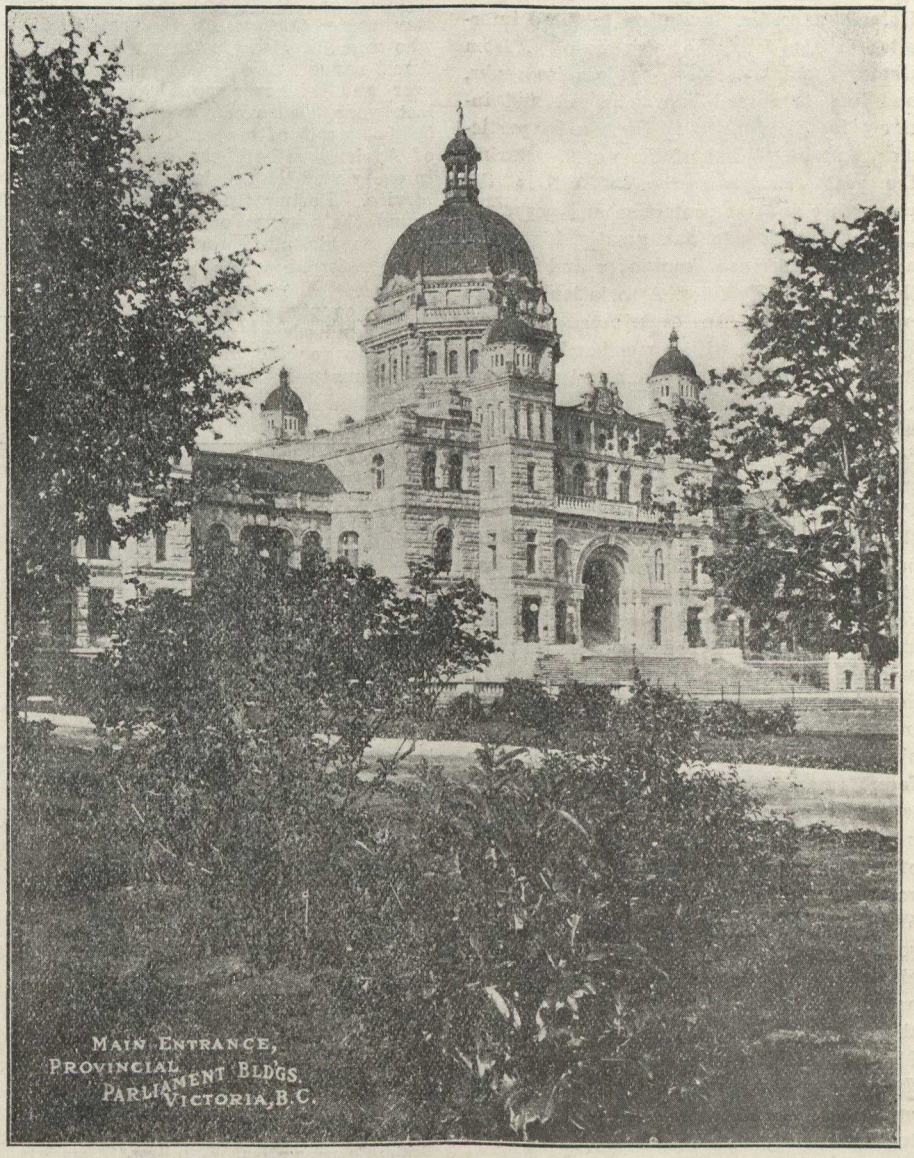
OTTAWA, CANADA.

Canadian Forestry Journal

VOL. VIII. JULY—AUGUST, 1912. No. 4



MAIN ENTRANCE, PROVINCIAL PARLIAMENT BLDGS. VICTORIA, B.C.

CONVENTION, VICTORIA, B.C., SEPT. 4, 5 AND 6.

THE CANADIAN FORESTRY ASSOCIATION.

Extends a cordial invitation to those interested in the forests of this country, from whatever point of view, to join its ranks, and help to spread knowledge of, and interest in, the forests of Canada in particular, and in general of the world. During the past few years the interest in the proper use and the protection and perpetuation of the forests has greatly increased, and to this increased knowledge and interest the Canadian Forestry Association, by its propaganda work, has contributed its share. Founded in 1900, with a membership of 12, it has in twelve years increased its membership to 2,700. During these years it has held conventions throughout Canada from coast to coast, in the Ancient Capital and in the bustling cities of the prairies and Pacific coast, in the manufacturing east and the agricultural prairie country. Its official organ, *The Canadian Forestry Journal*, was started in 1905 and is now in its seventh volume. But as forestry goes on, circumstances change and new needs spring up, and the Association is anxious to do its duty in arousing public interest and pointing out ways of getting things done. One object of the Association was achieved when forest reserves were established; but that is merely a beginning and now proper administration of these reserves, on the basis of the public good, irrespective of any private or partizan interest, must be secured. When that is done other problems will present themselves for settlement. The Association wants the interest and enthusiasm and, in some degree, the contributions of the public. The annual membership fee is $1.00; this entitles the member to *The Canadian Forestry Journal* for a year, the annual report of the society, and other literature. Life membership costs $10.00. Applications for membership should be addressed to James Lawler, Secretary, Canadian Forestry Assn., Canadian Building, Ottawa.

United States Postmaster-General Hitchcock has strengthened the forest fire-preventive force of the United States by almost 55,000 men. These men are the rural and star route carriers of the postal service, who are directed to co-operate with the forest rangers and State fire wardens whenever and wherever possible. Forest fires last year destroyed approximately $50,000,000 worth of property. The Department of Agriculture has been anxious to increase in every way the efficiency of its preventive service. Postmaster-General Hitchcock has found the way to offer assistance, and as soon as his plan was found feasible the order referred to was issued.

The county of Hastings will purchase some hundreds of acres of land in Elzevir township for the purpose of reforestation. This county is the first to undertake this work.

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Canadian Forestry Journal

VOL. VIII. OTTAWA, JULY-AUGUST, 1912. NO. 4

THE official organ of the Canadian Forestry Association. A magazine devoted to the interests of forestry and in general to the advocacy of the wise and conservative use of the natural resources of Canada.

Annual Subscription, - $1.00

Single Copy, - - - 25c

Literary Contributions and communications regarding editorial matters together with communications regarding subscriptions, changes of address, and advertisements should be sent to the Secretary Canadian Forestry Association, Canadian Building, Ottawa, Canada.

The Canadian Forestry Journal is a good advertising medium.

Advertising rates on application.

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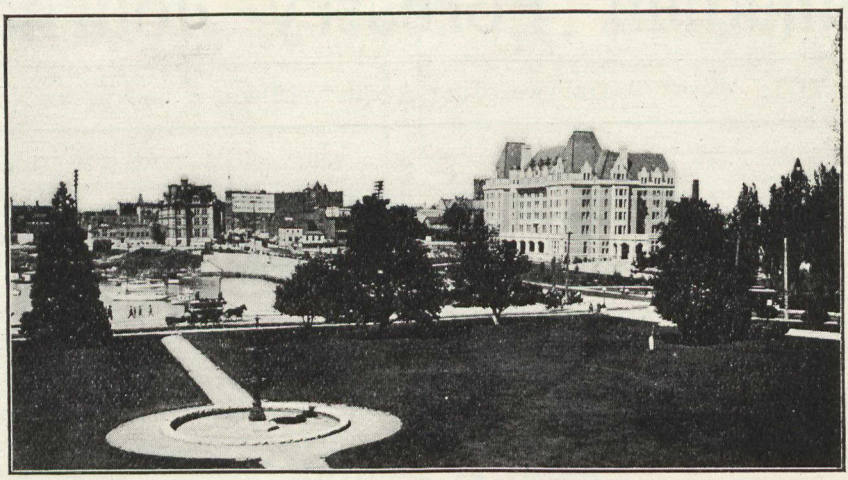
The Victoria, B.C. Convention.

September 4, 5 and 6 the Dates Decided Upon.

Wednesday, Thursday and Friday, Sept. 4, 5 and 6 are the dates set for the holding of the convention at Victoria, B.C. The proceedings will open with a reception on the evening of Sept. 4, and on the two following days morning and afternon sessions, at 10 a.m. and 2.30 p.m. respectively, will be held in the commodious and centrally located hall of the Alexandra Club. On Friday evening, Sept. 6, it is expected that a banquet will be held at the Empress hotel.

The government and people of British Columbia have awakened to the value to them of their forests, and when the people of the Pacific province become roused prompt and vigorous action is the result. At



Looking Towards Victoria from the Parliament Buildings.

the last session of the provincial legislature there was passed a Forest Act, which is in many respects the most advanced piece of forestry legislation that has been enacted on this continent. So favorably is it regarded that the State of California is said to be about to pass legislation which is largely a reproduction of this Act.

Not only will Hon. W. R. Ross, Minister of Lands, who has jurisdiction over the province's forests and in whose department the new Forest Branch is placed, take an active part in the convention, but the premier of the province, Hon. Sir Richard McBride, K.C.M.G., is taking a personal interest in the convention and will deliver an address.

Forests and forestry in British Columbia will naturally take up the greatest share of attention at the meetings, but the papers and discussions will not be confined to these only.

Many of the leading foresters and lumbermen of the province and of the whole Dominion will be present at the convention, and sessions of the greatest interest may be looked for.

To Easterners who attend, not only will the convention be interesting but the entire journey to the Pacific coast will be of the greatest interest and their visit to the province will afford them the greatest enjoyment. In Vancouver the Pacific province possesses one of the most substantial and rapidly growing cities of the North American continent. It has now a population of 140,000 (including suburbs) and is looking forward to great things in the future, especially after the Panama canal is completed. The city includes the famous Stanley Park, with its big trees, in which the tree lover will find special delight. Capilano Canyon is another point of interest that will divide general attention with the famous park.

From here, the capital city of Victoria, the scene of the convention, is some five hours' sail down the Strait of Georgia. Not only does it include many beautiful buildings (of which the Parliament buildings are the chief), but it is famed also for the beauty of its surroundings. The immense timber resources of Vancouver Island, and its possibilities in many other directions will also engross the attention of the visitor. The railway development of the mainland must be an additional source of wonder to the tourist.

RAILWAY ARRANGEMENTS.

Arrangements have been made with the railways which enable the Association to promise a rate of a single fare for the round trip to all attending the Convention from all points in Canada. This rate is, of course, open to ladies attending the Convention.

In order to participate in this reduced fare, delegates must purchase first class one-way tickets to Victoria, B.C., and *secure certificates to that effect on the Standard Certificate form* from the railway agent selling the ticket. Railway ticket agents are supplied with these certificates and are instructed to issue them on application.

These certificates will be presented to the Secretary at the meeting, and after being signed by him will entitle the delegate to a free return ticket upon the presentation of the certificate to the railway ticket agent at Victoria.

The details of railway dates, etc., are as follows:—

PORT ARTHUR AND WEST.

GOING. — DATES OF SALE AND TRANSIT LIMIT—One-way tickets and standard convention certificates to be issued to Victoria, B.C., August 28th to 31st inclusive, tickets to bear final transit limit of September 4th.

FARE — Lowest one-way first-class fare.

RETURNING.—RETURN LIMITS—Certificates to be honored at Victoria, B.C., up to and including October 4th for free ticket back to starting point, such tickets to bear final transit limit of fifteen days.

FROM ALL POINTS IN CANADA EAST OF PORT ARTHUR.

