

# Canadian Forestry Journal

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## Forest Fires and Railways

By R. H. Campbell, Dominion Superintendent of Forestry.

The vicinity to a forest of a railway either in construction or operation makes the danger of fires more intense. This is partly due to causes connected with the railway itself, and partly due to the crowds of land-seekers, prospectors, freighters, tramps and other people equipped more or less generally with a fine bump of irresponsibility who accompany or follow it. The record of each year's conflagrations shows the railways well up in the list of the causes of forest fires. If they do not lead they always follow close in the black array. It is of interest, then, to consider the relation of the railways to forest fires. In doing so the subject will be confined to the fires which are due directly to the railways.

### Railway Construction.

In the construction of the railway it is necessary that the right-of-way should be thoroughly cleared. If dead tops, limbs and stumps are left scattered over the right-of-way or piled just outside of it, as has usually been done, they become a veritable fire-trap, and the destruction of the surrounding forest is an inevitable consequence sooner or later. The regulations for clearing the right-of-way adopted by the Transcontinental Railway Commission are now being generally followed. They provide as follows:—

“The whole, or as much of the right-of-way as the engineer may direct, shall be entirely cleared of all

trees, logs, brush and other perishable matter; all of which shall be burnt or otherwise disposed of as the engineer may direct, unless specially reserved to be made into timber, ties or cordwood. Unless directed in writing by the engineer, trees and brush must not be thrown on adjacent lands, but must be disposed of on the right-of-way. Trees unavoidably falling outside the right-of-way must be cut up, removed to right-of-way and disposed of.”

But the establishing of a regulation is not the carrying of it out, and in order to ensure the carrying out of such regulations as these thoroughly it is necessary to place a fire patrol along the line of construction. This has been done along the line of the Grand Trunk Pacific Railway through Dominion territory west of Edmonton with good results. Fire from the right-of-way has not burned forty acres outside its limits, although the right-of-way has been cleared and burned thoroughly in that district. But the ranger in charge had to use authority and judgment. Some contractors were allowing debris to gather close against the edge of the right-of-way where, when burned, it would lead fire into the forest. These contractors were stopped and made to clear a space between the brush heap and the forests. In the dry and dangerous season of the year the ranger prohibited burning altogether. The engineers of the rail-

way company, the contractors and the forest rangers all worked cordially together to attain the desired object.

With such regulations and with a good fire patrol to supervise their enforcement the danger should be largely obviated. The uncertainties of handling fire are, however, well illustrated by an incident which occurred in the clearing of the right-of-way on the construction of the Canadian Northern Railway north of Prince Albert. The refuse was being burned on the right-of-way and the clearing gang was watching the fire. A small whirlwind came down the right-of-way, lifted the fire and threw it into the bush over the men's heads and, before it could be stopped, nearly a square mile of bush was burned. In dry, windy weather such a danger is always present, and it gives pause to those who are responsible for the administration when the promiscuous use of fire for clearing land after lumbering operations or on other occasions is advocated.

#### **Clearing Right-of-way.**

After a railway has been constructed and is in operation there will still be danger if the right-of-way is not kept cleaned up and the Railway Act of the Dominion provides (as do most of the provincial railway acts in almost similar terms) that:

"The Company shall at all times maintain and keep its right-of-way free from dead or dry grass, weeds and other unnecessary combustible matter."

This provision of the Act has, at least in the newer districts, been more honored in the breach than in the observance, and yet it is one of the most critical and important measures in the prevention of forest fires in those newer districts. The Canadian Pacific Railway Company, in accordance with representations made by the Department of the Interior, are clearing up the right-of-

way through British Columbia and the Rocky Mountains by contract, and are burning the debris at safe seasons. The failure of the Canadian Northern Railway to respond to similar representations was a contributing cause to the fires which did so much damage along the Prince Albert branch of that railway during the past spring.

The necessities of the case left no choice but an appeal to the Railway Commission to have the provision of the act in this respect enforced. The question was brought to the attention of the Commission, and on the 15th August, 1910, an order was issued by the Board to the desired effect. After quoting the provisions of the Railway Act in regard to clearing the right-of-way of noxious weeds and combustible material, the order continues:

"Complaints continually come to the Board that these sections are not observed by some of the companies, casual observation in some parts of the country shows that Section 297 (in regard to the removal of combustible material) is being entirely overlooked. It is clear that many fires are communicated to adjacent lands by reason of companies not complying with these provisions of the law, entailing enormous loss. The Board deems it to be its duty to see that these sections are enforced, and to that end has given instructions that all railway lands shall be periodically inspected and full reports made of the conditions found to exist.

"This is a matter of vast moment in the preservation of timber lands as well as the protection of property of all kinds along railway lines and steps will be taken to enforce the law unless voluntarily complied with."

The immunity from fire of the forests along the lines of railway in Europe is partly due to their hauling lighter trains and using a better quality of coal, but it is largely due

to the careful clearing and keeping clean of the right-of-way. In addition, however, the forest is kept clear of dead material, and on each side of the railway a path is kept cleared even of leaves and grass, and the surface is broken up so as to provide a fire-break for ground fires.

It will be necessary to clear the dead timber from lands outside the right-of-way in Canada if safety is to be assured, and when a permanent policy of forest reserves has been established the public interest will make it profitable to do so. Where the railway lines run through reserves, as in the Rocky Mountains Park, steps are being taken to carry out such work. With the vast

The burning of old ties along the right-of-way in a dangerous season is a frequent source of trouble and should be covered by regulation so that the burning should not be done in a time of danger. Most of the railways are regulating this better now than they have in the past, but it is still a not infrequent cause of damage. Fires starting from such a cause would, however, be considered as caused by negligence and would render the company subject to action for damages under the common law.

### Locomotive Equipment.

Sparks from the locomotives are the most frequent cause of fires along

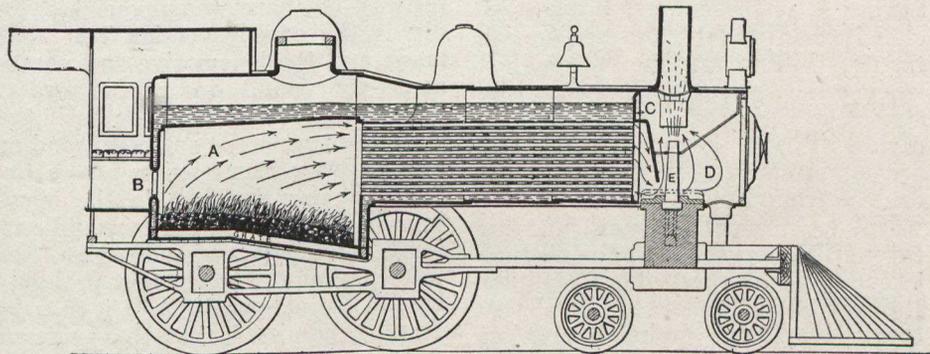


FIG. 2.

Longitudinal section of Locomotive. (A, fire-box; B, cab; C, front head of boiler; D, smoke-box or front-end; E, pipe from which exhaust steam escapes. Baffle-plate may be seen just below C and behind E.)

stretches of forest land along railways in Canada and our uncertain forest policy it is futile to advocate the general adoption of such a plan.

There should be no confusion as to the position in regard to the railway right-of-way. The present right-of-way of usually one hundred feet is sufficient for forest purposes, if it is sufficient for railway purposes, and nothing better can be done than to bring the green timber up to the edge of the right-of-way, but the right-of-way and a considerable space on either side of the right-of-way should be thoroughly cleared of dead timber and combustible material.

the railways. These may be caused by the use of inferior fuel. Wood or lignite coal will, with any screen or device, almost certainly throw fire from the smoke-stack, and it is in the newer districts back in the bush that railway companies are most likely to use such fuel. The regulations of the Dominion Railway Commission provide that no railway company subject to the legislative authority of the Parliament of Canada shall burn lignite coal on its locomotive engines as fuel for transportation purposes. Lignite coal is defined as including all varieties of coal the properties of which are intermediate between

wood and coal of the older formations. The penalty for violation of this rule is a fine of twenty-five dollars, which hardly seems adequate.

The construction and equipment of the locomotive have much to do with the tendency to throw sparks. In England the inclination has been to depend more on the plan of construction of the locomotive than on the arresting screens. In Canada and the United States screens are considered a necessity and are provided for by statutes and regulations. In the modern locomotive there is an extension smoke-box at the front end. Sparks passing through the boiler tubes forward toward the smoke-stack strike against a plate inclined downward, called a baffle plate, and are thrown to the bottom of the smoke-box whence they rise against the netting stretched across the smoke-box to divide it from the smoke-stack and are again thrown back, and so are dashed around until they are finally worn down small enough to pass through the openings of the netting. The regulations of the Dominion Railway Commission provide that every locomotive engine having an extension smoke-box shall be equipped with netting mesh, the mesh to be not larger than  $2\frac{1}{2} \times 2\frac{1}{2}$  per inch of No. 10 Birmingham wire gauge, and to be placed in the smoke-box so as to extend completely over the aperture through which the smoke ascends,—the openings of the said mesh not to exceed a quarter of an inch and one-sixty-fourth of an inch to the square inch. When the diamond stack, the old style, is used the mesh required is  $3 \times 3$  per inch of No. 10 Birmingham wire gauge and it must be placed across the stack so as to entirely cover it. The opening allowed in this case is three-sixteenths and one-sixty-fourth of an inch to the square inch.

The openings of the ashpan must be covered with iron dampers or net screens securely fastened, and the

outflow pipes from the injectors must be put into the ashpans from April to October inclusive.

With these precautions and equipment it would appear as if the question of fires from locomotives was solved, but fires caused by locomotives still continue. Is it that the equipment is not sufficient, or that it is not used and kept in proper order?

The regulations of the Dominion Railway Commission provide that the locomotives shall be inspected by an official of the railway company at least once in every week to see that the equipment is in proper order. Yet fires occur, and when the fact that a locomotive is throwing sparks is brought to the attention of the railway company the invariable reply is that an inspection has been made and the locomotive and equipment are found in proper order. From this it would appear as if the equipment were not sufficient, and as the Railway Commission are satisfied that any decrease in the openings of the netting mesh would seriously interfere with operation, the efficiency of the equipment probably cannot be increased. And it may be frankly admitted that the evidence goes to show that, even with the best equipment, a heavily loaded locomotive on a steep grade or with an unskilful driver will throw dangerous sparks.

But is an *ex parte* inspection by the railway officials sufficient to show that the locomotives are properly equipped? It would seem as if an impartial inspection applied when the case of fire-throwing by a locomotive occurs would be the surest way and the most convincing to the public for determining this question. The Railway Commission has a force of qualified inspectors, but the smallness of the force compared with the extent of the Dominion makes it simply impossible to have a close or quick inspection. To assist towards a closer government inspection the Railway Commission has arranged to give authority to

some of the permanent forest rangers in the Dominion service at divisional points on the railways to make inspections of locomotives so that inspections may be made immediately when a locomotive is reported to be throwing sparks. With this closer inspection and a careful study of the equipment it may be possible to reach a solution of the problem which will give comparative safety.

