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THE CANADA LUMBERMAN

Wood-Workers', Manufacturers' and Millers' Gazette

TORONTO, CANADA, APRIL, 1901

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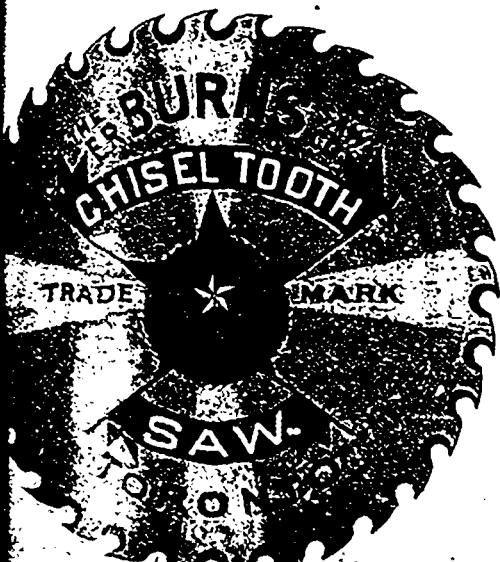
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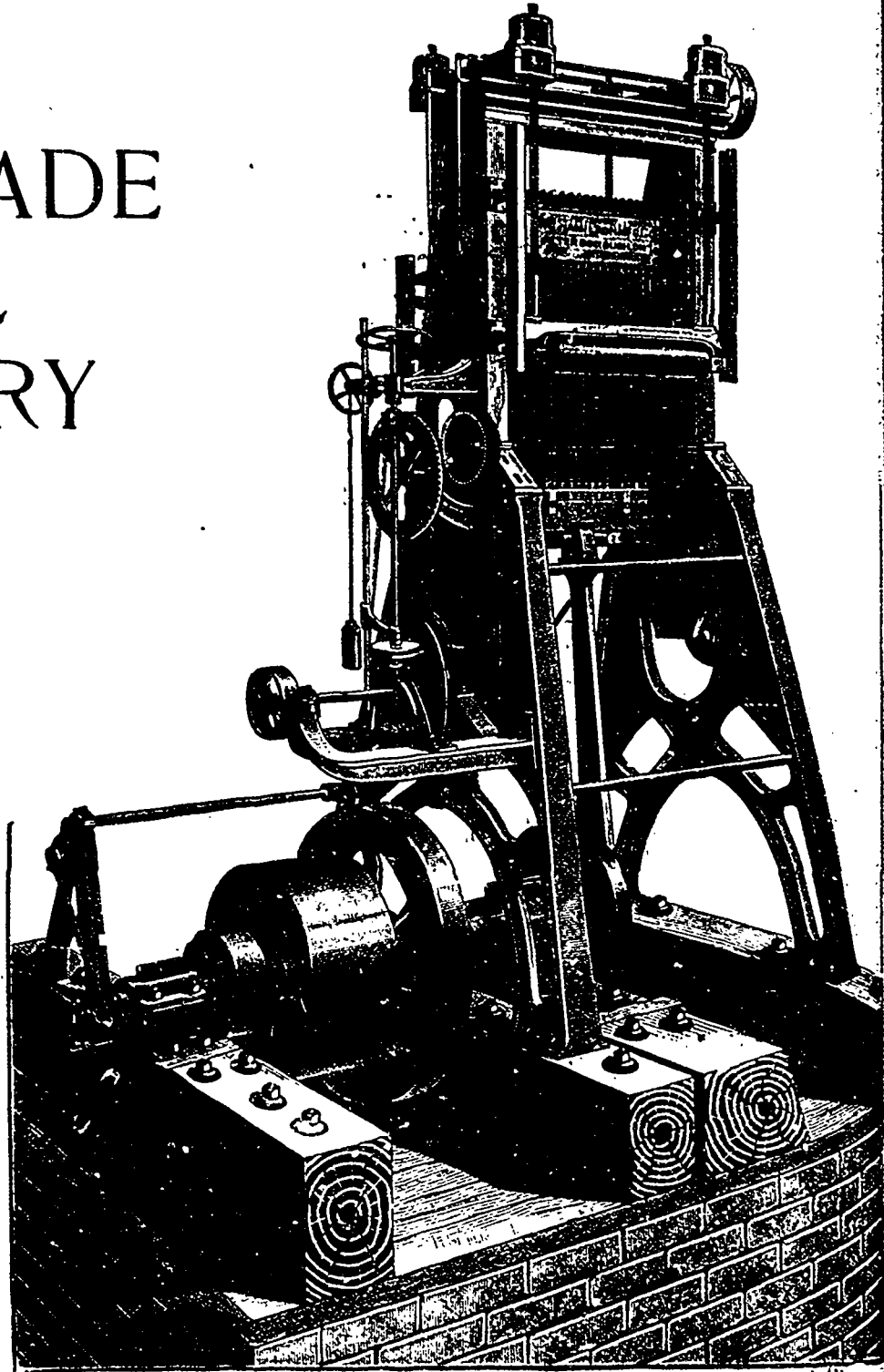
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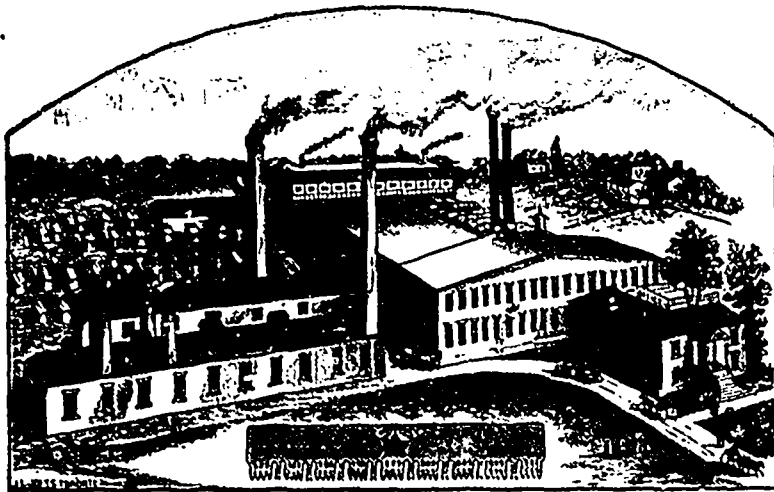
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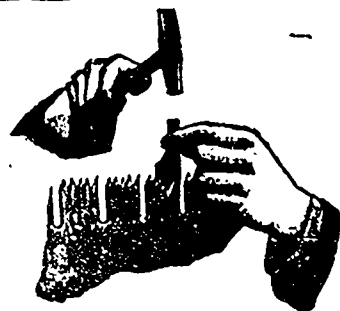
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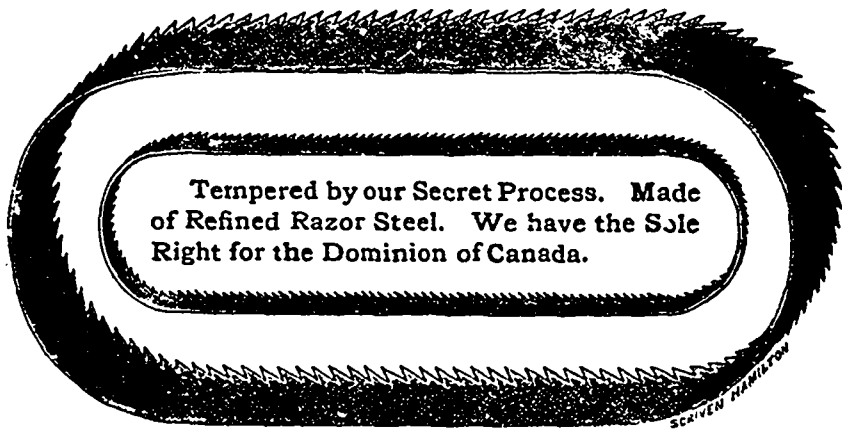
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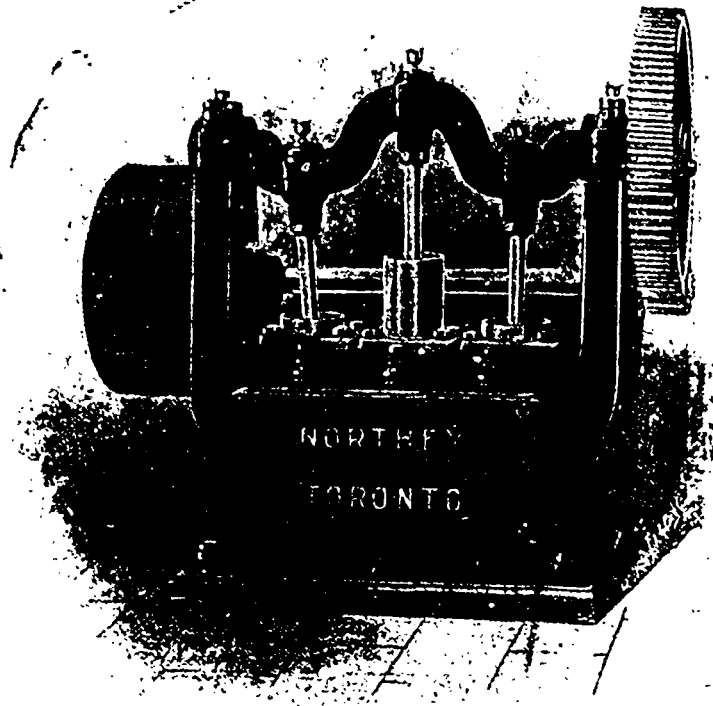
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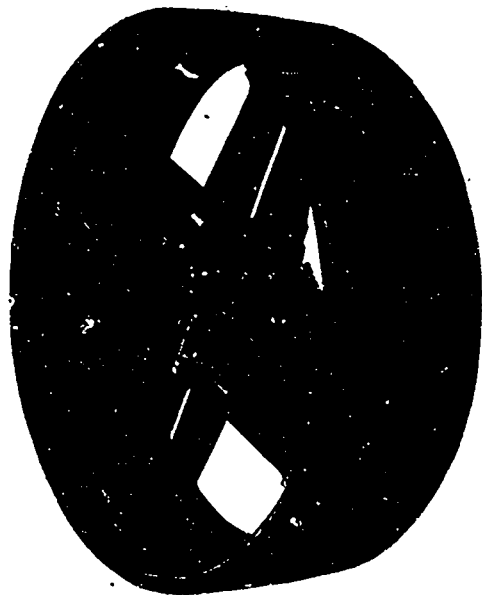
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THE CANADA LUMBERMAN

TORONTO, CANADA, APRIL, 1901

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SOME SAW-MILLING ESTABLISHMENTS OF WIARTON.

EARLY in the sixties Mr. Thomas Gilpin, a contractor, in company with Dr. Williams, established the first saw mill in the town of Wiarton, operating the same upon the site near where Kastner's mill now stands. Wiarton was then but a small village, while to-day it is a prosperous town with numerous important industrial establishments situated within its limits. Owing to excellent shipping facilities a number of saw mills have been established there, including those of Messrs. Robert Watt, J. P. Newman, Siemon & Bros. Manufacturing Company, C. H. Witthun & Company, Jones Bros., G. Kastner, W. G. Jimmie, and others. Illustrations and a few particulars of some of these mills and their owners are given below:

SIEMON & BROS. MANUFACTURING COMPANY.

