

Canadian Forestry Journal

VOL. VII.

MARCH-APRIL, 1911

No. 2.



Takakkaw Falls, on Yoho River, in Yoho National Park, B.C.

OTTAWA, CANADA.



John Davey - Father of Tree Surgery



Oliver Chilled Plow Works,
*Chilled & Steel Walking &
 Riding Plows.*
 South Bend, Ind., Feb. 4, 1911.
THE DAVEY TREE EXPERT CO.
 Kent, Ohio.

Gentlemen:

Answering your inquiry of Feb. 3rd,
 will say that the trees treated by your experts are doing nicely and I consider the treatment a success. One fine tree in particular would have been a total loss had it not been treated, but now it is healing over and apparently is in good healthy condition.

Very truly yours,
 (Signed) J. D. OLIVER.

The American public has little idea of the damage which has been done by the outrageous practices of the *ordinary* tree-men. This damage is almost equally the work of the ignorant type, whose only tools are the axe and saw, and of most of those claiming to be "*tree doctors*." A tree expert is one who not only understands tree life from a scientific and practical standpoint, but who is skilled in the proper methods of tree surgery by long training under John Davey and his men. Tree surgery is a science which cannot be learned outside of the Davey Institute of Tree Surgery, the only school of its kind. It is self-evident, therefore, that the Davey Tree Experts are the only men who are fully qualified to handle wounded and crippled trees.

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We are now arranging the spring and summer itineraries of our special representatives. These educated and trained tree-men will this season cover the country east of the Missouri river. Write us how many trees you have, what kinds and where located. It is entirely possible that, while in your vicinity, one of our men can make an expert examination of your trees without cost or obligation to you. *Write now* to avoid delay. Every year we have applications for examination which come so late that it is inconvenient or impossible to give them attention. We will send you a handsomely illustrated booklet giving full particulars and explaining the science of tree surgery and containing ample proofs of its efficiency when practiced by trained and reliable men of a responsible business organization.

THE DAVEY TREE EXPERT COMPANY,
534 Olive Street, - - - Kent, Ohio.

(Operating the Davey Institute of Tree Surgery.)

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Counties May Have Forest Reserves.

Ontario Legislature Provides for Formation of Municipal Reserves.

Years of persistent work had their reward at the last session of the Ontario legislature, when that body passed an Act authorizing county councils to buy up and, where necessary, plant to forest trees waste lands suitable for that purpose and to issue debentures to raise money for

that purpose up to \$25,000.

The full text of the provisions of the Act are as follows:—

1. This Act may be cited as 'The Counties Reforestation Act.'

2. The municipal council of a county may pass by-laws:—

(a) For acquiring by purchase,

- lease or otherwise, such lands designated in the by-law as the council may deem suitable for reforestation purposes;
- (b) For planting land so acquired and for preserving and protecting the timber thereon;
 - (c) For the management of such lands and the sale or other disposal of the timber grown thereon;
 - (d) For the issuing of debentures from time to time for the purpose of providing for the purchase of such lands to an amount not exceeding \$25,000 to be owing at any one time.
3. No by-law shall be finally passed under this Act until the same shall have been approved in writing by the Minister of Agriculture.
4. (a) Municipal councils of townships in districts without county organization shall have all the powers,

privileges and authority conferred by paragraphs (a), (b) and (c) of section 2 hereof on councils of counties.

(b) The councils of such townships shall have power and authority to levy by special rate a sum not exceeding \$200.00 in any year for the purpose of providing for the purchase of such lands.

To Mr. Thos. Southworth, late Director of Forestry and Colonization for the province, Mr. E. J. Zavit, Forester to the Department of Agriculture, and others who have been prominent in the agitation for this measure, the passage of this Act must be very gratifying, as it is, in less degree, to all interested in the forestry work of this province. Several of the county councils, particularly those of York, Simcoe, and the united counties of Northumberland and Durham, are already looking forward to action in this direction.

The Forest Ranger.

By Samuel J. Record, Yale Forest School.*

'The biggest and best thing about the Forest Service is the loyalty of its men. They are working for all the people and that is worth while.'

Gifford Pinchot.

There are nearly two thousand field men actively engaged in the protection and administration of the two hundred million acres upon which Uncle Sam is practicing forestry. Constituting this vast domain are one hundred and fifty reservations, called National Forests. Their present value is more than two billions of dollars.

Each National Forest has an organization and staff of its own. The man in charge is the forest supervisor, and the men comprising his field force are the forest rangers.

There are now 1,200 rangers in the service. There are three grades in this position—Assistant, Deputy and Forest Ranger proper. Promotion from one grade to the next is made on the ground of efficiency and period of service, and the positions are held through merit alone, this branch of the Government service being particularly free from favoritism and political patronage.

Once every year or so the United States Civil Service Commission conducts an examination to determine the fitness of applicants for these positions. These examinations are

*Mr. Record, the author of this article, is a graduate of the Yale Forest School (1904), and, after some years with the U. S. Forest Service, which included experience as forest supervisor, last summer took a position as a member of the Yale Forest School staff.

along practical lines and require two days for completion. The first day is devoted to written tests designed to show the applicant's knowledge of the Government land laws and regulations, the timber business, the principles of surveying, mapping and reconnaissance, the live stock industry and other phases of forest work. The second day is a field test on surveying, timber estimating, packing a horse, throwing the 'dia-



Mr. Record, author of the article, in Forest Service Uniform.

mond hitch,' saddling and riding, for all these are part of the ranger's everyday life.

Answers to the written questions frequently reveal a phase of the subject not contemplated by the examiner. One applicant, when asked how National Forests were created, replied that 'they were created by God and staked out by man.' Another young hopeful attempted to conceal his ignorance of a 'steam nigger' by saying it was 'that part of an engine which has a peculiar work to perform.'

A forest ranger's salary varies from \$1,100 to \$1,500 a year. He is required to keep one or more saddle horses and also pack-horses where needed. He furnishes his own saddle, saddle-pockets, blankets, pack outfit and personal equipment, and pays his own expenses. Sometimes he makes camp alone, at others he stops at a ranch house or 'throws in' with a sheep herder or 'cow-puncher.' The important thing is to find water, for a 'dry camp' after a hard day's ride is a discomfort that even a tenderfoot studiously avoids. For the benefit of strangers in a National Forest the roads and trails are posted with cloth notices giving direction and distance to camping places, ranches and settlement.

Every National Forest is divided into ranger districts, containing on an average about 160,000 acres each. The ranger in charge is provided with permanent headquarters, since private accommodations cannot usually be found in the big woods. In time all ranger headquarters on a forest will be connected by telephone with each other and with the supervisor's office, affording ready means for communication and establishing close relations among all of the forest officers.

Ranger headquarters consist of a house, barn, well, garden and pasture. His office is supplied with a stove or fireplace, table, chairs, typewriter, filing cases, card index, blank form cabinets and miscellaneous equipment. If the ranger has a wife it becomes her duty usually to write her husband's letters and reports, and to see that all papers are filed so that they may be located without ransacking the place.

A tall flagpole stands near the house, and the presence or absence of the flag indicates whether or not the ranger is at home. Special effort is made to make the ranger headquarters substantial and attractive and to serve as models for the entire community.

The district ranger fills a very im-

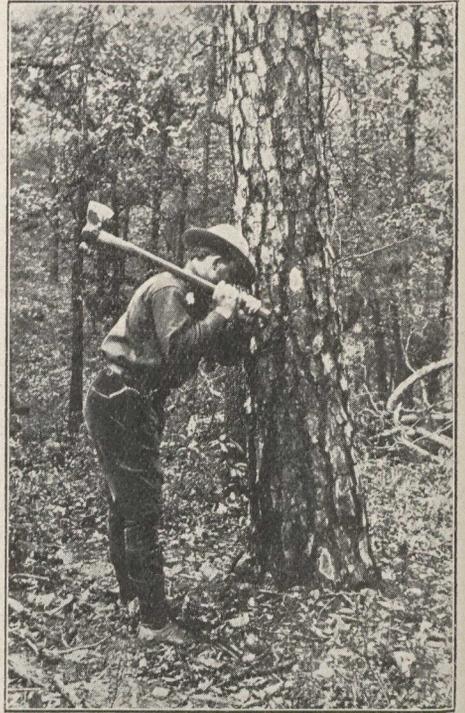
portant position. All the work on his district is under his immediate supervision and he reports directly to the forest supervisor in charge. Frequently from one to several assistants are assigned to him. Sometimes his territory is subdivided for the purposes of fire patrol, timber-sale work or the better handling of grazing. Temporary quarters are provided for his assistants where needed. Additional ranger stations are established over the forest for the purpose of raising horsefeed and forage for the forest officers' horses in thinly settled regions.

The kind and amount of work a ranger does depends upon his particular location. On many forests grazing is the principal business at present, and the men are kept busy preventing trespass, allotting the range, counting cattle and sheep, poisoning prairie dogs and destroying predatory animals. Special hunters and trappers are employed to rid the range of wolves, bobcats, coyotes, bear, mountain lions and other animals that prey upon stock.

It takes a man of special temperament to make a success of hunting and trapping. The work is hard, lonely and dangerous. One must be a naturalist, thoroughly versed in the wiles and instincts of every animal he seeks. The little tricks of removing the man-scent from traps and deadfalls, the proper arrangement of tempting baits, the care to make everything appear natural, the ready reading of signs and trails, the location of dens and runways, and so forth, mark the expert.

The veriest novice may bury a trap in a runway, but it requires the art of a professional so to arrange a few stones and twigs on either side that the animal unconsciously changes his gait to avoid them and plants a paw squarely in the trap.

On most forests selling timber is the principal business. All timber within National Forests which can be cut safely and for which there is actual need is for sale. The ranger



Marking Trees for Cutting on U.S. National Forest.

usually does the work of cruising the land, estimating the timber and making a map of the area, and submits a complete report to his supervisor covering all details of a sale. Sometimes special reconnaissance parties of expert woodsmen, usually rangers, are sent from one Forest to another to map large areas or perhaps an entire Forest, and prepare plans for future timber sale business.

Timber that is sold must be officially marked before being cut. The ranger goes through the woods with a long-handled marking ax bearing on its poll the raised letters 'U.S.' He carefully scans the trees, noting their condition and kind, and pictures to himself all the while how the stand will appear after certain trees are removed. Having decided upon those to be cut, he goes from one to another and with a well-directed glancing stroke of his ax

blazes the tree near the ground and stamps the spot 'U.S.' A second blaze higher up is added to assist the cutters in locating their timber, especially when the ground is deeply covered with snow.