The penalty for violation of the regulations in regard to equipment and inspection of locomotives is twenty-five dollars as against the company and fifteen dollars as against an employee.

**Damages.**

The Railway Act did not until

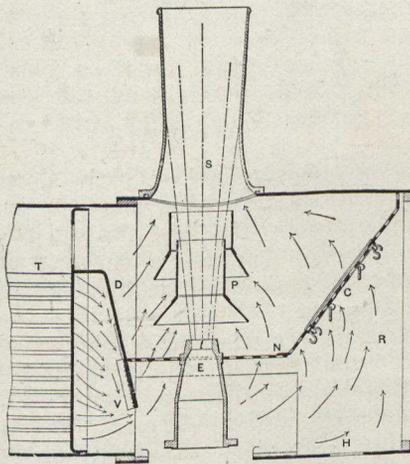


FIG. 10.

Smoke-box or front-end of locomotive. (T, boiler-tubes; D, baffle-plate, or diaphragm; N, netting, dividing smoke-box into upper and lower chambers; S, stack; E, exhaust-pipe. Arrows show direction of draft.)

1903 contain any specific provision in regard to damages for fires caused by railway locomotives. It was apparently considered that the matter was governed by the common-law principle that no person should be permitted to use his property in such a way as to result in injury to his neighbor, and decisions in various Canadian cases were given on this principle. On this point being

carried on appeal to the Imperial Privy Council in the case of the Canadian Pacific Railway Company vs. Roy, it was decided in 1902, in accordance with previous decisions in the English courts, that inasmuch as Parliament had given the railway companies authority to run locomotives they would not be liable for damages for doing so, provided no negligence was proved. It may be pointed out, however, that the wording of the Railway Act is to the effect that the railways may operate "by the power and force of steam" and does not in so many words make lawful the running of locomotives, as the English Act does. The running of a locomotive without statutory authority or the running of a traction engine along a roadway would come under the common-law principle.

As the Railway Act requires the right-of-way of the railway to be kept clear of combustible material the failure of a railway company to keep its right-of-way cleared would amount to negligence at common-law and would make the company liable for the full amount of damages sustained. This would be the case whether the fire was set by a locomotive or otherwise, so long as it originated on the right-of-way. It might be caused by burning of the combustible material on the right-of-way for the purpose of clearing, but the company would still be liable for full damages.

But in cases where no negligence of this or some other nature was shown the railway company was not, according to the decision given, responsible for damages.

In 1903, therefore, the question was brought before Parliament by Mr. L. Philippe Demers, M.P. for St. John's and Iberville, who proposed a provision to make the railway responsible for damages caused by sparks from locomotives under the common-law principle, whether or not negligence was shown. The provision proposed was, however,

modified into the following, which has also been included in most of the provincial railway acts:

"Whenever damage is caused to crops, lands, fences, plantations or buildings and their contents by a fire started by a railway locomotive, the company making use of such locomotive, whether guilty of negligence or not, shall be liable for such damage and may be sued for the recovery of the amount of such damage in any court of competent jurisdiction: provided that if it be shown that the company has used modern and efficient appliances and has not otherwise been guilty of any negligence, the total amount of compensation recoverable in respect of any one or more claims for damage from a fire or fires started by the same locomotive and upon the same occasion shall not exceed five thousand dollars."

The company was also given an insurable interest in property along its route.

While this section does not expressly include forests and timber, damages have been obtained under it for timber and cordwood destroyed, so that it may be considered as sufficiently comprehensive though it would be better if made clearer on this point.

While the railways are a great public convenience, there does not seem to be any valid reason why they should not be subject to the common law in regard to damages in all particulars the same as any other company. It has been decided by the courts that the Dominion Parliament has authority to make enactments in regard to railways acting under Dominion charters, even in matters affecting property and civil rights which under other circumstances would be wholly in provincial jurisdiction. If the Dominion statute withdraws these railways from the common law it would seem only right that the Dominion Parliament should supply the defect through its own jurisdiction.

It may be added that the Railway Commission has decided that it has no jurisdiction in damage suits.

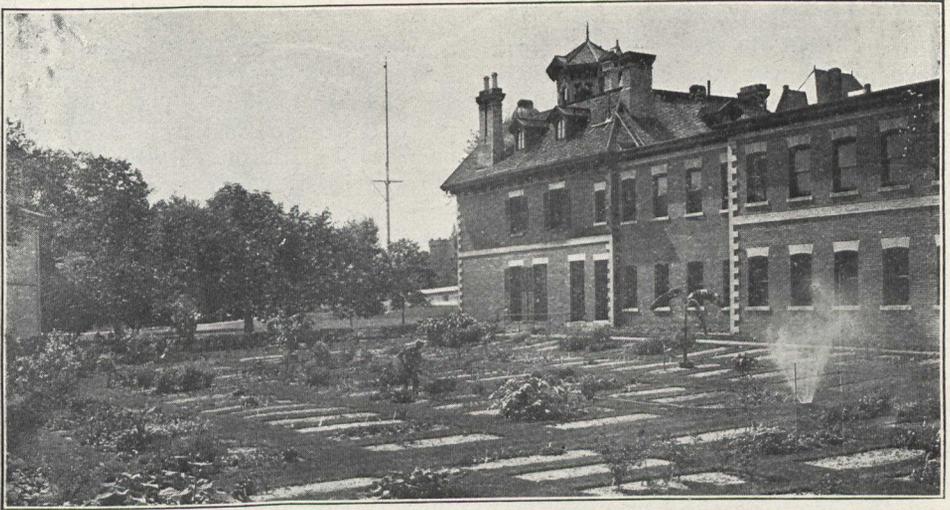
#### **Penalties.**

It is expressly provided in the Railway Act that the imposition of penalties does not affect claims for damages. As has been noted previously, the penalties for infractions of the regulations of the Railway Commission in regard to equipment and inspection of locomotives and the quality of fuel are fixed by the Board at twenty-five dollars as against the company and at fifteen dollars as against the employee. These penalties are fixed under authority given the Board to provide penalties for offences against the regulations in cases where not already provided for in the Act, but not to exceed one hundred dollars. These penalties seem small, but if rigorously enforced under a close system of inspection may be sufficient as a deterrent, which is the object desired.

Where the regulations of the Commission do not provide penalty, as, for instance, in case of failure of the company to clear its right-of-way of combustible material, section 427 of the Railway Act will probably apply. This provides for a penalty of not less than twenty dollars and not more than five thousand dollars for any contravention of, or failure to comply with, the provisions of the Act or regulations by the company or any person acting for or employed by the company; and is intended to cover any case not otherwise provided for in the Act.

The burning of ties or the clearing of the right-of-way by fire at a dangerous time are not covered by the Railway Act or the regulations, and apparently would not be covered by any penalty.

There is room for improvement of the Act in the matter of penalties, as well as of damages, to make the penalties sufficient as a deterrent and to make them cover all possible items of danger.



Forestry and Botany Building and Botanical Garden, University of Toronto

## The Forest School—A Growing Institution.

What is being done in Canada and the United States.

The pictures in this issue are largely devoted to the Canadian Forest Schools and some of those of the United States. As Hon. Clifford Sifton stated at the Fredericton Convention of the Canadian Forestry Association last February, when he established the Dominion Forestry Branch, he was told there was not one technically trained forester in Canada. Canadian schools to supply this need did not exist until the autumn of 1907, when the University of Toronto established a Faculty of Forestry under Dr. B. E. Fernow. This was followed in the next year by the establishment of a course at the University of New Brunswick, Fredericton, under Mr. R. B. Miller, a graduate of Yale Forest School. This autumn there has been opened a Forestry Department at Laval University, Quebec, with Mr. G. C. Piche, also a Yale graduate, as Director. The number of students in attendance at these schools is in-

creasing rapidly, so that Canada will soon have a number of her own trained foresters.

In the United States forestry schools have been established for a considerably longer time, and hitherto most Canadian foresters were trained at Cornell, Biltmore, Michigan or Yale.

In all these schools there is a combination of classroom and laboratory work with practical work in the woods. This is necessary in order to turn out men who can handle the varied and important work which woods operations entail. The woods sessions of the Toronto University school are held at different lumber camps in the north country. In 1909 they were on the south shore of Lake Nipissing, and in 1910 on Nine Mile Lake near Bala, Muskoka. The Fredericton school has the advantage of a cut-over area of about six thousand acres immediately behind the University cam-

pus. At Laval it is expected that students will get their practice work in connection with a Department of the Provincial forest service which has been under Mr. Piche for some years. The Biltmore School spends the greater part of each year in the United States and the remainder in Europe, all the work being carried on in or contiguous to the woods. Yale has its permanent camp for the junior year at Milford, Penn., while the senior year woods work is taken at a lumber operation, generally in Texas or some other point in the south.

This year the Secretary of the Canadian Forestry Association visited the camp of the Toronto school at Nine Mile Lake, as described in the last issue of the *Journal*, and later spent two weeks at Milford. There were twenty-four students and four instructors at the former; and sixty students and ten instructors at the latter. In both the young men were of a vigorous, self-reliant type; those at Milford being probably a year older on the average than those at Nine Mile Lake. Yale has at Milford a very complete plant situated on the estate of the late James W. Pinchot (father of Mr. Gifford Pinchot) who with other members of his family was the founder of the school. This is a hilly cut-over country, long settled, but so

much better for timber-growing than for farming that it is gradually getting back into timber, except in the bottom lands. The practice grounds are on the estate itself and on several of the neighboring estates (properties of 800 acres or so) which are controlled by the school. There are four permanent frame buildings, viz., two classrooms, a dining hall and an office, while instructors and students live in tents which are erected in two long lines near the classrooms. As most of the tents are occupied by but one person there are something like sixty tents in the camp. This woods course which begins about July 7 lasts ten weeks and is the introduction of the student to the study of forestry. Those who do not like the sample, or who cannot stand the pace, do not go on to New Haven for the further course.