GOING. — DATES OF SALE AND TRANSIT LIMIT.—One way tickets and standard convention certificates to be issued to Victoria, B.C., via all-rail routes on August 23rd to 30th inclusive, and via Great Lakes routes, tickets to be sold to connect with steamers sailing on Saturday, Monday and Wednesday, August 24th, 26th and 28th. Going tickets to bear final transit limit of September 4th.

FARE — Lowest one-way first-class fare plus 25 cents for the going trip.

RETURNING.—RETURN LIMITS—Certificates to be honored at Victoria, B.C., up to and including October 4th, for free tickets back to starting point, such tickets to bear final transit limit of fifteen days.

LAKE ARBITRARIES.—The following additional amounts to be paid at Victoria when certificates are honored for return journey if passengers elect to travel via Lake Routes:—

1. Going all-rail, returning via Great Lakes, $9 additional.
2. Going via Great Lakes, returning all-rail, $4 additional.
3. Going and returning via Great Lakes, $13 additional.

RAILWAY CERTIFICATES WILL NOT BE HONORED.

1. Unless ticket for going trip is purchased August 23rd to 30th inclusive. (Port Arthur and west, August 28th to 31st inclusive).
2. If not signed at the Convention by the Secretary.
3. Unless surrendered to the railway ticket agent at Victoria and ticket for return trip procured before 12 p.m. (midnight), Oct. 4th.

No certificate except the standard form (procured from the ticket agent when purchasing ticket) will be honored for return trip.

N.B. — Delegates are reminded that the Standard Certificate is not a ticket and cannot be honored on railway trains, but must be exchanged for a proper ticket as above stated.

QUATORZIEME CONVENTION.

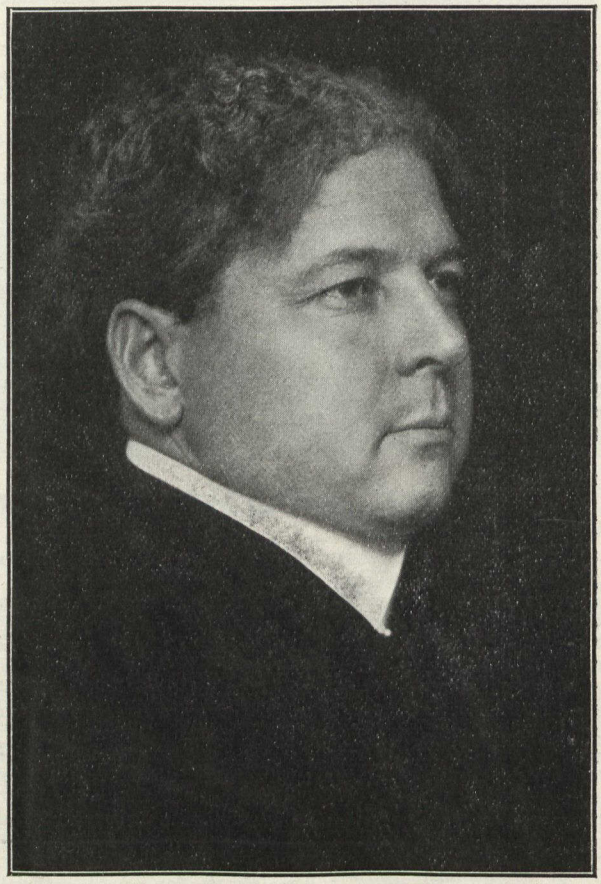
VICTORIA, C.B., LES 4, 5 ET 6 SEPT., 1912.

L'Association forestière canadienne ayant accepté l'invitation du gouvernement de la Colombie Britannique, tiendra sa quatorzième convention annuelle à Victoria, C.B., les 4, 5 et 6 septembre, 1912. Sir Richard McBride, premier ministre de la dite province et l'Hon. W. R. Ross, ministre de ses terres, porteront la parole à cette convention, à laquelle ils s'intéressent tout particulièrement. Et, comme la Colombie Britannique vient de promulguer une nouvelle loi forestière et de créer l'administration qu'elle comporte, ces deux sujets seront traités à fond à la convention, ainsi que l'importante question touchant la protection des forêts contre les incendies.

Les chemins de fer ont accordé un tarif de faveur, dont on pourra bénéficier durant un laps de temps amplement suffisant. Ils n'éxigeront que le prix d'un billet simple, pour le passage aller et retour des délégués et des dames qui les accompagneront. Afin de bénéficier de ce tarif, les délégués devront se faire donner un certificat avec chaque billet (par personne), qu'ils achèteront d'un agent de chemin de fer. Ces certificats, lorsque signés par le secrétaire, à la convention, donneront droit aux bénéficiaires de se faire délivrer gratis un billet de retour, valable jusqu'à la gare d'ou ils seront partis.

Tous ceux qui ont l'intention d'assister à la convention, sont priés d'en informer aussi tôt que possible le secrétaire de l'Association forestière canadienne, qui leur fournira tous renseignements supplémentaires qu'ils pourraient désirer.

JAMES LAWLER,
SECRETAIRE,
de l'Association forestière canadienne,
Canadian Bldg., Ottawa.



Hon. Sir Richard McBride, K.C.M.G., Prime Minister of British Columbia.

The British Columbia Forest Act.

The province of British Columbia, in its 'Forest Act,' passed at the last session of the Legislature, has taken what many consider the most advanced ground yet taken on this continent in regard to the preservation and perpetuation of its forests.

The Forest Branch.

By this Act the Forest Branch of the Department of Lands was created and given most extensive powers in regard to the timber and timberlands of the province. These powers include the entire administration of the crown timberlands, control of all revenue arising therefrom, the conservation of the forests, including their protection from fire, reforestation, sales and disposal of timberlands, scaling and regulation of traffic in timber and logs and the enforcement of statutes relating to the regulation of the forests.

All officials and servants of the Forest Branch are to be subject to all

Civil Service rules and are forbidden to have any property interest in the forests of the province.

The Forest Board.

The head of the Forest Branch is the Chief Forester. The Forest Board, constituted by the Act, is to consist of the Chief Forester, *ex officio*, and five other foresters or other officials of the department. The Board holds office at the pleasure of the Lieutenant-Governor-in-Council.

The function of the Board is, in brief, to secure the enforcement of the provisions of the Act. They are given power to summon witnesses and demand the production of documents, and to compel the attendance of witnesses and punish for contempt, 'in the same way as any Judge of the Supreme Court in the like behalf.'

Sale of Timber.

The old method of staking a timber claim is entirely abandoned. In cases where the present reservation may in future be opened up, the land is first cruised as to the quantity of the timber and surveyed, after which licenses are offered for the same by tender.

In the case of pulp limits the licenses will be sold on rather favorable terms. The present pulp concessions will remain the same until they are renewed. It is noticeable in this connection that the government for the purpose of uniformity retains the licensing system, although the conditions are much altered.

Timber leases as they at present exist will be recognized and continued in future, but as certain leases come up for renewal new terms will be imposed by the forestry department in view of the terms and conditions imposed on other holders of timber so as to maintain them all on an equality as far as possible. In regard to timber licenses, it is provided that all surveys of special licenses shall be completed before the 13th of March, 1918, the government retaining the power to compel and control surveys. If due diligence be not observed by the holder, the department may direct surveys to be made and charge expenses up to the holder. Simple regulations are put in force for surveying land held under timber licenses, as distinct from lands surveyed for agricultural purposes. Licenses granted on or before April 15, 1905, are made renewable for sixteen years, and licenses granted between April 15, 1905, and March 10, 1910, for twenty-one years. Licenses may be cancelled if there is not on the land sufficient merchantable timber to make it commercially valuable.

Scaling and Marking.

The present provisions of the land act in respect to timber scaling and measurement are not interfered with, but in districts where there are no official scalers provisions analagous to those in the Ontario Cullers' Act will be put in force, requiring examination and licensing of unofficial scalers.

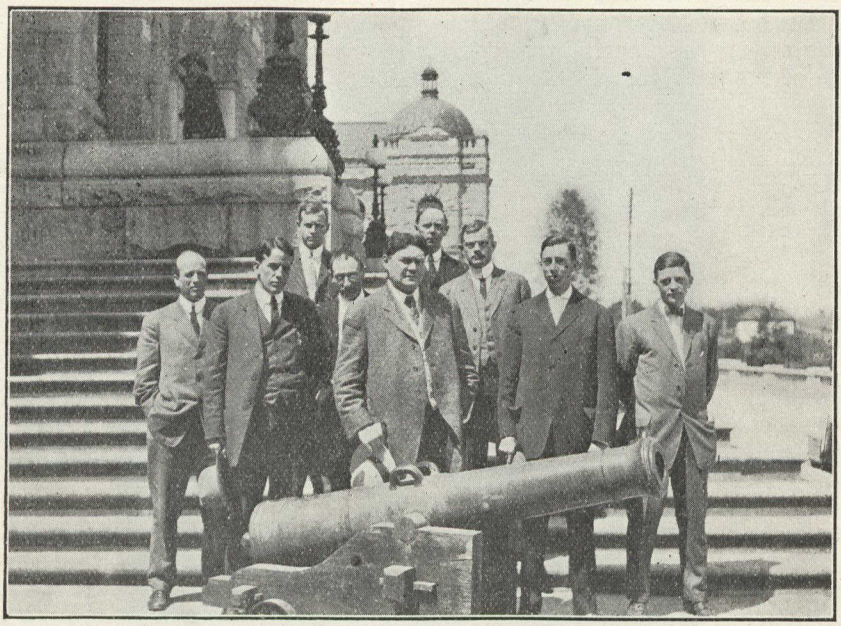
The present law in respect to timber marking, and manufacture within the province of timber products will practically remain unchanged.

West of the Cascades the British Columbia log scale is to be used; east of this, whatever log scale may be decided on by the Lieutenant-Governor-in-Council.

Protection from Fire.

The most important features of the law relate to the prevention of fire, and these are entirely new. For practical purposes they may be divided into two parts. One relates to the disposition of debris, and the second to the precautions to be observed in the use of fires.

In the case of the first it is made compulsory to dispose of the dangerous accumulations. The department, while recognizing the recommendations of the forestry commis-



Group of Forestry Officials Taken at Victoria, B.C., May, 1912.

This photograph is remarkable in its way, showing, as it does, representatives of several different forest services and graduates of the leading forest schools of America. It was taken outside the Parliament Buildings, Victoria, last May. Hon. W. R. Ross, Minister of Lands, who is in charge of the forests of British Columbia, is in the centre of the foreground. Reading from left to right the names of the men are as follows:—

R. E. Benedict, Chief of Operation, B. C. Forest Service; R. D. Prettie, Forestry Superintendent, C.P.R. Department of Natural Resources; D. R. Cameron, Inspector of B. C. Forest Reserves, Dominion Forest Service; Hon. W. R. Ross, Minister of Lands for B. C.; A. H. D. Ross, Lecturer, Faculty of Forestry, University of Toronto, and Consulting Forester C.P.R.; Clyde Leavitt, Forester for Commission of Conservation and Chief Fire Inspector for Railway Commission; John Lafon, Chief of Management, B. C. Forest Service; B. M. Winegar, Chief of C.P.R. Fire Protection Service.

sion, was careful to recognize the financial difficulties in the way of putting them completely into effect. The new regulations will conform largely to those which are in force in the western States. Special provisions are made for the clearing away of debris around camps and mines, mills, engines, on rights of way, telephone, telegraph, electric power and other lines. In respect to railways a safety zone is created on either side to the width of 200 feet, which must be kept clear of all combustible material. In every case the department retains the power of doing at the expense of the party responsible what the party fails to perform in accordance with the requirements of the act.