In the fall of 1899 the above firm purchased the large saw mill previously operated by Mr. William Young, and are operating it to its full capacity. A large proportion of the product of the mill is used in the works of the Siemon Furniture Company, in which the members of the firm are interested, although large shipments are made to the United States and to local points. The mill is modern in its equipment and has a capacity of 4,000,000 feet annually.

In connection with their table factory they have a large dry kiln, with a capacity of 72,000

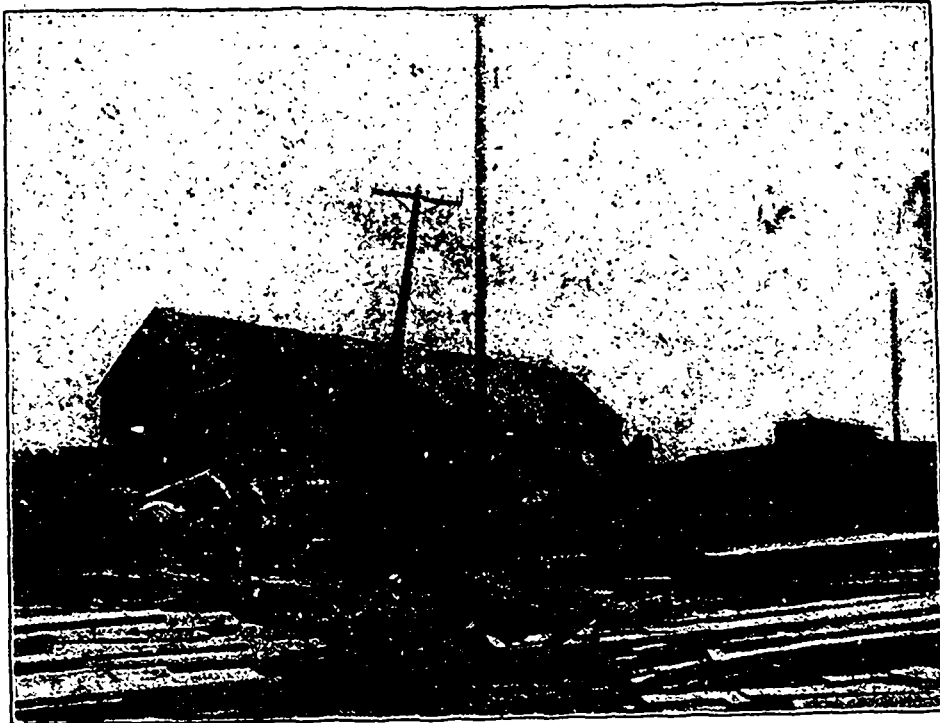
feet of lumber. Tramways run from the lumber yard at the saw mill to the furniture factory. The output of the furniture factory exceeds in value \$175,000 per year. Over one hundred hands are employed, and \$60,000 is annually expended locally for raw material in logs and timber. Large quantities of goods are shipped to foreign countries. Last year Mr. J. C. Siemon visited Europe and succeeded in forming a connection which is greatly increasing their trade.

C. H. WITTHUN & COMPANY.

The above firm operates the Spirit Rock mill, situated just below the famous Spirit Rock. Mr. C. H. Witthun, who is the head of the firm, removed to Wiarton in 1899 from Hepworth, where he operated a large saw mill, besides one at Shallow Lake. The new mill erected in Wiarton is of a modern pattern and equipped with modern machinery, in which convenience and economy are combined in the conversion of logs into lumber. The mill has a capacity of over 20,000 feet

per day, and is kept constantly running during the cutting season. A railway switch runs through the piling yard, giving splendid facilities for loading, and the mill being erected on the water with convenient dockage, vessel loading is also very conveniently handled, besides giving ample facilities for rafts.

Mr. Witthun has been a long time in the lumber trade and is one of the most extensive dealers in hardwood lumber in Western Ontario, having been largely engaged in the business in Hepworth and Shallow Lake. The products of the mill are marketed in Canada and the United States. The firm owns extensive timber limits, from which they can secure all the timber neces-



SIEMON & BROS. MFG. CO'S SAW MILL AT WIARTON, ONT.

sary to keep the mill running for a number of years yet. Added to this, they buy largely from the settlers, and the amount of money they distribute in this way during the winter amounts to a considerable sum. Their mill is now equipped for cutting pine, a gang resaw having been put in, and the firm would be willing to contract for the cutting of several million feet. On account of the location of their mill the rates of insurance are low. As a citizen Mr. Witthun is one of the most enterprising, ever ready to give his aid to any project which is calculated to advance the business interests of the town. Previous to going to Wiarton he was Reeve of the Township of Keppel for a couple of terms.

JOHN P. NEWMAN.

Prominent among the successful mill owners and business men of Wiarton is Mr. John P. Newman, whose extensive lumber operations have given him a wide acquaintance all over the country. From the Wiarton Canadian Souvenir

it is learned that Mr. Newman went to Wiarton from Listowel in 1890, and formed a partnership with Mr. A. G. Seaman in the saw mill and timber business. A small saw mill on Griffith Island was purchased by the firm from Mr. John Kidd, moved to Wiarton, enlarged and improved, and a successful and prosperous business was established. The partnership was continued until December, 1896, when Mr. Seaman retired and Mr. Newman became sole proprietor. The present mill is equipped with all the latest improved and most modern machinery, with a capacity of 20,000 feet of hardwood per day. The annual output is about 3,500,000 feet, principally hardwood and cedar, besides from 1,500,000 to 2,000,000 million shingles, large quantities of square timber, ties, etc. This is distributed all over the country, the principal markets being Canada and the United States, with some shipments to Great Britain.

Mr. Newman owns large timber limits on the Bruce Peninsula, also timber on Lonely Island in Georgian Bay, where a large number of men are employed during the winter. In 1897, in company with Mr. Wm. Young and Capt. F. Wood, he purchased the tug Ann Long, for towing the rafts from the different dumps to the mill. In 1898 the tug was rebuilt and renamed the Gladstone, and is now a first-class vessel of her class. She is 78 feet keel, 85 feet over all, 17 feet beam and 9 feet draught. She is equipped with the latest improved compound engines,

12½ and 24 x 16 inch stroke, suitably fitted out for the comfort of the crew and raftsmen. From the opening of navigation until the close the tug is busy rafting.

Mr. Newman takes an active interest in public matters. He served several years in the town council, and while there looked carefully after the interests of the ratepayers.

THE NATIONAL HARDWOOD LUMBER ASSOCIATION.

THE Inspection Bureau of the National Hardwood Lumber Association have issued a pamphlet containing the rules and regulations of that Bureau, with the object of informing the lumber trade as to the methods adopted by the bureau, and ultimately to induce the hardwood trade to avail itself of the protection it affords. The association have printed 20,000 copies of the pamphlet.

DRYING THICK MAPLE.

A gentleman who, because of great experience, is considered a good authority on drying all kinds of hardwoods, gives to the Wood-Worker his views regarding the drying of 2-inch hard maple. He says:

"In regard to kiln drying 2-inch hard maple, I will try and give as clearly as possible the method used by myself for several years, with good success. In the first place, much depends on the condition of the lumber to be dried in regards to its being green or partly dry, as each condition requires different treatment. Then also much depends upon the type of dry-kiln—whether a blast or dead-heat drier. Not knowing these conditions I cannot state as positively what is best, but will endeavor to give enough to enable him to make a selection.

"In the first place, if the lumber is green, it would be greatly benefited by a live steam bath in a tight room, of from three to five hours. This loosens all the sap and leaves the pores open for the water and sap to flow out from the center, but after this steam bath a fan should be turned on to circulate the air, with a moderate heat at first, say 115 degrees. This will prevent staining the lumber, and if done well you will be surprised to see how soft and bright your lumber comes out—equal to any air-dried in regard to softness and much brighter in color, yet dry as a bone and free from honeycomb and checks. The fan should be kept going until the air gets fairly dry again, then repeat the steaming, only on a small scale, or just enough to moisten the outside of the lumber and keep the pores open until the center is dry, for that is what we are after; for if the center of the board is dry you can dry the outside without damage.

"If the steam baths are used properly 2-inch maple could be dried in from nine to twelve days, thoroughly, but that would require strict attention to do it well. You would get best results by not using over 130 degrees, and from 115 degrees to that for a few days, then increase at the last as the lumber gets dry enough to stand it, when it may be raised to 160 degrees. The steaming must be regulated by judgment and examination of the lumber, but it would be safe to use a light steam bath once a day for about half an hour for three or four days. The first bath must be to thoroughly steam the lumber; the others merely to keep the outside from drying too fast—only to moisten the air. If a hot blast kiln, where a thorough steaming is not practicable, you can have a steam jet come up in front of each blast pipe so as to moisten the air as it goes through the lumber. This tends to sweat the lumber and draw out the sap, although not as thoroughly or quickly as a thorough steaming.

"I have dried thousands of feet of 4-inch maple this way, in twenty days, free from checks, and bright as a dollar. The old tight-box kiln with heat pipes is not to be considered, because

that only bakes lumber as hard as a brick and checks it if at all green, unless dried very slowly. One of the best kilns for green, heavy stock is where you can run a track through it long enough to hold, say eight or ten cars from 4 to 6 feet wide so as to pile the lumber with edge to the blast. Load your cars outside and start at extreme end from entrance of blast, then let cars down each day until the kiln is full, when by proper management you can take out a car each day and put one in; thus the green stock is not subjected to the heat until it is laden with moisture and the degree of heat reduced. Much care should be taken to pile the stock to insure free ventilation.

"There is one thing I fear is a drawback to the best results in drying lumber, and that is most people think any man about the place can operate a kiln. But that is a mistake. If you want best results get a man of good judgment who understands something of the nature of wood and the effect of heat on the fibers. Another thing that is very injurious, especially to hardwood, is the cooling down of the kilns. If drying green lumber, the



C. H. WITTHUN & CO.'S SAW MILL AT WIARTON, ONT.

heat should be kept on it constantly until dry. Lumber nearly dry will stand it, and some soft woods will stand it, but not green hardwoods. By careful watching and care the time might be reduced to eight days, but that can be determined only by practice.

"I hope this may prove satisfactory to your correspondent. If it is not clear I should be pleased to explain more in detail if he will give conditions and the results he wishes to attain, since what is dry enough for one is not always right for another."

There is reason to believe that a large pulp mill will be established in British Columbia in the near future by Toronto capitalists. The carrying out of the enterprise is said to be dependent upon a satisfactory arrangement with the Government regarding the acquisition of the land, and it is thought that the Government will meet the wishes of the promoters. The proposed site is on the main-land opposite Queen Charlotte Sound, and the initial output will be 100 tons per day. One of the chief promoters is Mr. J. J. Palmer, president of the Toronto Type Foundry Company, who is represented in Vancouver by Mr. S. F. McKenzie.

QUESTIONS FOR BAND FILERS.

THE questions submitted have been taken upon from time to time, either directly or indirectly, but there are many bright, well informed filers that can add their quota to the sum of general information of these matters if they will do it, and it is hoped these questions will serve to draw out the practical experience of a number:

1. How best to cool and dress a braze; is it, whether to gauge of saw or thinner, and why?
2. How to locate and remove a line twist?
3. Under what conditions are speeds of 3,000, 9,000, 10,000 or 11,000 feet per minute advised for log bands?
4. What are reasonable limits for hook pitch of back for hardwoods; and what for soft woods?
5. How near to each head of band-saw is expedient to tension?
6. Do you buy emery wheels to suit the speed of your sharpeners, or adapt the speeds of sharpeners to the grade of emery wheels, or pay no attention to the matter at all?