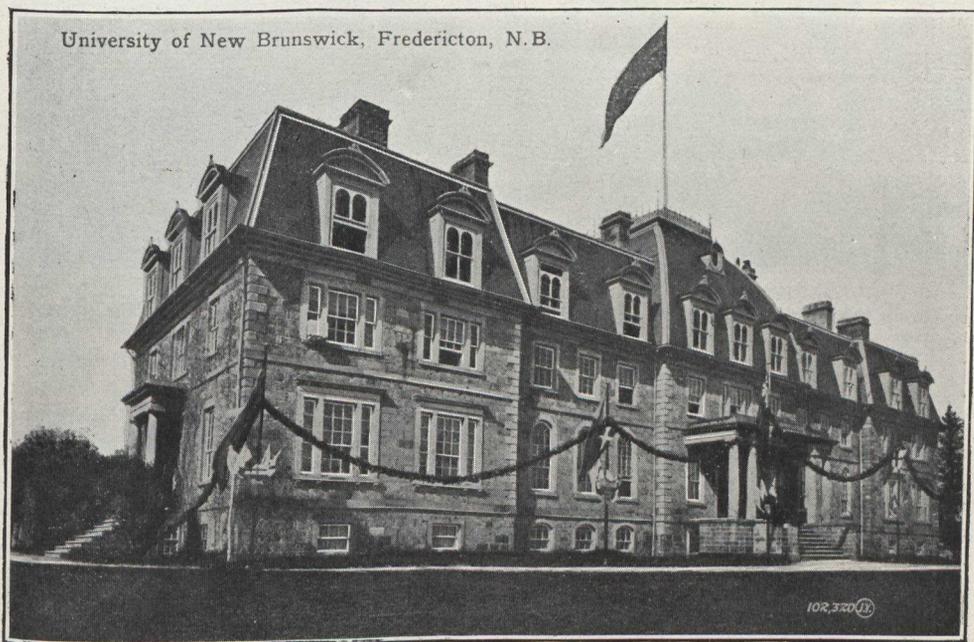
At Milford the boys rise at 6.30, breakfast at 7, then gather in the classrooms to receive instructions for the day's work, then to the fields for surveying, or to the woods for forest mensuration or dendrology. Those who go to points at some distance take lunch with them and return about 5 p.m. It is generally warm work in the woods in July and August, and there is usually time for a dip in the swimming pool of the Sawkill River before dinner at 6. After dinner the boys make up their



Making up Tables and Reports. Toronto University Camp.

reports and work out their yield and volume tables, being usually busily engaged until bedtime. There are thus many points of similarity between the work at Milford and that at Nine Mile Lake described in the last issue of the Journal. In fact the types of men in the two camps were so similar that if the Canadian camp were held in warmer weather, when the men would wear lighter clothing, it would be impossible to tell, without knowing individuals,

Assistant Professor of Forestry, was in charge of this year's camp. As noted in the case of the Toronto school camp the life is a strenuous one, and a forest school course is only for the vigorous and the fit. The pace is too hot for delicate young men, for whom, in spite of erroneous impressions on the part of some fond aunts and mammas, forestry is not "just the thing." Milford has one other advantage in that it is nearly free from mosquitoes,



Main Building, University of New Brunswick, containing Forestry Dept. headquarters.

whether a given photograph represented one group of men or the other. Yale is the school from the head of which Prof. H. S. Graves was taken last winter to become United States Forester, after the dismissal of Mr. Gifford Pinchot. The present head of the school is Prof. J. W. Toumey, Acting Director, who has been for many years connected with Yale Forest School as Professor of Silviculture, while Mr. R. C. Hawley,

which accounts for the scanty clothing as shown in some of the pictures. The Secretary had not an opportunity of going out with the boys of the University of New Brunswick, but he tramped over a part of their wood lot behind the main building and secured some photographs of them at work in the woods to use in his lecture work, which will later appear in *The Journal*.



Group of Students at Yale Forest School Camp, Milford, Penna., U.S.A. The view shows Part of the Camp.

## Nova Scotia Water Powers

By W. G. Yorston, C.E., Sydney, N.S.

(Extracts from a paper read before the Nova Scotia Society of Engineers at the annual meeting of the society for 1910.)

I may say at the outset that I have been connected with the water-powers of Nova Scotia long enough to have become an enthusiast on the subject, and it is some time now since I arrived at the conclusion that our water-powers are destined to become of great value in our industrial life, and I think that my conclusions are amply justified by the increasing development of water-powers in the province. At the same time I am fully aware that the water-powers we have do not for one moment compare in magnitude with these in some of the sister provinces of the Do-

minion; still this does not alter my opinion that even the comparatively small powers we have are of great value and will ultimately be all taken advantage of and used as powers to turn the wheels of some kind of factory.

The province of Nova Scotia, for its size, is one of the richest in the Dominion of Canada and its resources for the most part are only in the beginning of their development.

### White Coal or Black?

At this date it is beginning to be realized that our forests are being

rapidly depleted and we are awakening to the fact, besides, that much of their timber has been sacrificed. It is not at all improbable that in a few years more will be heard a similar cry with regard to our coal deposits. In this age the people are beginning to take cognizance of the fact that the great natural resources of the country are valuable and worthy of preservation and that to continue to barter them away, as in the past, for a mere pittance is the worst kind of folly. Already in the province of Nova Scotia a halt has been called in the reckless disposition of Crown lands.

Before the perfection of the steam engine water-powers were largely relied on to furnish power for all kinds of industries, but after the steam engine came into general use steam power gradually supplanted the old water powers, and this was largely contributed to by the cheapness of coal. Of late years, however, there has been a marked increase in the price of coal, and as far as can be seen at present the prices will not again decline, but on the other hand will most certainly further increase. This being so, it is almost inevitable that our water powers will begin to receive more and more attention, in spite of the fact that further improvements will undoubtedly be made in the economy of the steam engine.

#### **Data Imperfect.**

The province of Nova Scotia has no large rivers and the watersheds on which water may be collected are comparatively small. Six hundred square miles is about the area of the largest watershed in the province that the writer is aware of, and the average watershed area of streams is probably not more than one-third that amount. This is compensated for to some extent, however, by the fact that many of our streams have a rapid descent and offer fairly high heads for the utilization of the water. In the province there are

powers to be found capable of development under heads of from 100 to 400 feet, although in every case where such high head exists the watershed is limited in extent. I may say in this connection that I have investigated one water-power having but ten square miles of watershed which is well worth development, as there is a total fall of 275 feet in a little over two miles, as well as practically unlimited opportunities for storage of water on the watershed.

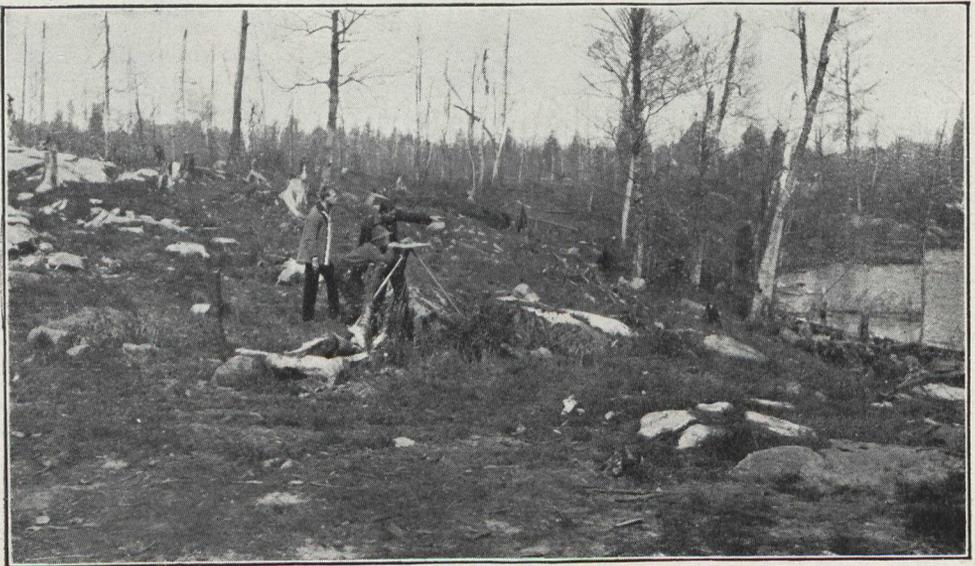
In all parts of the province there are water-powers which are well worth development and which have not so far received attention. On others of our streams the development is fairly well advanced, and some few of our rivers, particularly the Mersey and St. Croix, are at present generating quite an amount of power. At the same time no one of our streams has the development of its full power completed, and in general it is true that so far our power developments have been on those streams which have the greatest amount of natural storage in the shape of lakes, and practically nothing has been done in the way of creating storage artificially, in order to improve the powers on streams having a deficiency of natural reservoirs.

It is most unfortunate that so far no data as to stream flow in the province of Nova Scotia is obtainable. The only information to be had bearing on the subject is the rainfall records taken at a few places in the province. It is not often that even the rainfall records for the immediate locality of the stream are to be got, and recourse must be had to records for other places, distant sometimes over a hundred miles. It is evident that calculation based on such data must be after all only an approximation; the accuracy of which will depend in large measure on the judgment and experience of the one who is making them.

### How Powers Might be Utilized.

At this date so little demand for water-power has been in evidence that all the facts in connection with some of the best Nova Scotia water-powers are not even fully known. It is found that, as a rule, the majority of our large factories are located in the large centres of population, and for many of the different factories there are considerations which make this imperative. At the same time

we should be a unit as regards anything that makes for the betterment of our native province. Already our progressive spirit has shown itself in much of our recent legislation, and in at least one or two regards we lead our sister provinces of the Dominion of Canada. To bring the country to its highest development it is absolutely necessary that all Nova Scotians should become imbued with an abiding faith in their native province and its resources—not a passive faith such as has perhaps marked us

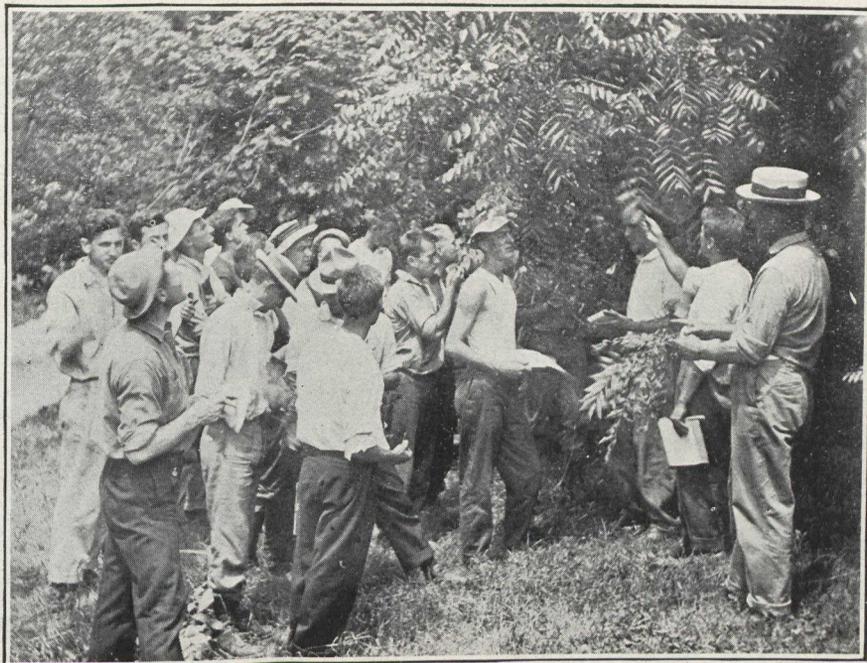


University of Toronto Forestry Students making plane-table survey of Nine Mile Lake.

there are very many uses to which our scattered powers could be put, of which the more vigorous prosecution of our mineral development is only one. Besides very many of our powers are sufficiently large to warrant the expense of quite lengthy transmission lines in order to utilize the power at some more convenient point where manufacturing can be more economically carried on.

