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# Canadian Forestry Journal

VOL. VII.

JULY-AUGUST, 1911

No. 4



Falls on Sawkill River, near Summer Camp of Yale Forest School.

OTTAWA, CANADA.

# Canadian Forestry Journal

## THE CANADIAN FORESTRY ASSOCIATION

is the national organization for the informing of public opinion in the effort to secure a rational development of the Canadian Forests through the co-operation of national, provincial and municipal organizations and private enterprises. The objects of the Association are:

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

To promote these ends the Association publishes the *Canadian Forestry Journal*, issues bulletins, arranges for the delivery of free illustrated public lectures, and holds conventions in different parts of Canada.

The Association desires as members all (both men and women) who are in sympathy with this work. The membership fee, which entitles the member to the *Journal*, the annual report and other literature issued, is one dollar per year, (life membership \$10). Applications for membership or requests for information may be addressed to the Secretary, Canadian Forestry Association, Canadian Building, Ottawa, Canada.

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## Forestry in the University of New Brunswick.

By Prof. R. B. Miller, M.F.

The Forestry Department, while growing slowly in numbers presents every reason for encouragement. Many students are naturally comparing its advantages as a profession with those presented by engineering which because of so much construction work in Canada is always a popular one. The matter of securing positions, both permanent and temporary, is gradually adjusting itself and as the students increase it is felt that the opportunities will multiply. As in other professions, a job cannot be promised the graduate but the openings must be canvassed and new fields discovered for the output. As the Chancellor said at the Québec convention last winter, the forester must prove his worth and must take his chance of finding a position the same as the engineer. He must serve his apprenticeship, get his experience by hard knocks and win his place in the community.

In the beginning this matter of employment was all uncertainty, now prospects are brightening. The Forestry Branch, Ottawa, has so far been the best employer, this year taking five men for the summer season, in both permanent and temporary positions. With the larger number of survey parties put out each year and a good record made by students and graduates it is hoped that this outlet for men will gradually increase. These trips for the younger men in the Sophomore and Junior years under competent chiefs are broadening in their influence, put the student in touch with the great aims and purposes of the profession and bring him back with renewed ambition for work. Other men have been placed with paper companies and the railroad companies and consulting foresters are looking to us for a small number of men each year. One good man sent to them and succeeding means much for the future of the school.

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## Simcoe County (Ont.) Waste Lands.

Barrie Examiner.

The Ontario Government, as is well known, has made an initial step towards the reforestation of considerable areas of waste lands—'blow-sand' lands—lying in various counties of Ontario. The initial step is being made in Norfolk County where the Government has bought a thousand acres of these

waste lands, and has begun the work of planting a forest nursery. There is no reason to doubt that this experiment will be successful and is likely in due time to justify the expenditure. The results in forestry in Europe, especially in Germany and France, where it has been practised constantly for the last eighty years, have proved the practice to be a

financial success of some magnitude.

Let us see, then, what is the situation in Simcoe County. There is a total area of over 60,000 acres of waste lands in this county capable of reclamation. Fifty-five thousand acres of it is situated in the townships of Tossorontio, Essa and Sunnidale, the rest lying north of Craighurst and divided between Flos and Medonte townships, and there are the Midhurst Plains in Vespra some five miles from Barrie. All these sandy wastes are incapable of profitable agriculture, though they once supported magnificent pine forests. These waste lands in Simcoe are different from those of Norfolk and other counties in Ontario, in that there is no 'blow-sand' in the Simcoe lands. The surface is to some extent covered with old scrubby seed trees of red and white pine, which experts say would soon give a splendid reproduction of the original forest if it were not for the ever-recurring ground fires, which periodically sweep over these lands, killing the young trees, and also impoverishing the soil by burning up the small amount of leaf litter and other materials which should go to enrich the soil. To the ravages of the fires is added also the industry of the wood thieves which is unremitting.

The problem, therefore, in the reclamation of these waste lands is far simpler than in most places in Ontario where there are waste areas. It is held by the Government forestry experts that the replanting of young trees, which is necessary in Norfolk and elsewhere, is almost wholly unnecessary here. The only attention necessary to reclaim these Simcoe lands would be the prevention of fires, the cleaning up of the land, and the locking up of the wood thieves. Then, as to the cost of upkeep of the necessary attention and superintendence, we have it on the authority of Dr. B. E. Fernow, Dean of the Faculty of Forestry, Toronto University, that five thousand acres

of naturally grown young timber, such as we have in this county, could be guarded by two men employed all the year round for \$1,000 a year, or a cost with interest of \$112,797 for fifty years. Add to this the original cost per acre with accrued interest for the same term of years, and the total will be the net cost of the 5,000 acres. Then let the County Council Committee estimate the value of the timber crop at the end of fifty years, and they will be able to judge of the wisdom of this reclamation of waste land as an investment.

In our article of three weeks ago we cited the estimate of the profit at the end of 60 years in the Norfolk County plan of reforestation as given by Prof. Zavitz, who is in charge of the work, at \$639.66 per acre. The amount of standing timber on one acre at the end of 60 years being estimated at 80,000 feet B.M., valued at \$10 per thousand, making a gross value of \$800. The cost of the single acre allowing for everything, compound interest at 3½ per cent. during the 60 years, and deducting the original purchase money, would be \$160.34, leaving the net profit for the acre at \$639.66.

This estimate shows a most profitable undertaking in the interest of the province, and considering the main object to be conservation of public benefits in the way of climatic conditions, rainfall and augmentation of economic water power in the streams, it is fully justified in its Norfolk County undertaking. But how very much better still is the prospect for the province in taking hold of the work in this county where it is not a matter of reforestation at all as in Norfolk, but merely reclamation by efficient guardianship of the natural forest growth which now exists.

Prof. Fernow's estimate of the cost of such reclamation as given above is the true basis of computation for the work in Simcoe county and not that in Norfolk.

## Mr. E. G. Joly de Lotbiniere.

In the death of Mr. E. G. Joly de Lotbiniere at the family residence at Point Platon near the city of Quebec Canada loses one of her leading and most patriotic citizens and the Canadian Forestry Association one of its most enthusiastic and untiring supporters, while a wide circle mourn a most true and devoted friend. On Friday, July 14, Mr. de Lotbiniere was in the city of Quebec in his usual health. That evening on returning home to Point Platon he had a slight attack of acute indigestion. He was much better in the early part of Saturday, but he became ill again toward evening and passed away before midnight, heart failure being the immediate cause of death. Madame de Lotbiniere and their only son were with him at the time. There is a peculiarly pathetic note just here in that the son, Alain, who graduated in forestry under Dr. Fernow at the University of Toronto this spring, had been in the Quebec woods away from home since the close of the university term and came home only a few days before in order to attend the celebration of the anniversary of the wedding of his father and mother.

Mr. Edmond Gustave Joly de Lotbiniere, the eldest son of the late Sir Henri Joly de Lotbiniere, was born in the city of Quebec on November 12, 1859, and was therefore in his fifty-second year. He was edu-

cated at Bishop's College, Lennoxville, and studied law under his father, who was a leading barrister in Quebec. As a young man he took an interest in military affairs and was an officer in the 8th Royal Rifles, Quebec. He was called to the bar and practiced for some time but the devotion of the time of his father, Sir Henri, to public affairs (he was at different times Premier of Quebec, Dominion Cabinet Minister, and Lieut.-Governor of British Columbia) threw the management of the estate of ninety thousand acres at Pt. Platon upon the son, who for about twenty-five years past devoted himself to that work and gave up the practice of law.

Sir Henri Joly de Lotbiniere, as is well known, was one of fathers of scientific forestry in Canada, and was the first president of the Canadian Forestry Association. The estate at Point Platon was one of the old seigniories, and under the seigniorial law the holder was obliged to allot land to

settlers or tenants so long as he had any unoccupied and these tenants were to pay, in kind, a certain proportion of the crop. About half the Lotbiniere seignior was taken up by settlers in this way before the abolition of seigniorial tenure in 1856, but by the provisions in the leases made by Sir Henri and his father a considerable proportion of the settled area is reserved in perpetual wood lots. The remaining



half is in forest, and for about eighty years now it has been handled with increasing care. It is one of the few stretches of timber-land in Canada owned in fee simple, and the family is thus one of the very few on this continent who have handled their forests in a rational way for several generations with the object of securing a perpetual timber crop. Sir Henri, as stated before, did much of this. He not only looked to the perpetuation of the native species but made experiments with plantations of trees not indigenous to the soil.

But for at least twenty years before Sir Henri's death the practical oversight of these forests devolved upon his son. The old manor house has been for many years at Point Platon, overlooking from a high cape the broad St. Lawrence. While the family were engaged in professional work in the city of Quebec, it was the custom to live at Point Platon in summer and in the city of Quebec, about forty miles distant, in the winter. However, of late years, owing to improved railway facilities and by building another house, 'The Hermitage', on the line of the Intercolonial railway, some distance away from the river, Mr. de Lotbiniere was able to live all the year around on the estate. Here he carried on and extended the work begun by his father and grandfather, and the growing scarcity of timber made the forests increasingly valuable. During the late winter he carried through a series of tests to ascertain the best method of disposing of debris after lumbering, and came to the conclusion that for a thick spruce forest, such as he had to deal with, the best method was of 'downing' the tops, i.e. lopping them off and spreading them around on the forest floor. The result of his tests he embodied in a paper which he read at the Canadian Forestry Convention at Quebec, and which appears in the Annual Report, just issued.

He was a member of the Canadian

Forestry Association from the beginning. He was president in 1906, the year in which Sir Wilfrid Laurier convoked the Canadian Forestry Convention in Ottawa — the first convention to attract national attention — and on that occasion carried out the duties of the office with tact and dignity. He took the deepest possible interest in all that concerned the forest, and was President of the Fish and Game Protective Association for Quebec and district at the time of his death. He was delighted when his son voluntarily decided to give up a course in medicine and to study forestry under Dr. Fernow. With the greatest pride in his work and with a strong conviction of the necessity of progressive forestry measures in Canada, he always spoke with that modesty which was characteristic of the family. A few months ago, when asked how the Lotbiniere forests had suffered in respect of fire, he said 'Speak it in a happy hour, we never had a fire'. This did not mean simple good luck, for he employed a considerable number of fire rangers. The Intercolonial Railway runs for twelve miles through the property and at a recent meeting he said that his rangers had put out as many as ten fires in a day on that stretch.