Logging operators may be required, in the case of dangerous slash, to make special provision for the prevention of fire when the minister requires it, by cutting out fire-lines.

The main feature of the provision in respect to fire prevention is the creation of a forest protection fund. Every owner of timber lands, whether in the nature of crown grants, leases or licenses, will be required to contribute a cent an acre to the expense of looking after fires and fitting out fire-crews. Crown-granted lands which do not pay royalty on the cut are required to pay two cents an acre. Against the amounts so contributed the government puts dollar for dollar. These contributions are not in the nature of taxation, but

go to create a fund which is expended for specific purposes enumerated, as for the expenses of patrol, telephone and telegraph appliances and the making of trails, according to the most up-to-date and improved methods of fighting fire. An automatic arrangement is put into effect for special assessments if the fund so created is not adequate for its requirements in any particular season. On the other hand, where the fund so created is more than sufficient for the requirements of any season, provision is made for a proportionate reduction in the contribution both from the timber holders and the government.

The framers of the act have gone pretty thoroughly into the methods of preventing the occurrence of fires arising from railway locomotives. Power is taken by the forestry bureau to compel patrol after the passing of each train. This is not new, as it exists in the Dominion act. Expenses of these patrols are to be borne by the railways, who must also maintain a force of fire wardens during construction of their line, and are also required to obtain certificates that the right of way has been cleared up before starting operations. A fine not exceeding one thousand dollars is imposed on the railway companies in case of fires which are started through negligence. Adequate provision is made for the use of preventive devices in the case of logging engines, locomotives, steam-boats and portable engines. Proper precautions are also to be taken in the operation of open burners and incinerators.

Contributors to the regular fund for fire protection who have trouble with fires and who are placed at expense for extra protection and in fighting bush fires are recouped by the government, to the extent of one half of their expenditure. This in a measure has been the practice for some years past, but is now for the first time made a part of the law.

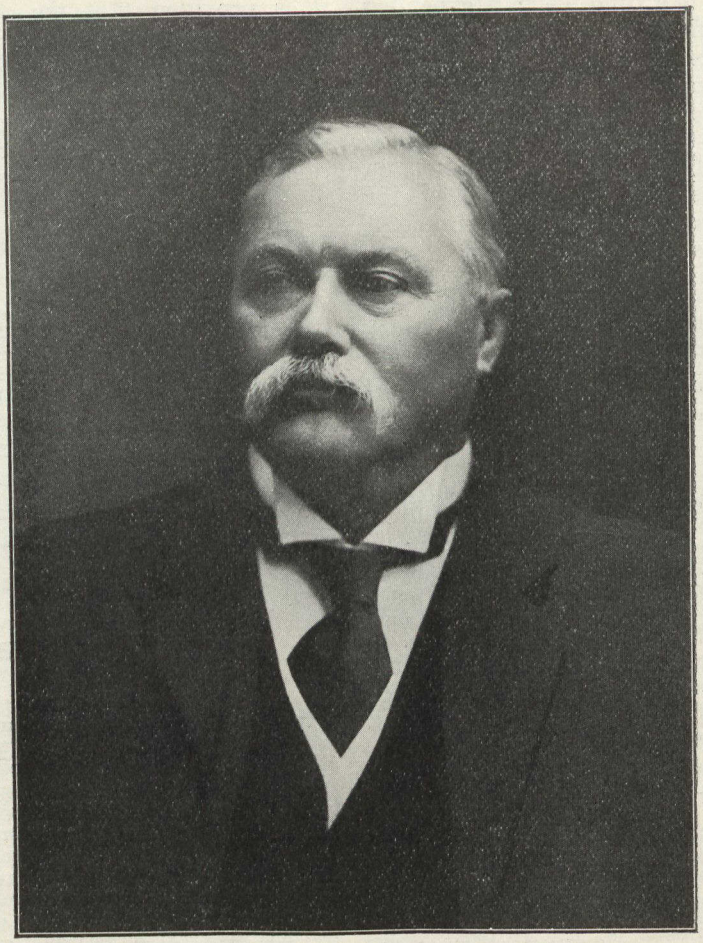
In regard to hand-loggers' licenses, it is provided that the lieutenant-governor-in-council may from time to time authorize the minister to grant such licenses in districts in which injuries to the crown or other timber lands is not likely to result, subject to certain exceptions. Part seven of the act deals with royalties, taxes and charges, collections, accounts and returns. The provisions of this part cover all kinds of timber products. The scale of royalties has been materially increased, and royalties imposed on lumber cut are imposed according to grade, the grades being divided into No. 1, 2 and 3, the charges being made on a graduating scale.

Under the act provisions are made for the creation of forest reserves on the basis and mainly for the purpose of reforestation.

BURNING OIL IN B. C.

During the first week in July a locomotive using oil as fuel hauled the regular passenger train on the run between Wellington and Alberni, the extension of the Island division of the Canadian Pacific Railway, formerly known as the Esquimalt and Nanaimo railway. The experiment was entirely satisfactory, the run of forty miles and return being made on time, the new fuel working very satisfactorily. As a result the manager of the road says that, as fast as it can be done, all the locomotives on the entire line of the Island division, consisting of 118 miles, will be equipped as oil-burners and the use of coal as fuel discontinued. The trains between Wellington and Alberni are now hauled daily by oil-burning engines. Not only is the danger from forest fires largely, if not altogether, removed, but the comfort of passengers is greatly increased, owing to the elimination of smoke and cinders.

Give a man or a boy an axe, and he is likely to cut down too many trees. George Washington's father said that he would rather have him cut down a thousand cherry trees than tell one lie. In emphasizing the virtue of truth-telling he committed the error of talking too lightly of the sin of tree-cutting. It is a very serious reflection that in a few minutes' work with an axe you can destroy the result of the growth of twenty years and also injure the landscape.—*Toronto Star.*



John Hendry, Esq., President Canadian Forestry Association.

Experiment Needed in Pulp Making.

By H. R. MacMillan in Pulp and Paper Magazine.

When the various governments of Canada, federal and provincial, have been considering appropriations and plans for aiding and developing the productive industries which constitute the life of the country, one important industry has been overlooked. Agriculture, in all its branches, owes much of its progress to experiments conducted by the different governments and to educational facilities provided by the governments; the fisheries of Canada are protected and propagated by the government; government exploration parties have located many of the most wealthy mining fields, and a Department of Mines is maintained to investigate

and improve the mining methods and metallurgical processes of Canada. The smelters and iron and steel mills of Canada have been rendered possible by large cash subsidies. The production of crude petroleum has been encouraged by a subsidy from the federal government. The one great industry which has received no direct government assistance is the manufacture of wood-pulp and paper.

The pulp industry does not need the kind of assistance given to the owners of smelters, oil wells and steel mills—a cash subsidy paid to encourage the investment of capital in plants which cannot, without artificial needs, both for the good of the country and the good of the pulp industry, is the type of assistance given to agriculture, that is, the establishment and maintenance of experimental laboratories where skilled chemists and pulp and paper experts will be encouraged to develop uses for woods, and wood waste now thought unsuitable for use in wood-pulp manufacture.

Public assistance extended to the pulp industry will profit the country one hundred fold, both directly and indirectly. The direct return will come from a closer and wider utilization of the forests of Canada which are owned by the different governments and which are large sources of revenue for the governments. There are three trees in Canada which occur in pulpwood forests that are not adapted for pulp under present methods of manufacture and which, because of their low value for any other purpose, are at present, to a large extent, wasted when pulp limits are logged over. These trees are jack pine, hemlock and tamarack. If any government experiments could devise a commercial means of converting these trees into pulp and paper, the added revenue accruing to the government from the use of these trees would pay the cost of these experiments. Similar trees in western Canada which await experimenting are western larch, Douglas fir, western hemlock and lodgepole pine. These trees are cut for lumber at present, and a great waste ensues because the small logs, the tops and other portions cannot be used and are left in the woods, and on these no royalty paid. If the government would demonstrate and encourage the use of these species, the closer logging of the forest would mean a great increase in dues.

The profit which would come to the government and the communities from the establishment of more pulp-mills cannot be estimated. In 1910 there were produced in Canada about 370,200 tons of mechanical and 104,400 tons of the chemical pulp. Investigations by the United States tariff board show that it costs in labor and other expenditures $9.56 to produce a ton of mechanical pulp in Canada and $26.47 to produce a ton of sulphite chemical pulp. There was a total expenditure of about $5,433,000 for the manufacture of pulp in Canada in 1910. The average mill in Canada produces 7,260 tons of mechanical pulp and 200 tons of chemical pulp per year. In the one case it means an expenditure of $69,500 per year, in the other case an annual expenditure of $4,300. Government investigations in the manufacture of pulp would surely lead to the establishing of more mills. When each mill means $73,800 per year to the country in which it is located, surely government assistance to the pulp industry is worth while.

Both in the United States and in India, where the conditions are not so favorable to the pulp industry as in Canada, the governments have established laboratories and employed experts for the study of more economical methods of making pulp, or to learn, if possible, new and cheaper fibres.

At Wausau, Wisconsin, U.S.A., a ground-wood pulp-mill was built by the federal government for the express purpose of carrying on experi-

Loading Logs, Vancouver Island.

Logging Train on Vancouver Island.

ments useful and of interest to pulp makers. This mill is not equipped with a paper machine.

The cost of installing the machinery in the mill was about $40,000. The yearly cost of carrying on the experiments has been about $20,000.

The mill is operated by a technical staff of three and a skilled staff of three, in addition to a stenographer.

At the head of the technical staff is a chemical engineer in charge of the work. The chemical engineer at Wausau is Mr. J. H. Rhickens, who studied paper making at the university of Wisconsin, and had practical experience in the paper industry and at electrical engineering before taking up this work. He supervises the laboratory work, prepares plans for carrying out the different tests and keeps the electrical equipment of the plant in running order. The chemical engineer also makes examinations of fibre.

There are two assistant chemical engineers. One looks after the electrical machinery and supervises the tests and conducts such analytical work as he can look after. He acts as manager when the manager is absent. The other is almost entirely occupied in carrying on analytical work and calculating the results. He also assists in conducting laboratory tests.

The skilled labor consists of a grinder man, wet machine man and press man. The grinder man operates the pulp grinder and keeps it, with its auxiliary equipment, in repair. The wet machine operator keeps in repair the screens and wet machine. The press man removes the paper from the rolls and assists the wet machine man. These men are also employed in the sawing, barking and preparation of the wood for grinding. All have had practical paper-mill experience.

The woods experimented with have been furnished by the American Paper and Pulp Association. The species used to date (jack pine, hemlock, tamarack and spruce) are from the Lake States. The experiments carried on have had as their object the making of a newsprint paper from jack pine or hemlock, or from mixtures of jack pine, hemlock and spruce, which would be satisfactory from the point of color, strength and finish, and which might replace the newsprint made from spruce.

The experiments have been under the supervision of a committee of papermakers, who have inspected the work every month. Satisfactory pulp has been made from hemlock and jack pine, and a short time ago a batch of the pulp was sent to a paper mill at Port Edwards, where test paper was made of the following seven combinations:

First, an all-hemlock sheet of news paper, containing 25 per cent. of hemlock sulphite and 75 per cent. of hemlock groundwood.