Whether or not we are of one mind as to how our water power problems should be solved, as Nova Scotians

in the past, but a faith in our future prospects so intense as to dim the most enticing allurements from abroad. When we have all realized that in our native province we possess as goodly a heritage as could be allotted to mankind, and when we shall all have the courage of our convictions and put our energies and cash into industries and developments at home, instead of looking for investments abroad, then will come our full measure of prosperity. And who shall know the limit of it?



Class of Yale Forest School studying Trees, Prof. Toumey at the right.

## With Other Forestry Organizations

Notes on the Work at Washington and Philadelphia.

During the summer the Secretary paid a visit to the city of Washington where he consulted the Secretary of the American Forestry Association, Mr. E. A. Start, upon methods and details of organization. The American Forestry Association is considerably older than our own association, and to a certain extent has been the model upon which the Canadian Forestry Association has been moulded, though, of course, each has developed in its own way along certain lines, as circumstances indicated. The American Forestry Association has a suite of offices in the Maryland Building and a very complete equipment for carrying on its work. Mr. Start gave up his time most kindly and endeavored to put

Mr. Lawler in touch with everything found valuable in the working of the society. Previous to assuming the secretaryship of the American Forestry Association, Mr. Start was Secretary of the Massachusetts Forestry Association, and has thus had a great deal of experience in the work.

At the conclusion of these interviews, Mr. Start took Mr. Lawler to the office of the United States Forest Service and introduced him to the officials there. Mr. H. S. Graves, United States Forester, was then on an inspection trip in the west, but Assistant Forester A. F. Potter gave a bird's-eye view of the immense work carried on by the Forest Service. Following this up, the Secretary had several interviews with Mr.

Bristow Adams, in charge of publications for the Service. The Service takes the view that educating the public is a part of its work, just as in the other branches, and in consequence a corps of lecturers is kept in the field giving the principles of forestry as related to the farmer's woodlot, the city street and park and the lumber forest. Pictures are used in this work to a great extent and the Forest Service has filed for use over 30,000 photographs illustrating forestry in America in all its bearings. Besides this from these have been made several thousand lantern slides which are used by the lecturers in illustrating their talks. Other photographs are reproduced in large size and series of these suitably mounted are sent from public school to public school throughout the United States so that the children may learn the value of the forest, the dangers arising from deforestation and the criminality of leaving unquenched camp fires, and, on the other hand, what can be done by good lumbering and by reforestation in either keeping up the forest or replacing it where it has been destroyed. Besides this there are issued numbers of most useful bulletins on all these things and on insect and fungus pests, etc. In fact the publications branch of the Forest Service is a large department in itself and doing an immense amount of work which so far no government has yet attempted to do in Canada.

Another aspect of the work was touched when the Secretary visited Philadelphia and called upon Mr. F. L. Bitler, Secretary of the Pennsylvania Forestry Association. This Association is one of the oldest in the United States, and as a result Pennsylvania has on its statute books excellent laws in regard to forest fire protection. The state has also bought back about one million acres of land and is devoting it to forestry. Pennsylvania, in addition to the economic and agricultural aspect of forestry, has devoted much attention

to the health side, and has a number of sanatoria in the state forests, besides throwing these forests open to the people of the state as healthful camping grounds. Forestry by private individuals has also received much attention in Pennsylvania, and there are to be heard glowing accounts of the success of some of the pioneers in this line. This does not refer in this instance so much to careful lumbering of timber tracts, which is now beginning to be in evidence in many parts, but to the purchase of abandoned farms or of burnt-over and cut-over tracts and the getting of them back into timber. The people of Canada will make a mistake if they think that the people of the United States are not becoming aroused to the forestry problem, and a still greater one if they think that Canada is the first on this continent to take restorative measures. Canada had, as compared with most states, a better method of timber disposal, but as to applying the remedy for wrong conditions much more has been done south of the boundary line than north of it.

The trip throughout was a most informative one, and the Secretary hopes to be able to incorporate in his work much that he learned in Washington and Philadelphia.



### **RAPPORT ANNUEL EN FRANÇAIS.**

Le rapport annuel en français, de l'Association Forestière Canadienne, est maintenant prêt à être imprimé.

L'année dernière, l'édition a été de 2000 copies qui furent distribuées promptement.

Que tous ceux qui désirent recevoir une copie de ce rapport soient donc assez bons de notifier le Secrétaire aussitôt que possible, afin que le nombre imprimé soit suffisant. Ce rapport, comme les autres publications de l'Association, sera naturellement gratis pour les membres et pour les autres intéressés dans la cause.



Main building of Laval University, Quebec, where a forest school has just been opened.

## Monseigneur Laflamme

On se rappelle combien ces deux phrases pleines d'horreur dans leur simplicité: 'Madame se meurt. Madame est morte,' produisirent, comme le dit Bossuet dans une de ses oraisons funèbres, de surprise et de consternation. A cette nouvelle, ajoute le brillant orateur, tout le monde se sentit frappé, comme si quelque accident avait désolé sa famille. Ce que Bossuet disait de la mort de la princesse Henriette, nous le pouvons dire, et avec combien plus de raison, de la mort de Monseigneur Laflamme.

En effet, Monseigneur Laflamme s'était fait partout, et au sein de l'université, et dans sa province, et dans le Canada, et à l'étranger, une réputation de savant et de vertueux prêtre. Il avait contribué à jeter beaucoup d'éclat sur l'enseignement

universitaire et à montrer, une fois de plus, que le clergé Canadien sait à la vertu ajouter la culture intellectuelle.

Ceux qui, comme moi, l'ont connu dans l'intimité et comme professeur, savent combien agréable était son commerce et combien captivantes ses leçons. Réalisant, qu'un professeur d'université ne doit pas uniquement se consacrer aux études qu'il est chargé d'enseigner, mais doit, au contraire, avoir des connaissances générales, universelles, il s'était intéressé à tous les problèmes que la science a posés et que l'intelligence humaine a tâché de résoudre. Et c'est l'étendue de son savoir, aussi bien que le pétillant de son esprit, qui rendait sa société agréable, et le faisait rechercher par quiconque le connaissait.

Il était réellement né professeur; dans un style sobre, imagé, alerte, semé de pointes fines, il savait faire passer dans l'esprit de ses élèves, les connaissances variées, que lui avait données le commerce assidu de livres bien choisis, et qu'il s'était assimilées avec une rare facilité, et les nombreuses observations, qu'il avait cueillies au cours de sa longue expérience, de ses courses géologiques et de ses missions scientifiques.

Né à St-Anselme en 1849, il était, après de brillantes études, nommé professeur de Science Naturelle, à l'âge de 22 ans, et il ne cessa d'enseigner que l'an dernier. Sa haute culture et son profond savoir lui valurent des honneurs et des charges, qu'il n'avait pas recherchés, craignant qu'ils ne prissent trop de son temps consacré à l'étude,—et dont il se trouvait indigne, tant il était modeste. 'Recteur de l'Université, membre fondateur de la Société Royale du Canada, dont il fut président—1891-92,—protonotaire apostolique, chevalier de la Légion d'Honneur, membre de nombreuses sociétés savantes d'Amérique, de France et de Belgique, les dignités religieuses, civiles, académiques lui vinrent tout naturellement.'

On sait qu'il se dévoua, au cours de sa carrière féconde, tout spécialement à la géologie et qu'il ne contribua pas peu à enrichir de découvertes précieuses—(mentionnons celle des terrains quaternaires de l'île Anticosti) — les observations antérieures des géologues Canadiens. Mais s'il fut savant géologue, il ne fut pas moins forestier averti, et c'est surtout parce qu'il fut ceci, qu'on lui doit, dans cette revue, une

très large place. En effet, il a réalisé combien c'était une œuvre sociale et patriotique que d'encourager les Canadiens à conserver leurs forêts, à ne les exploiter que méthodiquement afin de ne les pas détruire. Il a mis toutes ses énergies à éclairer, en la province de Québec, l'opinion publique sur ce point, et il n'a pas peu contribué à refaire à ses compatriotes une mentalité nouvelle en ce qui a trait à l'exploitation forestière. C'est lui, qui, soucieux de notre richesse forestière et de l'avenir d'icelle, a préconisé la création d'une école, où des ingénieurs forestiers seraient formés pour veiller à l'exploitation judicieuse et raisonnée de nos bois. Cette école, dont le gouvernement Gouin vient de doter notre province, est une des œuvres dont Mgr. Laflamme désirait ardemment la réalisation. Il s'est à ce point identifié avec cette œuvre, au succès de laquelle il a travaillé de toutes ses forces, qu'elle est pour ainsi dire sienne, et qu'on souhaiterait qu'elle porte son nom.

A Monsieur Piché et à moi, il a prodigué, sans compter, ses avis précieux, guidant pour ainsi dire nos premiers pas dans la carrière nouvelle, que nous ayons, sur ses conseils, embrassée; aussi, sa mort nous a-t-elle été particulièrement pénible, nous a-t-elle profondément affectés.

Cette école, qui lui tenait tant au cœur, elle est née avant qu'il meurt, et il a pu dire avant de s'en aller ces paroles du poète :

'Mes arrières-neveux me devront cet ombrage.'

AVILA BEDARD,  
Ingénieur-forestier.

In the death of Mgr. J. C. K. Laflamme, which occurred on July 6 last, the Canadian Forestry Association and the cause of forestry in Canada sustain a severe loss. In the work of the Association Mgr. Laflamme had since 1905 held the position of director, and at the convention in 1906 delivered a paper on 'Forestry Education.' In the propaganda of

forestry Mgr. Laflamme was enthusiastic and assiduous, especially in his beloved native province, and it is a matter of deep satisfaction to his many friends and admirers that he should have lived to see the inauguration of the forestry school which he had so long desired and worked for, and which it has been proposed to name after him.

Mgr. Laflamme was born in 1849 at St. Anselme, P.Q., graduated in arts and theology from Laval University, Quebec, and at the age of twenty-two was called to the chair of natural sciences in his alma mater. The duties of this position he continued to discharge until last year. For several years he had been rector of Laval University. While best known for his work in geology, he was almost equally at home in other sciences and his learning covered a wide range of subjects. His ability and learning were widely recognized. He was a charter member of the Royal Society of Canada and was president of the society in 1891-2. He was also a member of a number of learned societies in the United States, France and Belgium. In 1892 he was named Bishop of Chicoutimi, but declined the office; in 1894 he was appointed by the Pope as Apostolic Prothonotary, the appointment carrying with it the title of Monsignor. He was also a chevalier of the French Legion of Honor.