It is interesting to note that from the beginning this territory has had a reputation as being covered with good forests. The Seigniorship is described in 1815 by Lt.-Col. Joseph Bouchette, Surveyor General of Canada, in his Topographical Dictionary of the British Dominions in North America. It is a curious coincidence that this famous surveyor general was the grandfather of Mr. Errol Bouchette, LL.B., F.R.S.C., for some time secretary to Sir Henri, and now of the library of Parliament. Col. Bouchette states that on the elevated ground of Lotbiniere county the timber is beech, maple, birch, hickory and pine, and, on the low parts, spruce, basswood and fir. Then, speaking of Lotbiniere seign-

itory in the county of Lotbiniere, after describing its situation and boundaries, he says that it was granted in several parcels, viz.: Nov. 3, 1672, half a league in front by one and a half leagues in depth to *Sieur Marsolet*; Nov. 3, 1672, two and a half leagues in front by two in depth, adjoining *Ste Croix*, to *Sieur de Lotbiniere*; April 1, 1685, half a league in front by two leagues in depth to *Sieur de Lotbiniere*, being the vacant space between the two former grants. In 1693 the depth from the river was considerably added to so that the seigniority had a frontage on the river of three and a half leagues with a depth of six leagues. He goes on to say that the soil in general is excellent and so advantageously varied that every product of the country may be raised. It is well stocked with fine elm, ash, maple, plane, wild cherry, and other timber. The banks of the rivers du Chene, Huron, and Boisclere produce pine of first-rate growth. Notwithstanding the superior fertility of the soil about one-sixth part only of the grants are settled. He notes that 580 farms of ninety acres each had been surveyed and that 465 of these were under the management of industrious tenants, producing abundant crops of grains, etc. Near the middle of the front stand a handsome stone church and parsonage house and near them a few neat and well built houses; indeed, this is characteristic of the major part of the dwellings, the number of which is considerable, as the population amounts to 3,400 souls. On the east side, near the *St. Lawrence*, is a small domain of only twelve acres, wholly uncultivated, thickly covered with timber trees of a superior description, and containing the seigniorial mill. On the different streams are six sawmills and five manufactories of potash. All the roads in the seigniority as well as the main road along the *St. Lawrence* are always kept in perfect repair.

This description would largely fit the place today, notwithstanding the abolition of seigniorial tenure, and it shows that the family were then, as now, considerate of those who lived about them. The spirit of the best of the old nobility shone out in their kindness, generosity and gentleness and the late representative fully carried out the traditions of the house.

Mr. de Lotbiniere was married on July 14, 1885, to *Lucy Geils Campbell*, daughter of the late *W. D. Campbell*, prothonotary of Quebec. By this union there is one son, who, with *Madame de Lotbiniere* and two brothers and three sisters, survives. The brothers are *Alain C.* and *Henri Gustave*, and both are Majors in the Royal Engineers at present on service in India. The surviving sisters are *Julia*, wife of *St. George J. Boswell, Esq.*, Quebec; *Margaretta Anna*, wife of *Lt.-Col. Herbert Nanton*, Royal Engineers, and *Ethel Blanche*, wife of *Lt.-Col. Dudley Mills*, Royal Engineers.

The funeral was held from the Anglican Cathedral where the family have worshipped for generations, to *Mount Hermon Cemetery*. It was largely attended by the leading citizens of city and province, and there were also present a large representation of the men from the estate. The service in the Cathedral was conducted by the Bishop of Quebec, assisted by the Cathedral clergy and *Rev. Frederick George Scott*, rector of *St. Matthews*. The Dominion Parliament, the Quebec Cabinet, the Bench and Bar, and the mercantile and lumbering interests were represented, while the forest service of Quebec, with which *Mr. de Lotbiniere* was naturally in very close touch, was represented by *Mr. W. C. J. Hall*, an old schoolfellow, for the protective branch, and *Mr. Avila Bédard, M.F.*, for the forestry branch.

When the news of the sudden death reached Ottawa, as many directors of the Canadian Forestry

Association as were in town were communicated with by telephone and they decided to have the Association represented at the funeral by the Secretary, and amongst the many floral tributes was one from the Association, bearing on a pillow of roses a tiny spruce tree.

Mount Hermon Cemetery is a beautiful, restful spot on the banks of the broad St. Lawrence, just a little above Wolfe's Cove, and here, according to the solemn ritual of the Church of England, on a perfect mid-summer day the mortal remains were laid to rest in the family burial place, beneath the shadow of the magnificent pines he loved so well, and amid the genuine sorrow of the people of the community.

#### DEATH OF PROF. MAYR.

Professor Heinrich Mayr, of Munich, one of the best-known of European foresters, especially on this continent, died on the twenty-fifth day of January last. Few botanists or foresters had such an extensive knowledge of forest flora as he. He had travelled three times around the world and made an intimate study of the forests of many regions. Among these was North America, the fruit of his studies here being the well-known 'Waldungen von Nord Amerika.' In the late eighties of last century he accepted a chair in the Imperial University of Tokio, Japan, and spent some three years in that country. He then returned to Bavaria, where he occupied the chair of Sylviculture and Forest Utilization in the University of Munich. In addition to his forestry knowledge, Professor Mayr was an excellent linguist, speaking English, French, Italian, Japanese and Russian with fluency. The Experimental Forest Garden at Grafrath was granted him by the government in 1894.

#### THE BILTMORE FOREST SCHOOL.

The Biltmore Forest School is now located at Marshfield, Oregon, U.S.A., where the professors and students arrived on August 15, having left Cadillac, Mich., U.S., on August 5. Short visits were made en route to Duluth, Minn., Cass Lake, Minn., the Glacier National Park, Montana, and Portland, Oregon. Six weeks are now being spent in studying Western forests and lumbering. For the past year or thereabout the students have enjoyed exceptional facilities of becoming acquainted with the forests and lumbering in both America and Europe. From November 1st up to the middle of March, 1911, was spent in and around Darmstadt, Germany. During that time, in addition to Dr. Schenek's lectures, work was taken at the 'Polytechnicum', or technical school, of Darmstadt. In addition to frequent short excursions from that place, the first two weeks of December were spent in Saxony, where Dresden was the headquarters, a two days' trip to the forest school at Tharandt being included in the program: the second half of January, again, was spent in the heart of the Black Forest. Not only the German forests but also German methods of manufacture were studied with much interest. Leaving Germany about March 15, the school sailed from Rotterdam, arriving in New York on March 27. After a few days' vacation work was resumed at Lake Clear, in the Adirondacks, New York State, where a few weeks were spent, and then the school again journeyed to North Carolina, for study in the Appalachian forest region at Canton and other points. Thence, on July 12, the members of the school went to Cadillac, Mich., visiting en route Fort Wayne, Indiana, and Grand Rapids, Mich. Despite the many changes in location the work of direct instruction at the school has been well kept up, both by the regular staff of the school and by special lecturers.

#### WORKING IN BRITISH COLUMBIA.

Mr. A. H. D. Ross, lecturer in forestry at the University of Toronto, is again this summer in charge of work being done on some of the timberlands of British Columbia. The work of the parties is the making of studies of the rate of growth of commercial timbers in different parts of the province. Mr. Ross has working under him two parties. Of these one is in charge of Mr. L. M. Ellis, B. S. F., who has with him Messrs. Tilt, Scandrett, Christie and Connell; the other has as its head Mr. J. D. Gilmour, B. S. F., with whom are Messrs. McFayden, Edgar, Greenwood and Brown. All those named are students of the University of Toronto.



# Ontario Shade Tree Legislation

The legislation of the province of Ontario in regard to the planting of street and shade trees is, for the most part, contained in 'The Ontario Tree Planting Act',<sup>1</sup> and certain clauses of 'The Consolidated Municipal Act',<sup>2</sup> and subsequent amending acts.

## Planting.

*Planting by individuals.*—The Ontario Tree Planting Act (section 2, sub-section 1) grants permission to anyone who owns land adjacent to a street to plant trees on that part of the street contiguous to his land, so long as the tree or trees do not become a nuisance or obstruct the use of the street.

Tree may be planted along toll roads under the same conditions as along other highways, by the municipal council or by individuals. (General Road Companies Act,<sup>3</sup> sec. 147.)

*Planting by Municipal Authorities.*—The municipal council of a city, town or village may pass a by-law authorizing the board of park management, park commissioner, or other officer, or three park directors to plant trees on streets or in parks. (Municipal Act, section 574, sub-section 4).

The council of any city, county, township, town or village may expend money in planting or preserving street trees or grant money to any person or association for so doing. (Municipal Act, section 574, sub-section 2c).

## Property rights in trees so planted.

Trees so planted on highways become the property of the owner of the property adjacent to the highway and nearest the tree so planted. Such is the case also with any tree

left standing on the highway. (Ontario Tree Planting Act, s. 2, sub-section 3.)

## Bonuses for tree planting.

The Ontario Tree Planting Act (section 5) provides that the council of any municipality may pass a by-law providing for the payment of a bonus up to twenty-five cents per tree for each tree (of certain species) planted. This by-law must also make provision for a tree inspector to be appointed to supervise planting and for the protection of the trees against injury or removal by any one (even the owner) except by the authority of a special resolution of the council.

No bonus is to be paid for trees planted less than fifteen feet apart, and the council is not to be liable to pay a larger sum than would be payable if the trees were planted thirty feet apart. (Ontario Tree Planting Act, sec. 4.)

The Municipal Act (section 574, sub-section 1) authorizes the council of any city, town, village or township to pass a by-law giving a bonus of *not less than* twenty-five cents for each tree planted.

[There will be noted here an apparent contradiction in the legislation, the Tree Planting Act stipulating that the bonus shall be "up to" i.e., not more than, twenty-five cents, while the sections of the Municipal Act quoted place the bonus to be allowed at "not less than" twenty-five cents. On writing to the Attorney-General's department regarding the apparent contradiction, the editor received the following reply:

'I would think that the effect of the legislation of 1903' (i.e., the Consolidated Municipal Act) 'would be to override the provisions of R. S. O. 1897, cap. 243'. (the Ontario Tree Planting Act).]

<sup>1</sup> R. S. O. 1897, chap. 243.

<sup>2</sup> 3 Edw. VII (1903), chap. 19, s. 574 and 575.

<sup>3</sup> R. S. O., 1897, chap. 193, s. 147.

