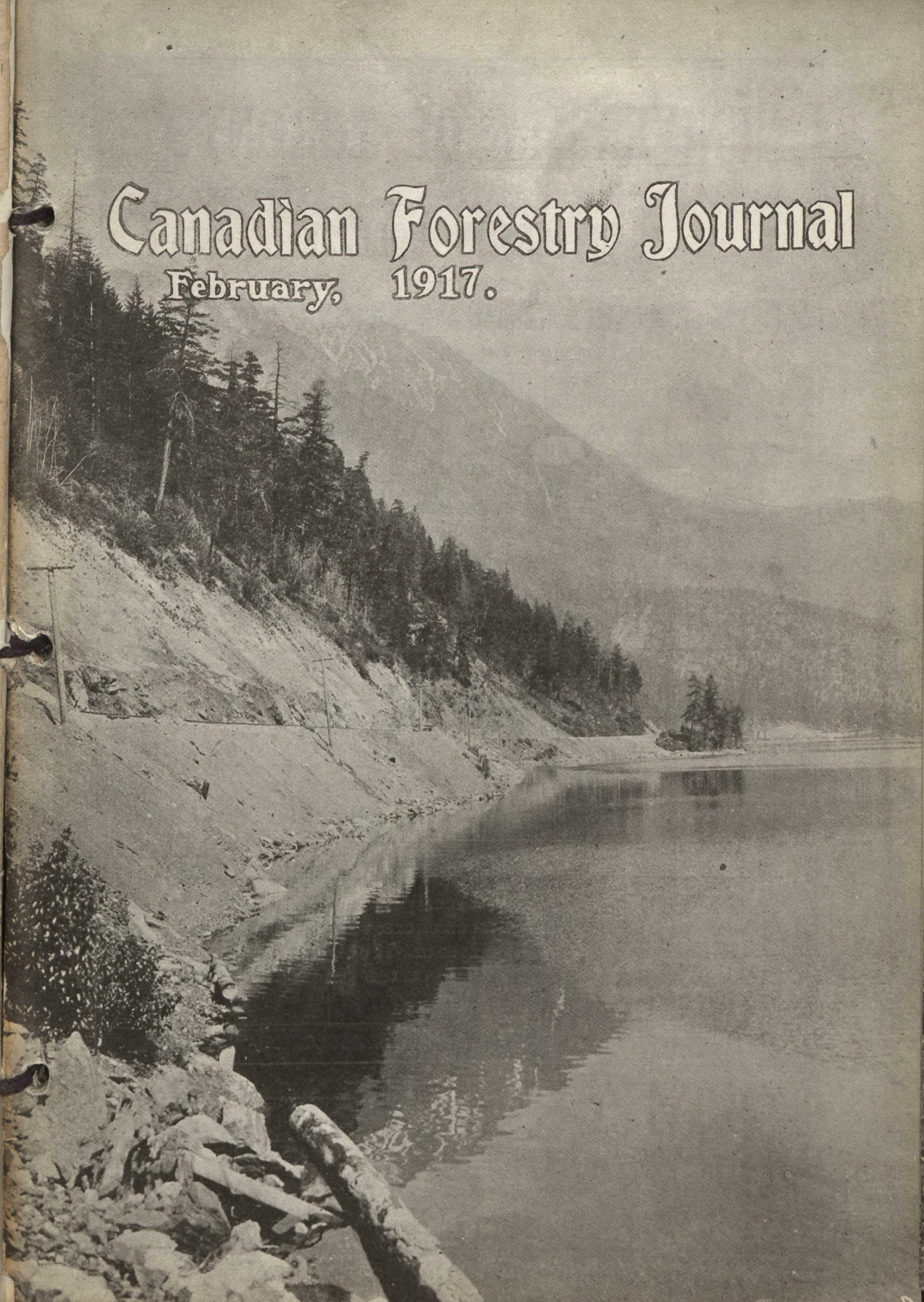


Canadian Forestry Journal

February, 1917.



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Canadian Forestry Journal

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THE CANADIAN FORESTRY JOURNAL

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A STRIKING ILLUSTRATION OF THE WRECKAGE OF TREE LIFE BY ARTILLERY FIRE.

Photograph Taken on the Bank of The Yser.

Improving the Farmer's Trees

How Straggling Growth can be Easily Developed Into Marketable Timber by Careful Pruning.

By B. R. Morton, B. Sc. F., Dominion Forestry Branch, Ottawa

On many farms, especially in the more outlying agricultural districts of Eastern Canada, are to be found patches of uncultivated clearings. These are areas which are too stony or shallow for plowing or they are situated on hillsides too steep to be profitably worked. They have, therefore, been lying abandoned or neglected for many years and a growth of young pine, spruce, balsam, fir or cedar has sprung up on them. This new growth has originated from wind-blown seed of neighboring stands or from a few trees which have escaped the axe during the clearings. This growth should be encouraged since it occupies land unsuited for cultivating. In places the growth may be quite dense and if permitted to come ahead will soon be sufficiently crowded to produce desirable clear straight timber. On other areas, however, especially on those at some distance from the seed trees, the growth will be found very open and scattered. The trees are so far apart that their branches will never meet to form a close stand or at least not until the trees have reached a large size.

Planting Recommended.

Where the trees are still small, two or three feet high, the proper density for producing good material may be obtained by artificial seeding or planting among them. Or it may happen that an exceptionally good seed crop will bring about a thickening of the new stand. Seed years are uncertain, however, and planting is recommended except under very favorable circumstances.

In many such open stands, how-

ever, the trees have reached the height of 10 to 15 feet or more and are now too far advanced to be overtaken and effectively crowded by any later growth that may come in, either naturally or artificially. Growing under these open conditions the trees will always remain branchy and when cut will produce only inferior material since every branch which has been allowed to develop on the main portion of the trunk will result in one or more knots in the lumber. The strength and value of the material is thereby greatly reduced.

How to Prune.

It is apparent then that if these larger open-grown trees are to produce valuable timber they must be artificially pruned. The following plan is suggested. The pruning should begin, if possible, before the lower branches have died or become over one-half an inch in diameter and before the trunk is over four inches in diameter at stump height. In order that best results may be obtained, the branches must be cut off right at the trunk. No projecting stubs must be left. To leave long stubs will obviously have the same effect as leaving branches. They become imbedded in the body of the tree as the new wood is formed around them and the result is a loose knot in the sawn timber.

Leave Heavy Top.

The branches should not be removed too many at a time. They should be cut gradually, that is, two

or three of the lowest branches to be taken off every three or four years. The top or green portion of the tree should always be maintained not less than one-half to one-third of the total height of the tree. If too little top is left the growth of the tree is seriously retarded. No more green branches are removed after the trunk has been cleared to the height of 19 feet above the ground, since the object is to produce only one sound clear 18 foot log per tree above the one foot allowed for stump height. The branches above the 19 foot mark are left to flourish and extend as they will, until such time as the trunk may have reached the diameter required by the owner and the tree is finally cut down.

The Cost Per Tree.

This is a simple method of obtaining good material from trees which would otherwise produce little better than fence posts or firewood. It is not a costly method when one considers that the work can be done during the winter when there is com-

paratively little work being done on the farm. The total value of the labor when the pruning has been completed would probably not amount to more than 10 to 15 cents per tree.

Removing the branches above the nineteen foot mark is not recommended largely because it necessitates a ladder of such length and weight being used, that it cannot be readily handled by one man. Another reason for not removing the green branches above the first log length is the fact that the greater the green top a tree has the more rapid is its trunk diameter growth. To reduce the size of the top further would mean the lengthening of the time required to produce merchantable sized material.

Lumber For Belgium.

Professor Albert van Hecke, of the University of Louvain, Louvain, Belgium, is in America to study the most suitable lumber for the re-building of Belgium after the war.



SPRUCE AND BALSAM COMING IN ON AN OLD CLEARING.

Unless This Stand Becomes Thicker, Much of the Timber Will be of Inferior Quality.



A CLASS ROOM IN THE OPEN.

A Children's School in the Forest

Remarkable Results in Improved Bodies and Minds Achieved
by the Toronto Board of Education.

Since the following description was written by Dr. W. E. Struthers, Chief Medical Officer of the Toronto Board of Education, the School has developed substantially. There are now two Institutions, placed in Victoria and High Parks.

Nothing in the modern development of the public school has given more satisfaction than the "Forest School." From everywhere comes the report of the remarkable mental stimulus received by the child in its outdoor life, and the great improvement in its physical development. Such schools have proved to be an economy, not an expense. Children accomplish in half the school lesson-hours as much as their stronger fellows in the regular school. The other half of the lesson periods are given to nature study, play, gymnastic exercises and drill. Children are given three wholesome meals a day,

plenty of milk, and two hours' absolute rest and sleep every day. Such regularity of life in work, play, meals, and rest produces remarkable results in a very short time. I beg to report our own experience in Victoria Park last summer, with its most encouraging results. The Forest School opened on June 20th, and closed Sept. 20th. In all about seventy children were in attendance; the average daily attendance, however, fell somewhat below fifty, and in 1916 was 100. In this tentative effort to demonstrate the value of such open-air school work, we have had, of course, some difficulties, and a number of handicaps. The children had to learn that

although the school was in the woods, that although the method of teaching and studying was so different, it was still necessary to maintain discipline. Some of them did not seem to know what obedience meant. Many were under the impression that this was not a regular school in any sense, that even in attendance they could come and go as they pleased. In many ways, too, our facilities were limited, and, of course, our difficulties to provide and care for the children increased. The unusual amount of wet weather at this season of the year was also a somewhat serious handicap, because our facilities for shelter were limited.

Ten Hours in The Air.

During fair weather the children spent ten hours in the open. They usually arrived at the grounds about 8.30 a.m. and left for home about 6.30 p.m. After a breakfast of cereal, milk, bread and butter, the nurse took charge of one class. They were divided into junior and senior classes. At 10.30 they were served with a glass of milk and bread and butter. At 12 o'clock there was a general wash-up. Dinner consisted of soup, potatoes, and meat, bread and butter, milk and some kind of pudding. Supper consisted of bread and butter, jam, light cake or oatmeal cakes, or bread and milk, etc. After each meal each child took its own cup, with some water, and under the watchful eye of the nurse thoroughly cleansed its mouth and teeth. At one o'clock came the rest period; all were required to go to sleep for two hours. The cots provided by the Board were much more satisfactory than the camp, or reclining chair, which is almost universally used elsewhere. The cots 5 feet long and 3 feet wide, had woven wire springs and drop ends, so that they were easily handled. A single military blanket and a small pillow completed this equipment. These were numbered and each child looked after its own blanket and pillow under the supervision of the teacher and the nurse. These cots allowed complete relaxation of the body so that the children's sleep was sound and refreshing.

Rebellion at First.

The first two or three days the children-thought this was a horrible imposition; but in a very few days every little pair of eyes closed naturally and readily without protest or murmur. After the rest period came another study period, and then play period. Finally the march through the woods to catch the car home at 6.30. Besides the school work taken up by the teacher, the nurse instructed the children in the use of the tooth brush and care of the teeth; gave health talks on cleanliness, care of the body, ventilation, wholesome food, manners and deportment; gave breathing exercises, nature talks as they rambled in the woods or on the beach, etc. Every day, also, a certain number had to take a tub bath.

Examined by Doctors.

All of them were examined by the School Medical Inspectors before being selected. The Dental Inspector examined 58 children in attendance and reported many mouths in very poor condition, with abscesses, inflamed gums, and decayed teeth. All children were provided with a tooth brush, and after each meal the nurse put them through the tooth brush drill. Every child was thoroughly instructed in the use of the tooth brush, and made to use it. The Dental Inspector, removed jagged roots, and stain and tartar from the teeth. At the closing of the school he was able to report as follows: "I wish to draw your atten-



WHERE SOME OF THE PUPILS COME FROM.

tion to the beneficial results of the regular and careful brushing of the teeth by the children under the Nurse-teeth by the children under the Nurse's guidance. At the close of the school the mouths of these pupils were practically in every case models of cleanliness. If the same regular care that was practiced in the Forest School could be carried out in all our Public Schools it would revolutionize the mouth conditions among children."