As regards his qualities as a man and a teacher no better characterization can be given than that penned by his old pupil, the author of the above article: 'Monsignor Laflamme made for himself everywhere, in the bosom of the university, in his own province, in Canada and abroad, a reputation as a

savant and as a virtuous priest. He has added lustre to the university teaching and shown once more that the Canadian clergy know how to add to their virtue intellectual culture. Those who, like myself, knew him intimately and as a professor know how agreeable was his companionship and how captivating his lectures. Realizing that a university professor must not confine himself solely to the studies with the teaching of which he is charged, but must, on the other hand, have general, even universal, knowledge, he interested himself in all the problems which science has proposed and which human intelligence has tried to solve. And it is the extent of his knowledge, as well as the brilliance of his mind, that made his society agreeable and made him sought after by everyone who knew him. He was really born a professor; in a style dispassionate, filled with imagery, alert, bristling with fine points, he knew how to transmit to his students the various branches of knowledge which his constant communion with well chosen books had given him and which he had assimilated with a rare facility and the numerous observations which he had gleaned in the course of his long experience, from his geological courses and his scientific missions.'



Voyageurs en route to Hudson Bay.

# United States National Conservation Congress.

## A Brief Epitome of the Work of the Meeting at St. Paul.

The second annual National Conservation Congress of the United States was held at St. Paul, Minnesota, U.S.A., Sept. 5-8. The Congress was addressed by many men distinguished in the movement for conservation, including President Taft and ex-President Roosevelt.

The sessions of the Congress were by no means entirely academic. The practical question of whether the state governments or the federal government should control the disposition of natural resources was brought up by some western and southern delegates, and provoked some lively and at times acrimonious discussion. President Taft expressed himself in favor of state control, but Colonel Roosevelt strongly insisted on the control of resources by the nation. Those in favor of national control won, though the resolutions adopted by the convention approved a scheme of co-operation between state and federal authorities.

The chairman at most of the sessions was H. N. Baker, president of the congress, and at some of the meetings it is stated twelve thousand people were present. The delegates were welcomed by Governor Eberhardt of Minnesota.

### President Taft.

The great event of the first day of the Congress was the speech of President Taft, who was warmly received. He traced the growth of the conservation idea, paid a tribute to ex-President Roosevelt for his share in promoting it, and voiced his own gratification at his opportunity for carrying it out. Conservation was not a matter of politics, but a business matter affecting every citizen.

The body of President Taft's talk was a review of federal land policies and laws. The lands he divided into six classes, namely, (1) agricultural lands, (2) mineral lands, (3) forest lands, (4) coal lands, (5) oil and gas lands, and (6) phosphate lands. Among other things he recommended the repeal of the Timber and Stone Act.\*

\*NOTE.—The Timber and Stone Act, passed in 1878, provides that government land deemed unfit for agriculture may be sold at the rate of \$2.50 per acre for the timber and stone thereon. It is claimed that under this Act much valuable land has wrongly passed out of the possession of the United States government.

Touching on the national forests (the present area of which is some 144,000,000 acres) he foreshadowed the addition to them of other forest land now owned by the government and the elimination from the national forests of agricultural land. The losses from forest fires throughout the United States he estimated at \$50,000,000 per year. It was in the power of the state legislatures, he believed, to require the enforcement of regulations in the general public interest as to fire and other causes of waste in the management of forests owned by private individuals and corporations.

### State versus Federal Control.

At Monday afternoon's session the chief conflict on the question of federal vs. state control took place.

Federal control was favored by Governor E. F. Noel, of Mississippi, Governor W. R. Stubbs, of Kansas, and Senator Beveridge, of Indiana. State control was championed by Governor E. L. Norris, of Montana, Governor M. E. Hay, of Washington, and Governor R. B. Brooks, of Wyoming. Governor Deneen of Illinois pleaded for co-operation between state and federal authorities.

An exciting five minutes was contributed by Governor Stubbs, who, after Governors Hay and Norris had spoken strongly favoring state control, arose and delivered an impassioned tribute to ex-President Roosevelt and ex-Forester Pinchot.

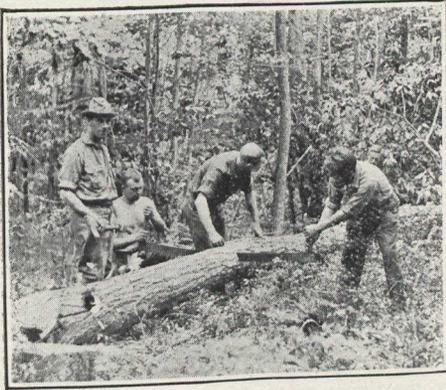
### Senator Knute Nelson.

Senator Knute Nelson, of Minnesota, also addressed the congress on 'The Public Land Laws.' He favored co-operation between the state and the federal authorities in the development of water power under present conditions, where the state owns the water rights and the federal government the site.

### Col. Roosevelt.

On Tuesday morning, when Col. Roosevelt addressed the congress, the attendance was even larger than that on the day before when President Taft spoke. Five minutes of hearty cheering greeted Roosevelt on his introduction.

In his speech he emphasized the importance of the lakes-to-gulf waterway. He noted also the fact that the railways controlled the water-front in nearly every city from St. Paul to the Gulf, and urged that a close watch



Cutting Test Trees, Yale Forest School Camp.

be kept on the railways, in order to prevent them from controlling the boat lines; and that adequate terminal facilities be provided in every city on every improved waterway.

He next pleaded that the people should stand at the back of the Appalachian and White Mountain forest reserve movement and ensure the passage of the bill creating them.

The forest fires of the present season proved the need of forest fire protection.

The forest reserves, he reminded the audience, served not only timbermen, but cattlemen, sheepmen and miners as well, and protected the water supply of many towns, as well as that of numerous irrigation and power schemes.

Col. Roosevelt also favored the creation of a country life institute, for the disseminating of knowledge relating to country life, and of a federal bureau of health with the object of minimizing disease and prolonging life.

He noted the failure of the national conservation commission through the lack of Congress to provide funds, and commended the work of the National Conservation Association and of the Congress.

'The most effective weapon against the great corporations will be federal laws and the federal executive' summed up his pronouncement in regard to control of resources. In spite of many misconceptions, conservation was making good progress.

#### Water-power Monopoly.

Herbert Knox Smith, U. S. Commissioner of Corporations, spoke on the prevention of water-power monopoly. The entire water-power of the country was about 5,300,000 horse power; of this 3,200,000 horse power (three-fifths of the whole) was in the hands of a few capitalists. Four concerns dominated the water-power interests of the United States. One group of capitalists (fifty-three in number) controlled one-fourth of the water-power of the United States. As for remedy the government, he believed, could impose any restrictions it wished. Federal

and state governments must work in harmony and use their full power in regulating the water-power-owning corporations.

Jas. R. Garfield, former Secretary of the Interior, gave a clear outline of what the Roosevelt policies are, and told something of the inside history of the public land laws and of the Roosevelt administration's history and motives.

The remainder of the afternoon session was devoted to a discussion of the respective spheres of the federal and the state governments. The tenor of the discussion was strongly in favor of co-operation between the two authorities.

#### James J. Hill.

The great address at Wednesday morning's session of the convention was given by James J. Hill, the well-known railway magnate. He spoke strongly in favor of 'state rights.' The mines, he thought, could best be administered by the state authorities, and cited the conduct of the iron mines of Minnesota in support of his view. The forest service also came in for criticism on the ground of excessive expenditure. Water-powers also should form part of the state's capital. Federal control was, in fact, illegal. Administration of public lands by the federal authorities had given rise to far more abuse, proportionally, than state administration.

Mr. Hill devoted a large part of his address to soil conservation. He contrasted European, especially Danish, methods of soil management with methods in vogue in the United States, much to the advantage of the former.

Speaking of 'conservation of capital,' he condemned extravagance in public expenditure, censuring what he considered undue expenditure in the carrying out of work undertaken to conserve resources. In some respects the tariff was an enemy of conservation, promoting the use of home products when imported products could be used just as well, and when their use would save home resources.

On Wednesday evening Frank M. Chapman, curator of birds in the American Museum of Natural History, New York, lectured on 'Practical Bird Conservation.' He spoke particularly of birds as conserving forests through their destroying many of the insects that attacked the trees. What spraying was to orchards, birds were to the forest.

#### H. S. Graves.

H. S. Graves, Forester of the United States, was the chief speaker at Thursday's sessions. Conservation, he said, had reached a critical point. Everyone now admitted the desirability of it, but when it came to putting conservation into practice, and spending money in carrying it out, whether in public or private business, indifference, and even opposition, came in.

In spite of some increase in lumber prices,

the people at large did not realize the need of immediate action looking to the preservation of the forests, whether for the sake of a future timber supply or with the object of preventing soil erosion and regulating stream flow.

The forest problem was particularly difficult. From forty to one hundred years were required to produce timber, and this meant a long-time investment. By this circumstance and through the risk of fire, burdensome taxation and the present uncertainties of market, few lumbermen were at present practicing forestry. Some method must be devised to remedy this state of affairs. On the individual states rested the first responsibility. Not only was it necessary to appoint state foresters and make forest laws, but these laws must be enforced, a forest fire protection system instituted and a sufficient supply of money appropriated to carry on the work.

The federal government must administer the forest lands held by the nation. This administration must have regard, primarily, to their continued use, rather than to use which will exhaust their resources. The first task was to protect them from fire: first, by building a system of roads and trails, to ensure adequate patrol and easy despatch of men to any part of the reserve where fire happened to be, and telephone lines for quick communication. The second necessity was a well-organized force of rangers and guards for patrol and fire-fighting.

The National Forests were for use and were administered primarily for the benefit of the communities in which they were located. The Forest Service aimed to manage these forests, not only with a view of utilizing the timber and putting it to the best use, but also to make the best use of the other resources of the reserves.

#### **New York Methods.**

J. S. Whipple, Forest, Fish and Game Commissioner of New York State, outlined what had been done in his state in the line of fire protection and prevention in the forests, and also in reforestation work. Development and prevention of waste he characterized as the chief principles of conservation.

Franklin McCray, of Indianapolis, held that as many of the land grants made by the United States Government had been secured by fraud, the government should cancel such grants and restore the land to the people.

#### **Gifford Pinchot.**

Gifford Pinchot, former Forester of the United States, spoke next and was enthusiastically received. He said the struggle between monopolists of certain resources and the advocates of conservation had been forced by the former. First, last and all the time, the interests of the people must be put ahead of the interests of the few. Natural resources still owned by the people which are necessities of life, such as coal and water-power,

should remain in public ownership and only disposed of under lease for short times and for adequate rentals. Co-operation between states and federal government was a necessity. He went on to outline various lines and methods of work which should be undertaken in the interest of the conservative management of the public domain.

#### **Other Interests Represented.**

Among the many others who spoke and their subjects were: W. W. Finley, president of the Southern Railway, 'The Interest of the Railways in National Conservation'; Dr. Franklin L. McVey, president of the University of North Dakota, 'Rational Taxation of National Resources'; Prof. Liberty H. Bailey of Cornell University, 'The Importance of the Country Life Movement'; E. T. Allen, forester, Western Forestry and Conservation Association, 'The Need of Forest Fire Protection'; Alfred L. Baker, Chicago, 'The Stake of the Business Man in Conservation'; Prof. F. L. Westbrook, dean of the Medical College of Minnesota, 'Life and Health as National Assets'; Mrs. Matthew T. Scott, president of the Daughters of the American Revolution, 'Conservation True Politics'; Francis J. Heney, San Francisco, 'Safeguarding the Property of the People.'