Second, a sheet containing 25 per cent of hemlock sulphite, 25 per cent of hemlock ground wood, 25 per cent of jack pine ground wood, and 25 per cent of spruce ground wood.

Third, a sheet containing 25 per cent of hemlock sulphite and 75 per cent of jack pine ground wood.

Fourth, a sheet containing 25 per cent of hemlock sulphite, 50 per cent of hemlock ground wood and 25 per cent of jack pine ground wood.

Fifth, a sheet containing 25 per cent sulphite, 25 per cent spruce ground wood and 50 per cent hemlock ground wood.

Sixth, a sheet containing 25 per cent hemlock sulphite and 75 per cent spruce ground wood.

Seventh, a sheet containing 5 per cent hemlock sulphite and 95 per cent spruce ground wood.

Each of the seven different papers was satisfactory, though some were better than others. From the result of these experiments it has been concluded that it is possible to make usable and saleable ground wood pulp from hemlock and jack pine, and that mixtures of this pulp with sulphite

spruce make satisfactory newsprint and wrapping papers.

The Wausau laboratory will now undertake the manufacture of ground wood pulp from lodgepole pine, western hemlock, western larch, western yellow pine and white and red fir. The use of these species for ground wood pulp will mean much to the provinces of British Columbia and Alberta.

Experiments in the manufacture of chemical pulp are carried on in the Forest Products Laboratory at Madison, Wisconsin. This is the largest and most complete laboratory of its kind in the world. The building, costing $100,000, was erected by the University of Wisconsin. The equipment, staff and operating expenses are supplied by the United States Forest Service.

The laboratory started work in June of this year. The results of the work have not yet been published, but it is known that a good quality of kraft paper has been manufactured from the saw-mill waste of western yellow pine, that the saw-mill waste of Wisconsin has been found satisfactory for chemical pulp manufacture, that great advances have been made in the manufacture of a good quality of chemical pulp from dead and green tamarack, hemlock and jack pine. The staff at Madison have also examined samples of pulp from practically all the mills in the country, and have worked out satisfactory methods of standardizing, comparing and grading wood-pulps.

Similar work has been taken up in India by the Imperial Forest Research Station which is maintained at Dehra Dun by the Indian Forest Service. An experienced paper and pulp man, W. Raitt, has been retained by the imperial government to investigate the suitablity of different Indian

In the Tall Timber, Vancouver Island.

woods and grasses for the manufacture of pulp.

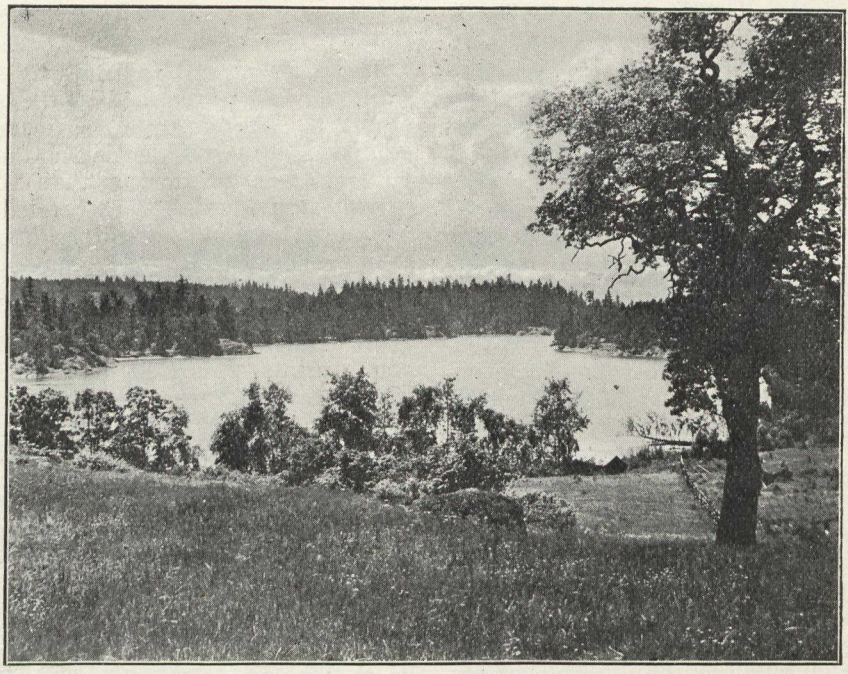
The development of the science and technique of pulp and paper making to such an extent that commercial plants will find it possible to support themselves upon the vast quantities of wood waste and of inferior species of woods now annually lost in this country will require continuous systematic investigation by experts. A certain amount of this work will be done by private individuals, by pulp-mill operators and by consulting engineers, but no private individual can afford the time and expense necessary to a thorough study of the whole question. On the other hand, the support of such experiment stations as those at Madison and Wausau, which cost $25,000 and $20,000 respectively per year to operate, would be an easy matter for a government, especially if the pulp and paper manufacturers of Canada followed the example of the American Pulp and Paper Manufacturers' Association and assisted to some extent. Certainly every pulp and paper manufacturer in Canada would benefit by any scientific work which would extend the sources of pulp fibre and improve the processes of manufacture.

A soundly planned, thoroughly executed investigation can best be carried out by the Dominion government. The first step would be to collect under one organization all the available information bearing on the subject, both in Canada and in foreign countries, to correlate this information and put it in such shape as to be always available. The branch of the government charged with this work would not only passively distribute information on application, but would also take steps actively to bring to the attention of all private individuals who could benefit by it any new developments in the manufacture of pulp and paper. This work should be carried on with the full co-operation of scientific men and of practical men engaged in the pulp and paper industry everywhere in Canada.

There are several reasons why this work can best be handled by the government. The government can more readily secure confidential and important trade information than can a private individual. Work carried on by the government would be known to be disinterested and impartial. Valuable results secured by the government would quickly and freely be made available to all persons, and the good results would be more widespread than if the same information had been secured by private individuals. The best work can be done only by a central and permanent organization. Such an organization would be more likely to be developed by the government than by a private individual.

The logical branch of the government to undertake the work would be the Forestry Branch. The Forestry Branch has now a greater knowledge of forest conditions in this country than any other organization in Canada. It has during the past few years made special studies of the pulp industry and other wood-using industries, and is in touch with all the forest industries of Canada. The employees of the Forestry Branch have covered the country from the Albany river to the Pacific, and will probably, in the next few years, do much scientific work in Eastern Canada. Work conducted by the Forestry Branch would be conducted solely for the good of the country, for the good of the pulp and paper trade, and to demonstrate that 'the human race could increase its welfare almost as much by a better ordering of the consumption as by an increasing production of wealth, and this without any retrenchment in consumption.'

The State of Wisconsin is overhauling its forest laws, and at the last session no fewer than eight bills were passed dealing with different aspects of the forestry question.



Portage Inlet, one of the Beauty Spots near Victoria.

Le Budget des Forêts en Norvège.

Par H. Perrin dans la Revue des Eaux et Forêts.

Il m'a semblé intéressant de porter à la connaissance des lecteurs de la Revue les chiffres arrêtés par le Storting norvégien pour le budget des forêts de l'exercice courant; à un moment où l'on étudie tout spécialement chez nous la possibilité d'une intervention de l'Etat dans la gestion et l'amélioration des propriétés particulières boisées ou boisables, ainsi que les moyens de relever les soldes des fonctionnaires forestiers, cette publication indiquera comment on solutionne là-bas ces difficiles problèmes.. en consacrant aux dépenses ainsi engagées la majeure partie des recettes.

Mais il faudra bien se garder de faire, entre les chiffres qui vont suivre et ceux élaborés par notre parlement, un rapprochement tant soit peu poussé (qui serait d'ailleurs tout à notre désavantage), car les conditions d'établissement des budgets des deux pays ne sont pas comparables: c'est, en effet, d'une part, la propriété privée qui détient la presque totalité des forêts de rapport en Norvège; et, d'autre part, nos collègues scandinaves ont, de par leur hiérarchie, l'étendue de leurs circonscriptions, et les pouvoirs qu'ils y possèdent, des attributions qui ne concordent guère avec les nôtres.[1]

[1]Cf. Voyage en Norvège (Revue des Eaux et Forêts des 1er et 15 mai 1910).

I.—Budget de l'Economie forestière privée.

Il est naturellement tout en dépenses.

1° Ecoles primaires forestières de l'Etat, 33,348 fr. ($6,669.60).

Au nombre de 3, et dirigées par des chefs de cantonnement, ces écoles donnent une instruction surtout pratique aux jeunes gens désireux d'embrasser la carrière forestière. Les cours commencent en mai et durent un an; pour les années 1910 et 1911 réunies, il y a eu 256 demandes d'entrée et seulement 96 admissions.

Il est logique de porter ces établissements dans la partie du budget relative aux bois particuliers, car ils fournissent surtout des forestiers privés et, si leur diplôme est nécessaire pour obtenir un emploi de l'Etat, il ne donne pas, par contre, un droit absolu à cet emploi.

2° Subvention à l'école forestière de la province de Hedemark, 8,379 fr. ($1,675.80.).

Reliquat du même article de l'exercice précédent, 5,344 fr. ($1,068.80).

Total, 13,723 fr. ($2,744.60).

La commune de Storelvedal a mis à la disposition de la province de Hedemark son domaine d'Evenstad, qui comprend 2,600 hectares boisés, pour y installer une école forestière; l'enseignement technique n'étant jusqu'ici assuré dans le Hedemark (qui est pourtant la province la plus boisée de la Norvège), que par une section de l'école d'agriculture de Jonsberg, cette création a obtenu un plein succès.

Le directeur de l'école d'Evenstad est nommé par le ministre de l'Agriculture; l'effectif est de 20 élèves, la rétribution scolaire de 112 fr. ($22.40); les études commencent en janvier et durent une année, avec un programme conforme à celui des écoles de l'Etat sur tous les points essentiels; on fera ultérieurement des cours gratuits de faible durée.

3° Subvention à la Société forestière norvégienne 182,000 fr. ($36,400.00).

La Société forestière norvégienne est une société centrale qui comprend environ 1,700 membres directs et se subdivise en 18 sections ou sociétés forestières provinciales, comptant 7,500 adhérents; douée de la personnalité civile, elle possède en propre plusieurs centaines de mille francs; c'est elle qui répartit, comme elle le juge à propos, les subventions de l'Etat (notamment une subvention obligatoire de 70 francs ($14.00) par hectare pour reboisements de forêts de protection).[1] L'emploi des fonds accordés est surveillé par les fonctionnaires forestiers provinciaux et contrôlé par des inspections du chef de bureau de la société, lequel émarge au budget.

4° Traitement du chef de bureau de la Société forestière norvégienne 3,640 fr. ($728.00).

5° Subvention pour les traitements et les frais de voyage des fonctionnaires forestiers provinciaux 56,910 fr. ($1,138.20).

Reliquat de l'exercice précédent 3,780 fr. ($756.00).

Total 60,690 fr. ($12,138.00).

Choisis et partiellement payés par les conseils des provinces, ces fonctionnaires sont en quelque sorte au service des sociétés forestières provinciales, pour diriger les travaux entrepris par celles-ci et guider communes et particuliers dans la gestion de leurs domaines boisés. Leur institution tend à se généraliser, car elle donne d'excellents résultats.

6° Application des règlements sur les forêts de protection 11,200 fr. ($2,240.00).