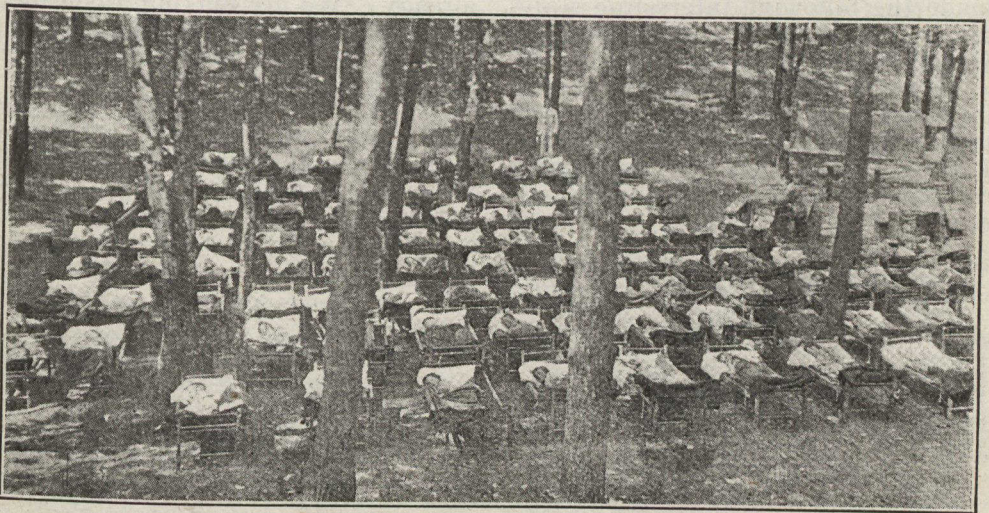
Gain in Weight.

During the first week the Forest School was open, all but three chil-

to note the bright eye and quickened movements; to see the natural interest in everything that surrounds a child evidencing a developing mind.

Teaching Manners.

But even this quickened mentality is not the only result, for the child has learned something in deportment: to lift his hat to a lady, to smile back "Thank you" for a service rendered, to eat and drink decently at the table, to appreciate the beauty of a few wild flowers, the lure of the open woods, the majesty of the rolling sea, to recognize his Creator in the things of Nature. There has been an up-



REST HOUR IN THE WOODS.

dren gained in weight. The gain varied from one-half to four and a half pounds. Naturally that gain did not continue at the same rate in the weeks to follow. But to judge the benefit accruing to these children from the point of view of the gain in weight only would not be fair. The gain in weight is important, for it should indicate increased vitality and strength. But this is not the only result. Children came to the school dull, stupid, unresponsive, with but little evidence of developing mentality. It was a great pleasure to watch the awakening and quickening intelligence; to see apathy and dullness and stupidity replaced by intelligent alertness and activity;

lift to his whole moral being, the effect of which, I believe, will never pass away. I know of nothing that would be a greater blessing to the children of this city, that would do as much to produce and maintain that vigorous physical health so essential to mental development and moral well-being. I know of nothing that will do so much to prevent debility, consumption, and all wasting diseases, that will do as much to restore vitality and produce the physical and mental development that means efficiency and usefulness to the city and to the state. The Forest School means a preventorium; means a wholesome and vigorous body, a quickened and disciplined

mind, clean and regular habits of life; means health, efficiency, usefulness, independence, content and happiness; means children saved from misery, crime and degradation. In the face of such manifest benefit to

child life, and the striking success not only of this tentative effort here, but also of the open-air schools of America, and Europe, it is very desirable that such a type of school should be continued and extended.

The Forester and the Lumber Company

Mr. J. B. Snowball of the W. B. Snowball Lumber Co. Chatham, N.B. made the following interesting statement at the annual meeting of the Canadian Forestry Association:

"It pays to have a forestry branch in a company the size of ours. It is distinctly a paying proposition and I advise any paper, pulp, or lumber company anxious to operate lands economically to employ a trained

forester. We have received an adequate return from our investment already. We are making a considerable saving in cutting and a saving to the Government on stumpage."

The Forester of the W. B. Snowball Company is Mr. J. R. Gareau, a graduate of Laval Forest School, who has had considerable practical experience since graduation.

Eight Thousand Dollars !!

Eight thousand dollars were spent on the various educational activities of the Canadian Forestry Association in 1916. It is no exaggeration to say that one hundred dollars of national benefits are returned as dividends on every dollar that leaves the Association treasury.

Considering the great field for educational work and the keen response of the Canadian people to every attempt to enlist their interest and co-operation, eight thousand dollars is meagre enough. The 1917 programme of propagandist work in all parts of Canada cannot be handled on last year's revenues. We appeal to all members to pay their membership fees promptly and to select, if at all possible, the Contributing Fee of five dollars.

Remember! The Canadian Forestry Association has no endowment,

and no identification with any Government or commercial interest.

The cause is national. The organization and its methods of operating are expressive of the public spirit of 4500 members. In other words, the Canadian Forestry Association belongs to you and cannot fulfill its purposes without your support.

Inspected Wood Exhibit.

The Hon. H. C. Brewster, premier of British Columbia, called at the offices of the British Columbia Lumber Commissioner in the Excelsior Life Building, while in Toronto, and inspected the exhibit of forest products there. The shipments of British Columbia lumber to the eastern market during 1916 were many million feet in excess of the preceding year.

Vivid Letters from the Front

Canadian Foresters Now Serving Empire Meet Strange Experiences—From Pigeon Training to Air Photography.

The following extracts from letters received from Canadian foresters, and others in the Dominion forest service, will prove of much interest:—

From Private J. H. Vicars, (Clerk in the office of the Riding Mountain Forest Reserve):

107th Canadians,
Witley Camp, Sussex.

“Logging operations are carried on quite extensively in some parts of this country. I had no idea there was such an amount of good timber. Fir is the predominant species just around here, and the site of the logging operations is certainly an object lesson in economy. Absolutely nothing is wasted. The stumps are cut level with the ground, the branches utilized for kindling wood, and the fine brush is piled and taken away, or is scattered evenly on the ground. I see a large number of logs peeled in the bush, and in this case even the bark is collected and taken away, perhaps to the tannery yards.”

From Lieut. J. A. Hutchison, (Forest Assistant, Brazeau Forest):

Royal Flying Corps,
London, December 27.

“I have been posted to the 39th Squadron where I get my preliminary flying. Took my first flight yesterday and have almost an hour in now. I like it fine.”

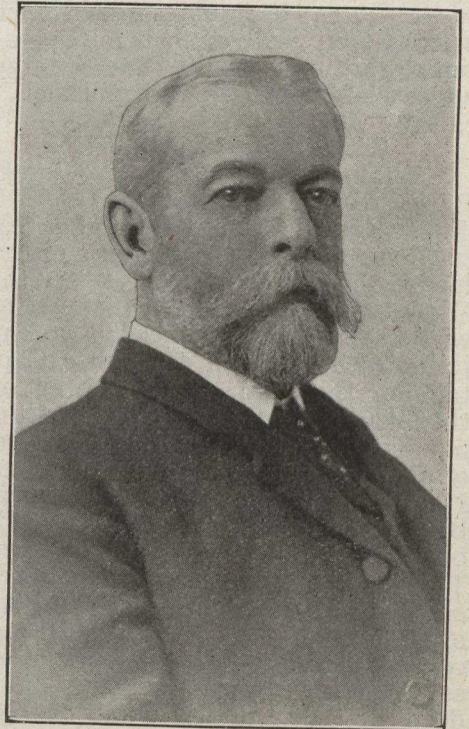
From Lieut. J. P. Alexander, (Forest Assistant, Crowsnest Forest):

France, December 11.

“So far out here I have seen none of the Forestry men from Canada, although I heard in England that Charlie Morse was in command of a sawmill somewhere in the country. And I must not forget that W. L. Scandrett and I had dinner together one evening in London and met Mr. Christie, who I believe was in the

British Columbia service and is with the Engineers over here. He came over when I did, leaving England on 24th October with an officer's draft. Scandrett has been flying in France now for over six months, and seems to be getting along very well. He was on leave when I saw him.

“For myself I was released from from the 134th Battalion and later came over with the First Officers' Draft from Canada. After a varied career at the Canadian Military School and Pioneer Training Depot in Shorncliffe I was drafted to the 3rd Canadian Pioneer Battalion and have been here ever since.



HON. SYDNEY FISHER
President, Canadian Forestry Association
for 1917.

(Pigeons as Messengers).

From Private F. B. Robertson,
(Forest Assistant, Head Office):

France, December 20.

"The last time the battalion was out I took an interesting pigeon course in connection with signalling. The birds have done great work here in the carrying of messages. I tried to consider how pigeons would work to carry messages from rangers in northern districts to headquarters or wherever the loft was established. The great difficulty is that birds will not "home" properly after being away from the loft more than a couple of days; also, as they would be carried in a small basket, they would become wing bound."

Lieut. W. J. Maclaren (Chief Fire
Ranger, Winnipeg):

December 14.

"As you probably know, all the Canadian Forestry battalions have been amalgamated into the Corps known as the "Canadian Forestry Corps," and I am at present attached to the Corps Headquarters in France where we are just commencing operations which will necessitate a large number of both bush and mill men."

On The Eastern Desert.

Captain E. W. Conant, (Forest
Ranger, Nicola Reserve, B.C.):

Cairo, Egypt, December 15.

"I am now on the Eastern desert facing the Turks instead of on the Western side against the Senussi as we were all the summer. Also my job is rather altered as I am a Captain on the Staff. I have been on the General Staff for a while and am now attached to the Headquarters of a mounted yeomanry Brigade, but I leave them in a few days to go as Brigade Major to some other brigade but which one I don't know yet. The Western desert wasn't a patch on this one for sand. The surface of the former was decently hard and one could use horses and even Ford cars, but here you are about ankle deep all the time and horses cannot go out of a walk; it is all up and down, steep sand dunes, but in nearly every hollow there are date palms and a well of more or less brackish

water, fit for animals and native Bedouin but not for white troops, and all our water is brought in pipes from the Suez Canal; and only a gallon a day is allowed per man, for all purposes, so washing goes a bit short. I am very tired of the desert and would give a good deal to be in the woods again. If I come out of the war alive it will take a 17 inch shell to get me out of British Columbia any more."

Adventures In The Air.

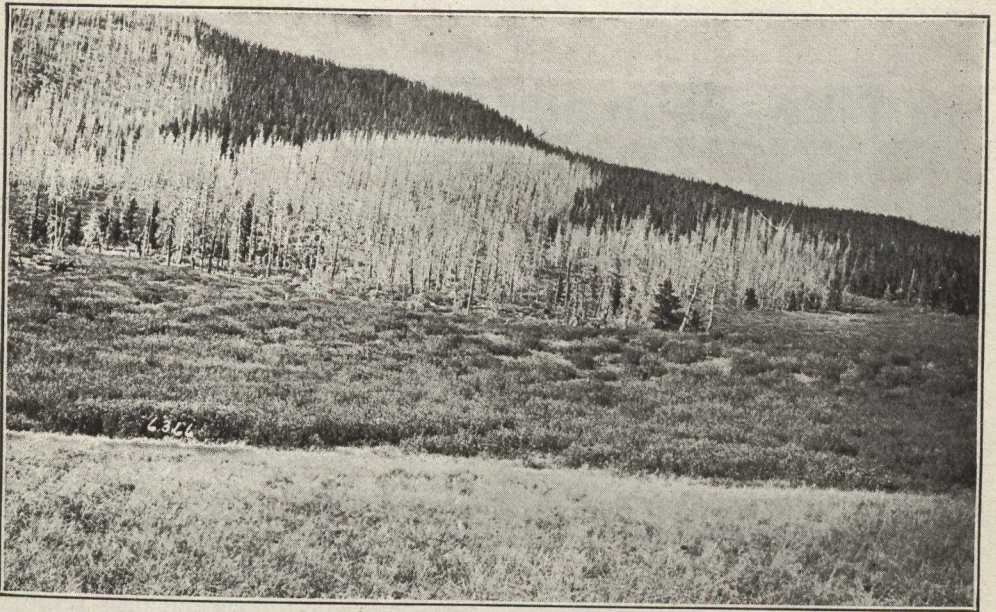
Lieut. W. L. Scandrett, (Forest
Supervisor, B.C. Reserves):

France, Nov. 29, 1916.

"I still consider that the honour belongs to the Infantry, not so much because of the danger they must undergo as because of the hardship and discomfort they are called upon to endure. As far as safety is concerned it is a toss-up, I think, because while the infantry only go "over the top" once in a very long while we have to go "over" every time we fly. When I was a new pilot I was only sent up on the defensive jobs which are carried out above or behind our own lines, but now that I am supposed to have developed more or less knowledge of the lines and the habits and customs of the wily Hun I rarely go on a defensive assignment but find myself cruising about well on the other side of the lines, taking photographs or making a reconnaissance.

In July and even more so in August we had things pretty well our own way in the air and the Hun machines did not bother us much. Since then however they have been concentrating here until they are as numerous or more so than we. The result is that we never attempt an offensive job without a swarm of them coming after us.

Not long ago I was sent out with a beautiful new machine to take photographs beyond Bapaume, I had with me as escort three more like myself and ten smaller, fast machines. While well over in the enemy country my escort for some unknown reason cleared out and left me alone. I had been watching seven Hun machines ahead of me and was surprised



A GRAPHIC DELINEATION OF THE DAMAGE CAUSED BY A NEGLECTED CAMP FIRE ON AN ALBERTA SLOPE.