### Removal, Thinning, etc., of Trees.

*Removal of Trees*—The council of a county, city, township, town or village may pass a by-law for causing a tree to be removed, if necessary, but (a) it must give the owner ten days notice and recompense him for planting and protecting the tree and (b) any such tree may not be removed, even by the owner, without the permission of the municipal council. (Municipal Act, section 574, sub-section 2).

The municipal corporation shall not be liable to compensate the owner of property in front of which trees stand for their removal further than provided for in the Municipal Act, section 574, sub-section 2 (i. e., for his planting and care of them), provided the cutting and trimming is done under by-law. (Municipal Act, section 575.)

City, town and village councils may pass a by-law authorizing the board of park management, park commissioner or other officer or three park directors to remove all decayed trees and remove and transplant trees and shrubs, after giving forty-eight hours' notice to the owner, and shall not be liable to the owner; but no live tree, unless within thirty<sup>4</sup> feet of other trees may be removed without the consent of the owner of the property in front of which the tree stands. (Municipal Act, section 574, sub-section 5.)

[There is another inconsistency here. The following opinion as to the point was received from the Attorney-General of the province in the letter referred to in the preceding note:

'As to the removal of trees, I think the ten days notice would be confined since 1903 to the case of a township, as section 574, paragraph 4 gives power to cities, towns and villages to authorize their officers to move and cut down trees on forty-

eight hours notice. If you trace the legislation back you will see how the present condition has been brought about. Paragraph 4 of section 574 was originally confined to cities over 40,000; paragraph 5 of section 574 as enacted by 61 Vict., cap. 23, sec. 19, was confined to a city of over 100,000 inhabitants. In the revision of 1903 the provisions of both these paragraphs were extended to all cities, towns and villages with the effect above pointed out'.]

*Trimming Trees*—City, town and village councils may pass a by-law authorizing the board of park management, park commissioner or other officer appointed, or three park directors to trim trees in parks, or whose branches extend over streets, and are not to be liable for injury to the trees if reasonable care has been exercised in the trimming. (Municipal Act, section 574, sub-section 4.)

The trimming of trees and shrubbery along the highway may be provided for by special rate under the local improvement system. (Local Improvement Sections of the Municipal Act. New.<sup>5</sup> Sec. 3h.)

In cities where a board of park management has been constituted, the powers of the city council with reference to the cutting down, removing, transplanting and trimming street and park trees may be, by by-law of the council, delegated to the board of park management. (Municipal Act, sec. 74, sub-section 3.)

### Penalties for destroying or injuring Trees.

Any person destroying or injuring (even tying a horse to) a street tree is liable to a fine not to exceed twenty-five dollars (\$25) and costs or imprisonment for not more than thirty days, half of the fine to go to the informant. (Ontario Tree Planting Act, section 6.)

<sup>4</sup> Amended from 'twenty' by 6 Ed. VI, cap. 34, sec. 22.

<sup>5</sup> 1 Geo. V, chapter 58.

### Powers of Council to pass By-laws.

Under the Tree Planting Act (section 8) the council of any municipality may pass by-laws

(1) To regulate the planting of trees on highways

(2) To prevent the planting of any undesirable species

(3) To provide for the removal of trees planted on highways contrary to by-law.

### Inspectors of Trees.

An inspector of trees, appointed under the Ontario Tree Planting Act (section 4), must, if required, report annually to the council on the number of trees planted, by whom planted, the amount of bonus due, and certain other particulars. (Ontario Tree Planting Act, s. 4.)

### Insect Pests.

Councils in cities may pass by-laws to require owners of trees to destroy tussock moths, and, if the owners refuse or neglect to do so may, after giving ten days' notice, have the work done by officers appointed by them (the councils) at the expense of the owners. (Municipal Amendment Act, 1906, s. 24.<sup>6</sup>)

### Police Villages.

The Tree Planting Act may be brought into effect in police villages by thirty or more electors petitioning the township council. (An Act to Amend the Ontario Tree-planting Act,<sup>7</sup> passed 1899.) Inspectors of trees may also be appointed, and expenses (bonuses, inspector's pay, etc.) granted.

### Linemen Damaging Trees.

A question of much importance and concern to many owners of fine shade and street trees is how they may prevent telephone and telegraph

linemen from butchering their trees on the pretext of 'pruning' them, under orders from the companies employing them. On this point the same authority as quoted in the preceding editorial notes has this to say:

'I think it is quite clear that the owner would have the right to prevent a telephone company from stringing its wires in a tree planted by him in the street because under section 2 of the Ontario Tree Planting Act such a tree is deemed to be his property.

'I would refer you also to sub-section 547 of the Municipal Act (3 Edw. VII, cap. 19), which gives power to municipalities to pass by-laws to prevent the injuring or destroying of trees or shrubs planted or preserved for shade or ornament.

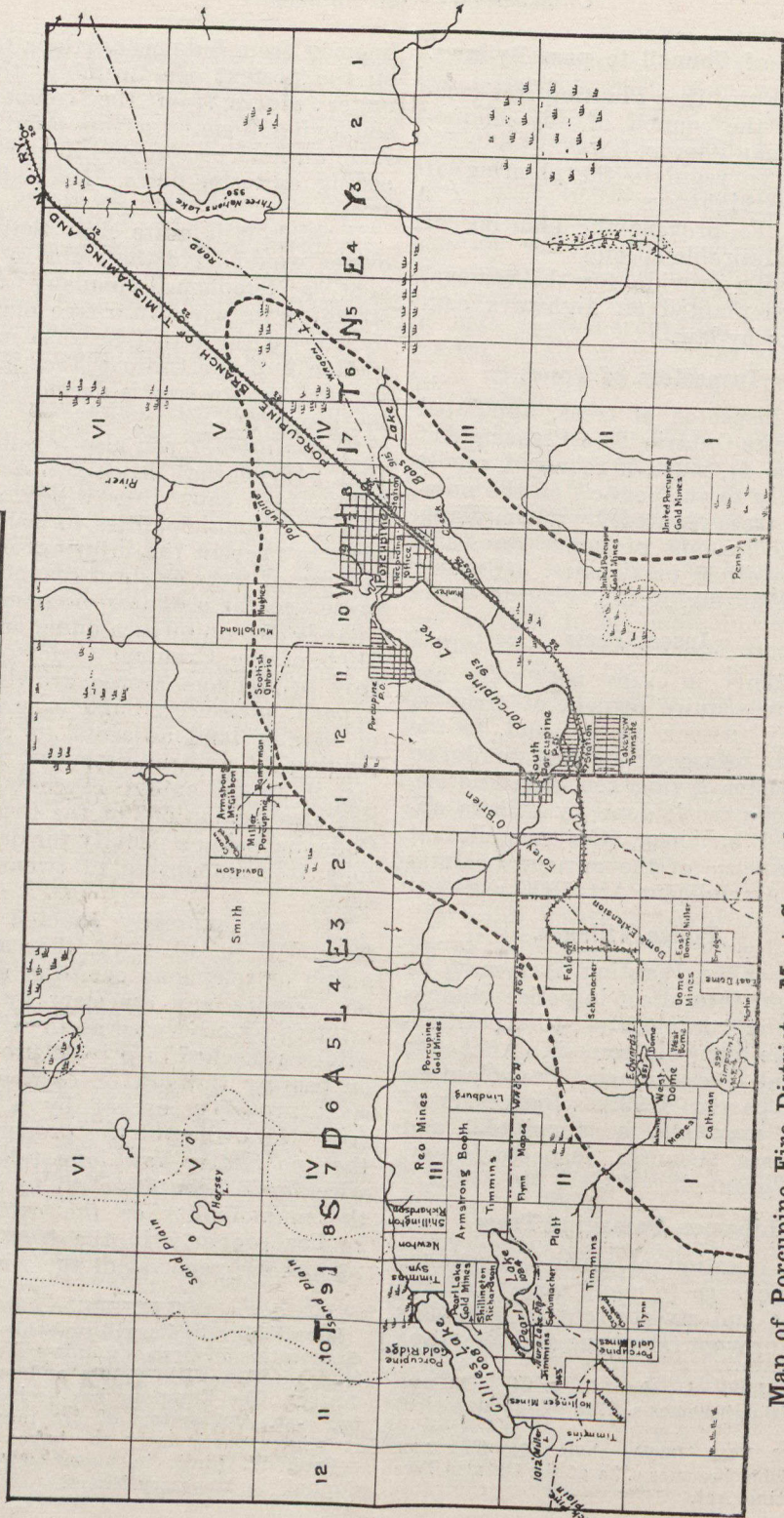
'It is also an offence under section 510 b of the Criminal Code to destroy or damage a tree growing in a park, pleasure-ground or garden, or in any land adjacent to or belonging to a dwelling-house, injuring it to an extent exceeding \$5. See also section 533 of the Criminal Code, imposing a penalty for damage to a tree amounting to twenty-five cents.

'It was expressly enacted by 4 Edw. VII, c. 10, s. 74, that a telegraph or telephone company should not acquire any easement by prescription or otherwise as to wires or cables attached to private property, or passing through or carried over such property, except by a grant from the owner of the property, so that no matter how long telephone wires have been attached to a tree, the municipality or the owner, if he has property in the tree, could compel the removal of the wire.'

'Our timber limits will probably attract no attention in Germany unless considered in connection with a pulp and paper industry. The European has decided opinions upon our system of fire ranging, as it relates particularly to timber limits.'—Fred. W. Field, in paper on 'German Capital' in Monetary Times.

<sup>6</sup> 6 Edw. VII, chap. 34, s. 24. The new provision becomes s. 574a of the Municipal Act.

<sup>7</sup> 62 Vic. (1899), chap. 30. The new provision becomes s. 3a of the Ontario Tree Planting Act.



Map of Porcupine Fire District. Most Severely Burned District Included Within Heavy Dotted Line.

