Under proper management the wood lot will produce about 0.8 of a cord per acre per annum. If cut for fuel this quantity at \$5.00 per cord would represent an

income of \$4.00 per acre, which would be considerably higher if sold for special uses such as fence posts, poles, square timber, etc. Add to this the profits derived from tapping the maples, from 50c. to \$5.00 per acre, depending upon the number of maples and the flow of sap, and it is safe to say the annual income from a properly managed woodlot would average about \$7.00 per acre. It should also be remembered that the woods on many farms occupy such waste areas as steep stream banks and stony hill sides, from which the returns would not justify their being used for agricultural purposes.

There is no crop more sure than the wood crop. Few woodlot owners, however, have yet begun to look upon their trees as a crop and although they may realize that the rapid decrease in the supply of hardwoods must increase the profits from their property, there are still those who retain an inherent desire to clear land. It has never occurred to many that it is possible to determine the amount of wood that an acre will produce in a year and that with proper management this amount can be cut year after year without deteriorating the stand.

The typical woodlot of today is not producing anywhere near the amount of material that it might and it never will, until the farmer changes his attitude towards it. To bring the woodlot to its highest producing capacity it is necessary for the owner to keep in mind a model woodlot and in managing, his goal should be this model.

The woodlot which is producing the highest annual returns is one that contains the greatest number of trees consistent with the most rapid development of the quality of wood desired. The trees should be close enough together in their youth to force a rapid height growth and produce clear trunks. When about five years old they should be from 3,000 to 5,000 per acre. This number will gradually diminish until, at ten years of age, the stand will contain from 1,500 to 3,000



Showing two age—classes—mature and seedling. This is an ideal condition for the owner intending to cut clean and allow his stand to grow up again. For the farmer's woodlot the presence of a great number of ages is desirable so that a few trees may be harvested each year.

trees, and at maturity not more than 150 of the original trees will remain. If left to itself this thinning would come about in a natural way, but by proper artificial thinning the growth can be stimulated and weed-trees, such as are undesirable and have low market value, can be removed. The crown of the trees should always touch so that little light may reach the ground and encourage the growth of grass and weeds. The soil should be prevented from becoming hard and baked by the action of the sun. In thinning, no opening should be made in the tree tops which cannot be filled in by the neighbouring trees in three or four years. There should be sufficient number of younger trees which will rapidly fill in any opening caused by the removal of, or accident to, a mature tree. The growth about the exposed margin of the woodlot if kept dense will do much to protect the trees within from being overthrown by wind.

In British Columbia.

Work of Surveys and Fire Protection Going Forward.

By H. R. MacMillan, Chief Forester.

Surveys.

When the Forest Branch was started one of the chief pieces of work was a forest survey of the Province which would show the quantity of merchantable timber in the Province; would establish the boundaries of the land convenient for other purposes, which should be set aside as permanent Forest Reserves and which would serve to bring to light information regarding the resources of the Province which would be valuable for administrative purposes. Last year about 6,000,000 acres were covered by forest survey parties. This year work will be carried out by the District Forester and Forest Assistant in the different Districts as time permits; and in addition the following parties are being sent out to make an examination of Districts considering which information is required.

P. S. Bonney, a Canadian graduate of the University of Washington Forest School, is accompanying an exploration party to the Naas River valley north of Prince Rupert. Mr. Bonney will be out until the end of the year, and by covering thoroughly 1,500 or 2,000 square miles in this valley, will bring to light important information regarding the Forest Resources of this section of the Province, concerning which at present but little is known.

A. K. Shives of Toronto Forest School, has left with a party to do similar work in the valley of the Bella Coola River and eastward along the 53d Meridian. This District is reported to be timbered with the spruce and jack pine forest similar to that of Quebec and Ontario; and a spruce and lodgepole pine forest similar to that on the eastern slope of the Rockies.

E. G. McDougall has charge of a survey party covering the District between the Cariboo road and the North Thompson River from the railway belt north to the 52nd Parallel. Mr. McDougall accompanied an exploration survey party sent out by the Surveyor-General.