The Changing Wind Currents Caused the Curious Indentations of the Burned Grey Patches Against the Green.

to see them suddenly come at me. I hardly realized what was wrong at first as I still believed my escort was with me. Being alone and almost already surrounded there was nothing for it but to go homewards so I shoved the nose of the machine down till it was going over 100 miles per hour and endeavoured to dispense with the company of the Huns. Three of them succeeded in opening fire at short range however and made a sad mess of my new machine. At the end of half a minute there was patrol splashing everywhere from a punctured tank and several wires were streaming in the wind. When we got home and examined the machine we learned that it had to be almost entirely rebuilt so great was the damage they had inflicted. The only consolation was that we had succeeded in getting most of the photographs.

Photography is now one of the most important branches of the R.F.C. work and its usefulness is amazing. If the Hun is extending his trenches or building new gun emplacements we can keep accurate tab on his progress by means of photos and experts in interpreting the prints can collect

most amazing intelligence about the existence of barbed wire, telephone lines, light railways, dugouts, etc. that the layman would miss entirely. Open attacks have been delayed for days at a stretch until photos of certain areas were obtained.

Photos On The Wing.

The most useful pictures are taken from above and each plate covers a large area. The Hun on the ground can easily tell when you are taking pictures and favors you with the most persistent attention from his "archie" guns. This is annoying and has been known to be dangerous as you soon find yourself sailing through clouds of black shrapnel smoke and high explosive. "Archie" is what shakes the nerves of the airmen so badly.

Since coming out here in July I find I have slowly worked up the list in seniority, till there are now very few senior to me in the squadron. For some little time lately I have been carrying out the duties of a flight commander which is a captains' job and am now hoping sometime to get the job permanently, preferably in England.

New Light on Tropical Forests

Timber Region of Amazon Basin of South America Three Times as Large as U. S. Forest Area.

In announcing a new department of tropical forestry, under Dr. H. N. Whitford, Yale University has provided the following most interesting discussion of opportunities awaiting development in a field practically unknown until very recent years.

The recent development of tropical countries has focussed the attention of the world on their forest resources. The question arises, have such countries extensive forests and if so can these forests be utilized for their industrial development or will they have to depend entirely on the forest regions of Europe and North America for their main timber supplies?

Forests of the Tropics

In North America and Europe there are certain extensive forest regions that at present time furnish the main supplies of timber used in the world. There are at least two very large forest regions in the tropics. These are the Amazon region of South America and the Indo-Malay region of Southeastern Asia and adjacent islands.

The forested region of the Amazon River basin, comprising an area of 1,600,000 square miles is the largest in the world. This is three times as large as the forested area of the United States and 260,000 square miles larger than that of European and Asiatic Russia combined.

The forested area of Borneo, Sumatra, the Philippine Islands, the Malay Peninsula and Burma is roughly estimated to be not less than 500,000 square miles, or nearly as large as that of the United States.

Thus the forested area of these two tropical regions alone comprises more than 2,000,000 square miles.

Some Misconceptions

The popular conception of tropical forests is that they are only capable of producing woods chiefly valuable for cabinet purposes, for dyes and extracts, or for special uses requiring extreme hardness and durability. This is due to the fact that only this class of material can be marketed in temperate regions without competition with native woods and until recently could not be marketed for home consumption because of the high cost of lumbering due to primitive and expensive methods of logging and milling. For example, the Philippines formerly consumed the hard, durable woods mainly, and depended largely on outside sources for cheap construction woods. Investigation showed that the great bulk of the woods of the forests consisted of soft and medium hard woods suitable for the same general construction purposes as Douglas fir, the chief imported wood. Modern methods of logging and milling were introduced and thus the cost of manufacture reduced so that today the Philippines are not only supplying their own wants but are rapidly forging ahead toward becoming an exporting country.

The impetus given to the lumber industry in the Philippine Islands has spread to parts of Borneo and Sumatra where modern methods of lumbering are being introduced.

Recent investigations in South America show that their forests besides containing hard and durable woods, have a much larger percentage of soft and medium hard woods that

can be used for general construction purposes.

Future of Tropical Forests

Until tropical countries rich in timber resources can be made to appreciate the value of their own forests and can cheapen the extraction of lumber by the introduction of modern methods of logging and milling, they from necessity will have to depend on outside sources for the construction timbers necessary for their industrial development. When they come to appreciate this condition, they will not only be able to supply their own wants, but furnish timbers for export. Thus the rich

forests of the Amazon region are favorably situated to furnish regions like southern Brazil and Argentina that are less favored in natural timber wealth. The forests of northern South America, lying adjacent to the practically deforested regions of the West Indies and Central America, can supply the wants of these countries.

Already Borneo, the Philippines, and Sumatra are gradually increasing their exports to China, a deforested country, to the United States and Europe, and bid fair to break into the Australian markets that are at the present time getting timber from the United States and Europe.

New Brunswick's Great Opportunity

As has been previously pointed out in the Canadian Forestry Journal, New Brunswick is rapidly coming forward as a province of conservation ideals. The work of surveying the provincial forest areas and classifying agricultural lands, so well begun under Premier Clarke, will undoubtedly be continued and developed by the new Cabinet.

Mr. A. E. O'Leary, Chief Game and Fire Warden for the province has submitted his annual report which shows that fires occurred in 1916 over an area of 2357 acres, with a total timber loss of \$8695.

Mr. O'Leary makes a thorough recommendation of the system of issuing 'burning permits' for the setting out of all land-clearing fires and quotes the testimonies of Quebec, British Columbia, and some of the American States as to their great success with the permit plan. New Brunswick experimented with the permit plan in two townships, Hazen and Grimmer.

Former-Premier Clarke definitely committed his Government to a re-organization of the New Brunswick forest protection system and in the interests of the province this step should not be delayed. Warden O'Leary, commenting on last summer's fires, between Welsford and Clarendon states that "there is no doubt but that for a heavy rainfall all these fires would have assumed enormous proportions." Again, "part of the area burned had been cut last year and the tree tops which had been piled up in that district afforded great facilities for the spread of the blaze." No forest guarding system can afford to take chances on the good luck of a rain fall. Unless present methods are radically changed in New Brunswick, there is not the slightest guarantee that a period of extended drought in 1917 may not give New Brunswick the unenviable distinction of providing the biggest forest losses of the season. And it will be unusually fortunate if a heavy toll of settlers' lives is not included.

Canadians and Americans Discuss Problems Together

Forestry Conference at Washington has Important Results—
White Pine Disease the Chief Subject.

The Annual Meeting of the American Forestry Association at Washington, D.C., on January 18 and 19 was attended by a group of Canadians including R. H. Campbell, Director of Forestry, Clyde Leavitt, Forester, Commission of Conservation; Ellwood Wilson, Forester of the Laurentide Co.; G. C. Piche, Forester of Quebec; E. J. Zavitz, Forester of Ontario; P. Z. Caverhill, Forester of New Brunswick; Avila Bedard, George Maheux, G. A. Gutches, Robson Black, Secretary of Canadian Forestry Association, and others.

Canada Heard From.

Three important subjects were on the programme: "Recreational Uses of National Forests and National Parks"; "The White Pine Blister Disease"; and "Stopping Importation of Tree and Plant Pests." While each subject attracted deep interest and received most able discussion, it is probable that the amount of public alarm incident to the white pine menace made most listeners particularly receptive to the papers dealing with the Blister Rust. The subject was treated from the point of view of territories affected, Mr. Clyde Leavitt speaking for Canada, W. P. Wharton for New England, J. B. White for Hudson to Mississippi, and E. T. Allen for the Pacific Coast. Mr. Leavitt estimated the value of Canadian white pine at upwards of two-hundred millions of dollars. He told of the location of known infections, the danger of a spread into the commercial pine areas, and described the efforts to hold the damage to the smallest possible proportions. Mr. S. T. Detwiler, U.S. Forest Pathologist, estimated the value of currant and gooseberry bushes in all of the United States at 48 million dollars;

the stumpage value of white pine was seven to ten times that amount. There were 11 million dollars worth of the ribes in the States thus far infected with Blister Rust whereas in the same territory the annual value of white pine cut was between 40 and 50 million dollars.

Guided By Local Evidence.

Mr. C. R. Pettis, Superintendent of Forests for New York States said that there were 10 million white pine in the nurseries of his state and it was not proposed to burn them all up. He had found a large area of the Adirondacks where no currants or gooseberries grew and proposed to plant that section in white pine, despite the alarm over disease. He preferred to be guided by local conditions in selecting trees for planting, and objected to disrupting the whole reforestation movement by a generalized condemnation of white pine planting.

The meetings during the two days were conducted by President Charles Lathrop Pack with remarkable success. The year's work of the American Forestry Association once more testified to the skillful guidance of Mr. Percival S. Ridsdale, Executive Secretary.

The following Resolutions have particular interest for Canadians, Mr. R. H. Campbell, Ottawa, having acted as a member of the Resolutions Committee:

To Save White Pine.

Whereas—The Pine Blister threatens to greatly injure the white pine forests of Eastern North America, and is a growing danger to the white pine timber of the West, and its origin, propagation and transmission being now generally understood.

Resolved—That it is the sense of this Conference that active measures should be taken by the duly constituted authorities and by all good citizens along the lines advocated by the officials competent to recommend practical measures for preventing the further dissemination and, as far as possible, for the elimination of the disease.

Resolved—That immediate action should be taken by the Federal governments of the United States and Canada for adequate quarantine measures to prevent the spread of the disease to sections of the Continent not now known to be infected.

Resolved—That co-operation by the Federal governments with States and Provinces to eradicate or control the disease in sections now infected should be continued and extended by liberal appropriations.

Resolved—That the States and Provinces, both independently and by Interstate, National and International co-operation, are urged to conduct complete investigations, provide proper quarantines and take all necessary measures, in keeping with the seriousness of the situation, to eradicate or control the pine blister disease.

Resolved—That a copy of this resolution be transmitted to the Secretary of Agriculture, to the chairman and members of the United States House and Senate Committee on Agriculture and Forestry, to all members of the United States Senate and to the Governments of the Dominion of Canada and of the Canadian provinces.

National Quarantine.

In view of the spread of diseases and insect pests introduced from foreign countries, such as the chestnut blight, gipsy moth and white pine blister.

Resolved—That the American Association favor the principle of absolute national quarantine on plants, trees and nursery stock, to take effect at the earliest date which may be found economically expedient.

Migratory Birds.

Resolved—That the American Forestry Association respectfully urges the present Congress to make effective,

through the necessary legislative action, the recently ratified Convention between the United States and Great Britain for the protection of useful migratory birds.

Speedy action is desirable in view of the increasing economic loss to all the people, which must ensue if action be deferred until the next Congress.

FORESTRY SECTION FOR PULP AND PAPER MEN

Following an impressive address on forestry progress throughout Canada by Mr. Ellwood Wilson, Forester of the Laurentide Company, before the Canadian Pulp and Paper Association at Montreal, Mr. Carl Rioridon suggested that a Forestry Section, (similar to the Technical Section already existing) should be organized and set to work. The idea was readily supported by the meeting and the new Forestry Section will presently become one of the chief branches of the Canadian Pulp and Paper Association.

WILL HELP GUARD N. S. FROM MENACE

Mr. F. A. Harrison, Deputy Commissioner of Crown Lands, Halifax, N.S. writing to the Canadian Forestry Association for a supply of pamphlets on the White pine blister menace, states: "While I feel sure that the disease does not exist here, it is my intention to distribute them to the Forest Rangers so as to have a thorough search made during the coming summer to see if any trace of it can be found."

Many of the large lumber corporations, co-operating with the Canadian Forestry Association, are supplying their woods employees with our illustrated literature on the White Pine Blister with instructions to search carefully for any sign of the trouble.

The Forest Conference in Montreal

A "Forest Conservation Conference," organized by the St. Maurice Forest Protective Association and the Lower Ottawa Forest Protective Association was held at the Windsor Hotel, Montreal, February 1 and 2. The event was the first of its kind in Canada, and was designed to bring the limit holders, Government officials, foresters, forest protection officers and the public generally into closer touch with present-day methods in fire prevention and fire fighting. That the meetings accomplished this purpose all who attended will agree. The two protective Associations responsible for the programme and the rousing of public interest are entitled to maximum credit. One may not fairly estimate the effects of such conferences by the amount of new information and impulses imparted to the number actually in attendance. That in itself was fully up to expectations. The additional audience of thousands obtained through the generous publicity of the Montreal newspapers can be counted with the gains of this conference.

The addresses covered a wide group of topics, all however being consistent with the purpose of the Conference. Mr. Ellwood Wilson, President of the St. Maurice Forest Protective Association, presided.