Dans les provinces, de plus en plus nombreuses, où des ordonnances sont intervenues pour fixer des dimensions minimum d'exploitabilité, les gouverneurs peuvent se faire rem-

[1] Cette subvention n'était que de 56 fr. l'année dernière.

bourser par l'Etat la moitié des dépenses occasionnées par l'application de ces règlements.

7° Indemnisation des dommages causés aux forêts par les castors 2,800 fr. ($560.00).

Encore assez répandus en Norvège, et même en voie de multiplication dans certaines régions, ces animaux causent de graves dégâts aux peuplements feuillus, surtout à ceux de tremble; dans le but d'empêcher la disparition de l'espèce, leur chasse fait, jusqu'à nouvel ordre, l'objet d'une réglementation spéciale qui interdit la destruction des colonies.

Le total des dépenses, pour la première partie du budget, s'élève donc à 307,401 fr. ($61,480.20) contre 267,414 fr. ($53,482.80) pour le terme échu.

II. — Budget des forêts de l'Etat.

RECETTES.

1° Exploitation des forêts de l'Etat 1,372,000 fr. ($274,400.00).

2° Exploitation des pépinières 50,400 fr. ($10,080.00).

3° Quote-part des établissements publics dans les traitements des fonctionnaires forestiers 37,800 fr. ($7,560.00).

Total 1,460,200 fr. ($292,040.00). soit une augmentation de 123,000 fr. ($24,600.00) sur l'exercice précédent.

DEPENSES.

1° Achat de forêts (non compris le reliquat des crédits accordés antérieurement), 56,000 fr. ($11,200.00).

2° Traitements des fonctionnaires forestiers du cadre supérieur, 153,102 fr. ($30,620.40) contre 126,980 fr ($25,396.00) pour l'exercice 1911.

Nos collègues norvégiens ont vu, en effet, leur situation notablement améliorée cette année; depuis 1895, leurs traitements étaient les suivants:

Inspecteurs, de 4,200 à 5,040 fr. ($840 à $1,008) après 10 ans de services.

Aménagistes, de 3,640 à 5,040 fr. ($728 à $1,008) après 16 ans de services.

Chefs de cantonnement: de 2,800 à 4,200 fr. ($560 à $840) après 16 ans de services.

Assistants de 2,100 à 2,660 fr ($420 à $532) après 6 ans de services.

Planteurs 1,400 fr. ($280).

Le directeur des forêts a réclamé l'augmentation de ces soldes en des termes énergiques:

"En présence de la cherté toujours croissante de la vie, la situation pécuniaire des fonctionnaires forestiers est devenue peu à peu si mécontente (utilfre distillende) qu'il serait inexcusable de la prolonger. Le rendement des forêts publiques est maintenant de 5 à 7 fois plus élevé que celui réalisé en 1895; le nombre de ces forêts a doublé depuis la même époque, et leur surface a augmenté de 237,000 hectares (585,650 ac.); les effectifs[1] et les traitements des fonctionnaires n'ont pas eu un accroissement parallèle."

Il est certain que l'extension des travaux de reboisement, de culture et d'amélioration occasionne aux agents un surcroît de besogne et de responsabilité, en ce qui concerne la tâche matérielle et la comptabilité; et la seule considération de l'importance des sommes et des intérêts d'ordres divers que gèrent ces agents devrait être un motif valable pour leur octroyer des émoluments en rapport avec leur responsabilité.

Actuellement, les meilleures forces sont souvent enlevées à l'Etat, à son grand détriment, par l'appât de situations plus avantageuses (par exemple deux ou trois fois mieux rémunérées) que celles qu'il peut offrir.

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[1] L'effectif des agents était, en 1909, de 4 inspecteurs, 25 chefs de cantonnement, 1 aménagiste, 4 assistants, 12 planteurs; je ne crois pas qu'il ait été modifié depuis lors.

Le ministère s'est associé au directeur des forêts pour reconnaître l'"insoutenable" situation due à l'insuffisance des traitements actuels et a déclaré "déplorable au point de vue de l'utilité publique et injuste vis-à-vis des fonctionnaires forestiers de faire attendre ceux-ci plus longtemps"; mais les nécessités de l'équilibre du budget et la dépense qu'occasionnera pour l'Etat l'incorporation de ces fonctionnaires à la caisse des retraites l'ont obligé à soumettre au Storting une échelle de traitements un peu inférieure à celle réclamée par le directeur des forêts:

Inspecteurs: une seule classe à 5,600 fr. ($1,120).

Aménagiste: de 3,640 fr. à 5,320 fr. ($728 à $1,064) par classes de 560 fr. ($112) tous les trois ans.

Chefs de cantonnement, de 3,360 fr.à 5,040 fr. ($672 à $1,008), par classes de 560 fr. ($112) tous les trois ans.

Assistants: de 2,100 fr. à 2,940 fr. ($420 à $588), par classes de 280 fr. ($56) tous les trois ans.

Planteurs: de 1,680 fr. à 2,240 fr. ($336 à $448) par classes de 280 fr. ($56), tous les quatre ans.

Les agents seront en outre désormais obligés de faire des versements à la caisse des pensions de l'Etat.

Ce projet a été approuvé à l'unanimité par le Storting dans sa séance du 22 mars 1912; mais le directeur des forêts insiste et demande l'insertion au prochain budget de ses propositions, qui étaient les suivantes:

Inspecteurs, 6,300 fr. ($1,260).

Aménagiste et chefs de cantonnement, 3,920 à 5,040 fr. ($784 à $1,008).

Assistants, 2,800 à 3,360 fr ($560 à $672).

Planteurs, 1,680 à 2,520 fr ($336 à $504).

De la discussion du même chapitre, il résulte que deux des quatre inspecteurs seront désormais attachés à la direction; cette mesure sera étendue au troisième dans le courant de l'année; seule, l'inspection du Nordland (Extrême-Nord), trop éloignée de Kristiania restera indépendante jusqu'à nouvel ordre. On réalisera ainsi "une utilisation meilleure et plus économique du travail et des voyages du personel de contrôle, par la possibilité d'établir chaque année un plan de réparition de la besogne entre le directeur, le conseiller des forêts[1] et les inspecteurs."

3° Frais de tournées: 44, 800 fr. ($8,960.00).

4° Traitement des fonctionnaires forestiers subalternes et des gardes chasse: 47,040 fr. ($9,408.00).

5° Reboisements: 168,560 fr. ($33,712.00).

6° Achat de terrains pour la création de forêts sur la côte ouest (reliquat des exercices précédents), Pr mémoire.

7° Levés de plans et aménagements dans les forêts de l'Etat, 19,740 fr. ($3,948.00).

8° Dépenses pour l'exploitation des forêts de l'Etat, 476,000 fr (95,200).

Il s'agit là des travaux d'amélioration: création et entretien de chemins, achèvement d'un chenal de flottage à la cascade de Haegdalsli, régularisation de cours d'eau à Sjoa, établissement d'un "logement de fonctionnaire" à Rendal (10,640 fr. $2,128.00) et.. subvention de 3,500 fr. ($700.00) à l'union norvégienne des chasseurs et pêcheurs pour la destruction des animaux nuisibles.

9° Bourses de voyage: 2,100 fr. ($420.00).

10° Dépenses diverses, imprévu: 7,000 fr. ($1,400).

Dans ces 7,000 fr. sont compris: 1,400 fr. ($280.00) représentant le dernier tiers d'une subvention de 4,200 fr. ($840.00) pour l'établisse-

[1]Sorte de sous-directeur.

ment d'une carte forestière de Norvège, et 1,400 fr. ($280.00) pour préparer la participation de l'Administration des forêts à l'exposition de Kristiania en 1914.

Le total des dépenses se monte à 974,342 fr. ($194,868.40), en excédent de 40,200 fr. ($8,040) sur l'exercice précédent.

Comme conclusion des données ci-dessus, l'exposé du budget comporte un aperçu sur le produit net, en 1912, des massifs soumis au régime forestier, aperçu dont voici le résumé:

Recettes: 1,460,200 fr. ($292,040.00).
Dépenses: 974,342 fr. ($194,868.40)

Excédent: 485,858 fr. ($97,171.60)

Mais il convient de retrancher du montant des dépenses certains débours étrangers, en réalité, à l'objet qui nous occupe: achat de forêts ou de terrains à reboiser, subventions à divers pour constructions de chemins, etc., en tout 100,240 fr. ($20,048.00); le revenu réel est donc de 586,098 fr. ($117,219.60).

Il faut encore ajouter à ce chiffre:

Le revenu net des forêts d'établissements publics, 695,940 fr. ($139,188.00).

La valeur des bois délivrés aux usagers dans les forêts publiques, 280,000 fr. ($56,000.00).

de sorte que le produit net des forêts gérées par l'Administration est approximativement de 1,562,000 fr. ($312,400.00) soit, pour environ 860,000 hectares (2,125,146 ac.), 1 fr. 85 par hectare (à peu près $0.15 par acre).

D'après le "Tidskrift for Skogbrug".

Vesoul, 17 avril 1912.

The government of Western Australia is taking up the question of reforesting the cut-over areas in the southwestern part of that state. Their valuable hardwoods have been so deeply cut into that it is realized radical steps must be taken if the forests are not to disappear.

SOME 1912 FOREST FIRES.

The present season has not, up to the present, at any rate, been characterized by many or severe forest fires.

Though a number of forest fires were reported from southern British Columbia in May, e.g., around Yale, little damage was done, the fires being extinguished by rain.

The fires in the Bulkley valley, in northern British Columbia, reported during the first week of June, were mostly ground fires. The losses consisted mostly in buildings belonging to settlers. At Coquitlam lake, despatches of June 8 reported, the fires were not in themselves serious, though a large force of men was occupied in extinguishing them.

The forest fires in the Yukon Territory (referred to in the last issue of the JOURNAL) were finally extinguished by heavy rains, though not until hundreds of square miles had been burned over and thousands of cords of wood piled along the river had been destroyed. The Yukon District Council has since passed an ordinance increasing the penalty for starting forest fires.

The forest fires in Newfoundland towards the end of May wiped out five villages on the north coast of the island, burned several small lumber mills and destroyed some 100,000 logs; they were extinguished by rain. The loss is put at $250,000.

Golden, B.C., had a bad fright during the second week of June, being twice threatened by forest fires. The first time, on June 8, it was saved by a favorable wind, but the fire destroyed two camps and a large quantity of saw logs; it was fought by 225 men. Again on June 10 it was in danger. A heavy rain soon afterwards came on and put out the fires.

Superior Junction, Ontario, on the line of the Grand Trunk Pacific railway, reported serious fires on June

25 and 26. The fire had assumed serious proportions on the previous Monday (June 24). Several bridges were destroyed and thousands of ties burned, the amount of damage being placed at $100,000.

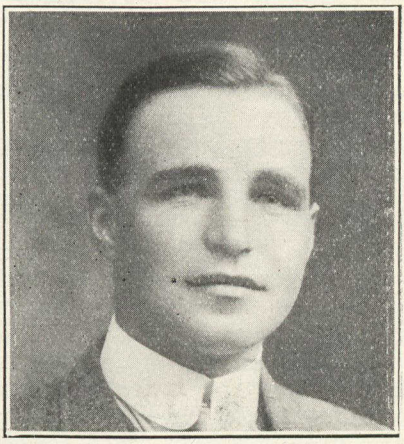
Sault Ste. Marie, Ont., on July 1st, reported fires in the vicinity of Shell Lake. Half a million feet of high-grade white pine had then been destroyed, and four hundred men were fighting the fire. South Porcupine also reported that some of the Porcupine mines were in danger. The fire had found food in some of the dead brush left by the fire of July, 1911.