Mr. D. Clark of Toronto Forest School, will make an examination cruise of the timber tributary to the Canadian Northern Railway from Tete Jaune Cache south to the Blue River, a distance of 140 miles; from the Blue River south to the railway belt will be examined and cruised by H. G. Murray, a graduate of the Forest School

of the University of New Brunswick. Last year the timber tributary to the Grand Trunk Pacific was cruised in order that such bodies of timber as were sufficiently valuable might be reserved from settlement. Where timber of merchantable value is located on agricultural land with-in easy access from the railway, such timber will be sold by the Forest Branch as soon as the railway provides a market in order that the land may be opened for settlement.

T. S. Palmer will do forest survey work in the Nelson District.

Axel Gold left Victoria some weeks ago to conduct an exploration party and forest survey of the country from the Nation Lakes across the water-sheds of the Parsnip river to the Peace river. This survey is being conducted with the idea of securing definite information regarding the forest resources of this northern district.

Arrangements will be made by the Forest Branch with the Commission of Conservation to carry on co-operative work in completing the forest survey of British Columbia at as early a date as possible. The forest survey of British Columbia is a matter of national importance as it is popularly supposed that half of the merchantable timber of Canada is in British Columbia and the administration of British Columbia timber is therefore a matter of the greatest interest to the population of all Canada.

Fire Protection.

Fire protection is the most important work before the Forest Branch this summer. The Forest Districts have been organised chiefly with the idea of improving fire protection. Previous to this summer there have been no permanent employees in the fire protection service of British Columbia. This summer permanent Forest Districts have been formed, the areas being from 6,000,000 to 28,000,000 acres each. Each District is in charge of a District Forester who is assisted by a Forest Assistant and a permanent ranger. The permanent staff has been in duty since the fall of 1912 or beginning of 1913. In addition to the permanent organisation Fire Rangers were appointed May 1st to serve for five months through the summer. As the danger of the fire season develops in different parts of the Province arrangements have been made to put on an in-

creased number of patrol men for shorter periods of one to three months.

The chief sources of fire risk in British Columbia are: settlers clearing land; railways; logging operations; and miscellaneous travellers in the woods.

The law requiring all the settlers to secure permits from employees of the Forest Branch before setting out fires between May 1st and October 1st has become part of the custom of the country, and has produced such excellent results that the Forest Branch is securing the co-operation of the settlers of practically all the districts. The increase in the number of fire-wardens this year has also greatly facilitated matters in this respect.

A great source of fire risk during British Columbia's present stage of development is the construction of railways; the Forest Branch is assuming that the expense, following upon the adoption of regulations framed to reduce the fire risk, is just as legitimate a part of the expense of railway construction as the expense incurred in clearing or grading the right-of-way. The Forest Act and the Railway Act of British Columbia were drawn up on the above assumption. The most important regulations under the two Acts quoted require:

A. That railway companies in construction work must clean up all slash within 200 feet of the railway.

B. That railway companies in construction work must clean up all slash caused by the cutting of timber; the building of camps; the construction of 'tote' roads; or in any other manner

C. That during construction the railway company must maintain a patrol satisfactory to the Forest Branch and must pay all expenses of that patrol or of extinguishing any fires starting from the construction work.

The Forest Branch has endeavored to secure compliance with the above regulations from contractors throughout the Province. As a result, contractors on the Grand Trunk Pacific, Canadian Northern Pacific and Canadian Pacific Railway lines have piled or burned brush on the areas logged over by them in securing ties and other timbers; and have cleaned up in a satisfactory manner all the slash thrown off the right-of-way into the timber adjoining roads and railway right-of-way. Where contractors have been unwilling or inclined to refuse to carry on this work, they have finally agreed, when faced with actions in the courts or with cancellation of their various timber privileges. As railway contractors have never met with the enforcing of such regulations elsewhere in Canada it is not to be wondered at that some of them rebel.

The Forest Act provides the Forest Protection Fund for both fire patrol and per-

manent improvements. During the past winter and spring officers of the Forest Branch, assisted by two telephone experts have been locating telephone lines; the construction of several lines have been undertaken chiefly in the Cranbrook and Vernon Districts. In several instances the expense is being charged between the Forest Branch and the owners of timber lands or companies interested in watershed protection. The municipalities of Armstrong and Vernon have made grants to assist in the construction of a telephone line to a 'look-out' point which commands a view of the water-shed upon which these two towns depend for their water supply. A similar co-operative arrangement is under consideration at present between the Forest Branch and the Irrigation Companies and the towns of Kelowna and Penticton.