While the timber is being cut, the ranger scales the logs and sees that the purchaser complies fully with the terms of the contract, among which are that all stumps be cut low, that all merchantable timber be utilized, that needless waste and damage be avoided and that the tree tops be so disposed of by lopping close to the ground, or scattering, or piling and burning as to reduce the danger from subsequent fire.

No mineral, homestead or other entry within a National Forest goes to patent until the ranger or other government officer has investigated thoroughly and submits a report showing that the law has been substantially complied with. Timber depredations and grazing trespass are also investigated and reported. Such duties require thorough knowledge of the Government land laws and test a man's ability to obtain competent evidence. Only the law violator or evader has aught to fear from the ranger, who is at all times willing to advise and assist the bona fide prospector, miner and homebuilder.

On many National Forests considerable tree planting is being done. On the Kansas and Nebraska Forests the men's time is devoted almost exclusively to nursery and planting work. On the Ocala and Choctawhatchee in Florida, turpentine orcharding is the principal source of revenue and demands most attention. On the Wichita National Forest and Game Refuge in Oklahoma, caring for the big herd of bison is the important work. The bison's greatest enemy is the Texas fever transmitted by the bite of Texas fever ticks. To guard against ticks the pastures are burned over annually, and no cattle or other

stock are allowed within the inclosures. At frequent intervals the game warden examines each animal through a field glass and the presence of a single tick of any kind means a shower bath of crude oil for the entire herd.

Guarding the Forests from fire is the first and foremost duty of every forest officer, for without adequate fire protection future tree growth is extremely uncertain. Guards and fire-patrolmen are employed during the danger season, fire lines or paths are constructed, watch towers built, telephone lines strung up, trails opened to places that are difficult of access, tool stations established, and various other precautions taken to locate and quickly suppress fires. Should the wireless telephone prove a success it will play an important part in ready communication over the National Forests. Fire fighting is the hardest and most disagreeable work a ranger has to do, and good



Scaling Timber in U.S. National Forest.

judgment and staying qualities are required.

The Forest Service uniform is a neat and inconspicuous olive-green worsted or corduroy, devoid of brass buttons and gold lace. As a sign of his authority each officer wears a small bronze shield-shaped badge bearing in its centre a pine tree—the forester's talisman. Though empowered to make arrests, even without warrant in certain cases, the authority is exercised only in flagrant cases. In some States rangers act as deputy game wardens and render valuable assistance in preventing the unlawful taking of fish and game from regions where hunting and fishing are the best and where poaching is hardest to detect. Though often armed and usually a good shot, it is considered very bad form for a ranger to make any public display of his gun or his marksmanship.

The ranger keeps a diary covering in detail each day's business. When the Forests were first established his work was largely patrol and a sample page from one man's diary is said to have been as follows:

'October 1, 1904. Patrolled out of my blankets; patrolled to the creek; built a fire; patrolled to breakfast and patrolled after my horse. Patrolled all day; patrolled to supper and to bed. Cold night; used my report blank for extra cover; patrolled to sleep.'

But things have changed and now the rawest recruit does more than patrol, and his reports, while numerous, are concise and to the point.

The rangers are a loyal and enthusiastic corps of men, on the alert to resent any outside criticism of the Service or its methods. Should you overhear a couple of rangers exchanging hard luck stories of long hours, small pay, slow promotion, superabundance of red tape and a general lack of appreciation of themselves and their troubles by their superior officers, you may wonder why they stay by their jobs. They stay because the work appeals to

them. The love of God's out-of-doors, the pleasure of breathing pure air fragrant with the smell of the pines, the dependence upon one's own resources, the joy of doing a big task well, the opportunities for hunting and fishing, of exploring new lands, and the discipline and training one unconsciously receives, these are compensation greatly in excess of the limited pay the Government can offer.

CANADIAN CLUBS AND FORESTS.

At the luncheon hour on Friday, Jan. 20, Dr. B. E. Fernow was the guest of honor at a luncheon given by the Canadian Club of Quebec, and afterwards gave an address on the subject: 'What the members of Canadian Clubs can do to protect our forests.'

In the absence of Lt.-Col. B. A. Scott, president of the club, the chair was taken by the vice-president, Mr. G. A. Vandry.

Prof. Fernow, in his address, referred to the preservation of Canada's forests as a patriotic duty incumbent on Canadians, despite the great temptation to be extravagant which the very abundance of the country's resources gave rise to. As business men Canadians should carefully consider what their assets were and 'take stock' of their forests and of their other natural resources. Properly preserved and cared for the timber supply of Canada could be prolonged indefinitely.

MAP OF TREE DISTRIBUTION.

A vivid idea of the number of trees distributed to farmers throughout the prairie region is given by a map recently issued by the Dominion Forestry Branch. The map is of the same size as the regular 'homestead maps,' and on it are indicated, alongside the name of each railway station, the number of trees sent there during the time that the scheme has been in operation.

ONTARIO TIMBER CUT FOR 1910-1911.

It is estimated that the cut of white pine on Ontario Crown lands for the winter just past amounted to 640,000,000 feet, an increase of 35,000,000 feet over the cut for 1909-1910. The cut of other timber is estimated at 100,000,000 feet, an increase of 5,000,000 feet. To offset this the cut of pulpwood is thought to have decreased by 38,000 cords, only about 100,000 cords having been cut.

The Riding Mountain Forest Reserve.

By Geo. King, Editor Dauphin (Man.) Press.

When one reads of awful forest fires such as last summer and autumn raged in the states of Montana and Idaho, and to a less extent in the state of Minnesota and the provinces of British Columbia and Ontario, it is a matter of more than usual interest to come in touch with what is being done in our own northwest by the forestry department, under the minister of the interior.

While much work is being done to protect the timber belts of the west from fire, undoubtedly the most important work is being carried on in the Riding Mountain forest reserve. This reserve is one of the largest in the west. It takes in 42 townships and is over 100 miles in length. It has a thick growth of spruce, poplar, birch and some tamarac and oak. While fires have done great damage to the timber along the foot of the mountain, no great damage has been done in the reserve, which of late years is attributable to the energy and the watchfulness of the forest rangers under the direction of the chief forest ranger with headquarters at Dauphin.

Start of the Work.

The practical work of protecting the reserve started in the year 1908, when a line, which might properly be termed a survey line, was started west of Norgate in township 20, range 15, and run for ten miles northward by Forest Ranger McLeod. This line was run in the first place with the object of demarcation.

In the following year, 1909, the work of continuing the line was started and 25 miles were covered in a northwesterly direction, carrying it to a point seven miles west

of Ochre River. This line was cut a width of eight feet, and might be called a good road, which also acted as a fire guard.

When the heavy fires were running last spring in the poplar timber in the mountain the rangers found that where they had room to work they could do good work in this class of timber in suppressing the flames. With the knowledge thus gained in fighting the fires so successfully, it was decided to widen the line from eight to sixteen and twenty feet. In making the clearing the trees are cut down close to the ground and all parts removed, as well as the underbrush, the fire being thus prevented from spreading when it reaches the opening. This opening presents a pretty appearance when the leaves are on the trees, somewhat after the form of an extended tunnel, as one glances down it.

Country Traversed by the Line.

There have been ten miles of this wide line cut this year, through belts of heavy poplar and birch with thick undergrowth. The line in many places crosses big gulches and cuts, some of these, according to surveyor's notes, being two hundred and fifty feet deep. The great tract through which the line runs is regarded as the hogback of the mountain.

The formation of the mountain is bed rock, being of heavy slate and shale, covered with a layer of boulder clay. On the top of the clay is the usual covering of loam and leaf mould.

Use of the Reserve.

The land surrounding the mountain is of the best for the pursuits of

agriculture, and on either side are to be found railways and thriving villages. How valuable this timber is to the settlers can readily be imagined. Timber may only be taken out by farmers under close supervision of the department, and then only for use on their farms. No owners or operators of sawmills can acquire any of it. The idea of the government is to help the settler and at the same time develop the country's resources. All present cutting of timber is being done under close supervision of the rangers and with a view to reproduction. Wherever cutting has been done to such an extent that portions of the reserve are denuded of tree growth, reforestation will follow in its wake.

Cutting must all be done under permits issued by crown timber agents, and these permits are issued exclusively to farmers. Among the other important duties pertaining to the rangers is the work of preventing settlers squatting in the reserve, and the preventing and extinguishing of fires.

The Rangers and Their Duties.

Wm. A. Davis is chief forest ranger, and has headquarters at Dauphin. His division not only covers the Riding Mountain but several other reserves at more distant points, so that great responsibility rests on his shoulders. In this reserve Mr. Davis has four rangers under him, located at about equal distances apart. There are John W. Robertson, Gilbert Plains; W. Middleton, Elphinstone; Franz Hoffman, Scandinavia, and Albert McLeod, Kelwood.

The whole system of western forest reserves is under the direction of A. Knechtel, a man of wide experience, who served seven years

with the forestry department of the state of New York, joining the Dominion Forest Service in 1908.

The system of guarding against fire and controlling it, once it gets started, in the Riding Mountain is about as perfect as it can be under the circumstances. Once a fire breaks out the rangers get in communication with headquarters at Dauphin, either by telephone or telegraph, and the machinery is set in motion to command all the assistance required to control it and put it out.

Among the minor duties of the rangers is that of procuring seed of spruce and other trees. It is no easy matter to procure the cones of the spruce, as they grow on the extreme ends of the limbs of the tall trees. When picked, the cones are sent to the Forest Nursery Station at Indian Head, Sask. There the seed is extracted. Part of it is returned for reforestation purposes to the reserve and the rest is sown at Indian Head, whence the trees produced are distributed to the farmers throughout the prairie provinces to be used in beautifying and protecting their homes.

Value as a Summer Resort.

The Riding mountains abound in beautiful lakes of the purest water. By cutting roads into the reserve it is possible to create a number of splendid resorts, which could be used by the settlers in the vicinity during the summer season.

A Game Preserve.