7. How do you shape the face and edge of your emery wheels, and why?

8. In what parts of your work does it pay you best to "work close?"

9. What has been your experience as to the comparative merits of file side-dresser and swage shaper?

10. To what extent do you depend upon use of cross-cut or tilt?

11. How much tension and back do you run in your saws, say for 6, 8, 10, 12 and 14-inch widths?

12. What devices do you employ for cleaning the wheels?

13. What defects do you observe in saws fresh from the makers?

14. When you increase or diminish the hook or depth of spacing of teeth or speed of saws, why do you do it?

15. When does a band saw become unprofitable to run; that is, what is its limit of life?

16. What do you consider the best material for guide pins?

17. When does a band resaw outclass a circular resaw?—Millman, in Wood-Worker.

THE GLASGOW EXHIBITION.

The following information regarding exhibits at the forthcoming Glasgow exhibition will be of interest to intending exhibitors: There will be no charge for space to exhibitors. Accepted exhibits, packed in strong cases, must be delivered at the exhibitor's expense at the exhibition board, not later than March 15th, to be shipped to Glasgow by the Canadian commission, free of charge. An exhibitor will be permitted to transfer his allotment or allow any other than his own duly accepted exhibits to be placed thereon. All goods must be exhibited in the name of the person or firm who signed the form of application. Space not occupied thirty days previous to the opening of the exhibition will be forfeited, and allotted at the discretion of the commission. No stand, including signboards, may exceed twelve feet in height, without special permission. The commission will bear cost of transportation of all exhibits from the ports of Montreal, Quebec, Halifax, St. John and Portland, direct to Glasgow by steamer.

CANADIAN FORESTRY ASSOCIATION

SECOND ANNUAL MEETING AT OTTAWA.—A NUMBER OF INTERESTING PAPERS GIVING PRACTICAL ADVICE REGARDING TREE PLANTING AND GROWING.

The second annual meeting of the Canadian Forestry Association opened in the Railway Committee room of the House of Commons at Ottawa at 10 a. m. on March 7th. In the absence of the president Sir Henri Joly de Lotbiniere, Lieutenant Governor of British Columbia, the chair was occupied by the vice-president, Mr. William Little. Amongst those present were the following: William Little, of Westmount, vice-president; F. Stewart, Dominion Superintendent of Forestry, Ottawa, secretary; R. H. Campbell, Ottawa, treasurer; Dr. William Saunders, Superintendent of Experimental Farms, Ottawa; Dr. James Fletcher, Dominion Entomologist, Ottawa; Dr. C. A. Schenck, principal School of Forestry, Biltmore, N. C.; Thomas Southworth, Ontario Superintendent of Forestry, Toronto; Prof. John Macoun, Geological Survey, Ottawa; George Johnson, Dominion Statistician, Ottawa; John Bertram, Collins Inlet Lumber Company, Toronto; John Waldie, Victoria Harbor Lumber Company, Toronto; D. C. Cameron, Rat Portage Lumber Company, Rat Portage; J. B. McWilliams, Crown Timber Agent, Peterborough; William Pearce, Calgary, N. W. T.; Norman M. Ross, Biltmore, N. C.; W. C. Edwards, M. P., Ottawa; Aulay Morrison, M. P., New Westminster, B. C.; Hon. J. B. Snowball, Chatham, N. B.; Dr. Christie, M. P. for Argenteuil, Que.; Hon. J. V. Ellis, St. John, N. B.; Hon. William Kerr, Cobourg; Hon. T. A. Bernier, St. Boniface, Man.; J. J. Bell, Toronto; W. T. Macoun, Ottawa; T. S. Young, CANADA LUMBERMAN, Toronto; Prof. W. L. Goodwin, Kingston; J. C. Langelier, Superintendent of Forest Rangers, Quebec; Hiram Robinson, Hawkesbury Lumber Company, Ottawa; A. C. Campbell, Ottawa; J. A. Gemmill, Ottawa; Otto Klotz, Ottawa; W. N. Hutt, Southend, Ont; Leighton McCarthy, M. P.; Hon. Mr. Emerson, M. P.

Letters of regret were read from Hon. G. W. Allen, of Toronto, and Dr. A. H. MacKay, vice-president for Nova Scotia.

The minutes of last meeting being read and confirmed, the secretary submitted the report of the Board of Directors, which reviewed the work of the association for the first year of its existence. It showed the membership to be 244, five being life members. The report referred to the meetings which had been held in Manitoba, the North-West, and British Columbia, in which provinces forestry associations have been formed. During the year two timber reserves were set apart. In Manitoba all the lands north of township 38 and west of Lake Winnipegosis have been reserved from settlement, as most of this tract is already well timbered and known to be largely unfitted for settlement. The other reserve was set apart by the Ontario Government, and consists of about 1,000,000 acres surrounding Lake Temagami, which includes a large quantity of white pine and timber and covers the head waters of a number of streams flowing into Lake Nipissing and the Ottawa river. The great extension of the pulp

industry and the demand created thereby for spruce timber, the report stated, especially rendered it advisable that a special study of this tree should also be made, so that we might know what our resources for this purpose are and when and how steps should be taken to ensure that the returns from this source of wealth should be retained at the highest possible permanent figure. The report in conclusion urged the extension of the fire ranging system and the holding during the current year of a number of public meetings in the large centres of population.

On motion of Mr. E. Stewart, seconded by Mr. J. M. Macoun, the report of the directors was adopted.

The treasurer submitted the financial report, which was referred to the auditors, Messrs. George Johnson and J. M. Macoun.

The chairman, Mr. Little, said that he sincerely regretted the unavoidable absence of the president, who had done much for the cause of forestry. He read a letter and telegram from him wishing the Association success. He also referred to the irreparable loss we had sustained in the death of our Queen, and instructed the Committee on Resolutions to prepare a suitable memorial.

Dr. Saunders then read a paper by Mr. J. R. Anderson, Deputy Minister of Agriculture for British Columbia, entitled "Forestry in British Columbia." It was a most complete review of the forest resources of that province, giving the location and adaptability of the various classes of timber. This paper, together with a synopsis of the interesting discussion which followed, will be printed in our May issue.

Reforestation of Dominion Lands

"Forestry on Dominion Lands" was the subject of a paper read by Mr. E. Stewart. Mr. Stewart showed that the Dominion Government was, contrary to the general impression, the owner of vast areas of timber lands. He referred to the methods employed in Ontario and Quebec to prevent forest fires, and to the Riding Mountain timber reserve in Manitoba, but paid particular attention to the question of tree planting on the plains, a matter which has been under consideration by the Dominion forestry branch for some time with a view of working out a plan that would be practical for adoption on our western prairies. The European systems would not succeed in our North-West, where the climatic conditions are so dissimilar and where the government machinery is different. He stated that several attempts had been made to encourage tree planting on the plains by the United States Government. One of these was what is known as the Forest Tree Culture Claims, by which a certain amount of land was earned from the Government by the planting of a certain area in trees. The system has not been effective. In Canada the Government has experimental farms at Brandon and Indian Head, from which large quantities of tree seeds and young trees have been supplied to settlers, but it was well known that many of these never

succeed, largely owing (1) to bad planting, (2) to their being planted in land not sufficiently prepared, and (3) to lack of cultivation and attention after planting by the settlers.

The Federal Government of the United States had at last adopted a system of co-operation with the settlers, and the main features of this system have been utilized in framing a system for the Dominion, but it was proposed to go further than they do, in that it is hoped to be able to furnish seeds and plant material.

The system as proposed by Mr. Stewart is as follows:

1. It is proposed that any owner wishing to avail himself of the co-operation of the Government in the planting and cultivation of a forest plantation, wind-break or shelter-belt, shall make application to the Forestry Branch at Ottawa.
2. On receipt of this, the local supervisor of tree planting for the district in which the property is situated is directed to visit and examine the lay of the land and its quality, any streams on it, the location of the buildings, etc., and in case he thinks trees can be successfully grown on it, he will show the position of the proposed plantation, the kind of trees to be grown, their distance apart, etc.
3. This sketch and any other detailed information he may consider necessary will be sent to the head office, where a working plan will be prepared drawn to scale and showing the general features of the farm as compiled from the notes and sketch made by the local supervisor, and also the position of the proposed plantation and other necessary information.
4. A copy of this plan along with the agreement will be sent to the owner. He will keep the copy of the plan for his guidance and return the agreement duly executed.
5. According to the terms of the agreement, the owner agrees to prepare the soil for the plantation and to plant and properly care for the same after planting according to the plan under the direction of the said supervisor or agent of the Department of the Interior.
6. The Department will as far as the means at its disposal permit, furnish seed and plant material for the purposes of planting the said plantation.
7. The Department proposes to render all services above specified wholly without charge.
8. The Department under the agreement reserves the right to enter and take from the plantation for use elsewhere any young seedlings that may be growing up and which should be removed in the proper management of the location, unless the owner wishes the same to extend his plantation. The same privilege is stipulated for with reference to cuttings and seed.
9. It is also provided that the Department shall have the right to publish and distribute the said plan and its results for the information of farmers and others whom it may concern.

The two prominent features of the proposed plan, Mr. Stewart pointed out, are (1) the furnishing of the seeds, cuttings and young trees by the government, and (2) government supervision in tree planting and cultivation by the settlers. As to supply the plant material will be a matter of some magnitude, it is proposed to allow the Department the unused product in any plantation for use elsewhere. The Department would be permitted to enter and take young seedlings which are not required by the owner to extend his own plantation. By this means it is believed that the difficulty in supplying the plant material will be met.

DISCUSSION.

A gentleman from the North-West said that he thought the plan proposed by Mr. Stewart would meet the needs of that district, and urged that it be adopted at once. Of course, difficulties would be met, settlers would not fall in line as readily as they might. He suggested that the plan of taking small trees and seeds from the farmers' plantations should be restricted to seven years.

Mr. Pearce read a letter from Mrs. Card, of Cardson, Southern Alberta, expressing her sympathy with the forestry movement. Speaking of Mr. Stewart's proposition, Mr. Pearce said that for immediate assistance the government might establish small nurseries throughout the country. There were many sections of irrigated country where, for a small consideration, the owners would plant trees. On his own property he had thousands of balsam poplar growing, from 3 to 5 feet high, which were planted in May, 1899. He pointed out that the disastrous floods which had occurred on the Saskatchewan river were due to the country being denuded of shrubs and timber, so that when rain came the water rushed down the grades very quickly.

Dr. Saunders also endorsed the proposal for tree-growing as submitted by Mr. Stewart.

The secretary then introduced to the meeting Dr. Schenck, of Biltmore, N.C., who is principal of the School of Forestry there and manager of the large forestry estate of the Vanderbilt family.

Dr. Schenck referred to the advantageous position which Canada occupies in respect to forestry as compared with the United States. European forestry methods, he said, were absolutely not applicable to this country. Where forests exist forestry was identical with the fire question. Two hundred years ago there were no forestry methods in Europe, only a little stock farming forestry. The practice of forestry would doubtless prove profitable. He believed that the governments should provide more funds for fire protection, as it was one of the best investments a government could make. He urged the government to establish nurseries to supply the small plants to farmers. If nurseries could not be established, the proposal of Mr. Stewart would perhaps meet the situation very well. The cost of growing plants in nurseries was small; trees could be grown in nurseries at less cost than they could be taken out from where they were growing too thickly.

Mr. Stewart said that every means would be taken to supply the material to the farmers and others. When he was in the west he was surprised to see the interest that was taken in the subject by the people of Manitoba.