The Forest Branch has also under consideration at present the opening up and improving of trails which will increase fire protection. Motor boats have been built for fire patrol on Arrow Lake and Kootenay Lake. Canoes are being purchased for patrol on the Fraser, Columbia and Thompson rivers and ten motor boats have been secured for fire and timber inspection on the Coast.

The Forest Branch has taken up with the lumbermen of the Province the question of slash burning. It has been found by experiment that slash burning on logging operations in the different forests of the Province is practicable; costs very little money; and greatly increases fire protection. Arrangements have been made with a number of the most prominent logging companies in British Columbia to have their logging slash burned over this spring, and such burning as has been carried on up to date has proven very satisfactory and has greatly decreased the fire danger. Figures on the cost of slash burning are being collected and a statement will be issued this fall dealing with this subject. It is found that railway contractors who burned their slash after tie cutting operations this spring did so at very little expense and removed any serious fire hazards.

A co-operative agreement has been made with the Dominion Entomologist providing for an investigation of the economical forest insects of British Columbia. This investigation will be carried on this summer by Mr. J. M. Swaine.

The question of an efficient staff is, perhaps, the most vital problem that has to be handled at the present time—a staff that understands its business and is prepared to attend to it.—R. H. Campbell, Director of Forestry for Canada, at the Annual Meeting of the Commission of Conservation.



Quebec Government plantations at Lachute, Quebec.—Foresters at work planting trees.

Continued from page 98.

This drought had the effect of "burning" some of the foliage in the western extremity of the plantation. It is noticeable, however, that the white pines, although slightly withered at

the tips of the leaves are still vigorous in the leaf axils and in the terminal buds. The main loss to the spruce seedlings, it is thought by the planters, was due to the fact that they



Quebec Government plantation at Lachute, Quebec.—A bunch of beach grass, which is found useful in holding the soil so that young trees may get a start. Note the sand around the roots. The Quebec Government has ordered two kilogrammes of this seed from France.

were too young and too tender to endure the hard conditions in which they were placed. Also, Mr. Piché, the Chief Forester, thinks that enough care was not taken by some of the planters, who exposed to the air the fine rootlets which should have been kept under good cover or in a bucket of water.

Last year a total area of twenty-one acres was planted. This year with twelve students working at the rate of about eight to ten thousand seedlings a day twenty-five to thirty acres were planted. Mr. Laliberté, under whom the work was done, estimates that the cost was approximately \$15 per acre, but as this was incurred in a short time and the overhead expenses were great, it is far in excess of what can be ordinarily accomplished. The cost, if the planting were undertaken on a large scale, should be only about five or six dollars an acre. It is well within the range of possibility that a large sand area of some thirty-six square miles near the present plantation may be planted up in the course of the next few years by the Government. It is a distinct menace to the surrounding country, and the experiments already carried out, including those of farmers between the bad lands and the town of Lachute, show that it is quite possible to prevent altogether the drifting of the sand.

The Quebec Government is anxious to carry on this work for many reasons, chief of which, in addition to that of subduing the drifts, is that it provides an object lesson and a considerable amount of encouragement to farmers who plant up their own lands. In the Government nursery at Berthier, Que., there are millions of seedlings available for such enterprises, and Chief Forester Piché is anxious to place them in good hands. At the present time the arrangement between the farmers and the Government is that the Government buys the land at \$1 an acre, plants it with trees and undertake to return it to

the owner if he cares to buy at the end of eight or ten years for the cost of production. In no case is the purchase price in this second instance to be over \$10 per acre.

REPORT OF COMMITTEE ON UNIFORM LOG RULE.

Your Committee on *Uniform Log-rule* begs leave to report as follows:

All members of the Committee are agreed that a uniform unit rule of measurement of logs is desirable for the whole Dominion, but the practicality of the introduction of such uniform measure at the present time is considered doubtful, or at least beset with difficulties.