The programme included the following:

Opening Address.—Mr. Ellwood Wilson, President—St. Maurice Forest Protective Association.

Address.—Hon. Jules Allard, Minister of Lands and Forest Quebec.

PROTECTION AGAINST RAILWAY FIRES.

Address.—Mr. Clyde Leavitt,—Chief Fire Inspector to the Board of Railway Commissioners Canada.

Address.—Mr. B. M. Winegar,—For-

ester Eastern Lines, Canadian Pacific Railway.

GOVERNMENT FOREST PROTECTION.

Address.—Mr. E. J. Zavitz,—Chief Forester of Ontario.

Address.—Mr. W. G. Howard,—Assistant Sup't. New York State Forest.

Address.—Mr. W. C. J. Hall,—Sup't. Forest Protection Branch, Quebec.

CO-OPERATIVE FOREST PROTECTION.

Address.—Mr. E. T. Allen,—Forester to Western Forestry and Conservation Association.

Address.—Mr. A. H. Graham,—Chief Fire Inspector to The Lower Ottawa Forest Protective Association.

THE PROBLEM OF BRUSH DISPOSAL.

Address.—Mr. R. H. Campbell,—Director Dominion Forestry Branch.

PROTECTION AGAINST INSECTS.

Address.—Mr. J. M. Swaine,—Dominion Etymologist.

WHITE PINE BLISTER RUST.

Address.—Mr. H. T. Gussow,—Dominion Botanist.

Address.—Mr. G. C. Piche,—Chief Forester of Quebec.

MECHANICAL AID FOR FIRE FIGHTING.

Address.—Mr. H. C. Johnson,—Fire Inspector Board of Railway Commissioners for Canada.

TELEPHONE FOR FOREST PROTECTION.

Address.—Mr. R. T. Campbell,—Northern Electric Company.

Some of the above papers will appear in forthcoming issues of the Canadian Forestry Journal.



SHADED ROAD-
WAYS LIKE THIS
GIVE ONTARIO
SOME OF THE
MOST BEAUTIFUL
RURAL DISTRICTS
IN AMERICA. . .

Stock Taking on the Public Domain

New Brunswick is Developing Plans to Guide Settlement
and Devise Future Timber Policies.

By P. Z. Caverhill, Forester of New Brunswick.

The classification of Crown Lands of New Brunswick is the outcome of a movement that has been growing for a number of years.

The Crown Lands of the Province, consisting of $7\frac{3}{4}$ million acres, of which $6\frac{1}{2}$ million are under license, is the chief source of provincial revenue, and the value of the lumber industry is second only to agriculture, having at the present time a value

in excess of \$15,000,000.

Many changes have taken place with the development of this lumber industry. White pine, which during the first half of the 19th century was our important timber tree, the export of this species alone in 1825 being over 400,000 tons of squared timber, has been for years nearly depleted. Hemlock, a few years ago valued only for its bark, is hard to get at \$12.00

to \$14.00 per M. for the round log. On spruce it was found necessary to reduce the length and diameter limit from 18 ft. by 10 in. to 16 ft. by 9 in. *Thousands of acres of good timber land have been taken up under the pretense of agricultural development, only to be abandoned after desultory attempts at clearing and cultivating, and after the occupant had burned, possibly, thousands of acres of good timber;* these signs of the gradual depletion of forest land led to a movement for definite knowledge of the condition of the public domain, and a classification of the land as to whether it was chiefly suitable for farm or timber.

Foundations of Agriculture.

Perhaps one of the most important features of the survey is the classification and delineation of the agricultural lands, the objects being to direct future settlement to localities where there is the greatest opportunity for successful farming, and to prevent the denuding of purely timber land under the guise of clearing for agricultural purposes.

The success or failure of any agricultural community depends on four factors:

1st, Climate; 2nd, Soil; 3rd, Personal; 4th, Social. We shall consider the first and second in more detail: Climate—The climate in New Brunswick is generally favorable to agricultural pursuits; the winters, though long and severe, are followed by warm, pleasant summers with plenty of rainfall; vegetation showing a remarkably fast development, although late spring and early fall frost limits the range of field crops to those developing and maturing in a little over three months.

Soil—The soil is the factor with which this survey is chiefly concerned, and is, next to climate, the most important in limiting agricultural development. In the classification of soils on an agricultural basis two primary things have to be considered.

1st, Topographical Character.

Soil on gentle slopes or up to a sustained slope of eight to ten per cent. is tillable; slopes to fifteen or twenty

per cent. are suitable for grazing. Steeper slopes, soils broken by ledges or boulders are unsuitable for any agricultural development.

2nd, Physical Character of the Soil.

The physical character of the soil determines its moisture and fertility holding capacity, as well as to a large extent the cost of bringing area under crop, and it is more important than soil fertility, because fertility may be increased or destroyed by the manner in which the clearing and cropping is done, but the texture of the soil cannot be changed.

We have divided our soil into five types on this physical basis. They are: clays, clay loams, sandy loams, sand soils and swamp soils.

Roughly speaking, therefore (referring to our soil maps), clay loam, clay soils and sandy loams can be classified as agricultural land, unless there are excessive quantities of surface or sub-surface tone (shown by hatching), or the cost of drainage is excessive.

Value of The Survey.

Just a word as to the use the information gathered will be to the department in the future management of the Crown Lands.

1st, It gives definite information of the quantity, quality and value of the timber on any area, from which a very close appraisal of the stumpage can be ascertained: will show whether the Department is receiving full value for the lumber cut or not, and they can adjust their stumpage rates accordingly.

It will show the quantity and quality of species now of little importance because of lack of market demand, and it is hoped that we will be able either to show that these species can be marketed profitably, or to induce industries utilizing these inferior species, where the quantity justifies it, to locate within the province, thus profitably utilizing material which is at present going to waste.

Mr. W. B. Campbell, B.Sc., of the Forest Products Laboratories of Canada, Montreal, was some time ago

recalled from the front, where he did a large amount of chemical engineering work in gas defence. Mr. Campbell recently lectured before the Canadian Society of Civil Engineers on

"Gas Defence and Attack at the Front." The Laboratories have now six of their staff on the fighting line, and have lost one member by death there.

Settling Soldiers in New Ontario

Toronto, Feb. 8.—In a memorandum to Sir Robert Borden with reference to facilities for settling returned soldiers on the land, Hon. G. Howard Ferguson explains Ontario's proposals, some of which may be mentioned. Farms containing not more than eighty acres will be laid out in such a manner as to bring the different farm houses as close together as possible.

As soon as a soldier desires to go upon a farm and work for himself an eighty acre lot with a ten acre clearing will be allotted to him.

The eighty acres with ten acres of clearing will be given the settler free of charge. For each day's work that is done from the time he enters the training school at Monteith until he goes upon his clearing he will

be paid a reasonable wage.

An advance up to \$500 will be made to cover the cost of stock, implements and equipment and any assistance in building that may be given for which a lien will be taken against the settler's holding and chattels.

The lien would be payable in 20 years at six per cent., but no payment on account of either principal or interest shall be required until after the expiration of three years.

At the expiration of five years from the settler locating upon his land, and upon the due performance of certain conditions in the meantime, he will be entitled to receive a patent from the Crown.

There are also facilities for co-operative marketing.

To Re-Establish Allies' Forests

"The Gardeners' Chronicle," January 13th, 1917.

The Royal English Arboricultural Society are co-operating with the Agricultural Relief of Allies' Fund in inquiring whether it is possible to render help to our Allies in reinstating the woods and forests which have been destroyed. Inquiries made in France, Belgium and Serbia show that the tree of the greatest value is the Scotch pine (*pinus sylvestris*) which readily adapts itself to varying soil and climate. Large quantities of these trees are now being cut in Scotland, and it is a comparatively simple matter to save and store the cones for the distribution of the seed required. The cones are rapidly approaching the stage most suitable for

the purpose, as later on they swell and the seed is disseminated by the winds. The Serbian Government has asked for 4000 pounds of this seed, which they can immediately utilize, and the French Minister of Waters and Forests has outlined a scheme asking for a supply of seed for the coming spring to be followed next autumn by a further quantity and later on by a supply of young plants of oak, beech, pine, etc. *It is possible also that the rich forests of Douglas pine in Canada may be drawn upon by the Canadian Branch of the Allies' Committee in order to contribute their quota to what would form a permanent memorial of British sympathy.*

Developing Plan to Oust Patronage

Dr. Adam Shortt, Civil Service Commissioner, has returned to Ottawa from British Columbia whither he went at the request of the newly-formed provincial government to afford the ministers the benefit of his knowledge and experience in matters of civil service organization. The trip was taken at the special invitation and urgent request of Premier Brewster and with the consent of the Dominion government.

Not only did Dr. Shortt consult with Hon. Mr. Brewster but he attended meetings at which all the ministers were present that he might get from them a knowledge of the local conditions as affecting the several departments. On the basis of this knowledge he drafted a bill which,

it is expected, will be introduced in the Legislature at the forthcoming session. Two main features of this measure may be mentioned. The first is that the distinction between the inside and outside services will be done away with and the one proposed law will cover both. The second is that there will be one Civil Service Commissioner whose tenure of office will be unaffected by political party changes and who will be given wide powers in the administration of the system. Appointment and promotion by merit will be of the essence of the new law, and if rigidly adhered to, the Forest Service of the British Columbia Government will be placed on a much more efficient basis than has been possible under the patronage system.

The Ranger at Work

"The fire ranger's duty is first of all to prevent forest fires, and, when they do occur, to put them out. One great feature of fire prevention is the ability of the ranger to educate the people in his district and make them understand the great cause that we are working for.

In dry weather he should always be on the move, watching fishermen, drivers, jobbers and other people travelling in the woods. Whenever he meets a person, he should find out his name and destination, give him advice when needed, and always warn him against the danger of forest fires. By giving the people kind advice and help, he will make them his friends and they will be more willing to do their share in saving our forests.

In the settled districts, the rangers also supervise the burning of slash. The clearing of land is one of the worst menaces to the forest. In former years when the settler wanted

to clear his land, he put fire to the brush on his lot, regardless of time and weather. That millions of dollars worth of good timber went up in smoke mattered little to him if it could save him a few days' labour in piling the brush before, and watching it while it was burning.

Damp and rainy weather does not give the ranger a vacation as many people would believe. He then starts cutting and clearing portages and trails to facilitate communications, so that, when fires occur, he can get men and supplies to the fire in the easiest way and the shortest time possible. He also builds look-out towers on high and convenient sites in his district during wet seasons. At convenient places in his district are stored shovels, mattocks, axes, fire pails, etc., for fighting fires."

(Henry Sorgius, Manager St. Maurice Forest Protective Association at annual meeting, Commission of Conservation.)

FORESTERS ON ACTIVE SERVICE.

Lieut. E. W. Conant (formerly Forest Ranger on the Nicola Forest Reserve, B.C.) has been promoted and is now Staff Captain, 6th Mounted Brigade, E.E.F.

Major Lyndon, (formerly Forest Ranger on the Crowsnest) wrote on the 6th January from the Canadian Garrison Duty Depot, Hastings, Sussex, stating that he returned there from France the end of October and has been doing garrison duty, but expects to go back to the front the end of February or early in March.

Mr. H. C. B. Smith, who was clerk in the British Columbia Inspection office, and is now with the Canadian Cavalry Brigade in France, writes that he had ten days' leave at Christmas so was able to spend it in England. He says: "The Old Country looks pretty good to one after fourteen months in the Somme country."

Mr. C. H. Morse, formerly Assistant to the District Inspector for Alberta, who is with the Canadian Forestry Corps in England, writes: from Virginia Water, England:

"The work of the Forestry Corps seems to be extending all the time. At present there are only three battalions, the 224th, the 238th and the 242nd, but more are evidently on the way as a large base camp is being prepared in Windsor Park about two miles from Virginia Water. Yesterday a Medical Board came along to re-grade all our men and officers. To-day General Turner was here and told us that all the physically fit men were to go to the trenches. My work here as officer in charge of the woods operation is rather a good experience but the work is simply logging. The name Forestry Corps is a misnomer. We even leave slash in as bad shape as I have ever seen in Canada. Everything is utilized however. Stumps are cut very low and tops are used for firewood and pit props. We have done some burning but not with bushmen. Their skill is valuable and they must be

kept on production. We have used mechanics from the R.F.C. but it takes ten of them to do a good Canadian day's work for one man."

RAILWAY FIRES

On all lines subject to the jurisdiction of the Dominion Railway Commission throughout Canada, the fires in forest sections definitely attributable to railway agencies did damage amounting to only \$35,567—a remarkably good showing, considering the unfavorable weather conditions.

Of all fires reported, the causes were as follows: Locomotives, 61 per cent.; railway employees, 8 per cent.; campers and travellers, 7 per cent.; settlers, 8 per cent.; other known causes, 3 per cent.; unknown causes, 13 per cent."