Dr. Saunders said that in 12 years they had distributed from the Experimental Farms eight tons of seeds and 1,500,000 seed trees, and they could not supply the demand. There were about 300 varieties of trees at the Brandon Experimental Farm.

Prof. Macoun said that the main principle of tree growing was to conserve the water by making small dams. It was only a myth that certain lands would not grow trees.

Mr. Stewart stated the intention of the Government to make a reserve of the Cypress Hills. He thought forest reserves should be set apart by Act of Parliament rather than an order-in-council, as the latter could be changed or expunged at any time.

A gentleman stated that he had transplanted some 30 small pines, about 5 feet high, from their natural bed, and of these sixteen were now growing. At the same time he planted 20 firs and pines 18 to 24 inches high, and only 6 were now living.

Dr. Schenck explained that small seedlings were more likely to die than larger trees. Besides, our commercial nurseries did not furnish good trees.

The meeting was then adjourned for lunch.

Timber Lands of New Brunswick.

Resuming at 2.30, a paper on "The Timber Lands of New Brunswick Owned by the Crown," by W. P. Flewelling, Deputy Surveyor General, was read.

Mr. Flewelling gave a description of the timber resources of the province, the conditions under which timber licenses are granted, and of the methods of lumbering. The Crown still owns 7,500,000 acres, the greater portion of which are timber lands. Timber licenses are now held on about 6,000,000 acres of this land. Formerly timber licenses were granted for one year only. Later a system of three year licenses was adopted, and in 1893 a change was made to 25 years. The longer lease has led to the cutting of timber with greater care. The provisions of the license state that no tree shall be cut which will not make a log ten inches at the top, eighteen feet up. Owing to the great demand for pulp wood, many private owners allowed the cutting of spruce down to four and five inches in diameter.

The growth of spruce in most parts of New Brunswick is rapid. One of the largest operators stated, from personal observation, that a spruce tree would grow from the bud large enough to make a merchantable log in thirty years. The annual cut of spruce and pine logs from Crown lands is from eighty to one hundred superficial feet. Many large holders of licenses cut their limits very judiciously. Lands will be laid off in strips of $1\frac{1}{4}$ or $1\frac{1}{2}$ miles wide, and from 5 to 10 miles long; one strip will be cut over one year, taking all the merchantable logs, the next year the adjoining strip will be operated on, and so on, for about seven years, when the parties can be sent back to the strip first cut over and find that the growth has been so rapid that another good operation may be had.

Mr. Flewelling pointed out that the province should protect its spruce timber both from the indiscriminate use of the woodman's axe and from destruction by fire.

Mr. Bertram was then called upon to read his paper on "The White Pine and its Economic Management." He said that he was glad to find that a scientific forester such as Dr. Schenck, after experimenting in Germany and elsewhere, had reached the same conclusions as he had. The paper in full is given below.

White Pine and its Economic Management.

By JOHN BERTRAM.

The observations in this paper are confined to the growth and reproduction of white and red pine in Ontario. The early settlers in this province, and it may be added, North America, were little concerned with the economic problems of forestry; their main object was of necessity to clear away enough of the forest as would grow food for their families. So vast was the forest that an indiscriminate war was waged with axe and fire against all forest growth, and many localities were stripped bare where the trees should have been reserved and the forest continued.

Southern Ontario is second to no country in the world for richness of soil and fertility of climate. It was covered by a thick stand of timber, and if the first settlers had been gifted with sufficient foresight they never would have cut down the timber in many corners and parts of their farms. There are very few localities in Ontario south of the Laurentian Range where it would have been more profitable to have retained the original forest; a very large percentage of the soil is better employed growing roots, grass and cereals, but when this is admitted it is also true that there are many localities, such as hill-tops and sides, ridges, gullies, the banks and sources of streams, gravel banks, sand hills, and rough broken land generally, that

would give a much better return by growing timber rather than grain, and the sooner this is understood and appreciated the better for the owners of the land. It is not within the compass of this paper to speak of the great benefits accruing to any country where a fair proportion of the area is kept under forest management that they are now universally conceded.

So far as white and red pine are concerned the southern part of Ontario need not be considered, except that they would be a desirable tree in reforesting the poorer soil. There was a considerable quantity of excellent pine which grew as a rule amongst the hardwood, and sufficient of it is left as second growth to reseed any locality considered desirable.

It is now with a different region entirely that the future of pine timber in Ontario is bound up. There is a vast area, nearly a thousand miles from east to west running through the province, and which may be considered the true home of the white pine, not that it reaches its best growth, but that it is economically the most valuable: this part of the province commences a short distance north-west of Ottawa on the north, not far from Kingston on the south, and away north westward around Georgian Bay and Lake Superior to Rat Portage, overlapping the height of land between the St. Lawrence and Hudson Bay waters. Large bodies of pine grew in this district. Most of the original pine forest has already been cut down, and sad to relate, fire has devastated a considerable portion of it and burned untold value in young trees. There is little or no pine in the forest which still stands north and north-east of Lake Superior. Spruce of moderate size is the prevailing tree. There is no climatic reason why pine should not again grow in this essentially rocky country, as there are detached bodies of pine standing north of the watershed in the region between the 48th and 49th parallels. The question which presents itself with reference to this region, from a practical and economical standpoint, is what policy should be pursued to obtain the best results with the least expenditure; it is by no means an easy one, and is almost as varied as the aspect of forests in different localities, each type would require a close examination as it appears before the lumbermen or settler commences operations.

It is to be assumed that the lumberman under government supervision is desirous not only of marketing the present crop, but also of perpetuating the growth of the most valuable species. So looking at the whole matter in the light of experience, and remembering that operators in Canada are debarred from the expensive methods a vogue in thickly inhabited countries, where every tree-top branch and even twig has value, the following views for forest management are offered for your consideration:

1st. A very common variety of forest to be found particularly in parts of Algoma is where white pine was the predominant wood, but well mixed with other kinds. A fire occurred, it may be ten, twenty or thirty years previous to the condition now being considered; it burned all the timber except some large pine trees left in groups or scattered here and there, as circumstances may have favored their escape. After the fire the usual seeding commences, poplar and white birch making their appearance first, by reason of their producing annually a large quantity of seed, which from its structure can be carried great distances, and as it grows quickly the ground is soon covered with young trees. The pine tree does at seed as a rule oftener than every third or fourth year, so that poplar and birch have time to make a good start. The poplar particularly grows very fast for a few years after making its appearance; so when the seed from the old pine trees left standing begins to scatter, it finds an ideal condition for germination. This order of nature is exactly what is needed to produce a pine forest of commercial value. Pine seed will not germinate under a thick canopy, it needs sunlight and also the proximity of other young trees, causing it to shoot upwards, not grow into a bush as it would in the open. Growing up amongst the poplar and birch it gradually loses its under branches and by and by it overtops and dominates all the other trees, becoming the monarch of the forest. At a period when the bush is thus covered with second growth and the old trees still standing, the course to be pursued presents no difficulties. Market the old timber when convenient and rigorously preserve the young timber against fire. When pine trees are in the earlier stages of growth a fire is most disastrous. They are easily killed, and the old trees having been cut down there would be no chance of reseeded, and so at this stage fire would be a real forest calamity.

2nd. A type of forest often presents itself composed

mainly of pine, but mixed with other conifers and a sprinkling of hardwood. The pine may be divided into two or three groups of different ages. It has killed out any deciduous trees that may have been mixed with it except in spots here and there where the pine did not seed. Hemlock, spruce and balsam being shade enduring trees, are often found struggling for life beneath the pine, but so long as pine is the dominant tree the others will make poor growth. If there are any large hemlocks or spruce they should be cut down and marketed, as they will only prevent pine from growing in their place. And now as to cutting the pine, no tree should be cut down unless it measure at least twelve inches diameter two feet from the ground. It is worth more standing, unless it may be that it is one of a group growing too close together, when the woodman's craft should be exercised in selecting which of the group should be cut down, relieving the others from the pressure of its presence. It would not be good forestry to cut down all the trees that would make a ten inch butt log; thinning may be an advantage, but at that stage where favorably situated they are too valuable for further growth. Care should be taken generally to preserve the canopy of the forest, while at the same time admitting enough sunlight for the growth of seedlings; they may be seen growing up in a young forest twenty or thirty feet high in the place where large old trees have been cut down, the requisite sunlight having been thus admitted. In this description of forest all the large old trees and most of the medium age can profitably be cut, leaving the younger timber room to grow, and this treatment by reason of accelerating the growth of the younger timber left would increase rather than retard the annual amount grown per acre. Instruction should be given to the woodmen on no account to cut down a young pine except where making draw roads or clearing for skidways. The practice of using young pine to make crossways, bridges, or skidways, or even to put up buildings, should be strictly prohibited, just as the cutting down of all varieties not wanted should be encouraged. A little care would produce a valuable second crop for the owner, but it would all be thrown away unless fire was kept out, as it would be particularly destructive to this class of forest.

3rd. A forest composed mainly of hardwood mixed with large pine trees may now be considered; except yellow birch, the hardwood is seldom very valuable for lumber in our northern country, and often too far away from a railway to make cordwood. Pine amongst hardwood is very valuable for square timber and is much sought after; it has no chance for reproduction, as the seed disseminated will not grow under the shade of the hardwood, so when the pines are cut down the forest reverts to a hardwood of very little value. When the locality and soil are more fitted to grow pine, it is simply valuable space lost. To say that white pine seed will not germinate in a hardwood forest is not strictly true. The young trees may often be noticed very small, very sickly looking, and examinations of many specimens show that it will take twenty or thirty years or even forty years to grow one inch in diameter, the stunted trees finally dying for want of sunlight. A young pine tree refuses to live under the close canopy of a thick hardwood forest. Two things are necessary to reproduce pine in a forest of this kind; first of all, defective pine trees not valuable for lumber, and there is always a proportion of them, should be strictly preserved and guarded. All the trees in a high or exposed situation where the seed would have a chance of being carried long distances and over a wide area, should be left standing; and second, it will depend upon the locality and on the kind of hardwood, but as much of it should be cut down as possible, not making a clearing but taking all the large trees and leaving where possible the small ones as a shade for the young pines to grow up amongst. No arbitrary rule can be set the owner will have full scope for all his acumen and individuality in producing the best results. Constant care and attention would be needed, and it should ever be remembered that silviculture is a slow process. Seed cannot be sown one year and reaped the next. This leads up to the question of ownership and fixity of tenure, which is a necessity for all operations extending over a long period of time.

4th. An entirely different method would have to be pursued in the case of a forest where the timber is all within say fifteen or twenty years of being the same age, the bulk of the trees being large but mixed with a good many of small diameter; twenty years is a short time in the life of a pine tree, and the different diameters arise through the large trees existing under more favorable cir-

cumstances. With more space and sunlight they have overshadowed the others, and although the small trees may be nearly the same age and height, they may not be more than one-half or one-third the diameter, and if the large trees were cut down, taking away the shelter from the long slender trees, they would inevitably be blown down. The custom amongst lumbermen operating in a forest of this kind has been to cut down every tree, and the policy was sound enough; but if the object is to keep the bush in timber, then it would become necessary to cut only within certain defined areas, leaving enough standing as the original forest to reseed the cut over spaces. The selections would have to be made on good forestry principles; the timber would have to be left on hill tops and ridges so that the seed could distribute itself over a wide field; if the country were comparatively level then alternate blocks should be selected, not necessarily of any given space or size, but taking advantages of the inequalities of the ground and thickness and position of the standing timber. No exact formula can be indicated, as no two sections of the country are alike; each locality would have to be considered by itself and good judgment exercised in what to cut and what to leave, making sure only that enough is left to fairly cover the ground with seed.