# The Porcupine and Cochrane Fires.

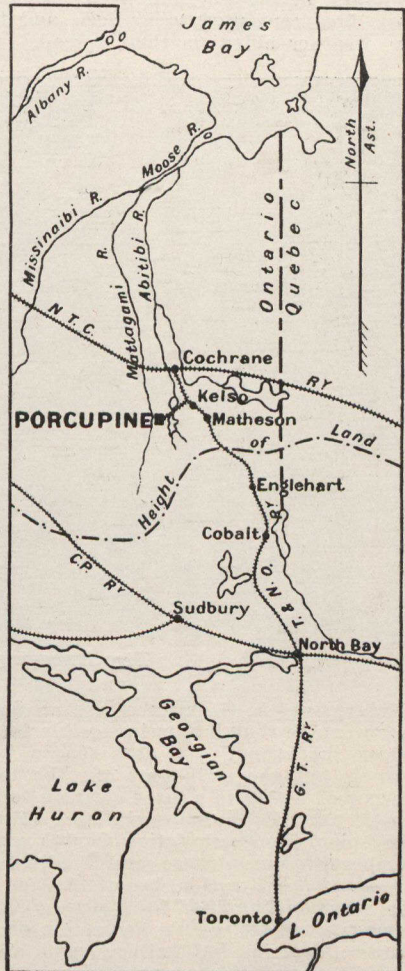
Seventy deaths and a property loss variously estimated at from a million and a half to three million dollars is in brief the story of the awful fires which centered in the vicinity of Porcupine Lake, Ontario, about four hundred and fifty miles due north of the city of Toronto. These fires occurred early in July, the climax coming on July 11. On this day also the town of Cochrane, about forty-five miles distant, was burned by another fire with a loss of three lives, and only nine buildings were left standing. The fact that these fires occurred in the mining district which is attracting at present so much attention gave them greater prominence. Porcupine is a new camp. Cobalt is about one hundred miles to the south, and the famous Timagami Forest Reserve is also to the south and its nearest edge about one hundred and twenty-four miles distant. This district is traversed by the Ontario Government Railway (also known as the Timiskaming and Northern Ontario Railway), the north terminal point of which is the town of Cochrane. At Cochrane the Ontario Government Railway intersects the National Transcontinental section of the Grand Trunk Pacific Railway.

## The Earlier Fires.

The country through which the fire passed is, for the most part, level. The characteristic forest growth of the region is birch and poplar, the ground is covered with a thick carpet of moss and the undergrowth is abundant, almost luxuriant. One of the greatest means of rapidly spreading a fire in such a forest is the thin, light bark of the birch; it catches fire in an instant, and a blazing sheet of it may be carried half a mile or more, to start a new fire far ahead of the old.

Owing to the extremely dry weather small fires had been quite frequent in the district in the latter part of June and early July. The townships most affected were Tisdale and Whitney, and to a smaller extent Shaw, Bristol, Deloro, Langmuir, Eldorado, Ogden, McArthur and Cripple Creek. On July 1 there were fires about the village of Porcupine at the north end of the lake and at South Porcupine at the opposite end, and along the line of the Ontario Government Railway. The Dome group of mines in the south part of Tisdale township were throughout the centre of the worst fires. On July 1 the buildings at the North and West Dome Mines were destroyed, and at the Dome Extension several men, including the mine

captain, were injured fighting the fires. At McDougall townsite all the buildings were burned; all the people were rescued in gasoline launches, but those who could not be taken away on the first trip were compelled, while waiting for the return of the launches, to stand in the water up to their chins. The fire extended to Pearl Lake in Tisdale township and the Pearl Lake Mining Company's plant was wiped out. On the following day a few shacks were burned at South Porcupine and at



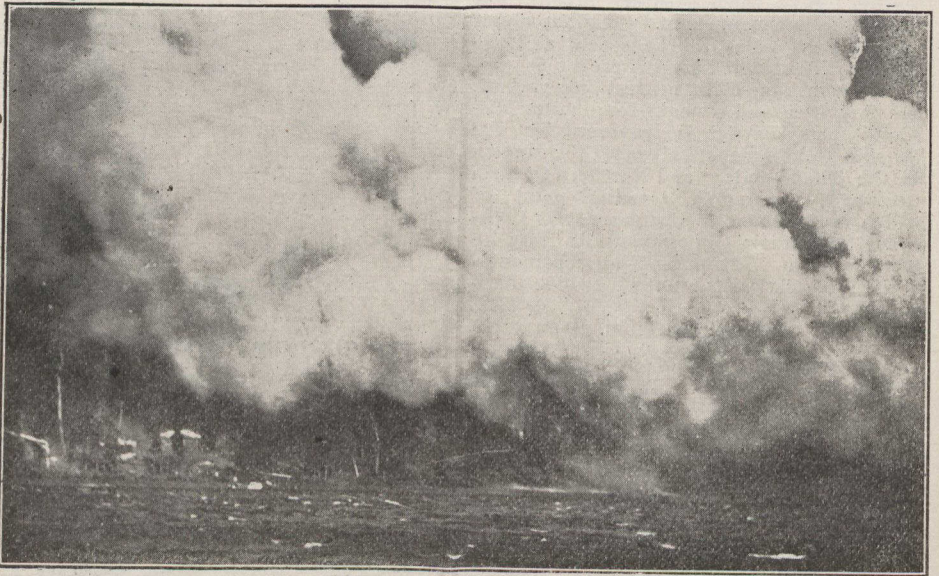
**KEY PLAN**  
 Showing relative position of the  
**PORCUPINE GOLD AREA.**  
 Toronto to Kelso is 448 mls.

Golden City, and at the Dome Extension Mines the whole force had to go down the mine in order to save themselves. Hon. Frank Cochrane, Minister of Lands, Forests and Mines, Mr. J. L. Englehart, Chairman of the Ontario Government Railway Commission, and Mr. Denis Murphy, Member of the Commission, who were on a trip of inspection, had a rather narrow escape.

On July 4 smoke was to be seen in all directions and prospectors coming in from Bristol township said the township was fire-swept, three men were dead and the rest had escaped after abandoning everything and fleeing for their lives. All that week fires continued to be seen and the dry weather aided in their spread. On

dead. The story is concisely told in the following despatch:—

'Early in the morning dense clouds of smoke could be seen in the southwest, but the fire was apparently remote. A small fire also broke out in Lakeview, adjoining South Porcupine on the south, but this excited little notice because of the frequency of bush fires. As noon approached thick clouds of smoke reached the zenith, marking the approach of the fire, and soon the sun was obscured. At 2.30 the fire had covered an area of 25 miles in length and over two miles in width and had reached the base lines of Tisdale, destroying the Standard and Imperial mines in Deloro township, Philadelphia in Shaw township and the Eldorado and United in



Fire Sweeping Down on Porcupine.

Sunday, July 9, the smoke was so dense in Porcupine that it was impossible to see across the street. A few shacks were burned, but the main part of the town was saved owing to a large clearing to the west. At Pottsville, adjoining South Porcupine, the Presbyterian Church and a number of houses were destroyed, at an estimated cost for this day of \$20,000. On the same day another fire caused \$35,000 damage at Kelsó, on the main line of the Ontario Government Railway, and about twenty miles distant from Porcupine.

#### The Great Disaster.

Finally, on July 11, the climax came, and the fires, which had so long been threatening, descended on the unfortunate towns and in the course of a couple of hours left heaps of ruins and many

Southern Whitney. At 1.15 p.m. the seriousness of the situation was realized in South Porcupine.

'The fire call was sounded on the Dome mine whistle, with repeated blasts from other whistles. By this time the sky was black with smoke, and residents began to pack valuables and light baggage for a hurried departure. Soon the flames had reached the Foley and O'Brien mine, having enveloped the Preston East Dome, the Dome, West Dome, North Dome and what remained of the Dome Extension after last Sunday's fire. In half an hour the outlying shacks had been reached. This was the beginning of the end.

'It became apparent at once that the town and possibly all the inhabitants were doomed, for the width of the fire was sufficient for it to sweep over the entire

town of South Porcupine and around both sides of Porcupine Lake. The fire reached the frame buildings of the town with a roar heard for miles.

'In twenty minutes South Porcupine was completely in flames and in three hours there were but corpses and smouldering embers, where the most flourishing town of the camp had stood. Men, women and children crowded to the water front. Launches and canoes, scows and boats were pressed into commission, and the women and children were first packed into the boats and sent to Pottsville and Golden City, both safe at that time. Panic and chaos prevailed. Men fought with each other for their families, and Police Officer Murray with Jack Gardner had to stand off the panic-stricken foreigners

lake very rough and a good many of those who sought refuge in canoes and boats lost their lives through the overturning of these craft. At first it was reported that two hundred had met death in this way but later reports showed that this was much exaggerated.

Golden City, which from its position around another angle of the lake was supposed to be safe, did not altogether escape. Fire entered from the north and burned about one third of the town, including several churches and the best residences.

The fires, after the terrible destruction of this day, subsided, largely from lack of material and a heavy rain on July 19 and 20 extinguished the smouldering remains.



Inhabitants of South Porcupine driven to the Lake.

who rushed for each boat as it came in. Men were hurled into the water and many rushed in as the only place of safety. Thirty launches and as many canoes soon had the women landed in safety on the other side of the lake.'

Those who could not escape from the burning town in the launches sought refuge in the lake, some six hundred men, women and children standing for several hours in the cold water. These were confronted with another danger, for horses and cattle, maddened by the flames, rushed into the lake, trampling some and forcing others out beyond their depth. The high wind which always accompanies forest fires of this magnitude made the

#### Causes and Consequences.

Various causes have been assigned for the fires, but it is generally believed to be due to prospectors' camp fires. It is known that prospectors are not averse to having the ground cleared and it is believed that when the fires became general many prospectors lighted 'back-fires' to secure their own safety and thus aided in bringing on the general conflagration. That the miners did not look upon the fire as an unmixed evil (in spite of its terrible toll of human life and the property loss) is shown in the following extract from a mining circular which was headed "Disaster a Benefit":

'What of the future? Under the circumstances, one almost hates to tell the truth about the effect of this disaster, but already there is evidence that this fire means a still greater Porcupine. The forest was a menace and brought no benefit, except that mine timbers were more easily obtained and every property was furnished fuel to the extent of the timber on its claims. This was limited. A first-class mining plant would speedily eat up the timber of a 40-acre tract. Aside from this, the forest was of practically no benefit. The trees and underbrush impeded progress and made fire a constant danger. Every company was engaged in clearing its property of timber. The fire has done the work for them. The timber and underbrush helped to conceal the geological formation. The burning of the brush will expose many hitherto unknown veins of gold-bearing rock.'