#### **Officers Elected.**

The election of officers took place on Thursday evening and resulted as follows:—

President—Henry Wallace, Des Moines, Iowa.

Executive Secretary—Thos. R. Shipp, of Indianapolis, Ind.

Corresponding Secretary—Jas. Gipe, of Indianapolis, Ind.

Treasurer—D. Austin Latchaw, of Kansas City, Mo.

Vice-Presidents were also elected, one from each state.

Mr. Jas. White, F.R.G.S., F.R.S.C., Ottawa, secretary of the Commission of Conservation, represented the Commission at the congress.

#### **Resolutions.**

Resolutions were submitted and passed:

- (1) endorsing Mr. Roosevelt's contention that all the waters are the property of, and should be administered by, the whole people;
- (2) favoring the treatment of each stream as a separate unit, all cases of doubtful or divided jurisdiction to be administered by federal and state authorities in co-operation;
- (3) holding the primary uses of water to be for domestic purposes and for irrigation, navigation and power to be secondary uses, the proper use of any water to be determined on the principle of the greatest good to the greatest number;
- (4) urging on all those in control of water the

- duty of purifying and keeping pure the water supply for domestic purposes;
- (5) commending the reclamation service, urging its continuance and the extension of the reclamation policy to the drainage of swamp and overflowed lands;
  - (6) approving the adoption of a comprehensive plan of river and lake navigation throughout the United States;
  - (7) favoring federal control of water-power, denying the right of any government to grant water franchises in perpetuity and demanding that use of water rights be allowed only for limited periods and in return for adequate compensation to the people;
  - (8) demanding the maintenance of a federal commission to control the waters;
  - (9) approving the withdrawal from settlement or sale of public lands pending classification and the separation of surface rights from mineral, forest and water rights, recommending legislation for classifying and leasing of grazing lands within reserves, arid and non-irrigable grazing lands to be administered by the government in the interest of small stockmen and homeseekers until they have passed into the hands of actual settlers;
  - (10) holding that mineral deposits on public lands should be leased for limited periods (maximum, 50 years), the royalty to be adjusted at still more frequent intervals, phosphate deposits to be safeguarded for the people;
  - (11) recommending the early opening up of Alaskan coal-fields under a system of lease from the government, urging investigation by the federal government of damage due to copper ore smelting and of the feasibility of using by-products of phosphate fertilizers and favoring cooperative action of state and federal governments to secure improved soil management methods;
  - (12) approving the control of national forests by the federal government, lands more valuable for agriculture than for forestry to be opened for homesteading, and recommending the acquiring by state and federal governments of waste land for reforestation and the protection by the governments of all forests;
  - (13) commending the work of the Forest Service and recommending its still more liberal support, the extension of the fire patrol system and the employment of federal troops in case of emergency;
  - (14) favoring the repeal of the Timber and Stone Act;
  - (15) endorsing the Appalachian and White Mountain forest reserve;
  - (16) recommending bird and game protection;
  - (17) recommending the teaching of the principles of conservation in schools;
  - (18) recommending greater attention to the

promotion and protection of the public health and the prevention of child labor;

- (19) recommending legislation to promote the use of proper safeguards to life in transportation and mining operations and the establishment of a federal department of public health;
- (20) recommending the maintenance of a federal conservation commission and the establishment and maintenance of state conservation commissions.

#### DEATH OF PROF. S. B. GREEN.

Sincere and widespread is the regret felt among students and advocates of forestry at the death of Prof. S. B. Green, Dean of the College of Forestry of the University of Minnesota, which occurred on July 11 last. Prof. Green was one of the first advocates of forestry on this continent, and was ever active in the promotion of the science. He was a graduate of Massachusetts Agricultural College, specializing during his course in horticulture and forestry, and afterwards continuing his studies in these subjects in various foreign countries. In 1898 he was appointed to a professorship in the University of Minnesota. Years of patient work built up the department of forestry in the university until it grew to be a third of the Agricultural College, and finally, on May 13 last, it was constituted a separate college of the university and Prof. Green was appointed its Dean. In addition to his work in the teaching of forestry, he had many other interests. He was professor of horticulture in the State Agricultural College, President of the Minnesota Horticultural Society, a member of the State Forestry Board, and took a prominent part in the work of the Farmers' Institutes of the State. He is the author of several works, the best known to foresters being his 'Essentials of American Forestry.' His death will be deeply felt as a loss to the state, the nation and the forestry and lumbering interests.

#### WILL TEACH FORESTRY IN B.C.

The report of the commission appointed by the British Columbia government to select a site for a provincial university has lately been presented to the Lieut.-Governor-in-Council and recommends the location of the university near Vancouver. In an auxiliary report addressed to the minister of education the commission suggests that not less than 700 acres be set aside for experimental purposes in agriculture and forestry. This is exclusive of a forest reserve for forestry operations on a large scale.

# Earl Grey's Hudson Bay Trip.

Public Attention Directed to a New Part of the Dominion.

His Excellency, the Governor-General, commenced his trip to the Hudson Bay regions (referred to in the last issue of the CANADIAN FORESTRY JOURNAL) on August 3, when he and his party, which, as far as Norway House, included Lady Grey and Lady Evelyn Grey, left Winnipeg for Selkirk. Leaving Selkirk on the afternoon of the fourth of the month, Lake Winnipeg was crossed and Warren's Landing, at the outlet of the lake, reached on the morning of the sixth. Then, crossing Playgreen lake in a motor-boat, Norway House was reached in the afternoon of the same day.

The party received a hearty welcome at Norway House, and here Lady Grey and Lady Evelyn Grey turned back. On the afternoon of Aug. 8 a start was made from Norway House, the party with attendant members of the N.W.M.P. and Indian canoe-men and guides occupying twelve canoes.

On the morning following they turned into Hairy Lake, and then up the Echimamish river, a tributary of the Nelson, making camp for the night on that river. On the morning of the tenth the expedition portaged over to the Hayes river.

Late on the evening of the twelfth, Oxford House, at the head of Oxford Lake, was reached—the only settlement between Norway House and York Factory, which are four hundred miles apart.

For five days, from the eleventh to the fif-

teenth, the party passed through an 'endless series of reedy islanded lakes and lovely rivers, their low banks covered with the characteristic and rather valueless timber of this region, mostly spruce, poplar and tamarac.' After leaving Oxford House, bad weather was encountered on the evening of the fifteenth and the sixteenth, which delayed the party for somewhat over a day. This was on Swampy Lake.

On the seventeenth a new stage of the journey began, the river descending rapidly from here to Hudson Bay, up to the final hundred miles of 'even, broad and rapid water through high clay banks covered with scrubby spruce.'

York Factory was reached on the evening of August 19. There the steamer Earl Grey had been waiting for some days, having left Pictou, N.S., on August 3.

The party spent the twenty-second in visiting Fort Churchill, and then the route lay across the bay, through the strait and down the Labrador coast. The mouth of the Humber river, Newfoundland, was reached on September 3—just a month after leaving Winnipeg.

Earl Grey's trip cannot but have an important effect in directing public attention to the products of the region traversed, the means of access, feasibility of commercial routes through the region and the resources of the area generally.

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## FOREST FIRES IN ALBERTA.

While fire losses throughout the western part of this country have been eclipsed by the awful disasters in Idaho and Montana, the situation in the foot-hills of the Rockies in Alberta was for some time a serious one. Conditions throughout the west during the past season have been exceptionally favorable to the starting of serious fires. The exceptionally dry autumn of 1909 was followed by a winter of but slight snow-fall. The snow, when it melted, sank right into the ground, and the consequent dryness of the forest-floor was much increased by the abnormally dry spring. Conditions were ideal for the fires, and serious fires were practically unavoidable. Fires are reported to have done much damage near Morley and High River. Mr. R. H. Campbell, Superintendent of Forestry, who is at present in the west, intends to make a thorough investigation of these fires before returning.

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## FOURTH CANADIAN IRRIGATION CONVENTION.

The fourth annual convention of the Western Canada Irrigation Association was held in Kamloops, B.C., August 3 to 5. Many excellent addresses and papers were given, and the programme also included a twelve mile trip up the Thompson river, where the results of irrigation in British Columbia were presented to the eyes of the delegates. It was resolved to meet next year in Calgary. The following are the officers for 1910-1911:—Hon. President, His Honor Lieut.-Gov. Bul-yea, Edmonton, Alta.; President, Wm. Pearce, Calgary, Alta.; 1st Vice-President, F. J. Fulton, Kamloops, B.C.; 2nd Vice-President, R. R. Jamieson, mayor, Calgary, Alta.; Treasurer, C. W. Rowley, Calgary, Alta.; Executive Committee, C. W. Peterson, Calgary, Alta., W. H. Fairfield, Lethbridge, Alta., Horace Greely, Maple Creek, Sask., Dr. Chas. W. Dickson, Kelowna, B.C., R. H. Agur, Summerland, B.C., and R. M. Palmer, Kamloops, B.C.

# Ontario Forest Fires of the Past Summer.

Many Towns Threatened and Much Property Destroyed.

The forest fires of the fore part of the past summer will make the season memorable to the residents of Fort William, Port Arthur, Rainy River, Fort Frances and other towns and districts of the western part of New Ontario. Many rural dwellers lost crops, buildings and other possessions, in some cases all they had, and even some of the towns were in peril, help in one instance having to be summoned from Winnipeg.

The fires of the early part of June (noted in the June number of the CANADIAN FORESTRY JOURNAL) showed no abatement during the latter part of the month. The weather continued dry, the only rains that came being very light. The force of fire rangers was greatly increased, whole train loads being despatched to some danger points. The losses were confined, according to Hon. Frank Cochrane, almost wholly to limit-holders and settlers, little of the provincial land having been burned over. Many limit-holders suffered severely. According to reports received at the provincial department of Lands, Forests and Mines, Toronto, the fires were almost invariably caused by railways.

The first of July found the village of Lavallee in great danger. At the request of the inhabitants of the village, the town of Fort Frances sent down a fire engine to protect the buildings. The women and children were sent to Fort Frances, the contents of the houses packed in box cars ready for removal, and the men of the place joined the railway section gangs in fighting the fires. The fire was finally fought off.

At Devlin much loss was caused the provincial government of Saskatchewan, which lost a great many telephone poles that were piled there, and to the Canadian Northern railway company, which lost several thousands of poles and ties and a large quantity of cedar poles. The hotel and station were burned, also a sawmill and the schoolhouse.

Throughout the townships of Burris, Dance and Crozier, there were many fires, and the village of Stanley had a narrow escape. Silver Mountain, twenty miles from Fort William, also reported large fires. The village of Emo was also threatened, and several construction camps were consumed.