5th. A large number of broad and prevalent types of forest could be cited, but enough has probably been said about what the course of procedure should be in the economic administration of forest lands. Another example only will be given, where hemlock, spruce and balsam are the prevailing trees, mixed it may be with some hardwood and moderate quantity of pine; to increase the quantity of valuable trees and eliminate the others is somewhat difficult; whatever distribution of pine seed there may be from time to time has little chance to come up where the ground is covered by other conifers. Their seed is all more or less shade enduring and will germinate and grow up where small pine would be smothered. The conclusion reached in considering this example is that the much dreaded fire would here be a friend and not an enemy; keeping in mind always that it is a growth of pine that is wanted, a careful survey should be made of this forest and the sections where pine exists, and under favorable conditions for the distribution of seed, should be marked off and a space cleared around them over which a fire could not go; cut all or a portion of the large pine, as the case may be, all the hemlock or spruce of market value, and set fire to the balance on a favorable opportunity.

Fire over a district, if not so fierce as to kill all the timber, is no much to be dreaded; it is the second and recurring fire, killing the young trees which may have sprouted and burning the soil, which is most to be dreaded. A fire that kills the useless trees and burns up the old needles and debris of the forest, leaving the large timber, is often a great benefit, as it brings the ground into a fit condition for receiving seed, and young trees will grow much faster than where overshadowed by an old forest; there is and can be no set formula in these matters, but much room for the exercise of observation and good judgment.

These questions of forest treatment have all to be considered from an economic standpoint, and as entirely within the scope of the owners of forest land in Ontario. No great expense need be incurred and no looking forward for a hundred years to obtain returns. A set of rules could easily be framed to govern all licenses, that while not depriving the licensees of anything of value, would at the same time preserve for the province a very valuable asset in young timber, dues for which would be collected in after years.

Much has been said and written on the annual growth of young trees, but as that matter was dealt with recently in the preliminary report of the Ontario Forest Commission, it need not be gone over now; one thing, however, may be said, that in a preserved pine forest a crop may be gathered every twenty years, more or less, without reducing the growth of the forest per annum.

And now to conclude with the most difficult question of all, what can be done with those areas of land burned over again and again; many of them can be seen from the windows of the railway car passing up the beautiful valley of the Ottawa river. They are evidence of the carelessness that should be amended as soon as possible; left alone they are a disgrace to the country. We are not the only sinners on the continent, the great State of Michigan is to-day earnestly engaged in an endeavor to reforest some three or four million acres of mostly abandoned lands within the State. When the regrowth of pine on such

lands is spoken of, the idea is often met with unbounded jocularity, and the only question in the mind of the listener is what particular asylum the speaker should be sent to. In imagination a gang of men are seen putting in seedling trees much as young cabbage are planted; why it would cost millions upon millions, and the whole matter is dismissed with a laugh; nevertheless, the question is up for solution.

Covered again with forest these desolate areas would be of incalculable benefit to the country, and when the people fairly grasp its significance they will see that the government take proper measures to reclothe our bare hills and desolate valleys.

It is not here pretended that a full solution has been found; much thought and study will be needed, men of practical minds and experience will be found to undertake the work and a beginning can be made now.

It can be seen that on some of the burnt over districts a quantity of young pine has been left standing here and there; they should be regarded as a nucleus for future seed distribution, a keeping away fire, nature will do the rest.

There are localities, however, where fire after fire has swept over the country until not a single tree is left. This is the case often near settlements; carelessness and worse have produced the inevitable results, and it will be with much labor and difficulty that favorable conditions can again be attained. Individual planting over wide areas is in this country out of the question, and the only alternative that would seem to be left is to carefully select small patches, so situated as to effectually cover the country with seed, and by the inexpensive process of putting some seed in the ground raise clumps of trees of the desired species that would grow and by reproduce themselves.

At the age of from 25 to 30 years more or less young pine would commence to bear cones and scatter seed; just how far seed will fly depends on many circumstances, but from observations made in burnt districts, which have been reseeded by solitary trees, and also noticing seed floating in the water, there seems little doubt but what the seed of conifers will distribute itself anywhere from the vicinity of the parent tree to a mile, or even more. Cones open in the fall when storms prevail, and no doubt the seed is detached very often during a violent wind, and from the vantage ground of the high tree-top and with the beautiful sail attached to the kernel, will fly great distances in stormy weather. Sufficient time being allowed, the reforesting of burnt over districts presents no economical difficulty. It is the ordinary process that takes place in a longer or shorter time in all forest countries. What is really needed by man's interference is to shorten the period of non-production and to assist nature to give us the varieties most wanted. The length of this paper leaves no time to speak of the benefits to be derived by having bleak barren wastes again covered with forest verdure. Neither can anything be said about the desirability of again causing white pine to grow in that very interesting region around the north shore of Lake Superior; that it can be done is proven by the evidences of pine growth north of the watershed. It would be an interesting pastime for some member of the association, with leisure on his hands, to devote some time and thought in demonstrating how pine can be made to take the place of the less valuable spruce in that most interesting region; and it is to be hoped that the zealous inspector of forestry will be able to induce someone to undertake the work.

DISCUSSION.

The discussion was opened by Schenck, who referred to the different forestry policies as adopted by Professors Pinchot, Fernow, and others. Scientific forestry, he said, was practical forestry, or a knowledge of forestry. He was quite in sympathy with the lumberman who cut over his limits as speedily as possible, as they were in great danger of being destroyed by fire. With them it was a business proposition. He advocated the selling of timber to lumbermen in large blocks, as in this way they would be more likely to protect the forest from fire.

Mr. W. N. Hutt said that in Southern Ontario it seemed that the climate was changing owing

(Continued on page 12.)

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Special pains are taken to secure the latest and most trustworthy material quotations from various points throughout the world, so as to afford to the trade in Canada information on which it can rely in its operations.

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THE FORESTRY MEETING.

The recent forestry convention at Ottawa, of which a report appears in this issue, marks another step towards the adoption of practical methods for the preservation and perpetuation of our timber supply. The meeting was of a most successful character, and the proceedings of a nature to interest lumbermen and the public generally, as well as scientific foresters. The Association is to be congratulated upon the presence at the meeting of an experienced scientific German forester, in the person of Dr. Schenck, now principal of the School of Forestry at Biltmore, North Carolina, and superintendent of the forestry interests of the Vanderbilt Estate. Dr. Schenck proved beyond a doubt his able grasp of the forestry question, and his views were well received. He pointed out that scientific and practical forestry were identical, and showed himself to be the friend of the lumberman, and the object of forestry to be an ultimate advantage to the lumber industry.

The papers presented were of a most interesting character. Those having perhaps the most interest for our readers were by Mr. Bertram on the "Economic Management of White Pine," and by Mr. Langelier on "The Pulp Industry." In Mr. Bertram's opinion the various types of forests require special treatment in each case. He offered a system of management for five different

kinds, namely: 1st, where white pine is the predominant wood, but well mixed with other kinds; 2nd, where pine is the chief timber, but mixed with conifers and a sprinkling of hardwood; 3rd, a forest mainly of hardwood, but mixed with large pine trees; 4th, a forest where the timber is all within fifteen or twenty years of being the same age; 5th, chiefly a hemlock, spruce and balsam forest, but mixed with some hardwood and a moderate quantity of pine.

Much interest centred in the discussion regarding the growth of timber. Mr. Bertram advocated that in a preserved pine forest a crop should be gathered every twenty years, without reducing the total growth of the forest per annum. It was stated that the growth of spruce in Ontario, according to experiments made extending from Ottawa to Rat Portage, was about one inch in diameter in five years. In the Maritime Provinces the growth seems to be more rapid, inasmuch as the method of lumbering employed by Mr. Snowball has been to cut over the ground every five or seven years, and this without reducing the annual cut. No explanation was offered as to the great difference in the rapidity of growth of spruce as between Ontario and the Maritime Provinces. As the quality of spruce found in Ontario resembles very closely that in the eastern provinces, the annual growth would be expected to be about the same.

The deduction made Mr. Langelier, based on the census' figures of 1891, was that at the present rate of cutting 840 years will be required to deplete our spruce forests. While these figures may be above the mark, they show that our spruce supply is practically inexhaustible, inasmuch as spruce is said to reproduce itself in from twenty to thirty years.

A DOMINION EXHIBITION.

THE Dominion Government is said to have appropriated large sums of money to cover the cost of Canadian exhibits at the Glasgow and Pan-American Exhibitions. A large sum was spent for this object at Paris last year. We are not disposed to question the wisdom of these expenditures. It is good business policy to advertise to the world the character and extent of our capabilities and productions, thereby inducing increase of our population and investment of capital. Why should not this be supplemented by the holding of a Dominion Exhibition in Canada and the effort to induce foreigners to come and actually see for themselves the kind of country we have and the greatness of its resources? We cannot hope to carry out an exhibition on the scale of those held at Chicago and Paris, nor should the attempt be made. Our natural development has reached a stage, however, which should warrant us in entering on an undertaking of this character on a properly proportioned scale. The Dominion Government last year refused to assist such a project, perhaps because of the large expenditure that was felt necessary to secure adequate representation at the great international Exhibitions at Paris, Glasgow and Buffalo. Next year when these shall have passed out of sight the subject of a Dominion Exhibition should receive practical consideration, and the Federal and Provincial Governments, which for many years have been spending money on Exhibitions got up by and largely for the benefit of other countries, should

make a liberal appropriation towards a Canadian Exhibition to be held in Canada, which the mother country, our sister colonies and our neighbors across the line should be invited to visit and send exhibits to. We have the nucleus of such an Exhibition at Toronto, and in connection with the proposal to erect new buildings the larger project should be kept in mind. It is doubtful if the property owners of the city whose approval must be obtained will sanction the proposed large expenditure for new buildings. A just cause of complaint with the management of the Exhibition shall be remedied. If the project of holding a Dominion Exhibition in the near future is to be proceeded with, it would be desirable to defer action with regard to new buildings in order that a comprehensive scheme adapted to the larger requirements might be formulated.

THE COMMERCIAL POSITION OF GREAT BRITAIN.

FOLLOWING closely upon the announcement that Russia has increased its tariff on United States goods, comes a despatch from London that as an outcome of the inroads of American manufacturers upon British trade there is being formed the National Federation of Master Associations and Trades Unions to educate the minds of employees and employers in respect to the expansion of British trade, to devise means to meet foreign competition, to send joint deputations of capital and labor abroad to enquire into the conditions of other countries, and to provide a federation where employers and employees may meet on the same plane. This movement is under the leadership of Mr. John Lockie, a conservative member for Devonport, and is said to have the approval of the present British government.

The United States have not only become a strong competitor for the foreign trade of Great Britain and other European nations, but have also invaded the British market, and are securing a large share of the home trade. It is stated that in one industry alone (the manufacture of boots and shoes) Great Britain's trade last year was less by \$5,000,000 than in the preceding year, notwithstanding that the firms engaged in this industry are said to be among the most progressive and enterprising in the way of adopting improved machinery and other manufacturing facilities. The American manufacturer takes infinite pains to adapt his goods to the requirements of the particular market in which he seeks to sell, and by liberal advertising and persistent push keeps their merits before the notice of prospective buyers. In Great Britain there are many long established businesses which have descended from father to son. This has in many instances induced the idea that the system of management and character of goods that have been successful for so long a period may safely be continued. Rapid and startling changes are however, taking place throughout the world bringing changes in methods and requirements of the people. The nation that studies carefully these changes, and constantly adapts its products to the new conditions, is the one which will obtain and maintain commercial supremacy. In this regard the United States seem to stand foremost to-day among the great commercial nations of the earth, hence the states

APRIL, 1901

are making in the development of their foreign trade.