The rapid extinction of the large game in the country suggests that this reserve, which is one of the best deer runs remaining in the west, be created into a big preserve. If the monarchs of the forest, the elk and the moose, are to be preserved, this must be done. Each year the bands which roam the reserve are lessening in number and it will be only a matter of a few years before there will be none left if the present rate of

*Since this article was written, Mr. W. A. Davis has been given charge of the Duck Mountain and Porcupine forest reserves, with headquarters at Dauphin, and Mr. McLeod made chief fire ranger of the Riding Mountain reserve.

Wealth in Fish and Game

By Thomas Ritchie, Pres. Belleville, Ont., Fish and Game Association.

The public are slowly awakening to the vast importance of conserving the natural resources of this Province and commencing to realize what wealth would accrue if these were wisely administered, yet little practical effort, so far, has been made to secure to the people the full fruits of what nature has so bountifully bestowed upon us.

It is not necessary to dwell here upon the value of preserving and properly utilizing our forests and of afforesting the millions of acres which have been cut over and other land unfit for agricultural purposes, or of dealing with the rich stores of mineral wealth that these may enrich our own people rather than foreigners, or of developing the power we hold in our numerous lakes and rivers, or securing for the present and future generations a supply of food fish in our great lakes. Every citizen is interested directly or indirectly in these matters, and each stands to profit thereby if the community can be brought to see things in their proper light and so insist that they be dealt with in a prudent and effective manner.

Of the above sources of wealth the public are more or less aware, but there is still another which ought eventually to prove of immense value to the country of which but few are cognizant, that is, our game fish and other game. Now it is not on account of the value of these in themselves (indeed they are of comparatively little intrinsic value) that attention ought urgently to be directed to their conservation, nor is it for the purpose of affording pleasure to a few persons of leisure in our own midst. This is worthy of some consideration, but is not by any means of the most importance,

for so far as the great body of our people are concerned, perhaps not more than one in a hundred cares one iota whether there be any game in either forest or stream. What is here insisted on is that it is on account of the economic value to the province as a whole, not for the benefit of the few, that active and effective measures ought to be instituted for their protection.

The matter of chief importance connected with our game fish and other game is the attraction these have for foreign tourists and the amount of money left by them in the country each season. There seems to be little conception at present of what value this source of wealth will eventually become to the province of Ontario if due precautions are taken in time to prevent our rivers, lakes and forests from being depleted.

Every one knows of the valuable asset we have in the silver mines of Cobalt and Gowganda and the gold of Yukon; none need to be told of that, but few seem to be aware that in the attractions we possess in our rivers, lakes and forests lies latent a greater fund of wealth than all these combined. This will appear to most persons to be rather a broad assertion and somewhat startling, but nevertheless it can be shown to be a fact.

The state of Maine had for many years expended large sums in protecting and restocking the rivers and lakes with game fish, and to satisfy the people there that the expenditure was profitable and yielded a rich return, the government took steps in 1907 to ascertain definitely how many persons entered the state that year attracted by what the fish and game offered. They found that above half a million persons, men,

women and children, had so entered.

Thus, reckoning on the moderate sum of thirty dollars spent there by each person, it was found that fully fifteen million dollars were left by these pleasure-seekers in that state in one season alone, spent by them throughout the state and that in localities where most needed and where it would do most in developing the country.

Now the output of silver in Cobalt and gold in the Yukon together for 1907 amounted to but \$14,600,000, and moreover a great part of this went out of the country to foreigners who own the mines. The other remains in the country.

When we consider that Ontario is about five times the size of Maine, and contains far greater attractions in its many thousands of beautiful lakes and rivers, with their invigor-

ating air, all originally teeming with fish, and its woods with game, and that it is more easy of access than Maine is to the wealthy millions to the south of us, and, moreover, with the exception of Maine and the Adirondacks, there is no field whatever east of the Mississippi River to attract tourists at all comparable to what Ontario furnishes, it can be readily seen that we have conditions in Ontario to secure yearly an immense influx of wealth eventually far exceeding what now goes into Maine and of greater value to us than all our gold and silver mines. Is it then not worth while?

It is not only the amount of money brought into the country by tourists but it is money spent largely in remote parts where it will do most good while the whole province profits thereby.

Planning a Farm Homestead.

By A. Mitchell, Forest Nursery Station, Indian Head, Sask.

When the farmer is making his plans for the summer's work, the laying out of his permanent premises—shelter belts, garden, orchard and so on—must receive some attention and the following suggestions may be helpful.

In arranging for permanent works such as buildings and plantations, it is very important to allow for every contingency which may arise, for if a mistake is made at the beginning it usually is not very easy rectifying it.

Leave Plenty of Room.

An error often made in laying out the farm grounds is to have them too small—sufficient perhaps for present needs, but allowing no room for expansion.

This is a great mistake. Land is plentiful and an acre or two extra inside the main shelter belt will never be missed. It may, indeed, be

made to produce its crops of roots or seed grains, or be used as a run for young stock, so that it may be as profitable a piece of land as is on the whole farm. In fact, it can be utilized for anything that the needs of the owner and the expansion of his business may suggest.

The shelter belt should be wide and the trees close together, as this arrangement enables the trees to shelter one another and shade the ground better and more quickly, and so lessens the work of cultivation. Besides, a broad belt will provide more and better posts, poles, etc., when thinnings come to be made.

In arranging the plantations they should be kept far enough away from the buildings so that there will be no trouble from snowdrift in winter; a distance of about thirty yards is pretty safe.

The accompanying plan, while not

at all claiming to be a model, embodies some of the most important points to be considered in laying out the farm grounds.

A. Suggested Plan.

In the plan here presented the outer boundary encloses a space of over ten acres. The outer belt of trees is four rods wide and embraces an area of over three acres. There is room for fifteen rows of trees at four feet apart or twenty at three feet, and the belt is wide enough to afford efficient shelter and to protect itself by excluding the drying winds.

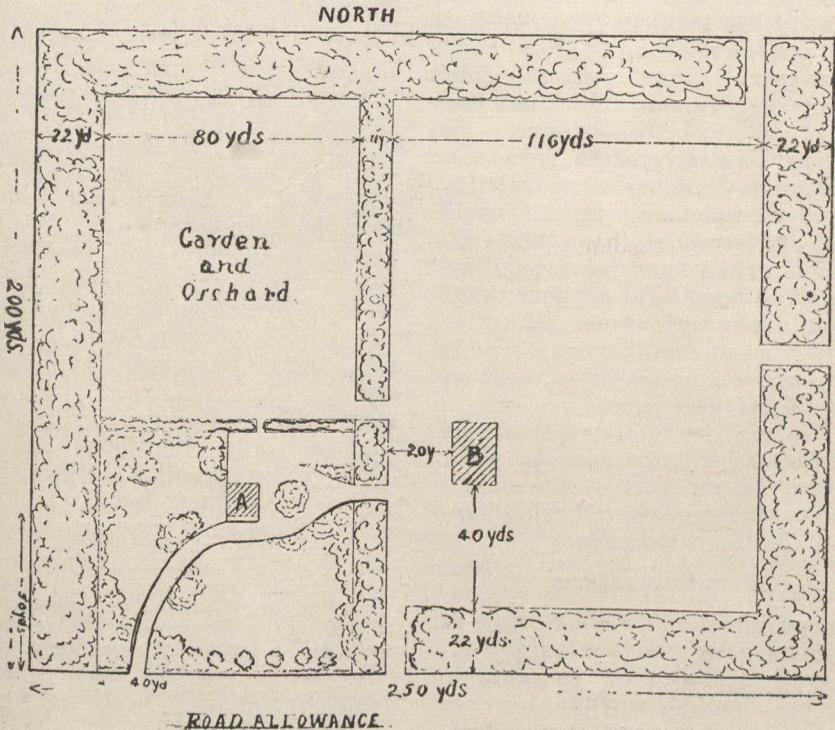
The closeness of the planting will shorten the time required for cultivation, the most expensive item in planting operations.

The house is set fifty yards back from the road to allow of a fair-sized lawn in front, and forty yards from the western plantation to avoid trouble from snowdrifts. It is at the same time close enough to the plan-

tation to be sheltered at as early a date as possible from the prevailing winds. The smaller plantation to the east screens it from the yard, and the one to the north affords early shelter from that direction. There will be little or no trouble from snow behind these as the other plantation will catch the drifts.

Sometimes very cold winds are experienced from the south and shelter should be provided in that direction, but at the same time this is the side from which in this case the best view is obtained and it should not be sacrificed if possible.

These two matters are provided for in the hedge of Caragana (or other shrub, or even spruce), which can be kept trimmed to a height of four or five feet—sufficient to afford a good shelter, yet not high enough to obstruct the view. The row of standard trees inside the shelter hedge can be pruned up to clean stems about eight feet high, and encourag-



Planting Plan for Farm Grounds.

A, house; B, barn.

ed to develop spreading heads. They will thus afford a good deal of shelter and yet not obstruct the view from the lawn. Instead of the row, groups of trees, arranged irregularly and surrounded with shrubs, might be substituted for the single row of standards.

Two entrances are arranged to the premises. Stock will be driven out and in at times and might damage the lawn and shrubs if a second one were not provided. The curved house entrance is in accordance with modern lines of landscape art, and so are the irregular groups of shrubs set here and there bordering the lawn. There is grass space enough for a tennis court.

A turning place is provided, as it is not always convenient to have rigs with callers coming into the farm yard. If the house were further back from the road the turn could have been in front but this would have curtailed the lawn space. The turn is convenient also for delivering coal to the basement of the house.

The garden and orchard is convenient to the house and of a fair size and yet closed off from the yard.

The barn is far enough from the plantation to be clear of snowdrifts and yet close enough to the small plantations to quickly have the benefit of its shelter from the prevailing winds. The barn yard is about three or four acres in extent, affording plenty of room for additional buildings, poultry and hog runs, and so on, whenever necessary.

While it is not intended that this plan should be looked upon as a model, it covers most of the points that should be considered when laying out the farm grounds.

A Few Suggestions.

Everything should be arranged as conveniently as possible, as for instance the curve of the entrance to the house should always be towards the town or wherever the most traffic is, and the house should always

be nearer the town than the other buildings so that strangers approaching the place will see the most attractive part first.

The arrangement of the shrubs round the lawn should be irregular and they should be in groups of varying size, and plenty of them should be used, the plants being no wider than four feet from each other. This is the only way to obtain that natural massed effect which is so pleasing.

With a little care and study of the different shrubs, very fine results may be obtained and there is no reason why any farmer should not, in a very few years, have as well arranged and attractive a home as any city man.