That the lumbermen entirely reject this view (even though the timber burned was not of a valuable species) is shown in the tenor of a number of articles in the lumber press. A writer in the *Canada Lumberman* signing himself 'Bush-ranger', after severely criticizing the present Ontario fire-rangin system, goes on to argue that were there a properly equipped brigade to support the patrolmen with detachments stationed at convenient points the fire could have been successfully fought before it attained the dimensions of a conflagration. He points out that numerous fires were observed on July 4 and yet the damaging fire did not occur until July 11. He says 'Apparently no vigorous steps were taken to quell the outbreak or to minimize the danger during the week they were burning. Had there been a properly equipped brigade stationed, say at North Bay, it could have been despatched to the scene by a special train, or otherwise on Tuesday, July 4, and possibly a large timber area might have been saved from destruction, and certainly something might have been done to put adjacent towns out of jeopardy.'

#### The Fire at Cochrane.

At Cochrane fires had been noticed burning in the vicinity on Tuesday morning, July 11th, but little attention had been paid to them. Very suddenly, however, the wind changed, and brought the fire rushing down on the town, which it reached about three o'clock. For an hour or two previous the people had been busy getting their belongings to places of safety. A train was in readiness which pulled out to a clearing some distance from the town, and separated from it by spaces of sandy land and by Lake Commando, which the fire was unable to cross. About six o'clock, when all danger was over, the train returned to town. Immediate relief

was given by Foley and Welch, railway contractors, turning over their supplies, which lasted for some time.

#### Explanation of the Maps.

A glance at the accompanying maps gives an idea of the relative position of the towns and properties damaged. With the exception of Cochrane, the towns are all situated on Porcupine Lake, a sheet of water some two miles in length by half to three-quarters of a mile in width. At the southwestern end of this is the town of South Porcupine, with Pottsville almost adjoining it a little to the west. At the other end of the lake are the towns of Porcupine and Golden City. The fire approached from the southwest, and the area which sustained the greatest damage is that in which the various Dome mines were situated. At the West Dome mine the loss of life was greatest, some twenty-one bodies being taken from a timbered shaft in which a number of the staff of the mine had taken refuge. At the Preston East Dome mine, on the other hand, where a number of persons took refuge in a shaft which was not timbered, no loss of life took place. From the shaft of the Big Dome mine, also, six bodies were recovered.

#### Relief Work.

Supplies were speedily voted by a number of Canadian cities and towns, including Toronto, Ottawa, Hamilton, Guelph, St. Catharines and others, and by Boards of Trade, private firms and individuals. The American Red Cross Society also sent a contribution of a thousand dollars. One Toronto departmental store sent a carload of provisions; a feature of this gift which the relief committee found of advantage was that the goods had been made up into parcels before shipping, which made the distribution of them comparatively easy.

Up to July 27th the total amount of relief distributed by the relief committee was \$23,443, of which Porcupine received \$13,855 and Cochrane \$9,588. In addition \$10,000 was set aside for the establishment of a hospital in the Porcupine district, and \$1,000 for the establishment of temporary schools in the Porcupine district.

Reporting on his last summer's work in locating the eastern boundary of the Rocky Mountain forest reserve, Mr. P. Z. Caverhill remarks: 'Fire is the worst enemy the forest has. Eighty per cent. of the territory surveyed has been burned in the past fifty years, and sixty per cent. of this (or forty-eight per cent. of the entire country) has been burned over in the last twenty-five years.'





Bringing in Bodies to the Cemetery at Deadman's Point, near Porcupine.

## Other Forest Fires of the Summer of 1911.

The awful forest fire at Porcupine, Ontario, has naturally claimed the most attention among all the forest fires of the year. Not only in other parts of the Dominion of Canada, however, but in the United States and in some foreign countries the season has been marked by large fires and consequent destruction of life and property.

### Nova Scotia.

The province of Nova Scotia has suffered to an unusual extent during the past summer. In addition to the severe conflagrations which occurred towards the end of May last in Shelburne and Cumberland counties, a very severe fire raged near Amherst during the first part of July, originating near Fox River. This was claimed to be of incendiary origin, the fire having been set in three different places and in parts of the forest not frequented by sportsmen. By July 21st it was estimated to have run over more than 6,000 acres of the holdings of one company alone.

### British Columbia.

About July 20th a fire raged near Squamish, near Vancouver, the loss from

which was reported to be half a million dollars. A few days previous a serious fire was reported a few miles east of Yale, which proved troublesome, and also a fire west of Lake Coquitlam.

### United States.

In the state of Michigan, during the early part of June, several towns were destroyed, and the death list amounted to seven. The middle of the month was also marked by severe fires in the Moosehead district, Maine. Thousands of acres of Maine's finest timberlands were reported to have been burnt over, with a loss of hundreds of thousands of dollars. Some of these fires are said to have been caused by lightning.

### Foreign.

During May last immense forest fires occurred on the island of Hokkaido (or Yezo), Japan. A number of villages are reported to have been destroyed, and many lives lost. The fire line was almost sixty miles in length.

Sweden also reports serious forest fires during the last of May, near Umea, in the province of Vesterbotten. Some deaths are reported.

# Conservation and Homemakers.

Signs which show that the women of Canada are awakening on this subject.

Five years ago 'conservation' was an unknown term in the sense in which it is now applied. There were no newspaper articles on it and no addresses, except those of a few enthusiasts. Now it is scarcely possible to open a newspaper without finding some reference to the subject. One of the most hopeful signs is the way the women of Canada are taking hold of it. Women's organizations are among those which most frequently ask for lectures under the Canadian Forestry Association's lecture plan. Authorities on the subject are constantly being called upon by the women to explain the relation of conservation to the home.

Mr. J. F. MacKay, general manager of the Toronto Globe, and a member of the Canadian Commission of Conservation, by request recently spoke before the Toronto Household Economic Association.

Probably the most important gathering of the century, said Mr. MacKay, was the conference of governors, judges and scientific men which Theodore Roosevelt called together at Washington in May, 1908, to form a National Commission on Conservation. Sometime later the Canadian government decided to appoint a permanent commission, and the first meeting was held at Ottawa, January, 1910, the Commission being national, rather than political, in its aims.

The Commission is attempting conservation along seven lines, and leading experts in each branch are directing the work. The question of forestry, and the preservation of our forests, had been most in the public eye, and whereas a few years ago there was not one qualified forester

in Canada, chairs of forestry were now established at three universities. The evil results of bad lumbering in the injuring and cutting down of immature trees, the devastation by fire of vast areas of forest, were well known. Along with prevention of these two evils should come proper treatment of forestable land.

He dealt also with the conservation of fisheries, mines, soils and the public health, and concluded by speaking of the value of our fresh waters—not only for sustaining animal and vegetable life, but for purposes of navigation and electric power. The use of our waters as a mean of disposing of sewage, he characterized as a 'monumental misuse.' From our waters we could obtain heat, light, and power. It had been estimated that our Canadian waters can give sixteen million horsepower. Of this, only five hundred and fourteen thousand was as yet developed.

Mrs. Annie A. Wilder, a Canadian now resident in Washington, and an enthusiastic supporter of conservation, some time earlier was the guest of the Winnipeg Women's Canadian Club, and in the course of her address showing how closely related the home was to the preservation of the forests said:

'Forest preservation is a moral question. The waste of our national resources, whether in Canada or the United States, is not only criminal but immoral. I agree with Andrew Carnegie when he says that the land has been given us in trust; that we have a duty to succeeding generations in preserving the land and all its resources, and it is to this end that I am an active conservationist.'



(Courtesy American Lumberman.)

Cut of Yellow Pine 100 Years Old, with 'Standards' Left.

## Notes on Some Bavarian Forests.

By Major Gustave Joly de Lotbinière.

A brief account of a short visit paid to three Bavarian forests, near Munich, may be of interest to those who may contemplate a visit to Germany, where they will see for themselves the result of more than a century's systematic and scientific management of forest lands.

I desire, at the outset, to make it clear that German forestry is not identical with forestry as it exists to-day in Canada, although it is remarkable how similar the forest trees and climatic conditions are in these two countries.

The main difference lies in the fact that in Canada primeval forests abound, whereas in Germany nature is assisted in the work of regeneration both by planting and by selecting the trees to be removed, as well as those to be left as seed-bearers and shelter for future crops.

On my arrival at Munich, in the middle of August, I presented a letter of introduction to the British Legation. (I had previously ascertained that Professor Heinrich Mayr, who is a well known authority on forestry, would be the best authority to consult). The Legation placed me immediately in communication with him and I lost no time in calling at his house in the experimental garden, at Grafrath. The Professor received me with the greatest kindness and courtesy, and undertook to arrange a programme which would fill up the whole of the time at my disposal. I cannot say too much of the interest shown me by Professor Mayr, who is the principal authority in the School of Forestry at Munich, as well as the head of the large Experimental Garden at Grafrath.

[Prof. Mayr has died since Major Joly de Lotbinière's visit to Munich.

A short obituary notice will be found elsewhere in this issue.—*Ed.*]

My wife and I spent a delightful afternoon with the Professor at Grafrath, as a preliminary to a future visit on the following Tuesday, as it was our intention to proceed to Ober-Ammergau for Sunday, to see the famous Passion Play, which is held on Sundays and saints' days, during the summer of every tenth year.

Ober-Ammergau is beautifully situated in the Bavarian highlands, adjoining the Austrian Tyrol, and for its own sake is well worth a visit.

Here, as in other parts of Germany, advantage has been taken of natural conditions and environment, as the hillsides afford a splendid opportunity of growing trees as a profitable crop. Land which cannot be tilled economically will very often grow trees of great commercial value and supply material for numerous industries. Mountain slopes afford an excellent opportunity for profitable forestry, of which full advantage has been taken, and nature is everywhere being assisted in Germany to maintain a supply of timber to meet the requirements of the country.

#### **Prof. Mayr's Tree Garden.**

The Experimental Garden at Grafrath is 140 acres in extent. It is situated on a terminal moraine, varying, within short distances, from heavy clay to sand and gravel soils and is not, generally speaking, suited for agricultural purposes and consequently has been very rightly turned over to forestry.

The object of the garden is to study the characteristics of indigenous trees and to study at the same time what exotics may be most profitably cultivated in Bavaria. The size of the garden is sufficient to enable large numbers of each species to be grown under natural conditions. The garden is traversed by numerous footpaths which makes

the inspection of the many varieties of trees very easy.