M. A. GRAINGER, CHIEF FORESTER OF B. C.

The appointment of M. A. Grainger as chief Forester of British Columbia, in succession to H. R. MacMillan, now Assistant Manager of the Victoria Lumber and Manufacturing Company, Chemainus, B.C. has been gratifying to all concerned in the welfare of that province. In advancing Mr. Grainger, Premier Brewster has carried out to the letter his pre-election pledges for the abolition of the "Patronage" plan in Civil Service appointments. Mr. Grainger's appointment is most popular with members of the British Columbia Forest Branch and his administration of the complex duties of his new office will undoubtedly reflect the same public devotion as has distinguished his previous career.

When Mr. MacMillan, two years ago, was selected to act as special trade Commissioner for the Federal Government, a task which took him about the world with the object of studying world market conditions

from the standpoint of the British Columbia lumber supply, Mr. Grainger assumed the direction of the work of the forest branch and has been carrying it out ever since.

In The Klondike.

Mr. Grainger, who is an Englishman by birth and a graduate of King's College, Cambridge, having been twenty-first wrangler in mathematics in 1896, came to Canada the next year and participated in the famous gold stampede to the Klondike. There he engaged in hydraulic mining. When the South African war broke out he returned to England and enlisted as a private in Roberts' Horse and served throughout the war. He possesses the South African medal with six bars.

After the war he returned to British Columbia where he spent some years in the mining and lumbering industries finding time to contribute a number of articles to Old Country papers and also to write an interesting book, "Woodsmen of the West," a work which accurately depicted life in the lumber camps and described the vast forest wealth of this Province.

Investigation Work.

As secretary of the Forestry Commission which investigated the conditions of the industry and the extent of the forest areas of the Province, Mr. Grainger rendered valuable services, the illuminating tables incorporated with that report being special features of the report. In fact to a great extent the value of the reports issued from time to time by the forest branch are due to his great insight into the industry and his mathematical knowledge.

In the legislation which has been drafted relating to the lumber industry Mr. Grainger has taken a leading part; he played a very important part in the organization of the branch which aimed to be one composed of men technically competent and to-day the British Columbia forest branch is recognized as the best in Canada and its status has on more than one occasion been recognized by the other

provinces which have framed their own departments on similar lines.

When the organization of the branch was completed Mr. Grainger was appointed assistant chief forester in charge of the record office, a position he held until appointed as acting chief forester.

"Undoubtedly," remarks the Victoria "Colonist," "no more popular appointment could have been made by the minister and there are a host of Victorians who will wish him every success in his new office."

Gerard Power Again Mayor.

Mr. W. Gerard Power, managing director of the River Ouelle Pulp and Lumber Company, St. Pacome, P.Q., and a devoted friend of the conservation movement, has been honored by the citizens of St. Pacome, by being elected as their mayor several years in succession. "Throughout his wide acquaintanceship in the lumber business Mr. Power has a reputation for successful management and for high business ideals which cannot be excelled," says 'Canada Lumberman.' "The result is that the business of his company is one of the best known in the province of Quebec and one of the most progressive.

Realizing how fortunate they were in having Mr. Power to look after their municipal affairs the people of St. Pacome have again entrusted him with the duties of mayor, having elected him for the year 1917. Mr. W. Gerard Power is a son of Mr. Wm. Power, M.P., of Quebec, P.Q., who is known to lumbermen throughout eastern Canada and in Great Britain, as a member of the firm of W. & J. Sharples Regd., one of the most important and successful firms of lumber exporters in eastern Canada, Mr. W. Gerard Power, therefore, comes by his ability as a lumberman honestly. Three of Mr. Power's brothers have taken their share in protecting Great Britain against Germany, and have won honors through their efforts and sustained wounds in behalf of the great cause.

Our Need of Trained Men.

"What has been said of England may also be said of Canada, namely, that the "idea of science," spelled in capital letters, has been lacking in the national make up. The war has stirred the industries and the public to a realization of the importance of science, but very few plants yet really believe in science, and carry out their programme of development on this basis. Germany in one well-known factory on the Rhine has more chemists than in the whole of Canada and much the same proportion holds true of engineers and trained workmen in the industries including pulp and paper. We must have the full co-operation of all if the pulp and paper industry in Canada is to be worthy of its trust and if we hope to progress beyond the range of low grade papers. There must be broad policies for training workmen, superintendents, and technical managers if we Canadians wish to have a fair share in the development which is going on. Nature has provided unparalleled forest resources and water powers and trained human intelligence must provide the rest. There should be co-operation of mills in manufacturing as well as selling. Secrecy is a relic of tradition and the visiting of mills by members of the association should be encouraged so that all of us may profit to some degree at least by the special experience which has been gained by each mill. Not every mill can have a comprehensive investigative department, but no mill should neglect its department for studying raw materials, controlling the manufacture of products and improving processes and methods. The Technical Section should be a clearing house for the discussion of problems."—John S. Bates, Chairman of Technical Section, Canadian Pulp and Paper Association.

40,000 Forest Fires.

It is estimated that in 1915 about 40,000 forest fires occurred in the United States, which burned over about 5,900,000 acres and caused a damage of approximately \$7,000,000.

Tree-Felling By Machine.

A demonstration of tree-felling by machinery took place recently near Stirling, Scotland. The machine used was a No. 2 tree-feller guaranteed to fell any tree up to 48 inches in diameter.

Three trees, tough oaks of an average diameter of 46 inches, were felled in about 13 minutes each. Under normal conditions, trees varying from 42 to 48 inches have been cut in from 6 to 8 minutes, and spruce in about half the time. In the course of the demonstration it took four or five minutes to shift the machine, which is fitted with removable wheels, from one tree to another.

Usually a small portable 4 nominal horse-power boiler which can be easily moved by one horse, is supplied with the tree-feller. The advantage of the traction engine is that it can drag the trees where required after being felled.

The machine accomplished in a few minutes the work which would have taken two men four or five hours.

The trees were all felled at the ground level, and the clean cut made by the saw adds to the selling value of the timber, apart from the saving of wood. Only two men are required to work and shift the whole outfit. With the machine an interchangeable frame is usually supplied by means of which the trees can easily be cut to any required length after they have been felled.

Japan Exports Pulp.

Attention is directed to the development of the manufacture of paper pulp in Hokkaido and Karafuto by the report that Japan is becoming a pulp exporter to America and India. Since the outbreak of the war in Europe the manufacture of paper pulp has been well maintained, as all the circumstances are in favor of its development. Dense forests in Hokkaido and Karafuto supply excellent material, while coal and sulphur are cheap. Japan, indeed, is more favorably situated than Scandinavian countries in these respects.—Japan Times.

Fire damage

Wood Uses In War.

Canada's forest wealth was reviewed in an interesting address delivered at the Normal School Hall in Ottawa by R. H. Campbell, director of forestry, under the auspices of the Ottawa Field Naturalists' Club.

Mr. Campbell pointed out that the total value of the forest products in Canada every year reaches \$176,672,000 and the number of persons employed in forest industries, in addition to those industries which use wood, such as paper mills, vehicle factories, shipyards, etc., is 110,000. This, stated Mr. Campbell, is the largest number employed in any industry in the dominion, and the amount of capital invested totals \$260,000,000, wages paid in the forest industries of Canada total \$39,400,000 yearly, and the value of the product is \$184,000,000 per annum.

In war, wood has proved to be in even greater demand. High explosives, said Mr. Campbell, were being made from wood cellulose, and immense quantities of wood were being used for trenches, huts and bridges. Germany, cut off from the supply of cotton, was made substitute articles from wood. Absorbent cotton, "slings" and splints were all being made of wood and wood products now, while the Russian soldiers are wearing paper shirts made in Japan and German and Austrian soldiers are using paper vests, socks and handkerchiefs made from wood pulp.

Carelessness was the great enemy of forests, said Mr. Campbell instancing the disastrous fires at Fernie and Northern Ontario.

Death of Alex. Barnet.

The death occurred at his home in Renfrew, Ont., recently of Alexander Barnet, one of the best-known citizens of the Ottawa Valley, and a member of the Canadian Forestry Association. The late Mr. Barnet carried on business as a lumberman for many years. At different times he had several business partners, one of whom was the late Wm. Mackay, of Renfrew, and another the late Peter White, of Pembroke. For a number of years he had interests in B.C.

"THE FORESTS BELONG TO CANADA"

Sir George Foster, speaking at the luncheon of the Canadian Pulp and Paper Association in Montreal, January 31st, made a direct and impressive demand upon his hearers for the adoption of conservation methods in their relations with the forests.

"Canada's position," he said, "depends on her natural resources. Don't kill the goose that lays the golden egg. Future generations will need wood as much as you. If you waste the heritage of to-day you are drawing the blood of our future citizens.

"Perpetuation of the forest is done in Germany and can be done in Canada if proper forestry methods are employed.

"The forests belong to Canada—not to you."

Queer-Test of Fir.

Dr. W. W. Walkem, in an article appearing in a recent issue of the "Vancouver Daily Province," gives a striking instance of the durability of Douglas Fir. In the course of some excavation work between Vancouver and New Westminster, a Douglas fir several feet in diameter was found buried under twenty feet of water-washed gravel and sand, overlying glacial-worn rocks and moraine, presumably contemporaneous with the glacial period. The tree had to be crosscut twice to permit the passage of the steam shovel, and the wood was found to be perfectly sound. On the surface were other fir trees growing which were centuries old.

In National Forests

During the past fiscal year there were constructed on the national forests of the United States 227 miles of new road, 1,975 miles of trails, 2,124 miles of telephone line, 89 miles of fire lines, 81 look-out structures, 40 bridges, 222 miles of fence, 455 dwellings, barns, and other structures, 17 corrals, and 202 water improvements.

Careful of Forests in War Areas

A unique description of the effect of war on the forests of Poland is contained in a letter written by Dr. C. A. Schenck, for sixteen years the director of Biltmore Forest School, Biltmore, N. Carolina, U.S.A., and wounded some months ago while fighting in the German Army.

Due allowance will be made by the reader for Dr. Schenck's unctiousness in describing lands and peoples, trampled under the Prussian invader, with the solemn piety of an annual charities report. The description is taken from a letter written to Prof. J. S. Illick, and published in "Forest Leaves."

In Poland.

1. "Poland.—I have seen only that part of Poland, during a stay or rather a meandering of 5 months, which lies south of Lodz—where I was wounded quite unnecessarily. The woods and forests belong to the landed aristocracy and to the crown—in this case the Czar. The poor farmers have never had a show. It is amazing to think that the poor were formerly compelled to go begging for fuel with gigantic forests lying at their doors and the timber and wood therein going to waste. Those poor fellows were never allowed to gather even the decaying stuff. I tell you, if the land policy, from a national point of view, has been wrong in the good United States of America, then it certainly has been infernally and cursedly wrong in Poland. All these forests are now placed in charge of German foresters who have been taken from their jobs at home. No timber or wood is being cut without being previously marked. Fire patrols are maintained during the hot season. Industries, such as sawmills, paper mills, tannic acid factories, and naval store establishments, are being developed. *Never have the woods been handled better than they are now.*

II. "Belgium.—There are practically no forests in Belgium, except-

ing that gorgeous stretch near Brussels. The wooded areas in the Ardennes are "woodlands" or, in a few cases, park of the wealthy *e. g.*, that of Sir William Schlich. The rest is scrubby stuff, so conspicuous in the sandy plains of Flanders and the province of Limburg. There is nothing I should like to own in the province of Brabant, Hainaut, and Liege. Such were the conditions before the war. All that the Germans have done, has been to insist that the woods do not suffer from fire. I have been active along this line myself. *There is no such thing as reckless cutting by the Germans.* Wherever the woodlands have been laid low by the armies of *both* sides, it was done to build trenches, log houses, and above all to gain a free sight for the guns. A few fine avenues of trees had to come down, but upon my best knowledge and true belief less than 3 per cent. of all the avenues were thus ruined. To speak of wholesale destruction of fine woodlands by reckless soldiers, is in the case of Belgium absurd, because they did not exist before the war, excepting the famous ones at Brussels, which stand as beautiful to-day as they ever did.

No Devastation.

III. "Occupied Part of France.—I have no personal knowledge of this part of the war zones, for I have not been there. My informants are my relatives who have been fighting there and forest ranger Pfeifer, of Lindenfels, whom you may remember. They tell me that there is a committee on economic questions with each army corps. A forest officer of rank is a member of each committee. He is assisted by forest rangers taken from the ranks. Not a tree is cut without being marked, *except those cut by shells.* Whenever a battalion wants wood for fuel, charcoal or building purposes a forest ranger is sent out to mark the trees. Naturally, no

forest planting is being thought of, but otherwise the woods are being cared for.