Meantime when laying out the permanent premises, allow lots of room for expansion; lay the foundations broad and deep; the details may, if necessary, be worked out later.

Is a Snow-trap Advisable?

Sometimes it is thought necessary to have a narrow strip—say, a row or two of willows—outside the main plantation to act as a snow-trap and prevent damage from snow-drift in the plantations. Such damage, however, does not often occur, and the recovery of the broken trees usually takes place readily enough. Besides, in practice it has been found that after a few years the outer willow belt is neglected and gets choked up with grass, and very soon there is only a bush here and there to be seen.

Over the greater portion of Saskatchewan and Southern Alberta where the snow fall is lighter, it is a question if much benefit is to be derived from such snow-traps.

The Penobscot Lumber Co., whose headquarters are in Brunswick, Maine, is inaugurating a system of planting on their limits, and will establish nurseries at Salmon River and Marin's Head, N.B., and Cookshire, P.Q. Mr. Robt. Connelly, manager of the company, has the matter in charge.

A Long Fight Ended.

Forest Reserves in Appalachian and White Mountains now assured.

For years past the advocates of forestry in the United States have been endeavoring to secure legislation through which forest reserves could be created in the Eastern United States, chiefly in the White Mountains and in the Appalachians. The effort has all along met with vigorous and persistent opposition, but in February last a bill, known as the 'Weeks' bill, was finally passed through Congress, and received the assent of President Taft on March 1st.

The members of the Canadian Forestry Association present their hearty congratulations to their U. S. confreres on this successful ending of one of the biggest fights ever waged in forestry annals on this continent, and trust that their highest anticipations may be realized in regard to the reserve.

The Act does not directly create forest reservations in the Appalachian region. In fact it is so general in character that under its provisions action might be taken in any part of the United States. A good general idea of the nature and scope of the Act may be gained from its title: 'An Act to enable any State to cooperate with any other State or States, or with the United States, for the protection of the watersheds of navigable streams, and to appoint a commission for the acquisition of lands for the purpose of conserving the navigability of navigable rivers.'

The first section of the Act enables any State of the Union to enter into agreement with any other State or States 'for the purpose of conserving the forests and the water supply of such States.'

The next section puts in the hands

of the Secretary of Agriculture the sum of \$200,000 for the purpose of co-operating 'with any State or group of States, when requested to do so, in the protection from fire of the forested watersheds of navigable streams.' This authorization limits the amount of federal money expended in any State in any given year to the amount appropriated by that State for the same purpose during the same year.

The most significant sections of the Act are those which provide for the establishment of forest reserves. The first element in this provision is an appropriation of \$2,000,000 a year for five years ending with June 30, 1915, 'for use in the examination, survey and acquirement of lands located in the headwaters of navigable streams or those which are being, or which may be, developed for navigable purposes.' The expenditure of money under this provision of the Act is conditioned (1) upon investigation by the Secretary of Agriculture, (2) examination and approval by the Geological Survey, (3) recommendation for the purchase of lands and fixing of price by the National Forest Reservation Commission, and finally (4) actual purchase by the Secretary of Agriculture, with approval as to payments and land title by the Attorney General of the United States.

The National Forest Reservation Commission created by this Act is to consist of seven members, including the Secretaries of War, of the Interior and of Agriculture, two members of the Senate (chosen by the President of the Senate), and two members of the House of Representatives (chosen by the Speaker). This commission is to re-

port annually to Congress about December 1st on the operations of the preceding fiscal year. The specific provisions of the Act as regards the Secretary of Agriculture and the Geological Survey, together with provisions for reservation of minerals and timber to the original owners of purchased lands, and also provisions for homestead entries on small tracts suitable for agricultural purposes may be quoted as follows:

Sec. 6. That the Secretary of Agriculture is hereby authorized and directed to locate, examine and recommend for purchase such lands as in his judgment may be necessary to the regulation of the flow of navigable streams, and to report to the National Forest Reservation Commission the results of such examinations: Provided, that before any lands are purchased by the National Forest Reservation Commission said lands shall be examined by the Geological Survey and a report made to the Secretary of Agriculture, showing that the control of such lands will promote or protect the navigation of streams on whose watersheds they lie.

Sec. 7. That the Secretary of Agriculture is hereby authorized to purchase, in the name of the United States, such lands as have been approved for purchase by the National Forest Reservation Commission at the price or prices fixed by said commission: Provided, that no deed or other instrument of conveyance shall be accepted or approved by the Secretary of Agriculture under this Act until the legislature of the State in which the land lies shall have consented to the acquisition of such land by the United States for the purpose of preserving the navigability of navigable streams.

Sec. 8. That the Secretary of Agriculture may do all things necessary to secure the safe title in the United States to the lands to be acquired under this Act, but no payment shall be made for any such lands until the title shall be satisfactory to the Attorney-General and

shall be vested in the United States.

Sec. 9. That such acquisition may in any case be conditioned upon the exception and reservation to the owner from whom title passes to the United States of the minerals or of the merchantable timber, or either or any part of them, within or upon such lands at the date of the conveyance, but in every case such exception or reservation and the time within which such timber shall be removed and the rules and regulations under which the cutting and removal of such timber and the mining and removal of such minerals shall be done shall be expressed in the written instrument of conveyance, and thereafter the mining, cutting and removal of the minerals and such timber so excepted and reserved shall be done only under and in obedience to the rules and regulations so expressed.

Sec. 10. That inasmuch as small areas of land chiefly valuable for agriculture may of necessity or by inadvertence be included in tracts acquired under this Act the Secretary of Agriculture may, in his discretion, and he is hereby authorized, upon application or otherwise, to examine and ascertain the location and extent of such areas as in his opinion may be occupied for agricultural purposes without injury to the forests or to stream flow and which are not needed for public purposes, and may list and describe the same by metes and bounds, or otherwise, and offer them for sale as homesteads at their true value, to be fixed by him, to actual settlers, in tracts not exceeding eighty acres in area, under such joint rules and regulations as the Secretary of Agriculture and the Secretary of the Interior may prescribe; and in case of such sale the jurisdiction over the lands sold shall, ipso facto, revert to the State in which the lands sold lie. And no right, title, interest or claim in or to any lands acquired under this Act, or the waters thereon, of the products, resources or use thereof after such lands shall

have been so acquired, shall be initiated or perfected, except as in this section provided.

Lands purchased under the provisions of this Act are to be administered as 'national forest lands' under Sec. 24 of the Congressional Act, approved March 3, 1891, and various supplemental Acts. The Secretary of Agriculture is authorized to divide any lands purchased 'into such specific national forests' as may to him appear best for administrative purposes.

The Act provides that five per cent. of any money received during the fiscal year from each of the national forests thus created shall be paid into the treasury of the State in which any such forest is located, 'to be expended as the State Legislature may prescribe for the benefit of the public schools and public roads of the county or counties in which such national forest is situated.' No county, however, is to receive an amount in excess of forty per cent. of its total income from all other sources.

Finally, the Act appropriates \$25,000 per year for the expenses of the National Forest Reservation Commission, the money to be immediately available.

Lands may be bought only in the States whose legislatures have consented to the acquisition of land by the United States for the purpose of preserving the navigability of streams. The States which have already taken the necessary action are Maine, New Hampshire, Maryland, Virginia, West Virginia, North Carolina, Tennessee, South Carolina and Georgia. The first lands to be examined for purchase will be in the Appalachian and White Mountains, which because of their altitude, steepness and lack of protection are in a class by themselves. Careful examinations which have been going on for the last ten years have proved that the conditions which affect stream-flow to an extreme extent are to be found in relatively limited

areas, which are scattered more or less widely. By careful selection it is believed that much can be done for the permanent improvement of the watersheds with the purchase of a relatively small part of the land.

Timbered lands may be bought either with the timber standing on them or with reservation by the owner of the right to cut the timber under certain rules to provide for perpetuation of the forest. These rules will form a part of the agreement for the purchase of the land. Since, however, the government can not pay high prices, it is not regarded as probable that much land bearing a heavy stand of merchantable timber can be bought. Culled and cut-over lands may be bought, as well as land covered with brush which is useful for watershed protection, burned land and abandoned farm land, whether cleared or partially or wholly covered by young timber growth. Good agricultural lands will not be considered.

Hon. Jas. Wilson, Secretary of the federal Department of Agriculture, indicates that the policy of the Commission will be to make the money available go as far as possible. 'For the most part,' he says, 'we shall have to buy cut-over lands or lands without much merchantable timber. I want to make it plain at the start that I shall recommend this class of land only when it is offered very cheap. The lands acquired by the Government will be held as National Forests. They will be protected from fire and the growth of the timber will be improved as much as possible. The lands will not be game preserves, but will continue to be open to the public for hunting and fishing in accordance with the laws of the State in which they are situated. All their resources will be available for the public under reasonable conditions. Another point which I wish to emphasize is that we are not going to take from people their homes in order to put the lands into National Forests.'



[Courtesy Maine Forest Com.]
One of Maine's Lookout Stations.

One Means of Fire Detection.

The accompanying illustration shows the 'lookout station' located on Bald Mountain in the state of Maine. These stations take an important place in the work of protecting the forests from fire, both in this state and in its neighbour, New Hampshire. Mr. W. C. J. Hall, Superintendent of the Forest Protective Service of the Province of Quebec, in his report for 1908, thus describes the use of the lookout stations: 'Lookout stations are established on the tops of the highest mountains in the territory to be protected and are connected by telephone with the existing telephone system and provided with range-finders, compass, telescope, etc. Each lookout is placed in charge of a reliable man, familiar with the use of these instruments; this man is also supplied with a map of the surrounding country, and the moment he sees fire in any direction he locates it, rings up the nearest fire warden and tells him approximately where the fire is. He next rings up the limit-owner, whom he also warns of the fire and immediately makes an entry to that effect in

his "log," stating the date and hour that each was warned. The lookouts already established in the state of Maine have cost from \$500.00 to \$600.00 each to install, apart from the instruments.'

The state of Maine now has twenty-four of these stations, most of them constructed and equipped during the last two years. A few were maintained by private timber owners before this, and were taken over by the state. The total cost of construction and equipment during the two years has been \$14,664.49.

Provincial Chief Fire Warden W. C. Gladwin, of British Columbia, is urging Vancouver and the towns in its vicinity to buy the forested lands on the watershed of the streams from which they obtain their water supply.