Halifax, N. S., reported on July 3, that forest fires were raging in some woodlands near the city. One of these was in the Sir Sandford Fleming park, nea rthe Memorial tower, while on the Dartmouth side of the harbor a hundred volunteers were employed in beating out a fire.

The Chief Forester of B.C.

Mr. H. R. MacMillan, the recently appointed Chief Forester of the British Columbia Department of Lands, left Ottawa early in July and has now taken up the duties of his new position at Victoria, B.C.

The province of British Columbia is to be congratulated on having secured the services of so capable and energetic a forester as Mr. MacMillan. His connection with the Forestry Branch of the Department of the Interior dates back some years. In the first forest survey undertaken by the Branch, namely that of the Turtle Mountain forest reserve in the summer of 1905, Mr. MacMillan was chief of the party. He was then a student at the Ontario Agricultural College, from which he graduated in 1906, after a brillant course, obtaining the degree of B. S. A. from the University of Toronto.



H. R. MacMillan, M.F., Chief Forester, Dept. of Lands, British Columbia.

In the fall of that year he entered the Yale University Forest School, graduating at the head of his class in 1908, with the degree of Master of Forestry. His vacations, in the meantime, had been spent in active forestry work, mostly with the Forestry Branch, and he then became a regular member of the staff. Since then he has been given a number of important and difficult assignments, both in field-work and in office-work, which have been completed with distinction. He entered with enthusiasm on the work of collecting statistics of the wood products of the Dominion and the work has become one of the most important parts of the Forestry Branch's work. The bulletins embodying the results of these investigations have also been compiled under his direction. He has also been the author of several other bulletins of the Branch, and has been prolific in magazine and newspaper articles on various forestry subjects.

Mr. MacMillan's organizing ability has been well tested, and he can be expected to inaugurate a good service for the Pacific province.

APPOINTMENTS BY MERIT.

The *Nor'-West Farmer* recently had a vigorous comment on the Canadian Forestry Association's resolution in regard to making all appointments to the dominion and provincial forest services only after examination. The editorial is as follows:—

One very hopeful sign of the times is the increasing strength of public sentiment in favor of removing our civil service entirely beyond the reach of political parties and placing it under non-partizan control. By frequent resolutions our western farmers' conventions have asked for this change, and now we find a similar request coming from another influential body, which, happily, has the advantage of closer contact with the legislators at Ottawa, and which undoubtedly enjoys the confidence of the leaders of both sides of the House. We refer to the Canadian Forestry Association, which, at its recent Ottawa convention, passed the following resolution:

'Whereas efficiency in the administration of the forests of Canada, which are one of the greatest of the national assets, can be obtained only by adopting a permanent policy carried out by a staff appointed on the grounds of special fitness for the positions which they are to fill, and removable only on ground of inefficiency;

'Therefore, resolved that this association urges on the federal and provincial governments the necessity for providing a system of examinations to test the qualifications of appointees and of making appointments permanent during good behaviour, and that in the case of the federal government for this purpose appointments should be placed in the hands of the Civil Service Commission.'

There is a special reason why partisan considerations should have no place in the forestry service. The work of the trained forester, in whatever branch, is of a highly specialized nature. Take, for example, the task of the field inspectors, who visit our prairie farms and advise farmers as to the planting of wind-breaks, and the proper layout of the farm grounds. This is a kind of work for which only few men are fitted, and in which a man devoid of an intimate knowledge of trees could soon do an inestimable amount of harm. And when one considers any of the other branches of the forestry work one soon discovers that it, also, demands the trained man. Indeed, one of the greatest difficulties so far encountered by those in charge of forestry work in Canada has been that of securing enough men of the right class.

What damage could be wrought by rampant, ruthless partisanship in such a department of the public service, if at any time it should, by some evil chance, happen to fall into the hands of a leader whose love for the party wholly upset his common sense! The damage would be incalculable. In this service, calling for special knowledge on the part of the workers, it is plain to see that continuity of service, irrespective of party supremacies, is of paramount importance.

And it is so in most of the other branches of public service. The agricultural department, the inland revenue department, the post office department, the railway department—in fact, all of them—demand that the workers shall be fit for the job, rather than that they wear a certain stripe of political coat.

The day when entrance to, promotion in and expulsions from our civil service shall be a matter of fitness, rather than a question of political favor, cannot come any too soon.

The University of Missouri has decided to establish a summer camp for lumbermen and woodsmen in connection with the summer sessions of the department of forestry of the institution. Prof. J. A. Ferguson, the director of the department, will be in charge.

Government Forests in Saxony.

By W. G. Wright, Wardner, B. C.

The Kingdom of Saxony is one of the most progressive states in the German Empire, and not least so as regards its forest policy. Scientific sylvicultural methods have here developed to a maximum. Prices* for timber run high, owing in part to the proximity of the consumer to the supplier, and in part to the advanced social and political development of the state; and, in forestry as in agriculture, high prices bring in their train more intensive methods. This finds expression in more liberal expenditure on roads, reafforestation and other improvements, more thorough and more systematic utilisation of products and in a short rotation.

Approximately half of Saxony's timber land belongs to the Government — about 433,000 acres or thirteen per cent of the total area of Saxony. The rest is divided among private estates, municipal forests and the like. The methods of management followed in the case of private ownership depend largely on the extent of the estate and the wealth of the proprietor. Municipal forests, when of sufficient size, are as a rule well managed and yield a good revenue. In 1909 state forests yielded $6.00, private forests $2.97, and municipal forests $3.92 per acre. Wooded lands belonging to the villages (relics of old feudal days) are, on account of their limited area and the impossibility of working them under other than a selection system, a source of small, if any, profit to their proprietors. Their chief use is to provide fire-wood. In other parts of Germany it has frequently been found practicable to combine the management of several of these village holdings under one state-appointed forester, and this system usually meets with success. It is, however, the object of this article to give some idea of the forest policy of the Saxon Government as regards its own forests, and to give some insight into the methods employed.

Character of the Woods.

Of the State Forests 97 per cent are composed of coniferous trees. Spruce (*Picea excelsa*) is the predominating species, forming 78 per cent, while Scots Pine (*Pinus sylvestris*) forms only 20 per cent of the woods. This is due in great part to geographical position. In the north and north-east of the German Empire the rainfall is less and sandy soil predominates, and Scots Pine is found taking the chief place with 61 per cent. As one proceeds further west the rainfall increases and we find the proportion of pine diminishing, until in Wurtemberg and Baden this tree totals only about 10 per cent. The greater part of Saxony has a rainfall somewhat above the average of that for Europe, and in the hills of the southern boundary fifty inches is often exceeded. These conditions are very suited to the growth of the spruce, and in the hills, with the exception of a few beech woods, it holds undisputed sway. Silver fir (*Abies pectinata*) is grown only to a very limited extent now in Saxony, this species having been more or less exterminated by factory fumes. Larch (*Larix europea*) is met with very rarely, and then in mixture, the climate not being suited to its growth. Japanese Larch (*Larix japonica*) has been introduced, though mostly ful success. Many North American varieties have been introduced, though mostly for ornamental purposes. Of the timber-producing trees Weymouth or white pine (*Pinus strobus*) and Douglas fir (*Pseudotsuga mucronata*) are the chief. White pine has met with some success, chiefly as gap-cover or auxiliary species, its rapid growth making it particularly suitable for this, while Douglas fir has been mixed with spruce with very good results, the only difficulty being its liability to suffer from frost. Jack pine (*Pinus Banksiana*) and pitch pine (*Pinus rigida*) have been used as improvement species on very poor localities, though they have not been grown for timber. Jack pine is preferred for this purpose, as it gives more litter.

Of the broad-leaved trees, beech (*Fagus silvatica*) is the most important, while oak, chiefly the pedunculate variety (*Quercus pedunculata*), birch, maple and other deciduous trees play a more or less subordinate part. Some American hardwoods, as the red, swamp and scarlet oaks (*Quercus rubra, palustris and coccinea*) and American ash (*Fraxinus americana*) have been introduced and have met with varied success.

A large proportion of the state forests consists of pure woods, though in localities of doubtful quality, pine and spruce are frequently planted together. The tendency is to grow spruce even on localities not strictly suited to it, as this tree gives a high return at an early age. Marketable spruce timber, of which a comparatively large pro-

*The 'price' here understood is the price paid by the manufacturer to the producer for the timber delivered on the cutting area.

portion is used for pulping, can be grown in from 70 to 80 years, while pine requires 120 years to reach a marketable size. Latterly the formation of mixed plantations has been gaining favour. The hardwoods are mixed to a certain extent, but pure beech predominates.

As regards system of management, the state woods are worked almost exclusively under a system of high forest with clear cutting. There are some coppice woods and a few woods worked on the selection system, but they are not large enough to warrant their being considered separately. Among smaller non-state-owned woods, on the other hand, the coppice and selection systems are much more in evidence.

Of the wood felled in Saxony 97 per cent is coniferous, and of this 84 per cent. is merchantable timber. This finds a market as building material, mining props and pulpwood. The pulping industry originated in Saxony, and has considerable influence on the system of management of the woods. Material for pulping is almost exclusively supplied by spruce, though in Prussia, where spruce is scarcer, pine is sometimes used for this purpose.

Of the hardwood felled only about half is manufactured, the rest finding a ready market as fire-wood. The chair and toy factories absorb the greater part of the beech lumber, the last-named industry being of considerable importance.

Tending of the Woods.

Fellings are not commenced on a cutting area until the safety of the adjoining plantation from the attacks of natural and animal agencies is assured, so that a period of from seven to ten years usually intervenes between fellings on two adjacent areas. After cutting over, the area is, as a rule, left for one or two years on account of the danger from the large brown pine weevil, and then planted. After-culture is usually necessary for from five to ten years, according to the locality and the head of deer maintained on the range. At an age of about fifteen years, the plantation begins to close in, and at this period 'weeds,' such as birch, may be taken out. From the age of twenty years, self-pruning sets in and thinning is beneficial. According to the theory of 'the highest interest on the forest capital,' the heavier the thinnings, within certain limits, the more remunerative is the forest. Accordingly, thinning is very important, for this reason, as well as for the reason that thinning improves the growth of the remaining trees. This is regulated by the Organisation of Woods Bureau in Dresden every ten years, and a special part is set aside for this item in the working plan. The chief principles of thinning as practised in Saxony are embodied in the three words 'early, frequent and moderate.' From the thicket period on dead trees are taken out every year. This diminishes the risk of fire and insect calamities and yields enough to cover the cost of removal.

Formation and Organization of the Working Section.

The range is divided into compartments by rides and main rides, the latter being from eight to ten yards wide, and as a rule parallel to the direction of the prevailing winds (in Europe west and southwest), while the former are between two and three yards wide and at right angles to the main rides. These rides form the frame of the working section, facilitate any surveying to be done and serve as logging roads. By making them broad enough, the trees on their edges develop bushy stems and strong roots, thus acting as a series of wind-belts.

The compartments vary in size from thirty-five to seventy acres, and the tendency is to arrange them so that the length is about double the width, and so that the long side faces the wind. Customary dimensions are 600 and 300 yards, though these depend largely on the road net-work, and, in hilly country, entirely on the surface formation of the range. The compartment is a permanent forest division, but is split up into a number of non-permanent subcompartments.