"To make a long tale short, and so as not to annoy the censor unduly, let me say, that the woods of the fighting countries are suffering less from the war than the men; the animals, including game; the fields, because of lack of phosphate and stable manure; the buildings, and the human hearts."

The Western Campaign.

"A campaign of considerable vigor has been waged in the Province of Manitoba for some time past, under the inspiration of the Canadian Forestry Association, to have the provincial legislature adopt means to stop the great timber waste in the northern sections of the province caused by forest fires. Most of these fires originated on settlers' lands where clearing operations are carelessly conducted, and very frequently result in dangerous conflagrations. The catastrophe in Ontario last summer was due entirely to settlers' fires. It has been discovered that Manitoba already has committed itself to the principle of issuing permits for the setting out of fires in the northern forested districts. This is contained in the Fires Prevention Act of 1913, but the scope of the act is wholly municipal, and it has no application to the districts where fire prevention is most needed, namely, the unorganized municipalities. The Manitoba Government is now being asked to make the act apply to unorganized municipalities, and it is suggested that the issuing of permits and the supervision of the fires, so as to prevent them doing damage, might be entrusted to the rangers of the Dominion Forestry Branch, thus relieving the province of the administration costs. The Dominion Government is willing to undertake the additional duties."—Western Lumberman.

What The West Deserves!

"It has been found that the foremost cause of forest fires have been from the carelessness of settlers engaged in clearing brush or timber

from their lands," says the Calgary News-Telegram. In Quebec, British Columbia, Nova Scotia and part of New Brunswick there are laws which make it necessary for a settler to have a "burning permit" before he starts to clear his land. This permit contains stipulations as to the manner of lighting a fire, the distance from the fire of brush, of inflammable substances, etc. It is pointed out that similar legislation should immediately be put into effect in the prairie provinces and in Ontario. This matter has been strongly advocated by members of the Canadian Forestry association, and numerous letters have been written to members of the different provincial legislatures, asking that such a law be passed. United States, by means of protective legislation, has succeeded in saving in their decrease in timber fires the sum of \$14,000,000 since the year 1910. Fires are shown to be diminishing in British Columbia, and also in the other provinces where this permit system is in operation.

Many do not credit the prairie provinces with the timber which they really possess, but figures officially compiled show that there is great wealth in the standing trees of the three provinces. Also, figures show that of the three territories, Alberta has the greatest timber wealth.

Britain's Forests Reduced.

So much timber is being used for the war it is said by advocates of a government scheme for reafforestation that if the war lasts another three years the British Isles will be entirely denuded of timber. One feature of the situation is that some pre-war sources of supply are no longer available. Fifty-five per cent of timber imported in normal times came from Russia, Sweden and Germany, four per cent. from Norway, and 41 per cent. from France, Portugal and Spain. Since the war this country has had to rely partly on supplies from Norway and Sweden and largely on French and Portuguese supplies, and to make good the deficit from woods and forests in the British Isles.

To maintain the supply the nation is making huge inroads into its own standing timber. It is impossible to travel by rail through parts of Scotland without seeing the

wholesale cutting of trees. The axe is making a clean sweep of whole woods. There are only three million acres of wooded land in the United Kingdom at the present time.

Better Equipment to Cope with Fires

(To the Editor, Canadian Forestry Journal.)

Fire Protection is distinct from Forestry, but necessary to the latter in protecting the work from destruction by fire. If we are to secure an efficient fire protection organization, it is necessary that we specialize in this class of work, appointing an expert in charge with full authority to administer the Fire Act, suggest and advocate amendments, draw up plans to meet the varied conditions in each district, to give lectures and advise, and who would hold a judicial investigation in connection with every serious conflagration.

The appointing of a Fire Commissioner with the above authority would have a beneficial effect, give powerful support to the heads of Departments and be a thorn in the side of a feeble administration.

The building of lookout towers on high ground equipped with long range field glasses, for the purpose of detecting and locating fires in the incipient stage, and connected by telephone to the various Ranger Stations so that action to have the fire extinguished at short notice can be taken, is an advance in the right direction. The equipment however, of these lookout stations, might be improved by adding the heliograph and flashlight system of signalling and the procuring of a competent operator, and in this connection may I suggest that a fully qualified returned soldier of the intelligence department or Engineers might be obtained.

All working parties, such as telephone and trail gangs, also patrolmen, should be equipped when in the

field with heliograph and flashlight so that their assistance in case of fire might be secured without delay.

The cutting of trails branching out from lookout towers to inaccessible areas to facilitate the transportation of fire fighting gangs and equipment to the scene of action is still another step towards efficiency. The construction of these trails and the mode of transportation leaves much to be desired and is not in line with the method of detection and communication. The trails on high lands through heavy timber belts should be so constructed that fire patrol by motor cycle and transportation by automobile would be possible. On lower lying areas where the timber warrants the expenditure, a narrow gauge track with power speeder for patrol and transportation is necessary. Where it is only possible to use horses, the trail should be made to accommodate a tandem of light drivers.

After locating a fire from observation post, notifying nearest ranger station by telephone or heliograph, the next step would be to make provision for a system of rapid transportation. The reaching of a fire after discovery in the incipient stage, and before it develops into serious proportions, should be the object of every fire organization. To sum up, speed and modern appliances, as advocated, by the leading authorities of our city fire departments for protection of property, are just as necessary in the protecting of our forests.

—T. Mc Naughton.

How Menace to White Pine May Be Controlled

Scouting for Infected Areas by Limit Holders' Employees, School Children, etc.—Official Measures Necessary.

Our last issue presented a valuable article by H. T. Gussow, Dominion Botanist, on the peril of White Pine Blister. The following article is a sequel and discusses the *control* of the disease. To every reader of the Journal, Mr. Gussow's authoritative statements should be of interest. What is contained in this and the March issues does not represent more than a portion of the original manuscript delivered at the annual meeting of the Canadian Forestry Association on January 15th, the lack of space in the Journal necessitating the omission of much that would otherwise be used.

With our present limited knowledge of the distribution of the disease, we cannot venture an opinion as to whether or not the White Pine Blister is already beyond control. Were it confined only to the comparatively few localities, in which it is so far known to occur, this question would present a much more favourable aspect since this area might be isolated by one or other effective means.

We have not yet at our disposal the great staff of inspectors used for scouting purposes in the United States, hence it would be a good plan to interest every person concerned. Lumbermen and rangers all over Canada ought to be on the lookout and report any cases observed; but a large and special appropriation will be required to do the preliminary work of locating the disease. This accomplished, then only can we arrive at some decision as to what can be done to control the trouble; provided, that we do not realize that the expense of carrying out such contingent

policy may be greater than the results to be expected therefrom, and which unfortunately we cannot guarantee.

Everybody a Scout.

In order to deal promptly with the situation it is very desirable to secure the co-operation of all persons interested in the white pine industry. For this purpose the first essential is that everybody concerned should familiarize himself with the symptoms of the disease, and keep a lookout for it. When any infected native white pines are found, the discovery should be promptly brought to the attention of the proper officials, together with the location of the diseased pines. This would materially aid experts in ascertaining the precise distribution of the disease. And the sooner all disease centres are known, the more quickly can the work of extermination proceed.

We must bear in mind that such searches promise to be particularly successful during the season when the spore masses are produced. A further tentative suggestions I would like to throw out at this point. In the Boy Scout organization, and indeed in our schools also, we possess a source of searchful inquisitiveness, which, if instructed and guided by their teachers, might be enthusiastically enlisted in the doing of a useful work for the Dominion.

With the reporting of observed cases of Blister Rust on pines to the proper authorities, it becomes the task of the officials to adopt the best means for eradication suggested by the circumstances of the outbreak.

Official Measures.

Let us, then, see what official meas-

ures have been or are available for coping with this disease, and what further steps should be taken, if so deemed expedient.

On learning that suspected pine seedlings had been introduced into Canada from abroad, this source of danger was promptly eliminated. The Dominion Government prohibited the importation of all five-leaved pines into Canada from anywhere abroad. Similar action has also been taken by the United States' authorities. We are, then, assured that no more diseased pines will reach this country, or the continent of America, in future.

We in the Dominion of Canada, are in a very fortunate position concerning federal legal enactments directed towards the control of destructive insects, pests, and diseases. Those familiar with the general regulations under the Dominion Destructive Insect and Pest Act will realize that we already possess wider powers under this Act than perhaps any other country in the world. But, before bringing legislative activities to bear, the preliminary work just referred to must be accomplished, and the sooner this is done, the better.

Eradication of Pine.

As far as blister rust is concerned, it is no question, in the present state of our knowledge, of treatment of infected pines, but of eradication of diseased trees. We are of the opinion that the distribution of white pines from nurseries within danger zones should be promptly prohibited, since incipient attacks, as already stated, may escape notice during inspection, and, moreover during the incubation period no reliable signs are exhibited by infected pines. Such incipient infections as represented by these stages, distributed by seedling pines, would only result in a wider spread of the disease, and render the problem of protection from diseases a very doubtful, or at any rate, very difficult matter even to the trained official.

Stop Distribution?

The issue raised here is, shall we permit the distribution of white pine,

pending the settling of the question of the extent of the menace from this disease, or shall we take initial precautions and refrain from distribution, until the true nature of the threat from this scourge has been ascertained—in other words, till we know if the menace to American white pines will turn out to be as serious as it has proved itself to European white pines, and one which has seriously affected the use of white pine for afforestation purposes in northern Europe?

I believe, from frequent discussions of the subject of control of Blister Rust in Canada, that we are agreed that extermination of suspected plantations, if faithfully carried out, and if coupled with replacement of the same by healthy trees will do more towards stamping out the disease than periodical and difficult—and, at that, inefficient—inspections.

Inspection Very Costly.

Periodical inspection of nurseries has been often recommended. But, from actual experience, it has been learned that the closest inspection possible will not reveal all infected trees, and new infections will be found year after year. In the United States, where the disease is widely prevalent, it has been found that, in many cases, the cost of continued inspection will more than replace the diseased plantations with healthy trees, and that this latter policy would be more economical than the continuation of periodical inspection.

At least three states—New Jersey, New York, and Connecticut—have already destroyed entire shipments of white pines, when the disease was found in them. The destruction of infected plantations is the logical continuation of this policy. It will rid the country of the disease, and is, apparently, the only sure method of doing so.

Whole Grove Infected.

It is no easy matter to stamp out the disease once it appears in native pines. I recall one case at Fonthill, Ontario, where the disease appeared

in a small grove of pines. Notwithstanding careful search by expert plant pathologists, it was found impossible to cut out all infections, and new ones were found regularly after each successive visit. In this case the best proceeding would have been the destruction of all the pines, whether affected or not, in this small wood, when this centre of infection would have been wiped out forever.

We have learned that the spores from the pine infect wild and cultivated currants and gooseberries. These spores are mainly windborne, and speculation is rife as to how far these spores can be carried. This is one of the most difficult problems to solve, and has never been solved—other than hypothetically. Insects, no doubt, also play a part in the dispersal of spores. For our purposes the distance spores may be carried from an infected pine is of some importance. For, without currants, or similar hosts, within the radius covered by spore dispersal, the blister rust would eventually die out with the pines originally attacked, and no new pine infection could occur.

Carried Two Miles.

Observations made in the Fonthill case of Pine Rust already referred to indicate that the matter of spore dispersal, or rather the distance spores may originally be carried, is of less importance than the fact of the spreading of the disease from currant to currant throughout the summer. As early as June 3rd the first infections on currants near the Fonthill pines were observed. On July 6th the rust on the currants had been spread to, approximately, two miles from the original source. In this connection it may be noted that each infected currant or gooseberry bush serves as a source for the dispersal of spores. And the most widespread dispersal is, without doubt, due to the currants. This spreading of the disease in the stage of Currant Rust takes place throughout the summer, from mid-June to October: whereas, from the pine, dispersal only takes place for about eight weeks or possibly less, during April, May and up to mid-June.

For the practical purpose of locating the spread of the disease we look upon the *Ribes* bushes as welcome indicators. Thus, during the whole summer, inspection of all wild and cultivated *Ribes* may clearly indicate the limitations of the present danger zone.

Pines or Currants?

We notice, then, that the currants are largely instrumental in the dissemination of the disease within an infected locality. The Niagara Peninsula is singularly subjected to the spread of this rust. On the one hand there exist uncountable numbers of wild *Ribes*,—on the other hand is the importance of the district as a fruit-growing centre with many hundreds of large and small plantations of currants,—particularly of that most dangerous carrier, the black currant. Hence, in this area, either the one or the other host plant should be exterminated. Here it would certainly seem that all pine trees should be sacrificed.