The following has been taken verbatim from the printed report of the Royal Scottish Arboricultural Society's excursion to Bavaria (1909) and has been included to show the importance attached by the Society to experimental gardens on a large scale:—

"In the cultivation of exotic species, mistakes are frequently made which lead to failure and disappointment. A certain amount of knowledge in regard to the cultivation of an exotic may be, and often is, obtained from failures or negative results. This method of investigation, however, savours too much of the old method of trial and error. Such a method of experimenting is slow and costly, and the environmental conditions are so varied that in such cases it is difficult, nay, almost impossible, to determine which factors are beneficial and which injurious. The case is quite different in a properly arranged experimental garden, where experiments can be conducted on scientific principles. Professor Mayr's work has shown that a knowledge of the trees in their native habitat is one of the first essentials in dealing with the introduction or cultivation of exotics. A knowledge of the physiology and geographical distribution of the various species indicates the lines upon which experiments should be conducted, and this can only be done in a properly organized experimental garden.

\* \* \*

The garden was laid out in 1884, so that sufficient time has elapsed to enable some valuable deductions to be drawn. The Douglas fir flourishes in Bavaria, as it does in England, especially the Oregon or light-green variety, which grows much faster than that from Colorado.

The experiments made with the Japanese larch clearly demonstrate the importance of careful scientific investigation. This tree grows re-

markably fast for the first fifteen years, but after this period is caught up with and passed by the native variety.

The value of larch as a timber tree is universally acknowledged, but it has suffered much from disease in Europe, consequently varieties from other countries have been tried in order to find one which would be immune from the very prevalent larch disease.

Canadian hemlock is another tree which is being experimented with on a large scale. Professor Mayr was

on the latter, although they do considerable damage to the native variety.

When silviculture is studied from its commercial aspect it is interesting to note how small is the number of species which are cultivated in Bavaria, and how alike they are to the commercial trees of Eastern Canada.

The spruce is by far the commonest tree and is called by German foresters "the bread-winner." The silver fir (*Abies pectinata*) is also common. The Weymouth pine and



(Courtesy American Lumberman.)

Thirty-year-old Coppice near Karlsruhe, Germany.

of opinion that it was a fast grower. As hemlock is an exotic to Europe, its cultivation is being followed with interest.

### Cultivated Trees.

The Canadian or Weymouth white pine (*Pinus strobus*) has been cultivated in Europe for over a hundred years, and is now classified as a native tree.

The Bavarian spruce (*Picea excelsa*) is probably the most cultivated forest tree in Bavaria; the needles have not nearly so strong a scent as the Canadian variety (*Picea canadensis*). The roe deer will not feed

also the Scotch pine (*Pinus sylvestris*) are the most important pines cultivated. These, with the larch (*Larix europea*), practically complete the list of conifers.

I understand the oak, ash, beech and sycamore are the most important of the deciduous trees (possibly birch and alder might be included in this list) but I did not visit any hardwood forests.

### A German Forest.

Forstenrieder Park was the first forest we visited. It is situated about fifteen miles south of Munich. We saw some of the wild boar which are

preserved by the King of Bavaria. We were met at the station by one of the forest guards, who took us through a portion of the forest to the nursery, where his chief, the Assessor, met us. This was our first experience of an artificially planted forest and we were much impressed by the extraordinarily regular growth of the trees — acres upon acres of tall straight stems of clean growth, free from all lower branches.

There was no underbrush of any kind, nothing but tall stems about four to five metres apart, growing out of a carpet of damp moss, with a perfect canopy overhead without gaps or breaks. It is a very impressive sight to see so regular a crop of timber, practically all of one species (spruce in this case).

The roads are carefully laid out at right angles and at regular intervals to give convenient access to all parts of the forest.

To describe the appearance of this forest it is necessary to say a few words on the rotation system, which is so universally practiced in scientific forestry.

This principle is founded on the clean-cutting of a fixed portion each year and its immediate replanting, either artificially or by natural regeneration. To carry this out, in a logical manner, it is necessary to cultivate the varieties which mature within a certain time. The usual practice with spruce, in Bavaria, is to take from 90 to 100 years as the time necessary for a crop to complete the quickest and consequently the most profitable portion of its growth, by the end of which period it will have reached a diameter of sixteen to twenty inches at the butt. If left longer the trees would still increase in size, but at a rapidly diminishing rate.

Having decided upon the variety and the time required for its development into profitable timber, the next step in creating an artificial forest on the rotation system is to plant an equal portion each year un-

til the whole is planted up in the period allowed for the timber to reach its profitable development. Thus if you have 1,000 acres to plant in spruce, which you propose to cut at the age of a hundred years, you would plant ten acres a year, until the whole was planted. The first clean cutting would only begin at the end of one hundred years, when the oldest ten acres would be cut and immediately replanted; every succeeding year another ten acres would be cut and immediately replanted. Having once established your forest, you may thus count upon ten acres of fully developed trees every year, for all time to come.

The above is a brief statement of the rotation principle, leaving out of account such questions as the number of trees to be planted to an acre, the extent to which, and age when, thinnings should be made and whether the replanting should be done artificially or by natural regeneration.

Forstenrieder Park is a very perfect example of a forest artificially planted on the rotation system. Trees are seen at all stages of growth, from fully developed trees, ready to cut down, to seedlings only just planted.

### **Forest Planting.**

The young trees are reared in a nursery in the forest itself, under as natural conditions as possible. They are planted out in rows, at the age of two to four years, and at regular intervals of four feet each way, or about 2,700 trees to an English acre. The object is to create a perfect canopy as quickly as possible, the branches meeting at an early age and the upward race starting at the outset. As time goes on the stronger trees overtop and crowd out the weaker ones, an overhead canopy is formed which causes the lower branches to die off, and tall clean stems are the result.

Thus, in a German forest, nature does its own work and no artificial

pruning is necessary; but, when the trees are about thirty years old, science is called in, as the trees will have to be given more room to enable them to thicken their trunks, and, by increasing their girth, to put on wood where it will be of most value to the lumberman. Thus, the required length of trunk having been attained at an early age, it is now necessary to remove the weaker trees in order to give the stronger ones more room to develop their trunks.

### Thinning.

The guiding principle, in thinning

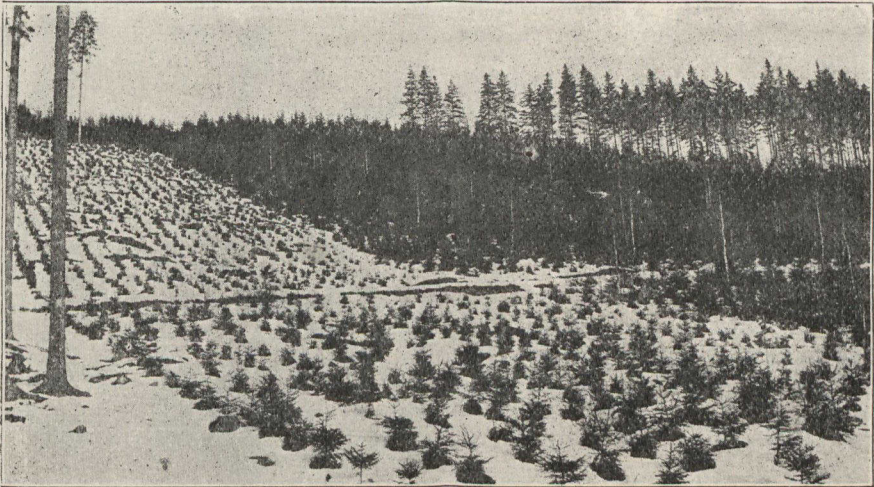
the following figures for a mixture of Scotch pine, beech and spruce in the Black Forest:—

Age in years.	No. of trees to acre.
20 ... ..	3,960
40 ... ..	1,013
60 ... ..	449
80 ... ..	346
90 ... ..	262

### The Forest at Isen.

The next forest we visited was at Isen, about thirty miles east of Munich. A branch railway runs through this forest.

The Forest of Isen is about 6,000 hectares (15,000 English acres) in



(Courtesy American Lumberman.)

Planted Spruce in Saxony, 10, 20, 30 and 50 Years Old.

out, is to avoid the breaking of the overhead canopy or the opening out of the forest to such an extent as to let in too many cold draughts, as the trees have been reared under shelter and will thrive best if the shelter is maintained.

I believe success depends, to a great extent, on judicious thinning, which is done every ten years or so, until the trees have reached maturity, when the final cutting will be done.

Professor Schlich in his Manual, Vol. II, page 209, 2nd edition, gives

area. As at Forstenrieder, so here, I was much impressed both by the uniformity of the trees in size, and by the regularity of their distribution. The land appeared to be carrying the maximum amount of timber, all of which seemed to be clean and healthy. I was also struck by the number of saw-mills distributed along the outskirts of the forest. With the local industries on the spot, the cost of haulage is reduced to a minimum; and the amount of permanent local employment provided must be considerable; when a tree is cut down,

even the branches are removed and made use of, and no waste wood is seen anywhere.

The woods were mostly spruce and Scotch pine, with a fair proportion of Weymouth pine and some Douglas fir.

The administrative staff at Isen consisted of a forest-master, two assessors and seven foresters, all highly specialized in their respective duties; and, I understand, all have to pass through one of the schools of forestry.

### **Forest Nurseries.**

We visited two nurseries situated in the forest itself. A brief account of the methods employed for raising seedlings may be of interest.

The seed is sown in rows a metre long; between the rows laths about two inches wide are laid on the ground, to keep the weeds down and to keep the soil damp.

The number of seedlings raised by this method, in a small space, is prodigious. The nurseries are, consequently, small in area: the beds are carefully prepared beforehand, and lupins or some other soil-improving crop is first grown to enrich the ground.

The seedlings are generally left in the seed beds for two years, and are then planted out in the nursery three inches apart, where they are left for another two years, after which they are ready for transplanting into the forest. Although these details may appear trivial, they are exceedingly important as, unless the young plants are given just the right space for forming both roots and heads, they will not be in the best condition for moving. We saw young trees which had been badly started in the nursery and were, consequently, useless for moving out.

Each variety of forest tree has been studied and has been found to require different treatment in the nursery. Thus, the oak and ash seedlings are planted out in the nursery twelve inches apart and the Wey-

mouth pine six inches apart; the young spruce, as stated above, are planted three inches apart.

The transplanting is done both in the autumn and in the spring.

The Germans have, with the greatest care, designed tools for their forestry work. I saw a most useful auger for taking up the two to four year seedlings, with a ball of earth. They have also a very ingenious arrangement for making the holes for the two-year-old seedlings, when first moved.

These devices economize labour and secure uniformity.

The cost of planting an acre of forest, under normal conditions, is only about ten dollars. Unfortunately we were not in Bavaria at the right season for seeing the planting operations.