The subcompartment is the unit of the working section, without which the proper carrying out of the working plan would be impossible. Each of the subdivisions differs from its neighbours in some important respect, and may change or lose its individuality as one rotation succeeds another. The ranges in Saxony are of sufficient uniformity in themselves and small enough to allow of all the woods on any range being included in one working plan, so that the working section is identical with the range. The working section is divided up into a number of felling series, the tendency being to make these short, of at most two compartments. Cutting is started on the east and, with intervals of from seven to ten years, continued toward the west. Temporary felling series are started as occasion demands, as, for instance, when a severance cutting is made, but these are absorbed into permanent felling series sooner or later.

The short felling series was first introduced in Saxony, its great advantage being that it gives great elasticity to the system of management. The idea is to build as many felling series as possible, and, by means of broad rides, make each one quite independent. Under this system there is a large choice in selecting the cutting areas for any period, whereas in the case of long, and therefore few, felling series, the choice is more limited, and the disorganisation and loss is much more serious in the event of any extraordinary felling, such as an insect

attack may render necessary. The size and form of each individual cutting area varies considerably, but a long narrow strip, running across the direction in which cuttings are being made, is the ideal.

Management of the Working Section.

The difference between lumbering and forestry is that in the former the timber is treated as so much material to be converted into currency as quickly and cheaply as possible, while in the latter the timber is treated as capital, from which an annual income must be obtained. This principle of sustained yield forms the basis of all silvicultural management.

The normal yield is found by dividing the total area by the number of years in the rotation. This is fixed so that the interest on the capital sunk in the timber and in the land on which the timber stands reaches a maximum. This rate of interest is called the indicating per cent, and is, for all practical purposes, equal to the sum of the volume increment and value increment percents. Examinations are made of the indicating percents of the different woods, and the rotation is based on the results obtained.

To determine the actual yield for any period, the different woods are apportioned to age-classes. In case the area of the woods in the older age-classes is above the normal, the yield for the period is increased above the normal to a corresponding extent, and in the opposite case, of course, it is decreased. Under the old compartment system, or method by area and volume, the yield was estimated for several periods of twenty years. This was found impracticable, owing to more or less frequent changes in the area and character of the woods, and it is now the custom to determine the yield for a period of ten years only, and to have a revision in the middle of that period, so that any changes in the woods, owing to fire, insect attacks, purchase and the like, may be taken account of and the felling plan altered accordingly.

The actual yield once determined, there remains only the selection of the woods whence this yield is to be taken. In making this selection the woods entered in the felling plan first are those which require to be cut over in order to facilitate the proper management of the rest, as, for instance, severance fellings. Next in order of importance are those woods, the indicating percents of which have fallen below the rate of interest chargeable on capital invested in forestry, and which are thus being worked at a loss. When these two classes have been disposed of, the balance of the yield is made up of the woods whose indicating percents have just reached, or approximate to, a maximum.

The working plan for each range is put together by the Organisation of Woods Bureau in Dresden. The year before the close of each period, a party of foresters and surveyors from this Bureau comes to the range and determines the area, character and age, and amount of timber in each wood. For woods over forty years old the amount of timber is estimated and for those under forty years of age experimental tables are used. These tables are of very great value and importance, and are the result of many years' labor and experiment.

From the data so obtained the working plan is evolved. This consists of a general and a periodic part, the former being necessary for the proper preparation of the latter. The first part contains a general description of the range considered as a whole, a detailed description of each compartment and subcompartment, with such details as quality of locality arranged in tabular form, a collection of statistics of yield, standing crop, average increment, etc., of previous years, and general and special rules for future management. The second part, the Periodic Plan, contains the felling plan, the final and intermediate fellings considered separately, the afforestation plan and the road construction plan. The order and time of carrying out this work is left entirely to the discretion of the range officer and he draws up annual felling, planting and road construction plans as he thinks fit. Only one side of the page is used in entering up instructions in the periodic part, the other side being reserved for filling in the way in which these instructions are carried out. By this means very accurate statistics are obtained, which are of great value in drawing up future working plans.

Disposal of the Fellings.

The lumber and pulping industries in Saxony are largely in the hands of small manufacturers, and this is no doubt due in large measure to the prevailing system of sale. The Government manages and logs all its own forests, and sells the material in small lots by public auction as it lies on the felling area. This system is obviously very favourable to the small manufacturer in the vicinity. The sale of standing timber is sometimes practised in other parts of Germany, but only on very limited areas and under very severe restrictions.

Cutting is carried on in the winter months, except in the case of spruce occasionally, when the bark is to be sold for tanning. All work is done by daily contract. The larger logs are left where they fall; the cordwood and smaller stems are piled. In the case of thinnings all material is skidded to the nearest road. The cost of felling and skidding averages $1.00 per thousand feet, board measure. Each log or cord is numbered with the die hammer, particulars being entered in a register, copies

of which are supplied all prospective buyers. The auctions take place in some neighbouring town, each range distributing its annual yield of from three to four million board feet among five or six sales. The district revenue officer fulfills the duties of auctioneer, and either the conservator himself or one of his assistants is present to assist and determine upset price when necessary.

The purchaser of a lot of timber receives a check, authorising him to remove his purchase, payment being made direct to the district revenue office.

Owing to the proximity of the consumer, prices in Saxony are high, averaging $7.78 per thousand feet, board measure, for total fellings and $10.25 for merchantable timber. This is, of course, free of all cost of removal. Firewood brings only $2.86 per cord. These prices are for the year 1909. With the cost of production absorbing 36 per cent of the gross income, the net profit per acre was for the same year $6.06, bringing a revenue of over $2,500,000 into the Saxon treasury.

Regeneration of the Woods.

For successful natural regeneration, frequent and good mast years are *sine qua non.* Owing to the short summer in the hills and to the effects of factory fumes generally, this requirement is seldom, if ever, fulfilled for the conifers. In the case of beech woods, however, natural regeneration is practised with success, though a good deal of after-culture is necessary. But, as the state forests are, for the most part, coniferous, clear cutting combined with artificial regeneration is general in Saxony, both sowing and planting being practised. Formerly pine woods were almost always regenerated from sowings, though now the planting of yearlings is gaining favor. For spruce, planting is better suited and this method is generally followed.

Sowing. — The usual method is to cultivate in the autumn, hacking strips about one ft. broad and from three to four ft. apart (these figures depending on species, locality and growth of weeds) and sow these prepared strips in the spring. For pine about four pounds of seed is required per acre, and for spruce about twice that quantity. Pine seed costs about 50c per pound, while spruce seed is much cheaper, costing from 20c to 40c. The total cost depends on the nature of the ground, quantity of weeds, distances, etc., and varies between $3.50 and $5 per acre.

Planting. — The method of cultivation used for sowings may be followed here, though it is more customary to hack patches or holes. The ground may with advantage be prepared for planting in the autumn, though it is not so necessary as it is for successful sowing. The plants are put into the ground as late as possible in the spring so as to obviate the risk of spring frosts. As regards spruce, two to three year old seedlings are commonly used, and three-to-four-year-old transplants in unfavorable localities. In the case of pine, which develops a much larger and more vigorous root system, one- or two-year-old seedlings are the rule. Under favorable conditions it is customary to plant yearlings. These are preferable to two-year-olds, for the reason that they are very much cheaper to plant and do not suffer so much during the process. For exceptionally unfavorable localities, use is made of two-to-four-year-old transplants. The number of plants varies from 2,500 to 4,000 per acre, according to local conditions and the size of the plants. The cost of planting differs so much under different conditions, that it is impossible to give any representative figures. The cost of preparing the ground and planting may, under normal circumstances, lie between $10 and $15 per acre, but may rise, under abnormal circumstances, as high as $20 to $30. This is exclusive of the cost of the plants themselves, which are, as a rule, raised on the range. It is usual to have one or two permanent nurseries placed at points easy of access, and several temporary nurseries distributed about the range. It is recommended in the general rules contained in the working plan to lay out a temporary nursery on or in the immediate neighbourhood of each felling area whenever possible. In this way all ordinary needs of the range in this direction are satisfied. Any surplus is sold and, in the event of the stock not being sufficient, plants or seedlings are bought in as required from private or government nurseries in the vicinity.

The following prices per one hundred are averages taken from the 1911 annual price-list of nursery stock for sale on the different government ranges, published by the Minister of Finance:—

Spruce: yearlings for transplanting, 4 to 5c; two-year-old seedlings, 7c; three-year-old seedlings, 8 to 9c; four-year-old seedlings, 9c; three-year-old transplants, 12 to 20c, and four-year-old transplants 15 to 25c.

Pine: yearlings, 5c; two-year-old seedlings, 7c; two-year-old transplants, 9 to 19c, and three-to-four-year-old transplants, 15c.

Dr. Fernow's forest survey of the Trent water-shed has been going on satisfactorily during the summer, and it is expected that it will be concluded about Sept. 15. Letters received from members of the party indicate that they had a good deal of difficulty with wet weather during the earlier part of the season. Up to midsummer they had seen very little timber except maple, the greater part of the country having been burnt over.

The Aspen Tree in the Northwest.

By A. Knechtel, Inspector of Forest Reserves.

In the eastern provinces of Canada the aspen is considered a tree of little importance. Perhaps the only feature which commends it to the ordinary observer are the trembling leaves. Young trees in the woods have a beautiful orange-green color, especially in the spring, and the older trees a clean white. But few people go to the woods, and poplar trees grown in the city are usually a dirty gray.

The top of the aspen is not graceful. The branches are stiff, and, being brittle, are easily broken off by the wind, or by a heavy deposit of Snow. In the spring the catkins litter the ground, and the down falls and sticks to the clothing of persons passing near the trees. The roots have the disagreeable habit of throwing up suckers, and so the tree is not a desirable one to have in close proximity to the lawn or garden. As an ornamental tree, therefore, it is not much in favor.

In the East the tree grows most in mixture with other trees and seldom reaches a large size. On account of the brittleness of its branches, which, when broken off, leave wounds where spores of fungi find easy lodgement, it decays at an early age. In the West, however, it forms large forests. The Riding Mountain Reserve, which covers an area of 1,535 square miles, consists mostly of poplar, and the Moose Mountain Reserve of 163 square miles is covered with this species almost exclusively.

The trees in these woods grow to large size for the species, some reaching thirty inches in diameter and many fifteen inches at breast height. Here, as in the East, the poplar is subject to attack by fungi, but on account of the dryness of climate in the West the growth of the fungi is not so vigorous and large areas can be found covered with sound timber, the trees with trunks tall, straight and clean. As one looks at such woods from the sunny side the upper portions of the trees, on account of the clean gray color of the bark, appear as if they had been whitewashed.

In the East poplar is used chiefly as pulpwood, and in Canada very little is taken even for this purpose. But in the West it is much used as fuel, and many log homes are built of it. Recently considerable quantities have been turned into lumber. It makes excellent flooring, is durable when kept dry, and has for several years been much used in the construction of rough buildings, such as granaries and stables. It dresses very well, especially when frozen.

In the prairie provinces poplar is likely to be the great building wood of the future. It is the only abundant wood in that region that reproduces easily from the root. White birch also sprouts from the root, but its quantity is small, compared with poplar. The conifers will supply the market for only a short time hence. Jack pine and lodgepole pine reproduce readily from seed, but they grow very slowly. Poplar grows rapidly. I have seen many areas covered with a fine stand of trees which had grown to the height of a man in one year after a fire.