It is gratifying to note that Great Britain is taking to the situation and considering ways and means whereby she may hold her commercial position. History has shown that the British people when once aroused are prompt to act for the protection of their interests whether territorial or commercial. Prompt, intelligent and thorough enquiry into the subject of Britain's commercial facilities and relations with other nations would seem to be a present and important necessity, and should be followed by equally prompt, intelligent and thorough reforms in methods, where such are found to be necessary.

The United States exports to Great Britain and Ireland are valued at \$600,000,000 per year, while the value of the imports from Great Britain to the United States is but 25 per cent. of that amount. The United States exports to Canada for the fiscal year ending June 30th, 1900, were valued at \$109,844,378, or more than the combined imports of France, Australasia, Austria-Hungary and Russia. While profiting so largely by British and Canadian trade, the United States continues to maintain a high tariff wall against these countries. The time seems to have arrived when freer access should be demanded by Great Britain and her colonies to the United States market, and in default of reciprocity of trade there should be a nearer approach than at present to reciprocity of tariffs.

Great Britain has in her colonies commercial facilities which as yet she has scarcely taken any steps towards reaping the advantage of, but which, if brought into closer relations with her, would greatly assist in extending and maintaining her commercial supremacy. Canada has shown a desire to enter into such relationship by giving a substantial preference to British goods entering this market. That this action has not resulted in greater advantage to British manufacturers is largely due to the failure of the latter to make their goods better known in Canada, as well as to adapt the goods to our requirements.

Another phase of this question, as seen by an American writer, is presented in the following extract from the Engineering Magazine, of New York: "To the outside world the most impressive lesson of the Queen's death is the magnificent stability of British institutions and the British commercial system. Not a wheel stopped, not a token of reverence, not a tremor in the various disturbed financial centres; not an uncertainty or uncertainty as to national politics caused business undertakings to waver or hesitate. Compare this with the quadrennial upheaval in the United States, where economic legislation of every kind is the football of politics, and industry follows with uncertain feet now artificially raised on an unstable platform of protection, now sinking back from the morass of free silver, certain of nothing but uncertainty with every change of chief executive. The "demonstration of the Crown" demonstrates anew England's industrial strength, and those who are ready to cry her downfall before her industrial rivals would do well to remember that this stability of commercial organization outweighs much mechanical aptitude. Machinery can be bought, skulls, brains and hands can be hired;

but stable, political and commercial systems are of slow growth, and not soon attained."

EDITORIAL NOTES.

THE footing up of accounts in connection with the Paris Exhibition indicates that if there be a deficit at all, it will be but a small one, while possibly there may prove to be a surplus—depending upon the willingness of the city to purchase certain improvements of a permanent character on the banks of the Seine. The cost of the buildings and other works was \$18,000,000; the expenses of administration \$1,700,000; policing, lighting, etc., \$2,500,000; "unforeseen expenses" nearly \$10,000,000, miscellaneous expenses, \$250,000, a total of \$23,450,000. The receipts from all sources, including subscriptions of \$4,000,000 each from the city of Paris and the Government of France, amounted to \$23,050,000, leaving a deficit of \$400,000. This is a much better showing than was made by the French Exhibition of 1878, when the receipts fell short of the expenditure by six million dollars.

THE quantity of food and other supplies required by the British Government for the South African campaign is enormous. Many classes of supplies, such as car and goods, hay, cheese and bacon, flour and salt, portable houses, wagons, bicycles, axes, etc., Canada could supply, but the bulk of the orders seem to go to the United States. As an example the war office is said to have just contracted with a United States firm for 3,000 axes. We have given British manufacturers a preference in our market, and should have a claim to British orders for products which can be as well supplied by Canada as by the United States. If the British Government are ignorant of our ability to supply many of its requirements blame attaches to the Dominion Government, and no time should be lost in putting before the home authorities the fullest possible information regarding the character and extent of our resources.

THE Michigan lumbermen are believed to have abandoned their suit against the Ontario Government on account of the legislation prohibiting the export of saw logs from the province. It will be remembered that in the fall of 1899 the case was heard in the Trial Court at Toronto, when Mr. Justice Street gave judgment in favor of the Crown. The case was then taken to the Court of Appeal. The judges of that court were unanimous in holding that the Crown had the right to pass the Act and to alter the terms of timber limit licenses, or renewals of them. The decision was couched in strong terms, but notwithstanding this, the Michigan lumbermen announced their intention of appealing to the Privy Council. Apparently, however, the lapse of time has caused them to take a different view of the matter. This change of attitude will be generally admired, as in view of the two adverse decisions, there seemed little hope of their success.

THE resolution introduced in the Dominion Parliament by Mr. Bennett to impose an import duty on lumber was the result of a lively discussion in the House recently. Mr. Bennett pointed out that last year Canada imported lumber to the value of \$3,614,557. Much of the lumber imported had displaced the Canadian product. Col-

Prior supported the motion in the interest of the lumbermen of British Columbia, and was followed by another supporter in the person of Mr. John Charlton, who contended that it was a question of equal rights. As a matter of sentiment alone he believed in meeting the American duty. He thought we should make it clear to the American people that Canada at last intended to stand on her own rights and protect her own interests. The resolution was strongly opposed by Mr. W. C. Edwards, the well-known Rockland lumberman, who, however, is an out-and-out free trader. In view of the announcement of the Finance Minister that no changes are to be made in the tariff, it is feared that the lumbermen will obtain no relief at the present session of Parliament at least. The present situation, it may be said, is not one of free trade, but of discrimination against our own industries, as the markets of this country are thrown open to the United States manufacturers, while a 22 duty excludes much of our product from that market.

THE quality and dimensions of the lumber produced in Canada to-day are inferior to that produced twenty or thirty years ago. This is equally true in all other countries of the world where the timber supply has become more or less depleted. For this reason it becomes imperative that the lumbermen should manufacture their timber in such a manner as to produce lumber of the best possible quality. This, we fear, is not always done. One class of lumber which calls for special attention in its manufacture is basswood. It is sawn both in the winter and summer seasons, but for most purposes winter-cut basswood is superior to that cut in summer. The logs sawn in summer are usually allowed to remain in the water for some time. The result is that after about one week in water the sugar in the log causes a fermentation, and if allowed to remain for a longer period this fermentation is converted into a substance resembling vinegar, which gives forth a most disagreeable odor. The action of this fermentation is to discolor the lumber, making it inferior to the white basswood which is obtained by winter sawing. Of course, the millman must be governed by circumstances. In many cases the equipment of mills is such as to make practical only summer sawing, while the distance of the timber from the mill renders it necessary from an economical standpoint to float the logs to the mill. It is profitable, therefore, that a large proportion of our basswood will continue to be sawn in summer, but the advantages of winter cut stock should not be forgotten.

PERSONAL.

Mr. Albert Mitchell, shipper for the Rat Portage Lumber Company, was found dead in the Ottawa hotel at Rat Portage on March 10th.

Mr. John Firstbrook, president of the Firstbrook Box Company, Toronto, is at present in Mexico on a view of extending the business of the firm in that country.

Mr. C. Beck, president of the C. Beck Manufacturing Company, of Penetanguishene, Ont. left last month on a tour of England and the Continent, combining business with pleasure.

Mr. J. Hobson, of Toronto, has been appointed secretary of the Canadian Yukon Lumber Company, with headquarters at Dawson City, and left last month for his new field. The Canadian Yukon Lumber Company operate saw and shingle mills and own twelve berths on the Pelly, Yukon and Stewart rivers, the chief timber of which is spruce.

(Con. Inued from Page 9.)

to the cutting away of the forest. Heavy storms were more common, and the streams were drying up. As the trees are taken off there is nothing left to retain the moisture. In some sections arable land had been destroyed by the drifting of sand from the lake shores. He believed that the farmers recognized the advantages of planting trees and preserving the present supply, and if the principles of forestry were outlined systematically, he thought it would do much towards checking the destruction.

As showing the great destruction of timber which has taken place, Mr. Little read extracts from a letter dated Thorold, Ont., April, 1826, written by his grandfather to a friend in Dublin. In this letter reference was made to the timber on his farm, pine trees 120 feet long which squared 20 to 30 inches for half their length, and oak which squared five feet. This timber, however, was cut down within ten years. The custom of the country at that time was to give one-half the timber for the sawing of it. Mr. Little referred to the enhanced price of timber at the present time as compared with twenty or thirty years ago. Quoting from the CANADA LUMBERMAN, he said the present price of square white pine, 40 to 45 feet average, was 45 cents at Quebec. He had taken out white pine averaging 145 feet and sold it for 25 cents per cubic foot. He submitted figures showing the decadence of the square timber trade, which he said was an indication that the timber supply was becoming exhausted.

Mr. John Waldie explained that the reason why the lumbermen had largely abandoned the square pine business was that it was a very wasteful method of lumbering. By manufacturing the timber into lumber nearly twice as much timber would be obtained out of the tree. The taking out of board pine occasioned much waste, leaving large stumps in the bush, and lumbermen had become more accustomed to look upon the economical side of the question. Mr. Waldie said that when he was in Florida last winter he was told by some friends there that their timber tracts had been burned over, but that the timber had not been destroyed. He asked for an explanation of this.

Dr. Schenck replied that the long-leaf pine is clad in a bark that fire cannot penetrate. Under certain circumstances fires running annually were of advantage in clearing up debris, etc.

Mr. Thomas Southworth said that it was becoming to be more generally recognized that the aims of scientific foresters were not inimical to the interests of lumbermen. Concerning fire, he said that some three years ago his department had asked the opinions of a number of prominent lumbermen as to the practicability of burning the debris in the wet spring. The universal reply was that the method was too expensive to be practical. The Ontario Government were just now interested in the forestry problem, being desirous of deciding upon some practical and commercially successful method for cutting over the new reserve, which contained from three to four billion feet.

Mr. Bertram stated that a pine forest was practically covered with needles, branches, debris, etc. He would like to know how far the seed would penetrate this debris. His plan had been to burn over the ground; this notwithstanding the

main fact that we should not have fires in our limits.

Hon. J. B. Snowball dissented from the opinion which had been expressed that there are useless trees growing in the forests. While pine was the commercial timber of Ontario, spruce occupied that position in the Maritime Provinces, and in France you could get as much for hemlock as for spruce. His experience had been that pine grows much slower than spruce. He had adopted a policy of going over his grounds and taking off all the spruce trees down to 11 inches, and found that he could go over this ground five to seven years later and take off another crop.

An interesting paper on the pulp industry was then read by Mr. J. C. Langelier, Superintendent of Forest Rangers, Quebec. This paper in part appears in the Pulp Department.

Forest Insects.

A most interesting and instructive address on "Forest Insects" was then given by Dr. James Fletcher, Dominion Entomologist. Before reaching his subject Dr. Fletcher spoke of the various agents which destroy the forests. He pointed out that fire invariably injured trees. In his opinion it was a most dangerous thing to employ fire in the forest in any manner. He was glad to state that his experience had been that the lumbermen were keenly interested in preserving the forests. It was now admitted that when a fire swept through the forest before August the timber must be cut the following winter instead of the second winter, otherwise it would be found that grubs had penetrated six and eight inches. He spoke of the method called "rossing" adopted by some of the lumbermen to prevent the attack of insects. It consisted of cutting a strip from the top of the log so that air could penetrate between the bark and the log. Another method of protecting the logs was to cover them up with boughs of evergreens. The insects which attack trees, he said, were very numerous. Investigation had shown that 500 different varieties attack oak trees, and 200 pine trees. The large beetles appeared in July. He exhibited a number of specimens of various insects.