The Canadian Northern Railway is reported to have lost a hundred boxcars and a number of stations throughout New Ontario, besides many water tanks and other buildings.

Along the line of the Algoma Central railway half a dozen construction camps and large quantities of explosives and supplies were consumed. Residents in O'Connor and Conmee townships, according to returns furnished by forest rangers, lost in the aggregate over \$20,000.

In the Nipigon reserve a good deal of loss was caused by the carelessness of laborers on railway construction. As the flies were troublesome, many 'smudges' were lighted to keep them off, and quite a number of the 'smudges' developed into serious fires.

A telegraphic despatch stated that about a hundred miles west of Cochrane a construction camp on the Grand Trunk Pacific Railway was burned on July 10, and the men had to take to the Vallentyne (?) river and stand up to their necks in water to save their lives.

During the third week of the month, Kenora became a fire centre, though the fires did not result very seriously. Fires were reported on the west bank of the Winnipeg river, north of Keewatin, considerable timber being destroyed. On the afternoon of the 30th a settler near Ostersun, who was fighting fire, was unable to check it, and had, with his wife and children, to get into a near-by lake in order to preserve their lives. About a week later, at Keewatin Beach, a summer resort near Kenora, two cottages were destroyed by a fire which caught from the woods, and some children with their nurse had a narrow escape.

The worst fire of the month, however, occurred at Rainy River on July 21 and 22. During the two days the town was in imminent danger. For a distance of two miles on the north side of the town only the main track of the Canadian Northern Railway separated it from a fiercely burning tamarack forest. At four p.m. on July 22 the wind changed and the town was relieved. Assistance was summoned and received from Fort Frances, Beaudette (Minn.), Kenora and Winnipeg. Backfiring was successfully resorted to in order to save the Canadian Northern railway station and roundhouse. The Rat Portage Lumber Co.'s mill was in great peril and was saved only by the efforts of a large number of men. Fortunately a heavy rain came on July 23 and the following days, extinguishing the flames.

# The Season's Forest Fires in the United States.

## Heaviest Losses since the Settlement of the Western States.

Losses from forest fires during the past summer in the Lake States and the 'Inland Empire' (Washington, Oregon, Idaho and Montana) have been the severest for many years, probably the severest since the settlement of these states.

The month of July was the disastrous one for the Lake States. Several towns and villages were destroyed, among these being Buswell, Mich. (loss \$285,000), Blount and West Turner, Mich., Heinemann, Wisc., and Mizpah, Minn. Many of the fires assumed immense proportions. Near Wausau, Wisc., the fire was said to have a front of ten miles, while in Ontonagon county, Mich., a fire was said to have a width of five miles.

Among the vast losses caused, there have been given the following in Wisconsin:—Pine timber north of Chippewa Falls and Eau Claire, \$1,000,000; Wisconsin Central R. R., \$200,000; companies operating from Marinette (northern Wisconsin), Wausau and Rhinelander, \$1,500,000; Washburne and territory north of Ashland and towards Superior, \$500,000,—a total of \$3,200,000. A district fifty miles north of Prentice, Wisc., and forty miles wide, is reported to have been burned over. Fire in the Huntington forest reserve in the same state is reported to have done \$500,000 damage. In Menominee county, Mich., the loss was estimated at from \$200,000 to \$300,000. Heavy damage was done near Bemidji, Minn.

In the Northwest the fires had already begun to be serious in the first half of the month of July, thirteen fires being reported to be in progress in western Montana on the fourteenth of the month. A Vancouver despatch of July 20 reported that two hundred and fifty miles of forest were being burned over in northern Idaho and the Western Kootenay district; fifty lives had been lost, six towns burned and miles of railways destroyed. Spokane, under the same date, reported that the fire had covered a tract of territory fifteen miles long and seven wide, and millions of feet of timber had been destroyed. Three thousand men were engaged fighting the fires. Three men lost their lives on July 20 on the Santine river.

It was not until about a month later, however, that the fires reached their worst. By the twelfth of August the fires had increased to such an extent as to threaten the towns of Wallace, Mullen and Burke, Idaho. At Mullen burning limbs of trees a foot and a half long were reported to have been carried three miles into the town. All the male

inhabitants were busy fighting the fires, and in response to a request soldiers were sent to aid the fire fighters. In the case of Wallace, however, the efforts were without avail, and the fire reached the town and burned the east half, with a loss of thirteen lives and a property loss of \$1,000,000. The towns of Taft, Deborgia, Henderson and part of St. Regis were also reported burned. The people of Wallace were conveyed in special railway trains to Missoula, Montana.

On August 22 Tacoma, Wash., was reported to be in danger from bush fires, but by the following day the danger was over.

The town of Elk City, Idaho, was in danger, but the women guarded the buildings while the men were fighting the fires farther out, and the place escaped.

On August 23 the first Northern Pacific R. R. train for three days reached Helena, Mont.

Almost the whole of the Coeur d'Alene region was reported to be in flames. The valleys of the St. Joe and St. Mary rivers suffered especially. Desperate efforts were made to fight the fires, and many of the fire-fighters lost their lives. To the very strenuousness of the effort, indeed, much of the loss of life may be attributed.

Estimates of the loss of life vary widely. Fifty deaths seems to be the lowest estimate, while other estimates run as high as a hundred and fifty and even two hundred. It seems very probable that the exact number of those who lost their lives in the fires will never be known.

The loss of timber, it is estimated, may reach 750,000,000 feet. In the Coeur d'Alene region, it is said, the loss may run as high as 500,000,000 feet. Another estimate of the timber loss gives 3,000,000,000 feet.

The fires were finally checked by falls of rain and snow during the last few days of the month. The property loss has been enormous. Not only have millions of dollars' worth of standing timber been destroyed, but millions more have been lost through the destruction of the various towns, settlers' buildings, crops and improvements, mine buildings, etc.

The giant sequoias in the Sequoia National Park, California, were thought to be in danger of being destroyed by fire at one time in the early part of July, owing to large forest fires in their vicinity. The fires were finally controlled and the big trees saved.

# The Spruce Budworm.

## An Account of the Work Being Carried On.

On applying to Dr. C. Gordon Hewitt, Dominion Entomologist, as to the work that the Federal Department of Agriculture were doing in regard to the Spruce Budworm (*Tortrix fumiferana*), he made the following statement to the Canadian Forestry Association:

'The attention of the Department was first called to serious attacks of this insect in the upper Gatineau region of Quebec by the Hon. W. C. Edwards. Mr. Arthur Gibson, Chief Assistant Entomologist of the Division of Entomology, was immediately sent to investigate the outbreak in July, 1909, and he has already communicated an account of his investigation to the CANADIAN FORESTRY JOURNAL (Dec. 1909).

'In October, 1909, a few weeks after taking charge of the work of the Division of Entomology, I visited British Columbia and investigated the attacks of the insect on Vancouver Island. The serious character of the attack of the Spruce Budworm on the balsam and spruce in Eastern Canada and the Douglas fir in British Columbia, rendered a careful study of the insect, its depredations and controlling agencies imperative, and accordingly such a study was commenced. During the present summer (1910) the line of investigation that we have been following has been to discover the species of parasites attacking the pest. In the case of an outbreak of this nature, when the insect has gained great headway before its discovery, and where it is impracticable to adopt any means of control, the most important and only line of investigation possible is a study of the species of the parasites, which are the natural means of control, attacking the caterpillars, with a view to discovering: first, what species there are, and secondly, whether they are increasing in number. This information is of very great importance and value, not only from a scientific but also from a practical point of view, as the following instance of a similar study will show. In England, a serious outbreak of the Larch Sawfly was reported in 1906. (This is the same insect which destroyed all the larch or tamarack throughout Eastern Canada some years ago, and again appeared about five years ago.) In the following year I began to study the life-history of the insect and its parasites. Except in newly planted areas it was not possible to adopt any means of control. It was found in 1908 that a certain species of ichneumon fly, an important parasite, had killed about six per cent. of the insects; in the following year the percentage killed had increased to about twelve per cent. I then left England and came to Canada, but to continue the investigation many thousands of the cocoons were im-

ported from England, and this year I found that the percentage of insects in the cocoons killed by the parasites was *over 60 per cent.* This discovery, which was also confirmed in England, is of the greatest interest and importance as it indicates that in those localities, where the infestation was most serious the parasites have almost gained complete control of the sawfly, and control will mean eradication. The practical value of this continued study lies in the fact that the owners of timber feared its destruction by the continued defoliation by the caterpillars, many acres having been so killed, and were cutting down timber before it had reached its full growth and value to save it. This will now be unnecessary, as we know the pest will be controlled by its parasites. In a similar manner we have already begun a study of the parasites of the Spruce Budworm, and we hope, next year, to study the percentage of the caterpillars attacked by the species of parasites that we have bred from them during the present season. It is expected that such an investigation will indicate to us the extent to which natural means of control are acting upon the pest, and until we have such information it is impossible to prophesy what the results of the outbreak will be and whether considerable loss will be caused or not before the pest is controlled by these natural agencies.

'I have conferred with Mr. G. C. Piché, the Chief Forestry Engineer of the Province of Quebec, and with the Hon. W. C. Edwards and others who have interests in the forests at present attacked. It has been decided that the area over which the outbreak extends at the present time shall be delimited and Mr. Piché has arranged for such a survey which I believe is now in the field. When this survey is complete Mr. Piché and I intend to visit the worst infested regions, and it is proposed to elucidate certain points with regard to the life-history and habits of the insect, and the visit will enable us to determine, so far as is possible, to what extent the trees have been injured by the previous depredations. It will be possible, also, to discover whether the trees, weakened in vitality by the defoliation by the caterpillars, are being attacked, as is often the case, by species of bark-beetles which complete the destruction of the living tree.

'The Association may be assured that we are giving this serious matter our most careful attention, and we hope that next year, when the parasitic work is continued, that those concerned will assist us in obtaining supplies of material to enable us to make our investigation as complete as possible.'

# Forest Fires in British Columbia.

Much Damage Done in the Kootenay District and Around Vancouver.

By far the most serious of British Columbia's forest fires of the past summer have occurred in the Kootenay district. In the immediate vicinity of Nelson a fire started about July 8. It is supposed to have been caused by fishermen. It required the services of a hundred and fifty men for some time. On the fifteenth the fire was burning on the slope back of the town, but was extinguished by a force of men sent out by the government agent.

During the same week occurred a fire at Tahun, which spread from clearing land. A fire at Shore Acres, which started from the same source, kept thirty men busy for some time. Up to July 22 the air in Nelson was heavy with smoke. On that day a brisk fire was in progress at Hall's Siding, a few miles from the town. Most of the fires in that vicinity were by that day reported under control.

Early in the month much loss was reported from a fire at Galena Bay, where the Arrowhead Lumber Co. was reported to have lost considerable timber and some camps and equipment. In one case, a hundred and sixty men were on the ground fighting fire within twenty minutes of the time the alarm was given.