A poplar forest can be managed by an easy silvicultural method. It is necessary only to take out the logs suitable for lumber, to cut into cordwood the timber remaining, and then to burn the tract clean. From the ashes will rise a young forest which will produce timber that will rapidly become suitable for all the necessary purposes of an agricultural community.

STUDYING CANADA'S FORESTS.

Prof. Gunnar Andersson, of the University College of Commerce, Stockholm, and Jagmastare A. Holmgren, of Ostersund, Sweden, are at present on a visit to Canada, making a special study of the forests and wood industries of this country. They recently spent a couple of days in Ottawa, looking up information particularly in regard to the forests under Dominion administration, and visiting the wood industries of the Capital and vicinity. On leaving they expected to pay a visit to the party engaged in reconnaissance work in Central Ontario, and after visiting the Pacific Coast, will return home about the end of August.

EXPORT OF CHRISTMAS TREES.

Mr. S. S. Bain, nurseryman, Montreal, recently had a very interesting letter in the Montreal *Witness* on the question of the export of Christmas trees from the eastern townships of Quebec. He states that just before Christmas each year a number of men come over from the United States and buy up thousands of spruce trees from six to fifteen feet high, to be used as Christmas trees. For these they give three fourths of a cent to one and a half cents in the woods, and the farmer usually gets the job of hauling them to the railway. Mr. Bain contends that this shows great ignorance on the part of those who sell trees from their land for such a trifle. The larger of these trees, he says, if fit for fence posts, are worth from eight to ten cents each; and with the growing scarcity of timber they would soon be worth much more. As showing what might be done he refers to his experiences on a forest plantation in Britain. There, land unsuited for agriculture was planted with trees from three to four feet apart each way. When large enough for fence posts the first thinning took place, the trees to be cut not being taken out haphazard by any Tom, Dick or Harry, but marked by a forester. The next thinning took place when the largest part of the tree would make a light railway tie. The next section was sold for pit props and the remainder was large enough for a fence post. These two thinnings repaid the cost of the original investment, and the rest of the crop was left to mature to be cut into timber. Some people argue that this cannot be done in Canada where the land belongs to a farmer, but Mr. Bain contends that the Dominion Government, exercising its power of eminent domain, could designate what areas were unfit for any other crop than trees and compel the owner to always keep such lands under a tree crop. If the farmer when felling Christmas trees would have them cut on the plan of thinning out so that the remaining trees would have a better chance to develop there would be no objection; but as it is the buyer goes in and slaughters everything without regard to the future crop. He holds that something must be soon done because of the excessive cutting now going on. From the County of Brome last December there were shipped sixty seven carloads containing from 1,200 to 1,500 Christmas trees each, and these were not culls, but the most perfect symmetrical trees, leaving nothing but crooked and deformed trees on the land. Mr. Bain is very anxious that government action should be taken to stop this loss and show the farmers what an immense revenue they are losing by denuding the hilltops and hillsides of the eastern townships of the magnificent forests that once crowned them At the Canadian Forestry Convention in Ottawa in February, 1912, this subject of the export of Christmas trees from the eastern townships was brought up by several delegates and presented by them to the resolutions committee. A general resolution was passed on the subject as follows:—

Resolved, that this Association deprecates the practice of exporting in large quantities Christmas trees of spruce and balsam and recommends legislation to prevent such practice.

A more sweeping resolution was not passed, because as Mr. Bain pointed out, there would be no great objection to the practice if the farmers got a sufficient price for their trees, and also if the trees were taken on a systematic thinning plan which would allow the development into useful timber of those left behind.

Journals Wanted.

In order to complete his file, a member of the Association requires the second and third issues of Volume 4 (June and October, 1908) of the Canadian Forestry Journal. Thirty cents each will be paid for each copy of these issues sent to the Secretary, Canadian Building, Ottawa.

FORESTRY BRANCH PUBLICATIONS.

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The following is a list of bulletins, etc., published by the Forestry Branch of the Department of the Interior:—

Annual Reports: Director (Superintendent) of Forestry—1904 and following years.

Bulletin 1. Tree-Planting on the Prairies.

Bulletin 2. Planting and Care of a Forest of Evergreens.

Bulletin 3. Dominion Forest Reserves.

Bulletin 4. Forest Products of Canada (up to 1908).

Bulletin 5. Forest Conditions in Crowsnest Valley, Alberta.

Bulletin 6. Riding Mountain Forest Reserve.

Bulletin 7. Forest Fires in Canada, 1908. (Out of print).

Bulletin 8. Forest Products of Canada, 1908.

Bulletin 9. Forest Fires in Canada, 1909.

Bulletin 10. The Farmer's Plantation.

Bulletin 11. Forest Products of Canada, 1909; Lumber, Square Timber, Lath and Shingles.

Bulletin 12. Forest Products of Canada, 1909. Pulpwood.

Bulletin 13. Forest Products of Canada, 1909. Cross-ties Purchased. (Out of print).

Bulletin 14. Forest Products of Canada, 1909: Poles.

Bulletin 15. Forest Products of Canada, 1909.

Bulletin 16. Forest Fires and Railways.

Bulletin 17. Report on Timber Conditions along the Proposed Route of the Hudson Bay Railway (with map).

Bulletin 18. The Rocky Mountain Forest Reserve (with map).

Bulletin 19. Forest Products of Canada, 1909: Cooperage and Boxes.

Bulletin 20. Forest Products of Canada, 1909; Tanbark and Tanning Extract Used.

Bulletin 21. Forest Products of Canada, 1910: Poles.

Bulletin 22. Forest Products of Canada, 1910: Cross-ties.

Bulletin 23. Forest Products of Canada, 1910: Mining timbers.

Bulletin 24. Wood-using Industries of Canada, 1910: Agricultural implements and vehicles, furniture and cars, veneer.

Bulletin 25. Forest Products of Canada, 1910: Lumber, square timber, lath and shingles.

Bulletin 26. Forest Products of Canada, 1910: Pulpwood.

Bulletin 27. Forest Products of Canada, 1910: Cooperage.

Bulletin 28. Forest Products of Canada, 1910 (Bulletins 21, 22, 23, 24, 25, 26 and 27).

Bulletin 29. Timber Conditions in the Lesser Slave Lake Region. (a)

Bulletin 30. Forest Products of Canada, 1911: Pulpwood.

Circular 5. Planning a Tree Plantation for a Prairie Homestead.

Successful Tree Planters. (Pamphlet out of print).

Irrigation Bulletin No. 1: Irrigation in Saskatchewan and Alberta.

Reports of the Progress of Stream Measurements for 1909 and 1910.

The following maps may also be obtained on application:

The Riding Mountain Forest Reserve. Scale, one mile to an inch. (Type map).

The Pines Forest Reserve. Scale, one mile to an inch. (Type map).

Map showing Irrigation Lands and Irrigation Schemes in Alberta and Saskatchewan. Scale, 3 miles to an inch.

Map showing Distribution of Trees by the Forestry Branch in Manitoba, Alberta and Saskatchewan. Scale, 12½ miles to the inch.

Map showing Forest Regions of Canada. Scale, 50 miles to the inch.

Beaver Hills Forest Reserve. (One mile to an inch).

Cooking Lake Forest Reserve. (One mile to an inch).

Cypress Hills Forest Reserve. (One mile to an inch).

Duck Mountain Forest Reserves, Nos. 1 and 2. (Three miles to an inch).

Moose Mountain Forest Reserve. (Scale, one mile to an inch).

Nisbet Forest Reserve. (One mile to an inch).

Pines Forest Reserve. (One mile to an inch).

Porcupine Forest Reserves, Nos. 1 and 2. (Three miles to an inch).

Riding Mountain Forest Reserve. (Three miles to an inch).

Rocky Mountains Forest Reserve. (Six miles to an inch).

Rocky Mountains Forest Reserve. (Twelve and a half miles to an inch).

Spruce Woods Forest Reserve. (One mile to an inch).

Turtle Mountain Forest Reserve. (One mile to an inch).

(The thirteen maps of the forest reserves just named are in black and white only).

The reports of the second (1908), third (1909), fourth (1910), and fifth (1911) conventions of the Western Canada Irrigation Association may also be secured from the Branch.

Any of these reports or maps will be sent gratis on application to the Director of Forestry, Department of the Interior, Ottawa.

With the Forest Engineers.

New Foresters.

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At the June commencements of the various forest schools (namely, those connected with the University of Toronto, Laval University and the University of New Brunswick) a number of new forest engineers were graduated.

At the University of Toronto nine men received the degree of Bachelor of Science in Forestry, and three others are eligible for the degree after passing supplemental examinations. The fortunate recipients of the degree were Messrs. R. M. Brown, F. G. Edgar, E. J. Finlayson, H. S. Irwin, R. G. Lewis, C. McFayden, E. C. Manning, W. L. Scandrett and W. J. Vandusen. All of these entered the employ of the Dominion Forest Service. Their present disposition is as follows: R. M. Brown, forest assistant Brazeau forest reserve, Edmonton, Alta.; F. G. Edgar, forest assistant Bow River reserve, Calgary, Alta.; E. J. Finlayson, Inspector of Fire Ranging; R. G. Lewis, head office, Ottawa; C. McFayden, forest assistant, Crowsnest forest reserve, Pincher Creek; W. L. Scandrett, in charge of forest survey party near the Porcupine forest reserve No. 2, Saskatchewan; W. J. Vandusen, supervisor, Crownsnest forest reserve, Pincher Creek, Alta. Mr. Irwin has since joined the British Columbia forest service.

Laval University (Quebec) bestowed the degree of Foretst Engineer on seven men who had completed the course for the degree. These were Messrs. Henri Roy, L. J. Marquis, Felix Laliberté, Georges Boisvert, J. R. Gareau, Ernest Ménard and Borromée Guerin. All have entered the forest service of the province of Quebec, and are in charge of parties.

The University of New Brunswick conferred the degree of Bachelor of Science in Forestry on two men, namely, Gilbert H. Prince and Guy A. Fitzrandolph. Mr. Prince has joined the staff of the British Columbia Forest Branch, and is working near Creston, in that province, and Mr. Fitzrandolph will go into the lumber business.

* * *

Mr. R. G. Lewis, B. Sc. F., has been for some time engaged in the compilation of the forest products bulletins for 1911 at the head office of the Forestry Branch at Ottawa. He will leave shortly for the Maritime Provinces, in connection with the compilation of the study of the wood-using industries of the Maritime Provinces on which the Forestry Branch is entering.

Messrs. G. H. Edgecombe, P. Z. Caverhill, F. W. Beard, E. G. McDougall and H. C. Kinghorn have resigned their positions in the Dominion forest service to accept positions with the Forest Branch of the British Columbia Department of Lands.

J. D. Gilmour, late of the C.P.R. forestry department, has been appointed supervisor of the Brazeau forest reserve, with headquarters at Edmonton.

L. R. Andrews has been appointed forest assistant on the Riding Mountain forest reserve, Manitoba.

L. C. Tilt has charge of a forest survey party in eastern Manitoba.

H. C. Belyea, who was a member of the 1911 forestry class of the University of New Brunswick, has taken a position with the Riordon Paper Co., at St. Jovite, P.Q.

G. Skiff Grimmer, of the U. of N. B. class of 1908, is engineer and forester for the American Canning Co., near St. Andrews, N.B. The company has a considerable tract of timber and will grow timber for box shooks.

G. A .Fitzrandolph (U. N. B., 1912) is joining the staff of the Baker and Randolph Co., lumbermen.