I understand that, for a forest of the size of Isen, (15,000 acres) about 200 acres are replanted every year, the trees being planted in rows at intervals of four feet each way.

In Germany, where forestry has been developed to a great pitch of perfection, all possible care is taken to secure the best seed obtainable.

Forest trees produce full crops of seed at comparatively long intervals, from ten to twelve years; and some years are much better seed years than others. Seed is collected from carefully selected trees; but, on this question, I was unable to collect much information. I believe the seed is often sent from one part of the country to another. I was informed at Isen, however, that in future they would collect their own seed.

### **Natural Reproduction.**

The third and last forest that we visited was at Kelheim, about six hours' journey by train, from Munich. Kelheim is a very important forestry centre, and would be well worth an extended visit; it is particularly interesting because natural regeneration is practiced here on a large scale. We were unable to do more than drive along some of the



forest roads and stop a short time at several places to see the process of natural regeneration by the group system.

The group system of regeneration is worked as follows: When an area is selected for final cutting, the trees are removed in circular patches of about fifty yards in diameter, a mother-tree being left here and there for seeding purposes and shelter. The clearings are comparatively close to one another, say, within fifty yards; the object of keeping the clearings so small is to avoid exposing the ground too much to the sun and light, which encourages the growth of grass and weeds, whereas the young seedlings do best under shade. In about four years' time, if the clearings have been made at a favourable time when the mother-trees are producing seed crops, the ground will be covered by a thick crop of young seedlings. When this has been accomplished, a second cutting is made; this is done by enlarging the circular patches, and cutting out a ring round each circular patch, so that the circular clearings are now almost touching each other. Another period of four years is allowed to lapse for the newly cut ground to become covered with seedlings. When this has been accomplished, the remaining trees are removed with the exception of, perhaps, a few trees to complete the sowing of any bare portion; or hand planting is resorted to, in order to fill in gaps.

The above is a brief description of regeneration by the group system. As I saw it at Kelheim, it appeared to be working admirably and there was a splendid crop of young spruce coming up where the ground had been cleared.

There are other methods of regeneration, such as cutting out long narrow strips, which, in time, will be restocked from seed, carried by the wind. The strips should be narrow to prevent the growth of grass and weeds; all bare patches that

have not seeded well are hand-planted.

The Germans lay considerable stress on shelter, and always begin cutting on the leeward side, away from the prevailing wind. They also, when afforesting an exposed or cold site, provide some shelter trees, such as birch, to protect the young seedlings, especially in cases where land is being prepared to receive a forest crop for the first time.

I am of opinion that, if nature is assisted by science in the natural regeneration of forest lands, which have been allowed to deteriorate, much labour, time, and expense will be saved.

It is possible that this branch of the subject might be profitably studied and applied to conditions, such as exist in Canada to-day, and that vast areas in Canada might be reforested with valuable timber by the practical application of scientific principles.

In fact, I might go further and state that it will be practically impossible to reforest a great deal of what was former forest land in Canada, without assisting nature by the application of methods which have been devised by close scientific study.

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#### THE NEWLY-APPOINTED BISHOP OF REGINA.

Hearty congratulations will be extended by the members of the Forestry Association to Right Reverend Mgr. Mathieu, late rector of Laval University, Quebec, on his elevation to the bishopric of Regina. Mgr. Mathieu was, at the last annual meeting of the Canadian Forestry Association, elected to the directorate in the place of the late Mgr. J. C. K. Lafamme. Not only has Mgr. Mathieu attained a high degree of honor in academic circles, having received the degrees of doctor of theology and doctor of philosophy, but he has also been honored with the distinction of C. M. G. and is a Knight of the Legion of Honor of France.

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Attention is called to the advertisement for a woods superintendent in another column.

# Comment disposer des débris et déchets provenant des exploitations forestières.

(Travail de feu M. E.-G. Joly de Lotbinière, lu à la convention forestière canadienne à Québec, janvier, 1911.)

Parmi les nombreuses précautions à prendre pour empêcher que nos forêts ne soient détruites par le feu, il y en a une à laquelle jusqu'ici on a porté peu d'attention, bien qu'elle soit de la plus grande importance. Je fais allusion à la façon de se débarrasser des débris ou déchets qui recouvrent le sol après la coupe des arbres.

On peut employer trois méthodes pour se défaire de ces débris :

Premièrement—en les détruisant par le feu.

Secondement — en coupant les rameaux des grosses branches pour les empiler isolément avec d'autres déchets, en prenant soin d'éloigner les piles les unes des autres autant que possible.

Troisièmement — en jonchant le sol de rameaux coupés aux grosses branches des arbres d'abatis.

Je vais dire en peu de mots ce que je pense de ces trois méthodes, dont j'ai personnellement fait l'essai, afin de me rendre compte, aussi soigneusement que possible, de celle que l'on devrait préférer, sans qu'il en résultât des dépenses pouvant rendre impossible l'exploitation des forêts.

J'ai donc constaté qu'aux endroits où le bois abonde, sans être de trop fortes dimensions, deux bons "gars" peuvent abattre et débiter en billes une moyenne de 4,000 pieds de bois, mesure de planche, par jour. Ces 4,000 pieds de bois représentent environ 100 billes de 40 pieds par bille en moyenne. Or pour ébrancher ces 100 arbres, allumer des feux et les alimenter avec des branches, il a fallu quatre hommes payés \$1.25 chacun. Soit une dépense de \$5 pour

les quatre, et \$1.25 à ajouter au coût de revient de chaque 100 billes ou 1,000 pieds de bois exploités en forêt.

Dans le second cas, pour couper les rameaux des branches et les mettre en piles isolées, deux hommes ont pu accomplir ce travail à raison de 62 cents par 1,000 pieds; tandis que pour couper les rameaux et en joncher le sol il suffit d'un homme dont le travail revint à 31 cents par 1,000 pieds.

Bien que sur ces trois méthodes la première qui consiste à brûler tous les débris soit la préférable, elle est cependant trop coûteuse pour que les exploitants de bois y recourent, attendu que l'on trouverait excessif d'ajouter \$1.25 au coût de revient des billes. Certes, si les débris étaient mis en piles en hiver et brûlés en été, il en coûterait peut-être moins cher. Mais le risque de mettre le feu à des bois épais, tels que le sont nos forêts d'épinette, rendrait cette expérience fort dangereuse. Quant à brûler les débris l'hiver, cela se pourrait et l'on devrait s'y résoudre, si la chose pouvait être faite économiquement. Malheureusement le temps qu'il faut pour chercher du bois sec et pour faire un grand feu à même de brûler les frondaisons, rend coûteuse cette méthode qui serait la meilleure et la plus sûre.

Pour ce qui est de la seconde méthode, qui consisterait à mettre les débris en piles isolées au coût de 62 cents par 1,000 pieds, elle est aussi, je crois, au-dessus des moyens des exploitants de bois, d'autant plus qu'elle ne présente pas les garanties de sécurité voulues. Ceci,

parce que les piles de branches présenteraient plutôt du danger en cas d'incendie, que des facilités pour combattre le feu.

Quant à la troisième méthode, celle qui consisterait à couper des rameaux des branches et à en joncher le sol de la forêt, elle me semble la plus pratique et la plus économique pour se débarrasser des débris d'abatis. En tout cas la dépense additionnelle de 31 cents par 1000 pieds pour obtenir une grande somme de sécurité, ne doit guère être au Canada un obstacle sérieux à l'adoption de cette méthode. Si je ne me trompe, on la pratique déjà sur une grande échelle et avec les meilleurs résultats aux Etats-Unis. Le pourquoi de la préférence accordée à cette méthode est évident, si l'on songe que lorsque les déchets sont éparpillés sur le sol de la forêt ils se brisent et cessent promptement d'être une source de danger, surtout dans cette partie du Canada où de fortes neiges les exposent toujours à l'humidité parmi les mousses et l'humus. Aussi si un incendie éclatait dans une région déboisée où l'on aurait pris cette précaution, tout au plus se bornerait-il à brûler ce qui se trouve sur le sol et serait, partant, beaucoup plus facile à éteindre que s'il était alimenté par des branchages ou des piles de branches.

Avant de terminer ces quelques remarques, je désirerais attirer votre attention sur une autre cause de danger. J'ai nommé les arbres morts qui restent debout et que l'on devrait abattre surtout lorsqu'ils sont pourris. Car, en cas de feu de forêt ces arbres deviennent redoutables, surtout lorsqu'ils sont creux, du fait qu'ils se transforment alors en immenses cheminées, qui jettent des flammes et des étincelles au-delà de la zone ignée, qu'ils agrandissent en laissant tomber leurs débris enflammés en maints endroits à la fois. C'est pourquoi la tâche de combattre les incendies de forêts, qui déjà en soit est difficile, devient alors sou-

vent impossible lorsque les arbres morts restent sur pied.

En ce qui me concerne je dois avouer que jusqu'à présent je n'ai pris dans mes exploitations forestières aucune des précautions dont je viens de parler. Néanmoins les résultats que j'ai acquis au cours d'expériences faites cet hiver, m'ont décidé à adopter à l'avenir au moins la méthode de couper les rameaux et d'en joncher le sol. Je me plais donc à espérer qu'avant longtemps une entente à ce sujet interviendra entre nos divers gouvernements et les propriétaires de limites à bois, afin que ceux-ci se décident à adopter une méthode leur permettant de se débarrasser des déchets produits au cours des exploitations forestières.

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#### MEMBERSHIP LIST.

The attention of members of the Canadian Forestry Association is called to the fact that the mailing list has lately been revised with great care, and is now so arranged that changes can be quickly made. Should any member be receiving his copy incorrectly addressed, or have missed any number of the Journal, the Secretary would be glad to receive notification of his correct address or of the omission. He is also desirous of receiving changes of address as soon as possible, so that the list may be kept up to date.

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#### FEDERAL CO-OPERATION IN FIRE PROTECTION IN THE U.S.

The Department of Agriculture of the federal government of the United States has lately entered into an arrangement with several of the states, by which grants are made to the individual states to assist them in protecting their forests against fire. The funds so granted are to be used solely for paying patrolmen, and a very carefully planned system of patrol has been instituted. The arrangements have been effected under the terms of the Weeks bill, which also made possible the establishment of the Appalachian and White Mountain forest reserves. The states which will receive federal aid, with the amounts contributed by the federal government, are as follows: Maine, \$10,000; New Hampshire, \$7,200; Wisconsin, \$5,000; Vermont, \$2,000; New Jersey, \$1,000.