The town of Dauphin, Man., is installing a waterworks system. The water will be brought from Edwards Creek, in the Riding Mountain forest reserve.

La Pépinière de Berthierville, P. Q.

Par A. Bédard, M.F.

La ferme de Berthierville est divisée en deux parties qui se distinguent l'une de l'autre par l'espèce de travaux qu'on y fait, l'une affectée aux travaux purement forestiers et couvrant une aire de trente arpents, l'autre réservée aux travaux agricoles et couvrant une superficie de quarante arpents.

Travaux forestiers.

La partie de la ferme affectée aux pratiques forestières comprend, outre la pépinière et l'arboretum, dont nous disons le but plus loin, un massif forestier de vingt-trois arpents. Cette petite forêt, située à l'extrémité nord de la ferme, est peuplée principalement de bois feuillus. Il est fort probable qu'autrefois le pin blanc, qui aujourd'hui ne prédomine que dans un coupon de la forêt, était mêlé partout aux bois francs et qu'il n'a dû de disparaître peu à peu, pour faire place aux feuillus, qu'à une exploitation intensive et imprévoyante. Aussi ne reste-t-il aujourd'hui en forêt que quelques 100,000 de pin blanc. La forêt, avons-nous dit, est composée principalement de bois feuillus, érables, mérisier, bois blanc et hêtre.

Nous croyons devoir dire aussi qu'autrefois il existait des peuplements de chêne qui ont totalement disparu par les coupes intensives qu'on y fit jadis pour se procurer les bois de marine, et pour faire succéder la culture de la forêt.

Bien que, comme nous l'avons fait voir plus haut, on ait, dans le passé, d'une manière extravagante, extrait des essences précieuses, comme le pin blanc et le chêne, il n'en reste pas moins vrai que la forêt de la ferme de Berthierville est aujourd'hui celle qui offre les peuplements les plus riches de la région, tant par la variété des essences qu'on y rencontre que par la quantité de matière ligneuse en croissance à l'arpent. Ainsi, nous rencontrons des pins blancs donnant six billots à l'arbre, ce qui n'est pas commun dans la région.

Le terrain sur lequel croît cette forêt est légèrement ondulé et est formé d'un sol siliceux surplombant une couche de terre argileuse; ce qui indiquerait que les sables mouvants dont nous constatons la présence au-delà de cette forêt, près du chemin de fer, ont dû, dans le passé, s'étaler ici.

Parcelles d'expériences.

Cette forêt sera subdivisée en huit parcelles d'égale superficie délimitées par des chemins ou allées de vidange. On a

déjà, avec le concours des élèves, tracé et déblayé deux allées de huit pieds de large, parallèles, à un arpent l'une à l'autre, servant à la sortie des produits forestiers.

Dans chacune des parcelles dont il est fait mention, on appliquera un système sylvicole différent, suivant la nature des produits que l'on recherche et suivant la nature du peuplement forestier. Ainsi, en certaines parcelles, on favorisera le développement des taillis; en d'autres, celui de la futaie, ici on cherchera à créer une érablière modèle, là on travaillera à reconstituer un peuplement pur de pin blanc.

Inventaire et coupes.

Il va sans dire qu'avant d'appliquer aucun système, on fera un inventaire aussi exact que possible de la quantité des différents bois que cette forêt contient. On a cette année inventorié $\frac{1}{2}$ de cette forêt, et dans la parcelle dont on connaît le contenu on fera cet hiver des coupes qui ne porteront toutefois que sur les arbres mal venus, défectueux ou de peu de valeur, que l'on a martelés à l'avance afin que les bucherons ne commettent pas d'erreur.

Etude sur la croissance et le défilement des essences forestières.

En même temps que ces coupes seront faites, on étudiera sur les souches et billes d'exploitation le taux de croissance et de défilement des arbres exploités. Les chiffres ainsi obtenus auront leur place dans les tableaux de croissance et de défilement que l'on est à construire pour les différentes forêts de la province. D'autre part, on mesurera le diamètre de chaque arbre, qui doit demeurer après le passage des coupes, et l'on pourra, dans la suite, voir jusqu'à quel point l'exploitation de certains sujets dans une parcelle donnée a influé sur le développement des arbres laissés sur pied dans la même parcelle.

Etudes sur la production du sucre.

Les expériences dont nous venons de parler regardent tout spécialement et uniquement la production de matière ligneuse, cependant on ne s'arrêtera pas là. Comme nous n'avons pas encore en cette province d'étude sérieuse sur l'exploitation des érablières en vue de la production du sucre, nous nous efforcerons de combler cette lacune en recueillant, lors de l'exploitation du sucre, le printemps, tous les data possibles tant sur la quantité moyenne de sucre que nos érables placés

en telle condition et suivant leur âge et leur diamètre, sont capables de produire, que sur la qualité des produits particuliers à telle variété d'érable.

Ainsi donc, la forêt qui forme partie de la ferme de Berthierville est destinée, de par sa nature et le plan de recherches que l'on s'est tracé, à donner un enseignement précieux en ce qui touche l'applicabilité de différents systèmes forestiers dans les bois des petits propriétaires, et la possibilité d'augmenter la production du sucre ou de matière ligneuse par des méthodes de culture scientifiques.

Pépinière.

Nous avons dit plus haut que les travaux forestiers couvriraient une superficie de trente arpents et que de cette aire une partie (soit trois arpents) était affectée aux semis et repiquage.

Cette pépinière est destinée, comme l'on sait, à fournir les plants nécessaires au reboisement de 25,000 arpents de sable mouvant que des coupes imprévoyantes ont dénudés, et qui sont situés dans la région de Berthier, aux approches de la voie du Pacifique Canadien. C'est donc pour que les plants de reboisement soient déjà faits aux conditions climatériques et autres avec lesquelles ils leur faudra compter, quand ils seront définitivement installés sur les sables, dont il a été question plus haut, que l'on a choisi pour pépinière la ferme de Berthier. Il va de soi, d'autre part, qu'en plaçant une pépinière à proximité des terrains pour le reboisement desquels elle nourrit les plants, on rend possible le transport de ceux-ci à meilleur marché et sans pertes considérables.

Le sol, qu'on a eu soin d'ameublir par des labours et des hersages judicieux, et de débarrasser ainsi des mauvaises herbes qui s'y étaient multipliées depuis l'abandon de la ferme, est de bonne qualité et capable de nourrir des plants vigoureux, à enracinement bien constitué.

Dans un coupon de la pépinière (deux arpents environ) subdivisé en planches qui séparent d'étroites allées, on a semé des graines d'essences variées achetées qui en Europe, qui aux Etats-Unis, qui au Canada. Les essences qu'on a ainsi propagées, et qui sont aujourd'hui représentées par quelques 350,000 sujets, sont les suivantes: pin blanc, pin noir d'Autriche, pin sylvestre, mélèze d'Europe, épicéa, épinette de Sitka, sapins divers, érables, noyer, sapin de Douglas, pin taureau, pin rouge, épinette blanche, épinette noire, épinette piquante, mélèzes japonais, orme, acacia et murier.

Les cinq premières essences de la liste précédente seront employées au reboisement des sables de la région de Berthier. Quant aux autres essences, elles sont cultivées pour être plus tard distribuées aux

fermiers désireux de faire, sur leurs terres, des plantations. Il y a quelques essences exotiques que l'on essaie, parce qu'elles sont précieuses, d'acclimater en cette province.

Un coupon de la pépinière d'une superficie de un arpent est affecté au repiquage des plants élevés d'abord dans les planches de semis. Le repiquage ou la transplantation des jeunes brins venus en pépinière a pour but de développer chez ceux-ci, en les éloignant l'un de l'autre, un enracinement vigoureux et une robuste constitution, afin qu'ils puissent plus tard, lorsqu'ils seront soumis à des conditions moins avantageuses, vivre et prospérer. On a repiqué environ 26,000 sujets, choisis entre les meilleurs, et dont la moitié provient de graines achetées en Allemagne.

Les semis ont pour la plupart très bien réussi; les pertes qu'on a eu à subir, malgré les meilleurs soins, tiennent surtout au fait que dans les débuts de ces expériences, on a eu à compter avec de grandes sécheresses qui n'ont pas laissé de faire périr un certain nombre de résineux. D'autre part, certaines graines de provenance étrangère, n'ont pas donné les résultats que les fournisseurs nous faisaient espérer, sans doute parce qu'elles n'étaient pas toutes de première qualité. Il me reste à ajouter que certaines essences qui avaient failli à germer la première année, se sont éveillées l'année suivante et se sont rapidement développées. Parmi les essences qui ont donné les meilleurs résultats et ont poussé avec vigueur, citons, au fil de la plume, le pin d'Autriche, le pin blanc, le noyer, l'orme et les érables.

Les expériences de pépinière auront ceci de bon qu'elles nous diront comment, quant à la germination, se comportent sous notre climat telles essences étrangères, quelles essences forestières nous pouvons avec succès introduire dans le pays, quel est le coût des semis et plantations.

Arboretum.

La partie de la ferme affectée à l'arboretum couvre une superficie de quatre arpents, morcelée en quarante-huit carrés de cinquante pieds de côté. On veut ici expérimenter sur certaines essences canadiennes provenant de semis ou extraites, à l'état de sauvageons, de la forêt, afin de savoir quelle est la rapidité de croissance de ces différentes essences suivant leur provenance et quelle est leur vitalité. Les essences qui vont faire les frais de ces expériences sont: le pin blanc, l'orme, le frêne vert, l'érable à sucre, l'érable rouge, l'érable blanc, le liard et le noyer.

British Columbia's Timber Commission.

Final Report Urges Creation of Forestry Department and other Reforms.

The final report of the Royal Commission of Inquiry on Timber and Forestry of the province of British Columbia is a work that has been awaited with much interest, presenting, as it does, the results of the deliberations of that body, after much sifting of the immense mass of evidence accumulated by it during its sessions. Many questions of consequence to the people of British Columbia, and generally to that part of the Canadian public which is interested in forestry, have been taken up, and the decisions and recommendations are of considerable moment. The policy recommended is one whose result, if put into practice, will be watched closely by forest economists generally, and would seem to be likely to produce results considerably more favourable to the province than those attained under the present system.