DISCUSSION.

Mr. W. C. Edwards, M. P., was called upon to address the meeting. He said that the question of forestry was one in which he was much interested. He was the prime mover in securing the establishment of the present system of forest protection in Quebec. In that province alone disastrous fires had occurred, destroying timber which, if growing to-day, would be worth from two hundred to three hundred million dollars. It was not yet too late, however, to preserve our forests. As to the pulp industry, he thought that the development was likely to be too rapid for the good of the country, as it was conducive to the cutting of small logs.

A paper on "Forest Botany in the Schools" was submitted by Dr. W. H. Muldrew, of Gravenhurst, Ont.

The Committee on Resolutions then reported, presenting a resolution of sympathy with the Royal Family, and another expressing the appreciation of the services rendered the Association by the president. Votes of thanks were also tendered to the authors of the various papers, the railways, the press, and the officers of the Association. Special reference was made to the faithful manner in which the arduous duties of

assistant-secretary and treasurer had been discharged by Mr. Campbell.

ELECTION OF OFFICERS.

The chief officers of the Association were unanimously re-elected, as follows: Honorary President, His Excellency, the Earl of Minto, Governor General; president, Hon. Sir Henri J. Lotbiniere, K.C.M.G.; vice-president, W. Little; secretary, E. Stewart; assistant secretary and treasurer, R. H. Campbell. For delegates the following were chosen: John Bertram, Thos. Southworth, Toronto; Hiram Robt. Prof. John Macoun, C. Jackson Booth, Saunders, and W. C. Edwards, M. P., Ottawa.

The directors subsequently met and selected the following vice-presidents for the different provinces and districts: Ontario—Mr. J. B. Williams, Peterborough, Ont., Quebec—S. N. Parent, Commissioner of Crown Lands, Quebec; New Brunswick—Hon. J. B. Snowball, Chatham, N. B.; Nova Scotia—Dr. A. H. Kay, Superintendent of Education, Halifax; Prince Edward Island—Sir Louis Davies, Minister of Marine & Fisheries, Ottawa, Manitoba—Stewart Mulvey, Winnipeg, Man.; Assiniboia—J. S. Dennis, Deputy Minister of Public Works, Regina; Saskatchewan—Mr. J. G. LaBatt, Battleford, Sask.; Alberta—Mr. William Peck, Calgary, Alberta; Athabaska—Mr. Frankson, Ft. Vermilion, Atha.; British Columbia—Mr. H. Bostock, Ducks, B. C.; Yukon—Commissioner; Keewatin—The Lieutenant-Governor of Manitoba, Winnipeg, Man.

EVENING SESSION.

An evening session was held in the assembly hall of the Normal School and was in the nature of an address on "Governmental and Private Forestry," by Dr. Schenck. The large attendance present was an indication of the interest which was taken by the public in the forestry question. The chair was occupied by Mr. William Little, president of the Association. The lecture was illustrated by a number of excellent stereoscopic views. In dealing with Governmental forestry Dr. Schenck said that if the forests of the country were to be a financial success they must have Government protection from fires. Elimination of forest fires and the forest would perpetuate. Referring to Germany, he said there was no connection there between agriculture and forestry, as agriculture was the best investment for the land ever adopted. Experiments conducted in Germany for twenty years had proven that the forest was not a rain maker. He spoke at some length of private forestry, and at the close was accorded a hearty vote of thanks.

LUMBER SURVEYORS' ASSOCIATION.

The lumber surveyors of St. John, N. B., have formed themselves into an association, to be known as the John Lumber Surveyors' Association. The purpose of the Association is to protect the interests of lumber surveyors. The by-laws of the Association provide that the scale of prices for surveying lumber shall be as follows: Spruce deals, batters, 7 cents per M, scantling and boards, 10 cents; hardwood deals, etc., 10 cents. The fee for making extra survey bills per lot where there is more than one lot is to be 25 cents for spruce and 50 cents for hardwood. A clause provides that no member of the Association shall deliver lumber to any vessel where she is receiving cargo from an outside surveyor when any member of the Association is idle, nor shall any member of the Association accept any shipper employing the same. The officers are: F. E. Hill, president; C. F. Langan, vice-president; J. McLoon, secretary; C. Robertson, treasurer.

THE ONTARIO TIMBER SUPPLY.

The Ontario Legislature recently, Mr. W. Charlton, M.P.P. for South Norfolk, gave a deal of information respecting the timber resources of the province. The Doyle system of treatment had been unanimously adopted by the members of the province in 1879, in preference to the Scribner. The total cut of saw logs in Confederation was 15,896,156,278 feet; of round timber 681,847,463 feet; of square timber, 304,152 feet, a total of 18,670,807,893 feet, an average of 549,141,408 feet per year, more than the average, or 679,000,000, was made as early as 1872. In 1882 the cut was 10,000,000, and in 1892 694,000,000. The largest any year was in 1896, 952,000,000 feet; the second in 1895, 843,000,000; the third in 1889, 600,000, and the fourth in 1888, 781,000,000. Mr. Charlton declared that the whole export of saw logs to the United States since Confederation (none occurred before 1889) was only 324,917 feet, so that less than 10 per cent. of the logs had been exported, and over 90 per cent. were sawn in this province. The total value from pine timber since Confederation had been \$26,582,883, an average of \$46 a year. There were 26,000 square miles of timber land in Ontario west of the Ottawa river and south of the 48th parallel of latitude, and in the Rainy River district; that is, twenty-six billion feet, at the moderate rate of one million feet per mile. To this should be added eight billion feet on land under license, making thirty-four billion feet in all. The government report of 1893 embraced an area of 20,000 square miles under license, then estimated to have on it ten billion feet. As a check on that estimate, based on 1887 examination, ten billion feet had been taken. Mr. Charlton said he had personal knowledge that large tracts remained uncut, estimated at eight billion feet. A United States Government commission in 1880 estimated Minnesota's timber at ten billion feet. Since then twenty billion feet have been cut, and twenty billion more feet left. He reminded the House that in addition to the three billion feet referred to by the honorable treasurer as existing in Nipissing, there were 30 townships south of that portion which were rich in pine timber.

He approximated the value of the 26,000,000,000 feet as worth to the government as it stands at \$100,000,000, and the crown dues to be collected on the 8,000,000,000 feet on the licensed lands would not be less than \$9,000,000, making an aggregate of \$109,000,000 in pine timber alone, leaving a large amount of other timber, land and minerals in the hands of the government.

Respecting the areas of the north, Mr. Charlton pointed out that Nipissing contained 27,000 square miles explored; Algoma 65,000, 20,000 unexplored; Thunder Bay, 31,000, 15,000 explored; Rainy River, 19,000, three-quarters explored. The total area, 140,000 square miles, less than half explored. Col. Matheson had estimated the pulp on Mr. Clergue's concession at ten cords to the cord. On this estimate the treasurer's estimate of 100,000 cords would be more than doubled. Mr. Charlton said he had been over the height of the timber at different points, and had personal knowledge of the existence of large tracts of valuable timber lands.

REMARKS ON HARDWOOD AND OTHER FINISHING.

The practice, which is now fairly established in Canada, of finishing two or more rooms in good houses, with hardwood, is a commendable one, and deserves to be extended to all rooms in the main stories of good dwellings. There is no lack of good and suitable hardwoods in the Dominion, and in some instances these woods may be obtained at a less cost than clear white pine, and the cost of working and finishing them is perhaps 25 or 30 per cent. more than for the same character of work in pine, while the results are a hundred times happier.

Black birch (*Betula Nigra*), which is a native of this country, is especially adapted for inside finish, and when properly wrought, has a fine quiet refined appearance, and for the last fifteen years has been quite popular. It is close-grained, and can be stained with a filler to resemble walnut exactly. It is just as easy to work, and is suited for any of the purposes to which the more costly wood is applied.

To give birch the appearance of cherry or mahogany, it should be rubbed with diluted nitric acid, after it has been planed and finished up with either scraper or No. 0 sandpaper. Afterwards, to a filtered mixture of one ounce and a half of dragon's blood dissolved in a pint of spirits of wine or alcohol, add about half an ounce of carbonate of soda, the whole constituting a very thin liquid which must be applied to the work with a soft brush. This process must be repeated with very little alteration, and at short intervals of time, until the work assumes the tint required. If the work has been well done and the composition properly made, the surface will assume quite a brilliancy. To complete the work, raw linseed oil should be rubbed over the surface and wiped dry, as no portion of the oil should show on the work. This same process will answer for finishing cherry—which is now getting to be a very scarce wood—which shows more veining in the finish than birch.

Cherry may be darkened by coloring the spirits of turpentine used in thinning down the filler, but, when no filler is used, it may be washed down with lime water, which will give it a desirable color. It is best always to try a piece of the wood before washing down the work to insure the proper tint.

Where it is desired to stain white pine, cedar, poplar or basswood, to give an appearance of cherry or black birch, any one of the following compounds may be used:

For a water stain, boil in a gallon of water one pound of Spanish annatto and one ounce of concentrated lye (potash); should this not be deep enough, allow the water to evaporate by a gentle heat. The stain can also be made darker by adding gamboge, previously dissolved in a weak solution of potash.

For a good oil stain for pine make the following:—Mix gamboge in linseed oil, dilute with turpentine, add a little japan as a siccative, apply with a fine hair brush, not too thickly. This produces exactly the same tint as the water stain, but will not fade as the other may in some conditions. The tint may be deepened by adding a little dragon's blood or burned sienna finely ground in linseed oil.

Another durable stain may be made by stirring and well mixing together one quart of spirits of

turpentine, one pint of varnish, and one pound of dry finely ground sienna; apply with a brush and after it has been on about five minutes wipe it clean off with rags. This stain requires about twelve hours to dry, after which it may be varnished and rubbed.

A better stain than either of the ones given may be made by taking one quart of alcohol, two ounces of dragon's blood; pulverize the latter along with about a quarter of an ounce of alkanet root; mix and let stand in a warm place for several days, shaking it up from time to time. Apply with a sponge or a fine brush, giving a thin coat at first. Two or three coats may be required to give the proper tint.

This stain penetrates the wood for some depth, and when properly varnished and rubbed down, makes the soft wood look exactly like cherry or birch, as the case may be.

When "rubbing" is not desired, a coat of good shellac varnish will make a very fine soft finish and show up the grain of the wood to perfection.

There are over forty kinds of oak, natives of the American continent, about ten of which grow in Canada, and of these the white oak, (*Quercus Alba*), the red oak, (*Quercus Rubra*), and the black oak, (*Quercus C. Tinctoria*), are the most employed in interior finishings and furniture, and are all capable of being handsomely finished, the black and white oaks being the best, and the red being next.

What is known as quarter-oak is made by first sawing the log from end to end through the middle. Then each half is sawed from end to end through the middle, thus leaving four quarters. Each quarter has only three sides, one side the bulge part of the log, and the other two sides flat and coming to an edge. The boards are sawed off the sharp edge, and each sawing, therefore, throws off a board wider than the one before it. Sawing the quarters of the log in this manner, lumber possesses that beautiful cross-grained figure that is so much admired in oak.