On July 15 there were serious fires to the south of Moyie. The Consolidated Mining and Smelting Co. near Moyie was a loser to the extent of \$40,000, three miles of their flume, poles, etc., being destroyed. Two hundred fire-fighters were employed. Rains about a week later finally disposed of the fire.

On July 13 despatches reported that at Kaslo practically the whole mountain side was in flames. The fire had originated from boys smoking. At Whitewater the fire made a clean sweep of the town, even the tree-stumps being burned up. The bridges on the railway for a distance of five miles were burned. All the people of the burned town were removed to Kaslo. At McGuigan all buildings were destroyed, and the Great Northern Railway lost a number of freight cars, bridges, etc. Three hundred miners and their families were left homeless. The loss of timber was given as \$100,000.

The worst disaster of the season occurred at the Lucky Jim mine, where five men lost their lives. One of these, Chas. Norman by name, was apparently overcome while looking for a companion in order to try to save him. Norman had previously warned many miners in their cabins of the impending danger. The buildings of the Rambier mine were also destroyed. Back-firing had finally

to be resorted to. The fire seems to have entered the district by Bear Creek near New Denver.

The town of Scandinavia was in great danger. The flames got within a mile of it but were beaten back. A force of seven hundred fire-fighters was employed at one time. Much timber, many fields of standing crops, and many ranch buildings were destroyed.

At New Michel a fire started back of the Great Northern Railway round-house, supposedly from a workman dropping a lighted cigarette. The fire is said to have gone, in twenty minutes, a distance of a mile. The best piece of timber left in the neighborhood was burned up. The fire subsequently spread to the mountains, and much valuable timber was consumed. This included a million feet of logs piled on the limits of the New Michel sawmill near Phoenix.

A costly fire also occurred at Arrow Park, some valuable timber being destroyed and many ranchers losing everything they owned. Fire at Big Bend, near Revelstoke, did much damage to the Canadian Pacific Railway, and trains were delayed.

Around Fernie the losses were not large, the most serious being the burning of some three million feet of logs skidded at the old site of the East Kootenay Co's mill, a few miles west of Cranbrook. On July 23 heavy rains came and most of the fires were extinguished.

In the vicinity of Vancouver, too, the early part of the month saw many forest fires. On Sunday, July 10, eight fires were known to be burning near the city. Ashes fell in the city streets and there was a great deal of smoke. The most serious fire burned over the Lynn valley, on the north side of Burrard inlet. The Hastings Shingle Mill Co. had its flume demolished and 2,000 cords of shingle bolts destroyed. The North Vancouver waterworks intake buildings were threatened, but two hundred fire-fighters succeeded in controlling the fire.

Fires also occurred at Lake Buntzen and Harrison lake, the latter, however, not being serious. Both were caused by donkey engines. At Lake Buntzen the engine was being moved, when it struck a stump, and the ash box was knocked off. Fire started from the cinders, and, in spite of the efforts of a large corps of men, covered more than two square miles of territory.

The loss from fires throughout the province was put by various estimators at from two million to three million dollars. Chief Ranger W. C. Gladwin, however, reported to Premier McBride that \$357,000 would

cover the loss, viz., \$40,000 for the timber destroyed and \$317,000 for damage to improvements.

During the month 401 fires were reported to the provincial authorities. The government's expenditure for fighting forest fires amounted to \$40,163.53, and private expenditure amounted to about \$20,000 more. This, of course, takes no account of damage to young growth, soil, etc. It is reported that a large percentage of the fires were thought to be started by railway locomotives. Ninety-five per cent. of the fires were extinguished before they became serious. Eight lives were lost, two of them by falling trees. Crown timber sustained little damage. The fires for the most part ran over lands already cut over.

#### August.

This month was comparatively free of fires. A number were reported on Vancouver Island. One on the Saanich peninsula had (Aug. 10) been burning for weeks. At Salt Spring Island and along the Eastern and Northern Railway fires were also reported. On Aug. 7 Eburne, a suburb of Vancouver, was threatened, but the fire was soon checked.

On Aug. 20 the people of Corbin had a hard day watching and fighting the fire which had got dangerously near one part of the town. A large fire was reported to be burning on Baker Mountain, east of Cranbrook, and fire was burning between Fernie and Hosmer. No towns were endangered but considerable timber was damaged.

On Aug. 25 two hundred acres of bush near White Rock station on the Great Northern Railway, near the International boundary,

were burned over, the fire starting from clearing land. In fact the residents of the place were kept on the alert for a couple of weeks to save their places from the fire.

Around Nelson smouldering fires were roused and caused considerable trouble. The smoke on the lake was so dense that the pilots of steamers and other craft had to trust to the compass for their direction.

Chief Fire Warden Gladwin reports that in August the loss from fire was smaller than in July, but that the cost to the government for fire protection was greater. A total of 3,572 men was employed at a cost of \$40,669.50. The government saved a vast amount of timber and other property, including eleven sawmills, and their cut of 17,000,000 ft. of lumber and timber limits estimated to contain 2,500,000,000 feet of standing timber. The fires numbered 325.

#### September.

The middle of September saw an extensive fire in cut-over lands, chiefly in the municipality of Surrey, a short distance south of Vancouver city. The fire covered a strip from two to seven miles wide, which started from two miles west of Cloverdale and extended within two miles of Crescent. A sawmill at Hazelmere was burned, as well as many settlers' buildings. Large timber seems to have escaped. The total loss was given as about \$15,000.

The Great Northern railway had a number of bridges burned, and trains to Vancouver had to be sent around by Sumas. The fire started on a ranch and was smouldering some two weeks before it broke out. Hard work finally brought it under control.

### THE ANNUAL REPORT.

The annual report of the Association for 1910 has been issued and should have reached all members long before this. If any have not received it the Secretary will be obliged for this information, and a copy will be sent immediately. As the mailing list is now revised at frequent intervals, it is no trouble to insert a change of address, and if the present address on publications reaching members is not correct it will be a kindness to the officers to let the Secretary have the new one.

The report in French is now in the hands of the printer. Last year there was an issue of 2,000 copies, and these were all promptly distributed. Will those who would like to receive a copy of this report kindly notify the Secretary as early as possible, so that a sufficient number may be printed? This report, like the other publications of the Association, is of course free to members, and for sending to those likely to be come interested in the cause.

### GETTING FIRST-HAND INFORMATION.

Hon. Frank Oliver, Minister of the Interior, spent his 'vacation,' comprising the month of July and a large part of August, in a trip down the Athabaska, Slave and Mackenzie rivers to the delta of the Mackenzie, thence up the Peel river and down the Yukon to Dawson City and on to Vancouver. The route followed was largely that taken by Mr. E. Stewart, then Superintendent of Forestry, in 1906. The minister made close observations throughout the trip with regard to the people, crops grown, natural gas, oil and other minerals, game and other products of the region.

#### Secretary's New Address.

The office of the Secretary has been moved to Ottawa, so that all the executive officers of the Association are now in the Dominion capital. The address, to which all communications should be sent, is: Canadian Forestry Association, Canadian Building, Ottawa, Canada.

## FORESTRY BRANCH FIELD WORK.

The Forestry Branch of the Department of the Interior has, this summer, eight parties in the field. Two of these are working in the newly created forest reserve on the eastern slope of the Rockies, two in the British Columbia Railway Belt, and four in the Hudson Bay district.

The two parties that are working on the eastern slope of the Rockies have instructions to make a rapid survey or 'reconnaissance' of the region, covering as much of it as can be done consistently with good work. One has been working southwards from Calgary, the other northward.

Large areas have no doubt been burned; these areas it will be their duty to map with as much accuracy as time will permit. They will also report on the tree species, the size and density of the growing timber, the park lands and various other features.

The work of the British Columbia parties is of an essentially different character. There has been included in the timber berths a good deal of land that is of considerable value as farm land; especially in the river bottoms is this the case. The work of these parties consists chiefly in the examination of such land so as to determine what land is unfit for agriculture and should be reserved and what land can properly be thrown open for farming.

Each of the above parties consists of a forester-in-charge, three assistants and a cook.

The work of the Hudson Bay parties is of still another character. There are four of these parties, each consisting of two men. Of these men, some are trained forest engineers, others are experienced timbermen and travellers.

Two of the parties went in by way of 'The Pas' where the C.N.R. line to Hudson Bay at present ends. One of these made at once for Split Lake. The other party started its inspection at The Pas and proceeded down the Nelson river.

The other two parties went in via Norway House, at the north end of Lake Winnipeg. Oxford House is headquarters for one of these, and its members are proceeding to inspect the timber around Hayes river, God's lake, Fox river and other streams, reaching up to York Factory. The other party is proceeding from Oxford House to Split Lake, inspecting the timber along the route.

In addition to inspecting the timber, all four parties have instructions to keep a sharp lookout for forest fires, and have authority to appoint and employ fire rangers where they think it necessary.

Two of these parties (probably a third) will winter in the territory they traverse, so as to be on the spot, ready to continue operations next spring.

## ALBERTA FIRE PATROL.

Interviewed by the Calgary News, Mr. D. B. McDonnell, of Winnipeg, spoke very highly of the system of fire patrol maintained by the Forestry Branch of the Department of the Interior along the line of construction of the Grand Trunk Pacific Railway from Edmonton to Wolf Creek. 'There are enough rangers to cover the entire line of grade daily,' he said, 'and they ride back and forth over the country meeting at fixed points. Already they have been instrumental in extinguishing a number of fires which, if not taken in hand at the right moment, would have spread with disastrous results.' Mr. McDonnell, who is a representative of the T. A. Burrows Co., had just returned from a trip of inspection of limits of that corporation on the Athabaska, Brazeau, Macleod, Pembina and Saskatchewan rivers. In speaking of the timber resources of the country through which he passed, Mr. McDonnell said that the settlers who are gradually getting in there seem very anxious to preserve the timber, and that whenever a fire threatens they turn out and fight it to a man. 'They realize the value of the timber and the scarcity of it,' he said, 'but it is practically impossible for them to cope with the situations that arise at times in places remote from the railway, and I think that a larger force of fire rangers in these districts would undoubtedly result in a saving of many thousands of dollars worth of timber annually.'

## CANADIAN FORESTRY ASSOCIATION.

The objects of this Association are (1) the preservation of the forests for their influence on climate, fertility and water supply, (2) the exploration of the public domain and the preservation for timber production of lands unsuited for agriculture, (3) the promotion of judicious methods in dealing with forests and woodlands, (4) reforestation where advisable, (5) tree-planting on the plains and on streets and highways, and (6) the collection and dissemination of information bearing on the forestry problem in general.

YOU are directly interested. YOU are a user of wood in some form or other. YOU pay more for that wood than you did ten years ago. YOU or your successors will pay far more in future unless the forests are properly cared for.

The Association is trying to bring about that better care, and your assistance will be appreciated. The membership fee is \$1 per year; \$10 secures life membership. Address your application to the

**Secretary Canadian Forestry Association,  
Canadian Building,  
Ottawa, Ont.**