The chief interest of the report centres in the recommendations, which are here quoted in full as follows:

(1) That a complete cruise of all Crown grant timber lands should be made by the government; that in future the Department of Forests should co-operate with the assessors, and that an annual return should be made of the valuation of all such timber lands;

(2) That as far as possible timber leaseholds should be placed, upon renewal, on a parity with licensed timber lands; and that they should be subject to the same forest regulations;

(3) That the rate of rental and of royalty upon special license should at no time be fixed in advance for more than one calendar year;

(4) That the Land Act be amended so as to empower the government to grant the right of cutting sawmill timber to pulp lessees; and that a new form of license be provided for this purpose in the manner prescribed by your commissioners;

(5) That the same form of license as that provided for pulp lessees be issued to holders of tanbark leases who may desire to cut mill timber upon their leaseholds;

(6) That the present reserve upon unalienated timberland be continued indefinitely; and that when special circumstances necessitate the opening of any portion of this reserve for immediate operations, licenses to cut timber thereon should be put up to public competition, on a stumpage basis;

(7) That licenses to cut timber upon fractional areas adjoining, or surrounding, leased or licensed timber lands, should be put up to public competition and that a 'fractional area' be defined with great care in the wording of the 'Land Act';

(8) That the record of every cruise and survey made by the government in timbered areas should be accompanied by a report concerning the suitability of the land for agriculture; that the power to compel licensees to cut and remove timber from good land be retained; and that at the time of renewal the same provision be inserted in every timber lease;

(9) That the issue of hand-loggers' licenses be discontinued;

(10) That no divided interest in a special timber license be recognized;

(11) That for the convenience of holders one day be fixed in each month for the renewal of all licenses expiring in that month;

(12) That royalty be collected upon all merchantable timber not removed from Crown lands in the course of logging operations;

(13) That operators be required to dispose of debris;

(14) That the protection of forests from fire be undertaken by the government through the agency of a permanent forest organization along the lines of the Northwest Mounted Police; and that it be compulsory for all able-bodied citizens to assist in this work when called upon;

(15) That the cost of fire protection be shared between government and stumpage holders in the manner proposed by your commissioners;

(16) That the provincial government should co-operate with the Dominion Railway Commission; that a vigilant patrol of all railway lines and inspection of locomotives should be established; and that all railway construction should be supervised by provincial forestry officials;

(17) That special licensees should be instructed to proceed with the survey of their holdings; and that all such surveys should be completed not later than the 31st day of December, 1915;

(18) That all operators should be required to make periodical returns concerning their operations to the forestry officials in their districts; and that the collection of information should be undertaken upon much wider lines than hitherto;

(19) That the government should at

once proceed with the establishment of a Department of Forests;

(20) That royalties upon Crown timber should be paid into a forest sinking fund in the manner described by your commissioners;

(21) That by suitable changes in the customs tariff the utilization of low-grade timber should be encouraged.

Following the recommendations, some thirty pages of the report are devoted to an amplification of the recommendations, explaining at length the circumstances that have given rise to each recommendation and the reasons for the recommendation.

The first forty pages of the report are taken up with a general consideration of the present state of the forests of the province, especially with regard to their tenure.

The commissioners found, when they came to get at facts regarding the forests under consideration, that definite information was almost entirely lacking, and that they had to depend largely, if not entirely, on guesses. An example of this is furnished in the case of forest land still in the hands of the Crown. No definite information is at hand, and the commission found the opinions of experts, so-called, to be most conflicting, and were finally driven to form their estimate 'by acting on the more or less popular belief that about one-quarter of the timber under provincial control remains unalienated.' So they arrive at the conclusion that the reserve timber lands amount to 3,750,000 acres, admittedly 'a pure conjecture.'

So in regard to the forest area of the province, no definite information is available. 'For years,' the report runs, 'a legend passed from writer to writer that the province of British Columbia had one hundred and eighty-two million acres of forest land.' After quoting Dr. Fernow's estimate of thirty to fifty million acres of 'merchantable forest,' the commissioners proceed to apply the knife to all the estimates and reach the conclusion that, not including the area of the timber in the Railway Belt, the province possesses but fifteen million acres of 'merchantable timber,' having a total stand of 192,000,000,000 feet, board measure, which amount may be appreciably increased by 'restrictions placed upon the present liberty to destroy and waste.' The Railway Belt is credited with a stand of some 50,000,000,000 feet B.M. in addition to this.

Attention is also given to 'Western Forests and the Timber Supply,' noting the stands in the western United States and British Columbia, the demand from Europe, the depletion of eastern North America and the position of British Columbia in relation to all these facts. The available statistics in regard to B. C. tim-

ber lands are given, included under the heads of Timberlands in Private Ownership, Leasehold Timber Lands, Licensed Timber Lands, the Railway Belt, the Forest Revenue of British Columbia (and of Canada) and the Timber Cut of British Columbia. Fire Patrol in the Western States and in Ontario are considered and the Cost of Official Cruising in Western Forests. The Rise in Value of Western Stumpage is discussed and a comparison of stumpage prices in Western Canada and in Ontario and Germany made.

An appendix is provided containing, among other things, the interim report of the commission, articles in regard to the forest policy of the Dominion Government and of other provinces and the United States, suggested legislation and schedules, and other articles of interest.

A number of diagrams are interspersed through the report which present in a graphic way many facts drawn from forest statistics.

FORESTER'S VALUE TO LUMBERMEN.

At a recent meeting of the Foresters' Club of the University of Toronto, Mr. D. J. Turner, of the Turner Lumber Co., gave a talk on lumbering operations. Mr. Turner was one of the first Canadian lumbermen to realize the importance of scientific education as applied to his business. For the past three summers he has employed Toronto students on his limits, making logging maps, estimating timber and locating roads, dams, camps, etc. He exhibited two maps made by students of the forestry faculty which he said were invaluable to him. He considered the trained forester to be a necessity to any enterprising lumber concern and believes in giving the students a chance to train themselves for scientific lumber production. He said it would pay any company to employ these men, even if they only made accurate maps of limits. Mr. Turner gave a brief but comprehensive outline of the work of a lumber company from its organization to the milling of the logs and the sale of lumber, and later spent an hour answering questions from the students and the members of the faculty.

LESS TIMBER CUT IN NEW YORK.

The Forest, Fish and Game Commission of New York State reports a decrease of a billion (thousand million) feet in the total production of timber in the State last year. The amount of pulpwood cut within the State shows an increase, however. The timber cut of the State has been decreasing since 1907.

The Great Miramichi Fire.

(From Cooney's 'New Brunswick and Gaspé').

From the first to the fifth of October, 1825 (a season generally very cool) an extraordinary and unnatural heat prevailed. The protracted drought of the summer, acting upon the aridity of the forests, had rendered them more than naturally combustible; and this, facilitating both the dispersion and the progress of the fires that appeared in the early part of the season, produced the unnatural warmth.

On the sixth the fire was evidently approximating to us; at different intervals of this day fitful blazes and flashes were observed to issue from different parts of the woods, particularly up the north-west, at the rear of Newcastle, in the vicinity of Douglstown and Moorfields, and along the banks of the Bartibog. Many also heard the crackling of falling trees and shrivelled branches, while a hoarse rumbling noise, not unlike the rushing of distant thunder, and divided by pauses, like the intermittent discharges of artillery, was distinct and audible.

On the seventh the heat increased to such a degree, and became so very oppressive, that many complained of its enervating effects. About 12 o'clock a pale sickly mist, lightly tinged with purple, emerged from the forest and settled over it. This cloud soon retreated before a large dark one, which, occupying its place, wrapt the firmament in a pall of vapour. This incumbrance retaining its position till about three o'clock, the heat became tormentingly sultry. There was not a single breath of air. The atmosphere was overloaded; an irresistible lassitude seized the people; and a stupifying dullness seemed to pervade every place but the woods, which now trembled and rustled and shook with an incessant and thrilling noise of explosions rapidly following each other and mingling their reports with a discordant variety of loud and boisterous sounds.

At this time the whole country appeared to be encircled by a fiery zone, which, gradually contracting its circle by the devastation it made, seemed as if it would not converge into a point while anything remained to be destroyed.

A little after four o'clock an immense pillar of smoke rose in a vertical direction at some distance northwest of Newcastle for a while, and the sky was absolutely blackened by this huge cloud; but, a light northerly breeze springing up, it gradually distended, and then melted into a variety of shapeless mists. About an

hour after, or probably at half-past five o'clock, innumerable large spires of smoke, issuing from different parts of the woods, and illuminated by flames that seemed to pierce them, mounted to the sky. A heavy and suffocating canopy, extending to the utmost verge of observation, and appearing more terrific by the vivid flashes and blazes that wriggled and darted irregularly through it, now hung over us in threatening suspension, while showers of flaming brands, calcined leaves, ashes and cinders seemed to scream through the growling noise that prevailed in the woods.

All these palpable indications of the approaching ruin were unheeded, probably because the people had never yet experienced the dreadful effects of fire, or had not sufficiently considered the change wrought in the forests by the protracted heat of the summer. Nor could any other reason have betrayed them into a neglect of the warning which Mr. Wright and others endeavoured to propagate. Had the timely admonition of these gentlemen received the attention it merited, many are of opinion that a considerable part of the calamity might have been averted. It would be cruel, however, to harrow the recollection now; experience makes wise men of us all; after having endured the evils, we become astonishingly clever in prescribing antidotes.

About nine o'clock, or shortly after, a succession of loud and appalling roars thundered through the woods. Peal after peal, crash after crash, came bellowing the sentence of destruction. Every succeeding shock created fresh alarm; every clap came loaded with its own destructive energy. With greedy rapidity did they advance to the devoted scene of their ministry; nothing could impede their progress; they removed every obstacle by the desolation they occasioned. Several hundred miles of prostrate forests and smitten woods marked their devastating way. They came rushing with awful violence, devouring at every step, and hewing a frightful avenue to the spot where fury was to be consummated.

The tremendous bellowing became more and more terrific. The earth seemed to stagger as if it had reeled from its ancient foundations. The harmony of creation appeared to have been deranged and about to revert into original chaos. Earth, air, sea, and sky, all visible creation seemed to conspire against man, and to totter under

the weight of some dreadful commission they were charged to execute. The river, tortured into violence by the hurricane, foamed with rage, and flung its boiling spray upon the land. The thunder pealed along the vault of heaven; the lightning rent the firmament in pieces. For a moment all was still and a deep and awful silence reigned over everything. All nature appeared to be hushed into dumbness, when suddenly a lengthened and sullen roar came booming through the forest, and driving a thousand massive and devouring flames before it. Then Newcastle and Douglstown and the whole northern side of the river, extending from Bartibog to the Nashwaak, a distance of more than one hundred miles in length, became enveloped in an immense sheet of flame that spread over nearly six thousand square miles.