This sounds more serious than it really is. Of course, on looking over the district there may be found numerous pines, but few are of economic value; even were it so, well, they are worth good money now, and the losses would be inconsiderable. Yet there are many trees of sentimental value. These latter will prove a great obstacle to the control of this disease. But the exemption of these trees from destruction would add thousands of dollars every year to the cost of fighting the disease; since experienced inspectors would have to inspect every single remaining tree most carefully, and cut out all infected parts. And eventually the inspector is sure to be blamed for the destruction of the trees, if he be, as most assuredly he must be, authorized to cut out infections. Yet to leave these trees alone, even if only solitary or few, would, as experience has shown, merely result in perpetuating the disease in a region so productive of secondary hosts.

(To be concluded in March issue of the Journal.)

Annual Meeting of The Association

President Miller's Report Takes Note of Conservation Progress Throughout Dominion—Directors Tell of Successful Year.

The Annual Meeting in Brief

Hon. Sydney Fisher, chosen President for 1917; Mr. Gordon C. Edwards, Vice-President.

Directors' Report stated that 1007 new members had been added in 1916. Sum of \$1310 raised for Publicity Extension. Thirty-seven public illustrated lectures given; other lectures by the "forest travelogue" outfit supplied to local speakers. Free cartoons appeared in hundreds of newspapers. Large numbers of special articles supplied to the press. School children and Boy Scouts brought into touch with forest conservation movement. Successful campaign waged in Ontario for reform of the forest protection system.

Receipts for 1916 totalled \$8,622.12 and expenditures \$8,038.37, leaving a balance of \$583.75.

The Eighteenth annual Meeting of the Canadian Forestry Association was held at the Chateau Laurier, Ottawa, on Monday, January 15th. In accord with the policy of holding no conventions until the close of the war, the day was divided into two sessions, with a business meeting in the morning and addresses and discussion in the afternoon, the attendance for the latter being particularly good. In the evening a banquet was held at the Laurentian Club.

The report of the President, Lt. Col. J. B. Miller (President of the Poison Iron Works, Toronto) with the

Directors' report, and other proceedings of the morning meeting are given in the following pages. Hon. Sydney Fisher was elected President and Gordon C. Edwards, vice-president for the current year. Mr. J. T. Horne the nominee of the Fort William Board of Trade, was elected a director in succession to the late Mr. John Hendry, of Vancouver. Two changes were made in the list of Territorial Vice-Presidents, Hon. T. D. Pattullo replacing Hon. W. R. Ross for British Columbia, and Hon. W. M. Martin replacing Hon. Walter Scott for Saskatchewan.

The President's Report

The Canadian Forestry Association has passed through a year in which its national usefulness has been put to more than ordinary tests. While public interest was directly focused upon the prosecution of war, with all other patriotic concerns in abeyance, one might have anticipated a period

in which the Association would be obliged to mark time. The deepened patriotism of the Canadian people, however, has expressed itself not only in military activities but in the development of a more intelligent and generous interest in great civil undertakings such as the national movement for forest conservation.

Doubtless the strain placed upon the country's resources has compelled many people to examine more closely national sources of income and in this way the forests have assumed an interest and importance previously withheld. Then, too, the greatly increased knowledge of the management of natural resources in the countries now at war has brought us to realize our unfavorable rate of progress in the application of forestry principles.

The Public Awakening

During the past year, the Canadian Forestry Association has taken advantage to the limit of its powers of the new opportunities for propagandist work. It is gratifying to find so many evidences that Governments, corporations, and individuals recognize the reasonableness of those objects for which the Association has long contended. The record of forestry progress in 1916 alone would justify our efforts during many years past. We should regard with much satisfaction the many signs of public awakening from coast to coast and look forward to a steady advance in forest conservation in years to come.

In all parts of the world the forest conservation movement advances or lags according to the local need for and valuation upon wood supplies and the profits from commercial exploitation of forest materials. The great stimulation to the news print paper manufacturing industry in Canada during the past year, due to an increased demand from the United States, has contributed a new basis of values to Canadian spruce and balsam forests. It has equally emphasized the gravity of our preventable forest fires and brings into the foreground of profitable propositions the replanting of cut-over and barren lands by pulp and paper companies, as well as by Governments.

The "Idea of Science"

Much importance may also be attached to the work of the Technical Section of the Canadian Pulp and Paper Association which has developed remarkably during the year.

The necessity for technical study of *industry*, wherein the Forest Products Laboratories at Montreal are now playing an important part, is recognized today as never before. We may reasonably look forward to the application of scientific methods to all industries engaged in wood manufacture, thereby achieving economy and efficiency from the woods operations through to the finished product.

Ontario's Move

The action of the Ontario Government in creating a new department of forest protection under the direction of the Provincial Forester, Mr. E. J. Zavitz, may be taken as the outstanding occurrence of the past year as far as concerns the objects of this Association. The Minister of Lands, Forests and Mines has definitely undertaken not only to re-organize the forest protection system which has been admittedly inefficient for a great many years, but to support the new department in the construction of permanent improvements for fire detection and fire fighting, and to bring before the Legislature a settlers' permit law, applying the plan of 'burning permits' to at least a portion of the timbered area. If thoroughly carried out, as we believe they will be, these provisions as announced by the Minister will tend to prevent periodical destruction of lives and great losses in forest wealth.

I may be permitted to say also, that while the Association pledges itself to support the Minister of Lands, Forests and Mines in carrying out his new policy of effective forest protection, we contend that our critical attitude towards the old system in Ontario and our campaigns to stimulate public sentiment to demand a thorough reform were altogether justified. The Association's work in Ontario has been an illustration of the need for just such an independent, unhampered body working in the public interest.

In New Brunswick.

The Government of New Brunswick has undertaken a forest survey and land classification scheme which

is certain to repay the province handsomely. An accurate knowledge of the location, composition and value of forest areas, and likewise of agricultural soils is the foundation of any intelligent administration, and the plan ought to be applied in advance of settlement in all parts of the Dominion.

It is desirable to call attention to the excellent record in fire prevention on the large and valuable timber areas of the St. Maurice and Lower Ottawa Forest Protective Associations in the Province of Quebec. With over 1200 'burning permits' issued to settlers in the St. Maurice territory, not one fire got away, and in suppressing 200 fires caused by other means during the season the loss of merchantable timber amounted to only \$700 and total losses in young growth, cut over lands, etc. to about \$4200. On the lands of the Lower Ottawa Association more than 1000 settlers' permits were issued and only one fire got away, doing little damage. The proof of actual prevention of forest fire losses as provided by these Associations must soon persuade other licensees to try the co-operative plan thereby saving on the cost per acre for patrol, and multiplying many fold the degree of protection. The Quebec Government has given these Associations invaluable help by amending the statutes and regulations and the Minister of Lands and Forests is to be congratulated upon the progressive steps to which he has committed his department.

The Prairie Province.

The prairie provinces have been the scene of further activities by the Canadian Forestry Association. We first placed before the Ministers of the three Provincial Governments a proposal for the adoption and enforcement of a settlers' permit law so as to give the northern timbered districts protection against settlers' clearing fires. While the legislatures are yet to deal with the question of their 1917 sessions, we have reasons to believe that the adoption of the plan will not be long delayed.

A great work remains to be done in cultivating a better sentiment in the people of the prairies of the need for conserving their forest possessions. As shown by the Directors Report, this task has been taken in hand some months ago by effective publicity methods.

In British Columbia, the year witnessed the resignation of Mr. H. R. MacMillan, a director of the Association, from the post of Chief Forester of British Columbia to engage in private business. The services of Mr. MacMillan to his Province were of the highest order and it is a matter of gratification to know that the new government has appointed the Acting Chief Forester, Mr. M. A. Grainger, to take his place.

Damage by Fire.

Reports of fire damage to the timber of the country during 1916 inform us that without counting the number of millions that have been needlessly sacrificed, the damage occurred very largely where forest protective organization was weakest. In the Claybelt of Northern Ontario, in the Lake St. John, Saguenay, Black River and Kippewa districts of Quebec, the degree of forest guarding was not comparable with those regions, such as the St. Maurice Valley or British Columbia where organization for fire control is thorough. As concerns the Dominion chartered railways, the record of forest fire immunity along their lines in 1916 is thoroughly creditable. Practically no fires occurred which could be attributed to railway agencies.

It is fitting that some reference should be made to the remarkable proportion of Canadian forest engineers, forest students, rangers, and others in forestry occupations who have taken up military service for their country since the earlier days of the War. Quite two thirds of the technical foresters in the country have long since enlisted, chiefly as combatants, and the number of killed and wounded and of those given military honors testifies warmly to their spirit of sacrifice.

Report of The Directors

For the third time in succession the review of the Association's work is written under the shadow of the World War. Obviously, the pursuit of forest conservation ideas has been strongly influenced by the new activities, changing points of view, and more intense national spirit developed through years of strain and tragic sacrifice. While these times logically have handicapped some departments of our work, there have been many great compensations and it is the belief of the Directors that the Association has encountered its new opportunities successfully and carried out the purposes for which it was founded.

In the building up of membership and revenues, the year 1916 shows pleasing results. One thousand and seven new members were brought into the Association and this, with our gain of 450 in 1915 represents an advance of 50 per cent. during the last two war years.

Raising New Money.

In order to avoid curtailment of the extensive programme laid out for 1916, the Secretary raised a special fund, known as "The Publicity Extension Fund," amounting to \$1310 in which the following firms and persons are represented: Laurentide Company, \$200; J. R. Booth and C. Jackson Booth, \$200; J. B. Fraser,

\$100; St. Maurice Paper Company, \$25; Hon. Nathaniel Curry, \$50; Canada Paper Company, \$10; River Ouelle Pulp and Lumber Co., \$25; Sir George Perley, \$25; Riordan Pulp and Paper Co., \$25; Sir Clifford Sifton, \$100; Howard Smith Paper

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The Work in Ontario.

A considerable portion of the Secretary's time was devoted to campaigns to improve the forest protection situation in Ontario. During the first four months of the year, the chief Boards of Trade, Canadian Manufacturers' Association and other influential bodies were persuaded to take action upon the inefficient and serious conditions within the Ontario forest protective branch. As a consequence, twenty-two of the Ontario Boards of Trade and other societies working in harmony with the Forestry Association took vigorous action, placing resolutions in the hands of Government authorities. Propagandist work was greatly assisted by the writing of scores of special newspaper and magazine articles, public addresses by the Secretary, a cartoon service which was widely employed, and the co-operation of Ontario editorial comment. After the disastrous fire in the Claybelt between Matheson and Cochrane in midsummer, giving tragic point to the criticisms

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of the forest protective system, the campaign for reform was repeated on nearly identical lines, the combination of Boards of Trade, newspapers, etc., until the press of the province was practically unanimous in insisting upon a radical forest service reform along the lines laid down by the Forestry Association. Then followed investigations by the Secretary of conditions in the fire-swept districts with the result that the Association was able to present further evidence favoring the introduction of 'burning permits' for settlers' clearing fires, better patrol and inspection of rangers, and other points of improvement. Finally a large deputation representing bankers, insurance companies, manufacturers, lumbermen, forest engineers, settlers, mine owners, newspaper publishers, and many other important interests appeared before the Minister of Lands, Forests and Mines, when the subject of forest service re-organization was discussed amicably and the Government's decision announced. Ontario's forest protective service is now under a new department, with Mr. E. J. Zavitz as its chief, and there is every reason to look forward to a quick fulfillment of the Minister's assurances regarding a settlers' permit law, re-organization of the ranger system, the wider use of permanent improvements, and other modern methods capable of giving lives and timber the protection from fire to which they are entitled.

Stimulating the West.

Realizing that the outstanding requirement of the forested areas of Manitoba, Saskatchewan and Alberta is the elimination of fire losses, as far as possible, the Association undertook to bring before the newspapers, members of the Governments and Legislatures, the Grain Growers and co-operative associations, municipal associations, etc., the need of supervising settlers' clearing fires in the northern areas. This entailed a large amount of special literature, the situation being explained to the people of the West in brief illustration pamphlets, each discussing a new phase and

supplying evidence of the importance of the prairie timber possessions and the successful protective schemes in use elsewhere. While the members of the legislatures were being informed continually on this question, the Prairie Province members of the Forestry Association, numbering 900 were persuaded to write to their representatives and Ministers of the Governments, asking their support of this and other progressive enactments in forest conservation. By these and other means, the Association has stimulated Western interest in problems of the provincial forests and there seems a strong likelihood that one or more of the provincial governments will take the valuable co-operative action in fire prevention as has been outlined.

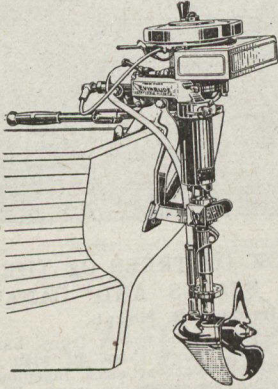
Menace to White Pine.