The first difficulty in introducing a uniform log-rule lies in the fact that, unlike lumber, logs have a local market, and the market adjusts itself to the peculiarities of the log-rule in use in the locality without very serious detriment to all parties concerned, as long as the price is made in proportion to the greater or less liberality of the log-rule; there is, therefore, a natural tendency of conservatism to keep up the usage.

A second reason rendering uniformity difficult to attain is the fact that each province has adopted a rule and its licenses are based on it, hence the same conservatism animates the governments, although there is no doubt that, for instance, Ontario loses, wherever small logs form an essential part of the cut, by the adoption of a log-rule which is illiberal to the seller of small logs, and Quebec, having a few years ago changed its usage, gains by a rule based upon better practice.

There are now at least five different log-rules in practice, which vary by from 10 to 50 per cent. and more in giving contents of logs, according to the assortment of the latter. It can therefore happen that a lumberman, logging in Quebec, Ontario and New Brunswick at the same time, pays for the same sized log, say a twelve inch log twelve feet long, if the stumpage dues were \$2, ten, twelve or fifteen

cents. Of course, the limit-holder can take care of this difference in the bonus which he pays additionally.

In order to meet the difficulty in securing a fair measurement of small logs the proposition is advanced by one member of the Committee, to have all small logs, say below nine inch diameter at the small end, piled and measured by the cord, or else to measure at least by carefully constructed tables which give the number of logs of varying sizes, diameter and length, that go to a cord.

This would result in a great reduction in the cost of scaling, especially as small logs form more and more the bulk of the cut, at least in the Eastern Provinces.

It should be thoroughly understood that log-rules are not really actual measurements, but a mixture of measurement plus a judgment, namely, as to how much saleable material can be cut from the given cubic contents. It is, of course, well known that this result at the mill depends on a great variety of conditions, such as the size and character of the timber, the character of the mill and saw, the skill of the sawyer, the kind of lumber to be cut, and various other variable conditions.

The only absolute measurement—as absolute as anything in such a variable material as logs can be—is the cubic contents.

It would appear, therefore, desirable and from many points of view eminently practicable to make the cubic foot (or cubic meter) the unit of measurement, leaving entirely to the logger the judgment which log scale fits his case, in order that he may produce a satisfactory result from a given cubic log content.

For forestry purposes, *i.e.*, for the purpose of studying rate and amount of production of wood material, a uniform unit of measurement is absolutely necessary, and cubic contents alone, measured by the cubic foot or cubic meter, are acceptable. Hence the present necessity of having to

translate various log-rules into cubic contents is a very considerable drawback and impediment to progress in developing forestry knowledge.

The only way in which a uniform log-rule can be expected to be adopted is by conference of the provincial governments and their agreement as to the fairest rule. At least the eastern provinces which handle timber of more or less the same description could, it seems, very readily come to an agreement to use one log-rule.

No attempts have been made by the Committee to bring the matter to the attention of the provincial governments.

The effort, however, when any change is contemplated, should be at once to press for the adoption of the cubic foot, or better still of the cubic meter; tables giving contents of logs of different diameters and lengths being now in existence in either measure.

(Signed) B. E. FERNOW, *Chairman.*
 JUDSON F. CLARK.
 G. C. PICHE.
 ALEX. McLAURIN.
 ELLWOOD WILSON.

In these days when there are numerous claims of alleged 'rain-makers,' who propose to bring down moisture from the clouds by explosions of dynamite, etc., it is rather interesting to know that Dr. Fernow, Dean of the Faculty of Forestry, Toronto University, was the first official rain-maker of the United States, that is to say, Dr. Fernow was instructed to investigate the possibility of causing rain by artificial methods, and he was particularly to investigate whether it was true that great modern battles were always fought in heavy rain-storms caused by the discharge of artillery. Dr. Fernow's investigations led to a report of an entirely negative character, that is to say, he found that there was no truth in the report that great battles were always fought in rain, nor did he find that the discharge of ordnance or bombs had any perceptible effect on the precipitation of moisture.

With the Forest Engineers.

(Furnished by the Canadian Society of Forest Engineers.)

Mr. Ellwood Wilson, Superintendent of the Forestry Division of the Laurentide Co., Grand'Mère, Quebec, reports an interesting budget of news this month.