That the stranger may form a faint idea of the desolation and misery no pen can describe, he must picture to himself a large and rapid river, thickly settled for one hundred miles or more, on both sides of it. He must also fancy four thriving towns, two on each side of this river; and then reflect that these towns and settlements were all composed of wooden houses, stores, stables and barns, that these barns and stables were filled with the crops, and that the arrival of the fall importation had stocked the warehouses and stores with spirits, powder and a variety of combustible articles, as well as with the necessary supplies for the approaching winter. He must then remember that the cultivated, or settled, part of the river is but a long narrow strip, about a quarter of a mile wide, and lying between the river and almost interminable forests that stretch along the very edge of its precincts and all round it. Extending his conception, he will see these forests thickly extending over more than six thousand square miles, and absolutely parched into tinder by the protracted heat of a long summer and by the large fires that had streamed through almost every part of them. Let him then animate the picture by scattering countless tribes of wild animals, hundreds of domestic ones, and even thousands of men through the interior. Having done all this, he will have before him a feeble description of the extent, features and general circumstances of the country, which, on the night I have mentioned, was suddenly buried in fire.

What shall we say of the inconceivably awful and terrific scene that now presented itself? Who shall attempt to describe the condition of a country, tortured and agonized by a hurricane, on every blast of which a messenger of vengeance seemed to ride? Unpardonably vain would that man be, exceedingly high would he stand in his own esteem, who would for a

moment think himself capable of describing the situation of a country, overwhelmed by a conflagration whose every blast resembled the emissions of hell, and whose every billow appeared to sustain a demon.

What eye can follow the impetuous course of a raging and consuming fire, sweeping over forests, towns, villages, and hamlets, rooting up trees, ploughing the earth and destroying everything?

What shall we say of the tremendous howling of the storm, dashing broken and burning trees, scorching sand, and flaming houses through the air? What of the boiling surges of the river and its tributaries, flinging their maddened foam all around them, and smashing everything that came within their fury? What of the indescribable confusion on board of one hundred and fifty large vessels imminently exposed to danger, many of them frequently on fire, some burning and others burned?

It is painful to dwell on the agonized feelings and indescribable terrors of the wretched and miserable inhabitants. But painful, however, as such a task would be, to overcome the aversion is not half so difficult as to acquire the competency. Even now the shrieks, screams and cries of a wretched and beggared people, involved in ruin, desolation and despair, ring their mournful cadences upon the ear. Oh, God! merciful and just, how shuddering were the frantic cries, the wild expressions of horror and the despairing groans of hundreds upon hundreds of poor houseless creatures, flying from their smoking habitations, they knew not whither, and mingling the thrilling echoes of their anguish with the yells, roarings and bellows of wild beasts and domestic animals perishing by fire and suffocation!

Who can gauge the misery, or estimate the agony of poor industrious people suddenly stript of their all, and exposed, almost without a hope, to the dreadful alternative of being either consumed by fire or famished by hunger? What tongue can express the intensity of anguish, what mind can contemplate the poignancy of that sorrow, which must have wrung the bursting hearts of men and women, running half naked, and in wild disorder, deploring their loss, and anticipating their end? Of children looking for their parents, parents looking for their children, and mothers encumbered with their infants, urging their way through the lakes of fire and volumes of smoke?

The more I endeavour to contemplate this awful dispensation, the more convinced am I of my inadequacy to do so. When I strive to raise my mind to a full consideration of it, its overwhelming magnitude crushes the attempt. Every step I make to approach it, the farther am I flung from it; and the more intensely I strain my aching eyes to observe it, the

less I see of it, for its multiplied and various horrors, intervening between the vision and the picture, wrap the whole in impenetrable gloom.

Resting on the indulgence of those who have been kind enough to patronize this work, it may not be improper to state that I was, at the time of the 'Great Fire,' residing within a mile of Newcastle. If my opinion be entitled to any consid-

eration, that is its candid expression: A greater calamity than the fire which happened in Miramichi never befell any forest country, and has been rarely excelled in the annals of any other; and the general character of the scene was such that all it required to complete a picture of the General Judgment was the blast of a trumpet, the voice of the archangel and the resurrection of the dead.



[Photo R. B. Miller.]

A Tract of Country Burned over in the Miramichi Fire and never satisfactorily reforested.

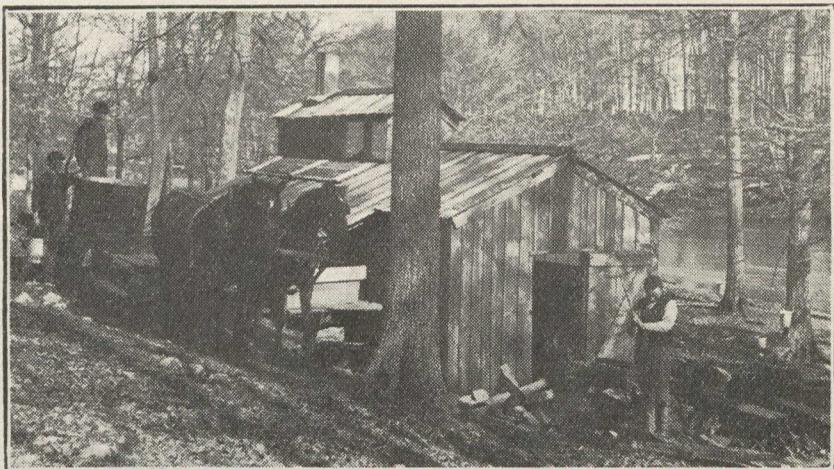
DR. WM. SAUNDERS RESIGNS.

Members of the Canadian Forestry Association noted with much interest the resignation, from his post as Director of Experimental Farms, of Dr. Wm. Saunders, C. M. G., who has held that position since the establishment of the Dominion Experimental Farms in 1886. Dr. Saunders has shown a keen interest in the Canadian Forestry Association since its organization, and was for some years one of its Board of Directors. Long prior to the foundation of the Association he had shown his interest in the problems of afforestation and the growing of forest trees. On the Central Experimental Farm at Ottawa experimental work in the planting of forest trees was commenced in 1888, two years after its inception, and on the other farms within a short time after their establishment. The work, especially, of the Experimental Farms at Brandon, Man., and Indian Head, Sask.,

laid the foundations of the extensive plantings made on the homesteads all through the prairie provinces, under the direction of the Dominion Forestry Branch. Dr. Saunders' resignation took effect on March 31st, and he will leave Ottawa in May for a holiday tour in Europe. His many friends will wish him not only a pleasant holiday, but also many years of well-earned rest. Mr. J. H. Grisdale, B. Agr., for some years agriculturist at the Central Experimental Farm, has been appointed Director of Experimental Farms in Dr. Saunders' place.

FOREST RANGERS MEET.

The annual meeting of the forest rangers on the Dominion forest reserves was this year held at Saskatoon, Sask., on April 4, when a number of questions of interest in regard to the management of the reserves were discussed.



[Courtesy War Cry.]

The Sugar-house, where the sap is evaporated and converted into Syrup and Sugar.



[Courtesy War Cry.]

Collecting Sap.

MAKING MAPLE SUGAR.

The accompanying illustrations show scenes familiar on many Canadian farms in the early spring. A good sugar bush is a valuable asset to its possessor. The average production for one tree is about twelve gallons of sap during the season. Thirty-five gallons of sap will make one gallon of syrup, and four gallons of sap yield one pound of sugar. Maple syrup, during the latter part of April, was quoted on the Ottawa market at \$1.00 to \$1.25 per gallon. If carefully treated, a tree will yield sap for many years, cases being known where sugar bushes have

been yielding steadily for twenty-five years without apparent damage. According to the census of 1901 there were 17,804,825 lbs. of sugar (syrup being included in these figures) of an estimated value of \$1,780,482. The province of Quebec alone produced three-fourths of this. The greatest desideratum of the maple sugar industry at present is the elimination of the adulteration of the products. The province of Quebec is looking forward to making special studies of the industry in the near future. The New Hampshire Experiment Station has done quite a little work along this line.



Tapping the Tree.

[Courtesy War Cry.

FORESTS AND STREAM FLOW.

The Forest Service and the Weather Bureau of the United States will cooperate in an investigation of the effect of the forest on stream-flow. The investigation is to be carried on near Wagon Wheel Gap in the Rio Grande National Forest, on two watersheds of similar topography. The stations for observation will be at an altitude of about 9,500 ft. The flow of the two streams will be measured for a period of eight or ten years — long enough to show that under similar conditions the behaviour of the streams is the same. Then one of the watersheds will be cleared and the observations will be continued for a further period of eight or ten years, so that the effects of denudation may be determined.

CANADA'S WORK IN CONSERVATION.

The prosperity of recent years has attracted to the Dominion the attention of capitalists eager to acquire and monopolize for their own benefit whatever revenue-producing assets the country possesses. More fortunate than older countries, Canada still retains control of a vast portion of her national wealth, and it rests with her people of to-day to decide whether she shall waste her heritage like the prodigal or preserve it for the good of millions yet unborn.—New York Outlook.

Hand corn-planters are being used on the Coeur-d'Alene (Montana) National Forest for sowing white pine seed.

It is said that a substitute for cotton has been made from spruce pulp.

A Textbook of Conservation.

The Conservation of Natural Resources in the United States, by Chas. R. van Hise, of the University of Wisconsin. Pages xvi and 413. The Macmillan Company of Canada, Ltd., Toronto. Price, \$2.00.

As the result of the movement for conservation of natural resources, an immense amount of information regarding these resources has been collected in the United States (as in other countries to which the movement has extended), but until lately this knowledge has been in such shape that only the specialist in a particular department has had the time—let alone the training—to investigate the mass of material so collected.

This lack of a concise and non-technical compendium of the knowledge on the subject Dr. van Hise has sought to remedy by the publication of this book, which in the space of some four hundred pages presents a synopsis of the results of the investigations of the United States Commission of Conservation. The material for this work was taken largely from the Report of the National Conservation Commission, published at Washington (in a limited edition) in 1909, (Senate Document No. 676, 60th Congress, 2nd session).