The finding of areas of white pine in Ontario and Quebec, infected by the White Pine Blister disease received due attention. Newspaper and magazine articles called the attention of the public to the seriousness of the menace. Illustrated literature was sent to all Eastern limit holders and, more recently, a special pamphlet, setting forth expertly the need of action in suppressing the disease, was written for us by the kindness of H. T. Gussow, Dominion Botanist, and sent to all known holders of white pine in Ontario and Quebec. Letters on the same subject supplemented the printed issues and it is encouraging to know that so many leading lumber companies have instructed their woods employees to use the Association's literature in searching out infected trees and bushes.

The Secretary delivered 37 illustrated addresses, at Winnipeg, Fort William, Sudbury, Cobalt, Haileybury, McGill University, Montreal High School; Grand Mere; Cardinal, Sault Ste. Marie, Hamilton, Brockville, Marmora, Prescott, Queen's University, Kingston; Bishop's College, Lennoxville; Macdonald College; St. Andrew's College, Toronto, Montreal, and a series of seven open-air illustrated addresses to large audiences in the Georgian Bay and

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A valuable device has developed in the free lecture outfits, or 'forest travelogues' which were placed with local speakers in Quebec, Nova Scotia, and Ontario. Two sets, each of 56 lantern slides, accompanied by a lecture manuscript on 'Guarding the Forests' have been in good demand in many parts of Canada where the Secretary cannot go personally. Reports speak of the audiences being much interested and anxious for more.

Numerous cartoons, emphasizing the value of permanent forest possessions, the immensity of the forest industries, the cause and prevention of forest fires, etc., were sent to every province and used in hundreds of dailies and weeklies.

The Publicity Bureau of the Association prepared and issued large numbers of newspapers and magazine articles of an educational nature, sometimes taking up topics of special interest to the papers of one or two provinces, such as the New Brunswick forest survey, the pit prop re-

quirements of the Alberta coal mines, etc.

Rousing the Children.

Illustrated pamphlet-lectures called 'Forestry Talks For Young Folks' were placed in the hands of 3000 school teachers in all parts of Canada, for use in their class rooms. This was managed with the consent and co-operation of local school boards and many letters have mentioned the Forestry Association booklets as being used as part of the regular reading course of pupils.

The Association has always placed much emphasis upon the education of the Canadian boy and girl in a correct estimate of the value of the forest possessions. An introductory story, dealing with the national and economic importance of perpetuating the timber supplies, the record of fire waste and other subjects was turned out under the name of the Boy Scout Forest-Book and given by us to the 15,000 Scouts in Canada. Interest was further stimulated by a revision of the Boy Scout Manual's references to forestry, through the kindness of Mr. Clyde Leavitt and other friends of the Forestry Association, with the

result that the Boy Scout may now qualify for a Forestry Badge by passing the Forestry Test.

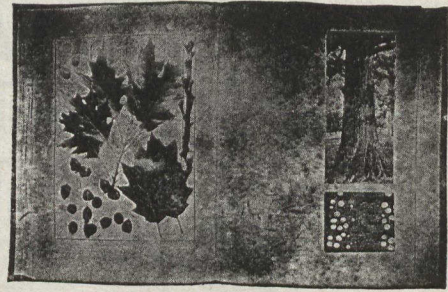
A new forest-book for French-Canadian boys, entitled, 'Le Premier Livre Sur La Foret' is now being issued and the first edition of five thousand copies will receive judicious distribution.

It is worthy of mention, too, that public illustrated lectures in the French language were arranged for and a beginning will be made in the Eastern Townships. In this undertaking the Association co-operates with the Quebec Department of Lands and Forests. The Secretary was unable to go to British Columbia for special work in 1916, as was planned, and at least four weeks will be devoted to propagandist work and inquiry in the Prairie Provinces and British Columbia beginning about the end of February.

Advisory Committee Formed.

A development of the machinery of the Forestry Association which promises important results was the formation of a special Publicity Advisory Committee, consisting of H. R. Charlton, General Advertising Agent of the Grand Trunk Railway System; A. McKim, President of McKim's Advertising Agency, Montreal, and H. d'Hellencourt, Chief Editor of Le Soleil, Quebec. In order to stimulate the use of attractive educational matter by the forest departments of the various governments, this committee will pass upon certain special schemes of educational literature prepared by the Secretary for submittal to the Governments. It is hoped that the advice and endorsement of these gentlemen will ensure a much wider circulation for such publicity devices as the Association may from time to time bring forward.

The Canadian Forestry Journal has proved of most substantial value in disseminating useful information to 4700 readers month by month and in binding together the membership. The Journal has served a valuable purpose also in creating an informed public opinion, even within the limitations of its membership, and the practical effects of this are becoming more and more evident.



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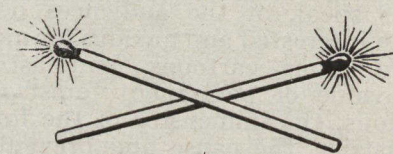
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The Merit System.

Two Special Committees presented reports. For the committee of three appointed last year to take up with the Dominion Government the matter of extending the scope of the Civil Service Act to cover the outside service of the Dominion Forestry Branch, Mr. Ellwood Wilson, convenor, stated that through correspondence the views of the Association on the merit system in public appointments had been brought before the Government of British Columbia, the Premier of which, Hon. Mr. Brewster, had pledged himself to build up the Forest Service without regard to the old patronage plan and had made an excellent commencement by the appointment of Mr. M. A. Grainger to the post of Chief Forester.

The Secretary reported for the Committee of Ten, appointed to take up with the Provincial Governments of Eastern Canada the matter of the collection and publication of uniform statistics of forest fire losses. This committee, consisting of Messrs. Leavitt, Goodeve, Prettie, Zavitz, Piche, W. F. V. Atkinson, Dwight, R. B. Miller, Grainger and Finlayson, had tried to stimulate the collection of accurate statistics by the private limit holders of Ontario, issuing a special statistical form for that purpose. A good deal of success was secured and a fresh effort will be made in 1917 to have the response more general.

Slash Disposal.

Mr. Ellwood Wilson introduced to the meeting a new field in which he thought the Association ought to be active. He advocated the formation of a committee or committees on slash disposal, also to encourage co-operation between all those interested in forestry. He thought slash disposal was worth all its cost. The benefits of co-operation of forestry activities were so extensive and so practical that the Association might well take the matter in hand. A third avenue of investigation and discussion was the taxation of forest-planted lands. Mr. Wilson moved

that a committee be appointed to take action.

Mr. Clyde Leavitt called attention to an anomalous situation on licensed timber berths in relation to the technical administration of Dominion Crown Lands. Questions of diameter limits, selection of seed trees, and brush disposal were not being given consideration as was emphatically necessary in the country's best interests.

Mr. W. B. Snowball said that his forester, (Mr. J. R. Gareau) had reported that he would experiment for next season in slash disposal by establishing an experimental camp, trying the burning of slash. At present the lopping of boughs was the general procedure.

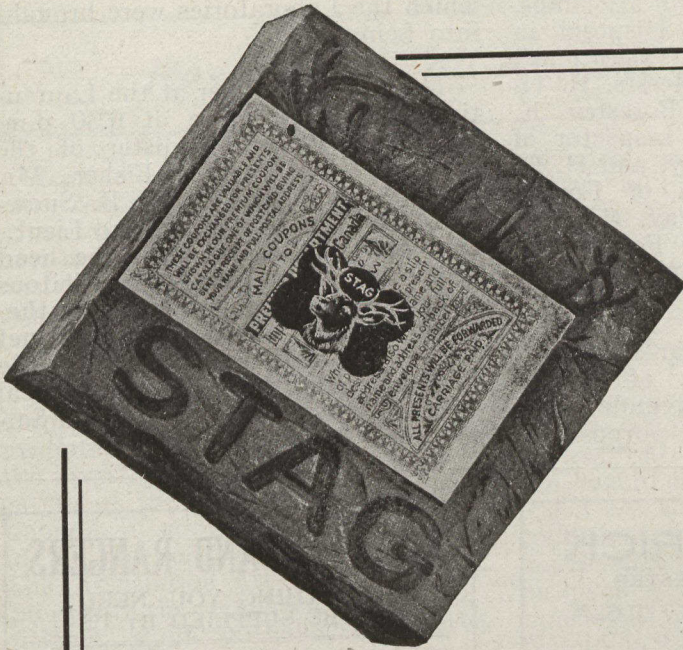
Mr. P. Z. Caverhill, Forester of New Brunswick, said that the stands were lighter and brush disposal costs heavier in New Brunswick than would be true of some other parts of Canada. Brush disposal would cost from 25 to 50 cents per thousand feet if done in the winter months.

Mr. Leavitt moved, seconded by Mr. Prettie, that a committee of five be appointed, with Mr. Ellwood Wilson as Chairman, and that the latter select the other members of the committee subject to the consent of the incoming president. Mr. Wilson's committee was afterwards entered as follows: Messrs. H. R. MacMillan, R. D. Prettie, Clyde Leavitt, T. W. Dwight, Ellwood Wilson (Chairman).

The Afternoon Addresses.

A large audience attended the afternoon meetings, attracted by a group of addresses dealing with vital questions. The excellent paper on "The Control of White Pine Blister Rust," by H. T. Gussow, Dominion Botanist, which is reproduced, in part, in this issue was supplemented by papers from G. C. Piche, Chief Forester of Quebec, and E. J. Zavitz, Chief Forester of Ontario. The latter speakers presented a thorough review of the steps taken by the Provinces of Quebec and Ontario to locate the menoce and prevent infections from spreading.

In the absence of Mr. T. J. Welsh of Bemidji, Minnesota, who was de-



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tained by labor troubles in his camps, the subject of "Slash Disposal in Commercial Lumbering Operations" was carried along by Messrs. R. H. Campbell, Director of Forestry, E. H. Finlayson, District Inspector of Forest Reserves, Calgary, and R. D. Prettie, Superintendent of Forest, Canadian Pacific Railway, Calgary. "Canada's Work in Forest Research," by W. B. Campbell, Assistant Superintendent of the Forest Products Laboratories, Montreal, gave the audience a clear and interesting outline not only of the investigations immediately under way, but of the wider scientific purposes for

which the Laboratories were brought into being.

The Annual Dinner at the Laurentian Club took place at 6.30 p.m. Hon. Dr. Roche, Minister of the Interior, Hon. Sydney Fisher, Mr. R. H. Campbell, Mr. W. B. Snowball, Mr. Ellwood Wilson and Lieut.-Col. J. B. Miller were at the head table and were heard in felicitous speeches. The enjoyment of the guests was much enhanced by clarinet solos by Mr. Fred. Bysche of the Dominion Forestry Branch and vocal solos and duetts by Mr. Stafford Salmon and Corporal White.

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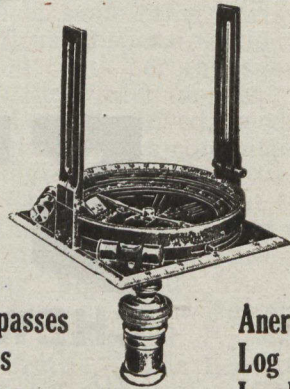
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Resolutions at Annual Meeting

Resolved—That the Canadian Forestry Association urge each provincial government in eastern Canada, not now doing so, to investigate the pine blister situation in the province especially along the international boundary with a view to the location and eradication of infections.

Resolved—That the Dominion Government be urged to make an immediate appropriation of \$50,000, for the investigation, location and eradication of the pine blister disease in Canada, in addition to the amounts to be expended by the Provinces. The Association expresses the opinion that the employment of additional plant pathologists in the Department of Agriculture is essential in this connection.

Resolved—That the Dominion Government be urged to take action, wherever necessary and in whatever manner deemed advisable, to prevent the spread of the pine blister disease from infected districts.

Resolved—That the President of this Association be asked to co-operate with the Commission of Con-

servation and with the Canadian Society of Forest Engineers to press upon the Minister of Agriculture the importance of dealing promptly and energetically with the pine blister disease, as a Dominion problem.

Resolved—That the efforts of the Association be continued in the direction of Civil Service reform, in the Dominion and Provincial fire protective services.

Resolved—That the reduction of the fire hazard through slash disposal be urged by the Association whenever conditions are favorable. It is believed that special attention should be given to this situation in connection with licensed timber berths on Dominion Crown Lands.

The Secretary of the Association was authorized to prepare suitable resolutions in connection with the death of Mr. John Hendry.

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Mr. F. H. Gage, at annual meeting, Canadian Pulp and Paper Association, Montreal.

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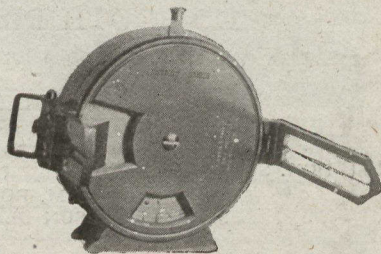
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