It is this company's intention to plant up its waste lands as fast as stock can be raised. Buying two year old stock, the total cost of planting has not exceeded \$8.00 per acre.

Mr. Wilson has just returned from a visit to the Provincial Government's nursery at Berthierville under the general direction of Mr. G. C. Piché and found a most excellent plant and very interesting experiments. *Pinus ponderosa* and *Abies nobilis* have been grown successfully. Mr. Roy and a party of students were busy sowing and are to be complimented on their good work.

Mr. Wilson has a nursery well started, which will have, next spring, about 50,000 trees (Norway spruce, white spruce, white, Scotch, jack and red pine and basswood). Some four years ago about \$2,000 white, Scotch and jack pine were set out and are now from four to eight feet high. Last year 10,000 Scotch pine were set out and this spring 10,000 Norway spruce and a few hundred larch and Black Hills spruce were planted.

Mr. Perrin, of the Shawenegan Water & Power Company, is considering planting of some of the company's lands.

Mr. A. H. D. Ross writes the Secretary in enthusiastic terms of his work in the West this summer. Much of the work is along technological lines.

Mr. J. R. Dickson has been transferred to the Head Office of the Branch at Ottawa, and is "getting the glad hand" from many old friends in the Capital.

Mr. E. J. Zavitz, Forester of the Ontario Department of Lands, Forests and Mines, has the following to say of the work he plans during this summer:—My chief work at the present time, and I expect all this summer, will be organizing fire protection for the Dominion Railroad Board in connection with Order 16570. Also I am spending most of my time traveling in the North Country and becoming acquainted with local conditions and the men already connected with the Department. My work this summer is chiefly in the form of preliminary survey.

Dr. C. D. Howe, of the Faculty of Forestry, University of Toronto, is continuing the work carried on under the Commission of Conservation in Central Ontario during the past summer. Dr. Howe is investigating all forest conditions, paying particular attention to land classification and reproduction. Assisting Dr. Howe in his work are several students in forestry in the University.

J. H. White, M.A., B.Sc.F., Faculty of Forestry, University of Toronto, is making an investigation of conditions on the Dominion lands in Manitoba, Saskatchewan, Alberta and British Columbia, both within and outside of Reserves, with a view to ascertaining what methods should be employed to deal properly with brush and to secure the best possible silvicultural practice. The work is under the direction of the Commission of Conservation. Mr. White's report will be made in October. Writing under date of June 8, he says:—"Leaving this week for a three weeks' trip through the Clearwater and Bow River Forests — which during this month will probably be a wet one."

GOV. SULZER BELIEVES IN TREE PLANTING.

'If I had my way I'd make every man in the State of New York plant a tree every month,' said Gov. Sulzer at a hearing on bills appropriating \$310,000 for the New York State College of Forestry at Syracuse University.

'I have always planted trees,' said the Governor. 'When I was a boy back on the farm, every rainy day, when there was nothing else to do, was spent in the woods. My father taught me to dig up little trees and to plant them along the road.'

'When people pass that farm nowadays they exclaim at the beauty of the elms and the maples. My father was forty years ahead of his time on forestry. That was practical forestry and that is what I want the people of New York to learn and practice.'—Paper, Inc.

PLACING VALUATION ON YOUNG TREES.

(Southern Lumberman, Nashville, Tenn.)
For the first time the courts of the country have placed a valuation upon young trees on land that has been reforested. The case was not an important one and there was but little money involved. But it is a precedent.

The United States Government brought suit against the Missouri & Northwestern Railroad for damages for timber destroyed by fires originating from sparks from a locomotive. A United States District Court allowed a damage of \$12 an acre. Only ninety-two acres were destroyed.

This is the first time that a court in the United States has decided that trees of such immature growth as those involved in this case have a value which may be determined and for the destruction of which damages may be estimated and allowed. The basis of the valuation of the reproduction was the figures derived from the actual planting operations carried on by the Forest Service in the Black Hills, South Dakota, during the past season, in which 1,500 acres were reforested by seeding.

In line with this decision is the recent settlement by compromise of a case against the Burlington Railroad Company for damages caused by fires in the Galena district of the Black Hills. By this settlement the United States receives the full amount of the estimated damages, part of which was for injury to 300 acres of reproduction valued at \$6.66 per acre.

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