The value of the work, as has been hinted, lies in the fact that it enables the reader to form a general idea of a subject of such vast extent and to see the relation of the different parts to each other and to the whole. This, as the author states in his preface, is the chief aim in publishing the work.

The book naturally falls into five parts,

namely, (1) Mineral Resources, (2) Water, (3) Forests, (4) Soil, and (5) Mankind—the first four of approximately a hundred pages each, and the last more briefly treated. The subject of the forests, while of the four it has the least letterpress devoted to it, is illustrated by some thirteen or fourteen of the half-tone plates which are found in the book, as well as by six of the twenty figures.

The section devoted to forestry gives a short sketch of the original forests and of the existing forests and takes up the conservation of forest products under the following heads: (1) Reduction of Waste in Cutting, (2) Reduction of Waste in Milling and Manufacture, (3) Reduction of Loss in Turpentine, (4) Extension of Life of Timber by Preservative Treatment, (5) Utilization of By-products, (6) Reduction of Fire Losses and the Control of Fires, (7) Reforestation, (8) Maintenance of Forests upon Essential Areas, (9) Increase of Forest Growth by Stocking, (10) Battle With Insect Pests, (11) Substitution of Other Products for Wood, and (12) Reform of Tax Laws.

Though to the student of forestry the work may not contain much that is new, it will at least give him an idea of the work in other fields, and present in a concise and convenient form the results of much work and research in his own. To the general reader a mine of facts of the utmost interest and use will be opened up.

The fact that the book bears the imprint of the Macmillan Company of Canada is a sufficient guarantee of the excellence of the mechanical work and the handsome appearance of the volume.

The Decline of the Square Timber Trade.

The annual report of the (Dominion) Department of Public Works for the year ending March 31st, 1910, contains an article of considerable interest to students of forestry and of the trade in forest products. The article referred to is contained in the report of Mr. E. T. Smith, Collector of Public Works Revenue, and is in part, as follows:

In the earlier part of the last century, the entire export of Quebec pine was in the form of timber in the squared log, hewn with the axe, and floated down to Quebec merchants, who put the timber in shipping order by butting and dressing

it at the Quebec shipping coves, disposing of the culls locally for wharf building and other similar purposes. The greater part of the timber so received and shipped was white pine, squared to a sharp edge on the four corners; deals were made for export to other countries, and reached the English market only in the character of stowage deals. The square logs (and later on waney) were converted into planks and boards at the various saw-mills in the great towns in England and in country yards; in the latter pit-sawing was largely in vogue for log conversion.

In 1861, waney pine was made for the

first time, this wood being left with a wane of from three to six inches on the corners, so avoiding the excessive waste of wood resulting from hewing the timber exactly square. Previous to this, the timber was square and of large average, beautifully hewn by the lumbermen in the woods; but board (waney) pine, that is, short logs of large girth, were sent down

the drives with the other timber, and soon found their way into the market. Their being cut from the lower part of the tree accounted for the waney character of the logs, but the quality of the timber was excellent. It gradually almost altogether supplanted square pine. To illustrate this point, I beg to submit the following comparison:

Year.	Square pine.	Waney pine.	Total.
1861.....	15,731,000 c.f.	6,735,000 c.f.....	22,466,000 c.f.
1909.....	66,200 c.f.	699,360 c.f.....	765,560 c.f.

While the decline in the quantity of square and waney pine made for the Quebec market was to some extent due to the scarcity of suitable trees to manufacture into timber, it was in a far greater degree attributable to the increase in the deal and board trade. Gradually the produce of the sawmill took the place, for export, of timber in the hewn log.

Before leaving this point, I would observe that in the Ottawa region a large proportion of the trees are suitable to make deal logs, but would not be large enough to be made into waney board pine. This is exemplified by the smallness of the square pine that was latterly taken down from Ottawa. In former days square pine was made seventy, eighty and even one hundred feet cube average; lately it was with difficulty that forty feet average cube was procurable in square pine, and the waney board pine is decreasing in girth annually. Formerly, twenty inches and over, average cube, was easily had as late as 1904, 17 inch average was as large as most manufacturers would undertake to supply, and they frequently fell below this average on delivery at Quebec.

As deals took the place of timber, so lumber is gradually supplanting deals for export. The sawn white pine exported is manufactured by Ottawa valley and western mills, and shipped from Montreal as being nearer the point of production.

This change from the manufacture of timber hewed square in the woods to the bringing of it to the mills in the form of round logs has effected a very important saving of the very best material, formerly left in the woods in the form of chips cut in the process of squaring the trees, which were useless for any purpose except that of spreading the vast forest fires that have destroyed many times more timber than ever was cut with the axe.

The change from sailing vessels to steamer for ocean carriage has necessarily affected Quebec as a shipping port for wood goods, as steamers charge no more on freight from Montreal than from Quebec, and as a matter of fact prefer the first-named port as being under more favorable conditions. Montreal also has the advantage of being nearer most of the mills that now produce pine lumber and

deals, as they are generally west of it, and the freight by barge or rail is much less than to Quebec.

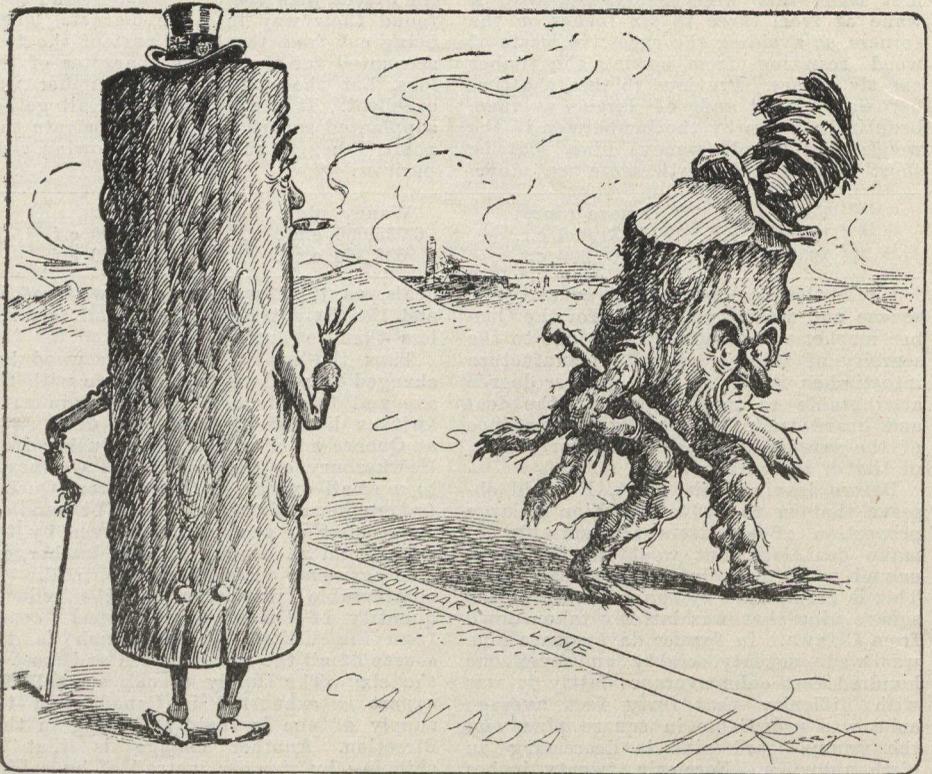
Thus the export business in wood has changed from hewn timber made with the axe and floated down to Quebec in rafts (with a limited proportion of deals sawn at Quebec mills or floated to Quebec from Hawkesbury or Chelsea on the Gatineau) to a small export of timber from Quebec (where hewn timber can best be handled, on account of the facilities given by the tides), and an export of sawn lumber, including some deals, from Montreal. A considerable proportion of the reduced quantity of timber now shipped comes from the United States, which is the source of all the oak exported and most of the elm. The supply of oak suitable for export is exhausted in Canada and the supply of elm is rapidly tending in that direction. Another change is that of shipping by steamer instead of by sailing ship. These two factors account for the loss of the squared timber trade by Quebec and Levis, which was inevitable, but, some authorities say, was accelerated by the restrictions imposed and the wages exacted by the Quebec ship labourers.

Before leaving this subject, it may be interesting to say a few words about the price the lumberman received at Quebec for his timber. I have no record at hand earlier than of the year 1841. I was once shown by an old lumber merchant, the settlement of account between a Quebec merchant and himself, in which he was credited with a raft of square pine, seventy cubic feet average, at 3d. (6c.) per foot.

Mentioning this to another old lumberman, he said it was perfectly correct, for he recalled that he had told the lady, whom he afterwards married, that he could not afford to marry till timber was worth 4½d. (9c.) a foot. He was married in 1846.

In recent years, waney timber 18-inch average has brought as much as 80 cents per cubic foot and square pine 30 to 40 feet average, 40 to 50 cents per foot, a vast advance from the 6c. of 1841 or the 9c. of 1846.

Doubtless the great prices paid for timber limits, higher timber dues levied by the provincial governments and the growing scarcity of large timber, all account



[Montreal Star.]

The Result of Timber Intemperance.

Canadian Lumber Interests: 'Dear me! what a come-down! This is a warning. I really must think seriously about conservation!'

for much of the increase in value to the producer, which is practically six times as much as it was in 1862, in which year it is of record that square timber could not be produced and delivered at Quebec under $7\frac{1}{2}$ d. or 15 cents per foot.

THE RIDING MOUNTAIN FOREST RESERVE.

(Continued from page 36.)

slaughter is kept up. There are many reasons which could be advanced showing why the two governments, the Dominion and provincial, should unite on a policy of protection of our big game, and the country awaits the move on the part of the legislator who will place the law on the statute books.

NOTES.

Mr. A. C. Flumerfelt, one of the members of the British Columbia Royal Commission on Timber and Forestry, is offering for competition among the school teachers of that province a prize of \$50 for the best essay on the subject, 'How and Why We Should Protect Our Forests.'

The headquarters of the British Columbia Mountain Lumbermen's Association (W. A. Anstie, secretary) have been changed from Nelson, B.C., to Calgary, Alta.

A New York corporation has purchased 20,000 acres of timber land in Albert county, N.B.

The area of the timber preserve of New York State is given as, in round numbers, 1,640,000 acres, having a stand of 14,000,000 board feet of timber.