# The Pacific Coast Logging Congress

The third annual session of the Pacific Coast Logging Congress was held at Vancouver, B. C., June 22 to 24, 1911; this was the first session of the congress ever held in Canada. The Vancouver Hotel was the headquarters of the congress, while the sessions were held in the Imperial Rink. The attendance was a large and representative one, some two hundred signing the register.

The first session opened at 10.30 on Thursday morning, June 22, the president, E. P. Blake, of Seattle, Wash., presiding at this, as at subsequent sessions. The first item of the morning's program was an address of welcome, which was read by J. A. Smith, president of the British Columbia Loggers' Association.

The president and the secretary-treasurer (Geo. M. Cornwall, of Portland, Oregon) then gave their annual addresses, touching on many matters of interest to the congress. The financial report was given by the assistant treasurer, David Davis, and showed the membership of the congress to be 102.

The chief address of the morning of interest from the standpoint of forestry was that of E. T. Allen, of Portland, Oregon, forester for the Western Forestry and Conservation Association. After complimenting the lumbermen for their support of proposals for the better protection of the forest from fire, he referred to the good work accomplished by the fire associations and compared the records of the states where these associations existed with those where there was no such body. He discussed briefly the fire laws of the states of California, Oregon, Washington, Idaho and Montana.

Other papers given at the morning session were 'The Hill-climbing Locomotive', by E. O. Potter, of Portland, Oregon, and 'Topographical Surveys', by W. W. Peed, Samoa, Calif.

At Thursday afternoon's session Otto Lachmund, Manager of the Arrow Lakes Lumber Co., Arrowhead, B. C., gave a paper on 'Logging in the Interior of British Columbia'. He noted the difference between the logging methods used in the East and those in vogue in British Columbia, and also the dissimilarity of the methods in use in the coast district of British Columbia and those employed in the interior of the province; on the coast, for instance, donkey engines were used, while in the interior horses were found more economical. He discussed the shortage of labor and the danger from fire. Papers were also given at the afternoon session

as follows:— 'Logging in Montana', by W. E. Wells, of Somers, Montana; 'Logging Redwood', by D. L. Albert, of Oakland, Calif.; 'Logging Contracts', by A. J. Hendry, Vancouver, B. C.; 'Logging on the Sky-line', by C. E. MacFarlane, Portland, Oregon; 'Firwood Distillation', by W. E. Young, Portland, Oregon; 'Logging in U. S. National Forests', by H. M. Strathern, Port Falls, Idaho, and 'Cost of Wire Rope', by Jas. O'Hearne, Mt. Vernon, Wash.

On Friday morning the subjects discussed were 'The Adaptability of the Cable Locomotive on Steep Grades', by R. L. Fraser, Vancouver, B. C.; 'Electricity as applied to Logging and Logging Equipment', by A. E. Ransom, Seattle, Wash.; 'The Application of Electric Power to Logging Operations', by E. G. Robinson, Arlington, Wash.; 'A New Type of Donkey Engine Fire Box', by A. W. Clark, of Portland, Oregon; 'Gasoline Logging Engine', by R. J. Mullin, Seattle, Wash.; 'Lidgerwood Logging System', by R. D. Merrill, Seattle, Wash., and 'The Necessity for Uniform Scaling of Logs', by J. T. O'Gorman, Portland, Oregon.

On Friday afternoon J. A. Harvey, of Vancouver, read a paper on 'Employers' Liability Legislation' in British Columbia. He quoted the provisions of the legislation of the province in regard to workmen's compensation and criticized the clumsiness of the machinery for putting it into effect. He advocated raising an insurance fund to which the province, the employers and the workmen should contribute and which should be administered by a paid commissioner appointed by the province.

The employers' liability legislation of the Western States was also treated by Jas. B. Kerr, of Portland, Oregon.

The Resolutions Committee then submitted their report, which was adopted, and the election of officers was then held, which resulted in the re-election of the old officers.

On Friday evening a banquet was tendered the visitors by the British Columbia loggers, and on Saturday the delegates and their friends, to the number of about two hundred, visited the plant of the Canadian Western Lumber Company at Fraser Mills, at the mouth of the Pitt river. During the afternoon Prof. H. W. Sparks, of Pullman, Wash., gave a demonstration of his char-pitting method of clearing land of stumps.

Tacoma, Wash., was selected as the next place of meeting.

# Log Scaling and Grading in British Columbia.

By Andrew Haslam, Vancouver, B.C., in Canada Lumberman.

The Doyle rule was used in British Columbia previous to 1902, and each mill had its own scaler, who scaled all the logs bought or logged for the mill. The Government appointed several scalers without salary, that could be called on in case of dispute. The system was not satisfactory, and gave rise to a great many disputes that were difficult of settlement.

In 1901 the Government appointed a committee to formulate a log scale that would correct the errors of the Doyle rule. The committee were Messrs. Alexander, King, and the writer. Mr. Alexander represented the mills, Mr. King the loggers, and the writer the Government interest. This committee ignored all previous rules and to arrive at an accurate result had a drawing made of the end of each size of log from twelve inches diameter to 73 inches, including both. The drawing was made showing a slab three-fourths of an inch thick on each of the four sides. Inside of the slab a kerf three-eighths of an inch, then the log inside that was laid off in inch boards and three-eighths of an inch kerf alternately. Everything three inches and over in width was calculated in the contents, but under was not.

Logs that are not round are measured two ways, and the mean diameter on the small end is taken for calculating the contents of the log up to forty feet long. Over forty feet there is an increase in the diameter of one inch for each ten feet over forty feet.

The rule made on this base was legalized by an act of the legislature in 1902 and was named the "British Columbia Log Scale," and the use of it made compulsory west of the Cas-

cade Range Mountains. East of this the Doyle was legal until July 1st, 1909. The British Columbia log scale is now legal all over the province.

The old method of allowing the mills to have their own scaler was legal until July 1st, 1906, when the Government appointed a supervisor and scalers to do the work west of the Cascade Range of mountains. In making these appointments the Government pays a regular monthly salary and charges five cents per thousand feet for all scaling, or, if called for, grading. The mill is supposed to pay all the scaling fees, but charges the logger one-half.

When scalers are required, there is an order sent to the supervisor's office, who sends out the first scaler reporting after receipt of the order. In this way neither the millman nor the logger knows who will be the scaler. Either party has a right to demand a rescale. The scaler who does the rescaling is not allowed to make up his boom; he simply sets down the length and diameter of the log and the volume is calculated in the office of the supervisor, so that there can be no collusion between scalers. If the rescale is within three per cent. of the original scale it is held to verify the original. If it is over three per cent., there is another scale by one of the scalers or by the acting supervisor. The supervisor's or assistant's scale is final and there is no appeal from it.

In August, 1906, the loggers and millmen met and agreed on rules for grading all logs, except cedar. The Government consented to the use of these rules, which gives them a permanency in so far as the Government's consent is concerned, but

there is nothing in the statutes to make them legal. The following is a copy of the rules:

**Flooring**—Logs suitable for flooring, reasonably straight; not less than 30 inches in diameter nor less than 20 feet long; clean; free from such defects as would impair the value for clear lumber.

**Merchantable**—Logs not less than 14 inches in diameter; sound; free from rotten knots or bunch knots; reasonably straight; the grain straight enough to insure strength.

**Rough**—Logs having visible defects, such as crooks, bad knots or other defects that would impair the value and lower the grade below merchantable.

**Culls**—Logs which will not produce 50 per cent. of their contents in salable lumber shall be classed as culls.

In all cases the scaler has the right to use his own judgment. There are defects characteristic of timber in certain localities for which it is impossible to make rigid rules.

On July 1st, 1909, the British Columbia log scale was legally extended over the whole province and the Government is now putting the necessary machinery in force to make its use compulsory over the whole province.

Take the scale as a whole, and the method of operation, I believe it is as free from defects or from influence of either parties interested as it can be at the present time. No doubt changed conditions may make changes necessary, but so far I believe there has been an honest effort to do what is fair between man and man. I believe the effort has been fairly successful.

#### LUMBER STATISTICS FOR 1910.

The compilation of the statistics for the year 1910 of the use of wood in the Dominion for lumber, pulpwood, etc., is now well advanced, and some of the bulletins are now in press. A summary of the results will be given in the next issue of the Journal.

#### CONSERVATION COMMISSION'S REPORT.

Since the last issue of the Canadian Forestry Journal the second annual report of the Commission of Conservation of Canada has been received. It is a cloth-bound volume of 230 pages.

The report falls into the following main divisions: (1) Proceedings of the Second Annual Meeting; (2) Resolutions adopted by the Canadian Forestry Convention; (3) Agricultural Work in Ontario, by C. C. James, C. M. G.; (4) Unsanitary Housing, by Dr. C. A. Hodgetts; (5) The Swedish Forest Conservation Law, by Dr. B. E. Fernow; (6) The Work of Conservation, (7) Conserving the Forests and (8) Mining in British Columbia, by John Hendry; (9) The Forestry Problems of British Columbia, by A. C. Flumerfelt; (10) Work of the Commission of Conservation in 1910; (11) Opinions given by the Commission in 1910, and (12) Proceedings of the Dominion Public Health Conference, Ottawa, October, 1910. Mr. Flumerfelt's paper is the same as that sent to the Dominion Forestry Convention at Quebec, but delayed, and now published in the appendix to the report of the Canadian Forestry Convention.

Of the above the chief items are those numbered (1) and (2). The actual proceeding of the Commission's annual meeting, of course, cover but one day, viz., January 17 (except for a committee meeting on the following morning), the members attending the Forestry Convention on the three following days. It is gratifying to members of the Association and others interested in forestry to know that the claims of forestry bulk so largely in the estimation of the members of the Commission. Items of the report relating particularly to forestry are Dr. Fernow's paper on the Swedish Forest Conservation Law, Mr. Flumerfelt's paper on The Forestry Problems of British Columbia, Mr. Hendry's article on Conserving the Forests and the summary of work done by, and the report of, the Committee on Forests.

An index covering some ten pages is provided.

#### REPORT OF QUEBEC CONVENTION.

The report of the convention held at Quebec, January 18 to 20, 1911, has been published and copies sent to all members of the Association. If any member has not yet received his copy, it is the result of accident, and the Secretary would be glad to know of such cases, so that he may forward another copy. Address Secretary, Canadian Forestry Association, Canadian Building, Ottawa.