To make a good imitation of antique oak, lamp black or vandyke brown should be mixed with the wood filler, and the latter should be made about the consistency of thin cream and applied with a brush. After standing an hour or so, the superfluous filler should be removed with excelsior and cleaned off with rags. When hard and dry the work may be varnished or otherwise finished.

Another method of imitating antique oak is to expose the wood to the fumes of ammonia, but as this is only possible with small works, the application of aqua ammonia with a brush is resorted to with a fairly good effect. Several applications must be made to get the required shade.

A quicker, and perhaps better method, is to use strong vinegar with iron filings or shavings added; by a little experimenting, this can be made to suffice with one coat, depending upon the amount of iron added to the mixture.

The ammonia and vinegar processes answer effectively only on white and black oak. Red oak must be treated with stains mixed with the fillers, when excellent results follow.

The British Columbia Mattress Works, of Vancouver, B.C., have put in machinery for the manufacture of excelsior. They recently received a car load of cotton-wood for the purpose.

THE NEWS

—Louis Bachelor, saw miller, Milverton, Ont., has sold out to Peter McLellan.

—C. McGiven is making improvements to his saw mill at Penetanguishene, Ont.

—A wood-working factory will be built at Sussex, N. B., by George H. and S. H. White.

—Haley & Son, of St. Stephen, N. B., are engaged on a contract to supply 10,000 boxes for a Glasgow firm.

—The Firstbrook Box Company, box manufacturers, Toronto, are about to erect a new factory, 80 x 300 feet.

—George Chew is reported to have sold an interest in his saw mill at Midland, Ont., to E. Letherby and Manley Chew.

—It is said that the Victoria Harbor Lumber Company, of Victoria Harbor, Ont., may purchase another shunting engine.

—The legislature of Oregon has appropriated \$30,000 for a forestry exhibit at the Pan-American Exposition at Buffalo.

—John Sinnott will establish a lumber yard at Gilbert Plains, Man. He also intends reopening his yard at Dauphin.

—R. S. Staples and John Kennedy, of Pontypool, have purchased the saw mill and timber limits owned by D. P. Ridge.

—Ross Bros. have purchased the saw mill property at Balmoral, N. S., owned by the estate of the late A. M. Sutherland.

—The box factory at Dollartown, Ont., recently owned by Firstbrook Bros., has been purchased by Mr. Potvin, of Midland, Ont.

—It is the intention of C. J. Willis & Company, wholesale lumber dealers, Sackville, N. B., to remove on May 1st to Amherst, N. S.

—The dissolution is announced of the firm of I. S. Charbonneau & Company, sash and door manufacturers, St. Louis du Mile End, Que.

—The saw mill of H. & F. Duffy at Seven Mile Lake, N. S., was destroyed by fire recently. The headquarters of the firm are at Liverpool, N. S.

—Josiah Keane, of Fesserton, Ont., is making extensive improvements to his saw mill, putting in a circular and machinery for the manufacture of barrel hoops.

—D. McQuaig, who has been operating a planing mill at Portage la Prairie, Man., has accepted a position as manager of the mill there until recently operated by J. M. Taylor.

—The British Columbia Mills, Timber and Trading Company, of Vancouver, have decided to go out of the retail lumber business at Winnipeg, and will henceforth confine their attention to the wholesale trade.

—A number of prominent lumbermen, including Alex. Fraser, John Charlton, M. P., J. R. Booth, John Gilmour and W. C. Hughson, have petitioned the Dominion Government for the extension of the Gatineau River Railway to James Bay.

—It is reported that the Cleveland Saw Mill & Lumber Company have secured a favorable site and will erect a large saw mill near the mill of the Edmund Hall Lumber Company at Sarnia, Ont. The company is said to own a quantity of timber in the Georgian Bay district.

—Several capitalists recently looked over the situation at Fort Frances, Ont., with a view to erecting large saw mills there. A local exchange states that if suitable arrangements can be made for timber supply and water power, steps will likely be taken at once to establish the mills.

—The annual meeting of the St. John River Log Driving Company will be held at Fredericton, N. B., on Wednesday, April 3rd, and that of the Tobique River Log Driving Company at Andover, N. B., on Tuesday, April 9th. The former company will let the contract for driving on the Upper St. John for the next four years.

—The annual meeting of the Upper and Lower Southwest Miramichi Log Driving Companies was held at Fredericton, N. B., on March 12th. M. Welch was elected

president of the Upper Southwest Company, with J. H. Barry secretary-treasurer, and in the Lower Company William Richards was re-elected president and H. Beck secretary-treasurer.

Mr. Francis Baker, lumberman, of Gravenhurst, Ont., was accidentally drowned in an uncovered well at Utterson, Muskoka. Mr. Baker was well known and highly respected by the lumbermen throughout the province.

—Hon. William Engel, of Bangor, Me., recently purchased timber limits on the Nepisiguit river in New Brunswick. Speaking of the purchase he said: "I won't operate the land at present. I wanted the property in case of emergency such as the giving out of the supply of logs for pulp purposes on the Penobscot."

—Messrs. Beardmore, Patton, and Wells, who recently purchased lumber property at St. Margaret's Bay, N. S., from Young Bros., are applying for incorporation as the Dominion Lumber Company and the Dominion Leather Company. It is proposed to utilize the bark taken from the saw logs in the manufacture of leather.

—The following persons made application to the British Columbia Government during February for timber licenses: G. A. Carlson, Kalso, for 450 acres; E. O. Patterson, Chilliwack, 320 acres; James Mulligan, Vancouver; E. Dewdney, Allison, 1,000 acres; Thos. J. McAlpin, 1,000 acres; Atkins & Company, Vancouver; St. Anthony's Exploration Company, Vancouver; J. A. Stoddard, Windemere, 1,000 acres; W. K. Rogers, Yale, 1,000 acres.

—Seamen & Company, of Port Arthur, Ont., have a large force of men at work getting out ties, piling and bridge timber, to fulfill their contract with the Ontario and Rainy River Railway Company. Between Fort Frances and Stanley Junction no less than six miles of open bridging will be required. Mr. Seaman states that the mill at Gash Point, managed by R. Lockhart, is cutting dressed lumber, but as soon as the ice goes out the cutting of dimension timber will be commenced. A large lumber yard has been opened by the company at Fort Frances, in charge of W. Floyd.

TRADE NOTES.

The annual meeting of the Canadian Rubber Company was held in Montreal recently. A satisfactory statement was presented and the board of directors re-elected.

A very attractive calendar has been issued by the Syracuse Smelting Works, of Montreal. In the centre are a couple of lady cyclists mounted on a tandem machine coming down a mountain side on a bar of the company's babbitt metal. Below are the words "Let em slide—it is frictionless."

SUIT TO RECOVER FREIGHT ON LUMBER.

In the Liverpool assize court, before Mr. Justice Bucknill and a special jury, the Mediterranean and New York Steamship Company, Ltd., sought to recover £175 15s. 3d. from the defendants, A. F. & D. Mackay, of Liverpool, balance of freight alleged to be due for the carriage of certain timber on plaintiffs' steamer Pocohontas, from St. John, N. B., to Liverpool, where she arrived on August 8th last. The defendants stated that they had paid sufficient for the carrying of the timber, and they claimed for certain short delivery, while the plaintiffs denied that the defendants were entitled to make that claim.

Mr. Carver said that the question arose out of the carrying of a part of a cargo of timber by the Pocohontas, shipped at St. John N. B., by Mr. W. Malcolm Mackay, and consigned to the defendants, A. F. & D. Mackay. The question raised by the defendants was that the quantity of timber delivered was less than that which appeared on the bill of lading—that the measurement was less—and, therefore, they said they were entitled to deduct from the freight the value of the short delivery. The timber was shipped under bills of lading which showed the number of pieces shipped, and the number of superficial feet in those pieces. All they had to consider was the deals, and there was no trouble about any loss of cargo, because the number of pieces turned out was slightly in excess of what was stated in the bills of lading. The number of pieces given in the bills of lading was 82,300, whereas the quantity actually turned out, according to the defendants' own counting, was 82,313 pieces. The charter party provided that the freight was to be paid one-third in cash on arrival and the remaining two-thirds on right delivery of the

cargo, less the value of short delivery in cargo if there be any. The freight was also to be paid upon the same measure—the measure taken at the port of shipment by the surveyors there—and according to a sort of summary report of the shipment sent by shippers to the defendants they reported the quantity was exactly as the bill of lading put it, viz., 675 standards of spruce deals and 15 standards of spruce ends.

Mr. Pickford stated that the defendant's case was that they were 1,253 pieces short of deals and 806 short of ends, making 2,059, and there were over delivery of scantlings 369, and on boards 1,703, making 2,072, or 13 pieces over. His point was that the rate of freight being different on the different things they were entitled to deduct a shortage of ends and allow on boards.

The judge: That seems a business like point.

Mr. Carver remarked that the defendants said the plaintiffs had not given them right measurement. By the plaintiffs said was that they had to deliver the 82,300 pieces that were put on board. By the terms of the charter party, however, he contended that the measurement was to be determined, not in Liverpool by the method adopted there, but by the intake measurement as it appeared in the bills of lading.

Mr. Pickford contended that the only question for the jury was what was the quantity on the out-turn.

His lordship agreed, and evidence on that point was called by the defendants. One witness stated that there were 1,253 deals and 806 deal ends less taken in Liverpool than appeared in the bills of lading, and that there were 1,703 boards and 369 scantlings in excess making a net in excess of 13 pieces. In measurement, however, the shortage was 15 standards.

His lordship said that on the evidence of the defendants there was a certain excess and shortage. A certain amount had come out of the ship, and on what came only the plaintiffs were entitled to freight, and freight was a question of law. After hearing further argument the judge put to the jury the following question: "Are you satisfied that the evidence of the defendants witnesses represents truly the different number of pieces under the different descriptions mentioned by them?"

The jury answered in the affirmative. His lordship reserved the legal aspect of the finding for further argument in London.—Timber Trades Journal.

PUBLICATIONS.

The position which the Pierpont Morgan organization holds with reference to the business and political world discussed by Mr. John Brisben Walker in the April Cosmopolitan under the title, "The World's Greatest Revolution."

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WOOD PULP DEPARTMENT

PULP INDUSTRY IN RELATION TO OUR FORESTS.*

By J. C. LANGRISH.

The pulp industry has within the past fifteen years assumed a considerable development in our country. It is first mentioned in the census of 1881, which gives the following figures in connection with this industry: Capital invested, \$92,000; wages paid, \$15,720; value of products, \$83,300. Ten years afterwards the census of 1891 gives the following: Capital invested, \$2,900,907; wages paid, \$397,099; value of products on the market, \$1,057,100. By comparing these figures we find for this period of ten years an increase of 3,052 per cent. in the capital invested, of 1,758 per cent. in the wages paid, and 150 per cent. in the value of the products delivered to the trade. This extraordinary progress has produced a great impression on many people who take a special interest in the preservation of our forests; many begin to raise the cry, proclaiming that before long this new industry would cause the ruin of our spruce forests. Is this justified by facts, are these fears well founded? We will proceed to consider the question.

CONSUMPTION OF SPRUCE.

In a couple of years yet, that is until the next census is published, the statistics of 1891 are the only ones that give us complete information respecting the consumption of spruce in the four older provinces of the Confederation, the only ones in which, for many years past, the pulp industry is destined to assume all the development of which it is capable.

The data given by that census are somewhat confused, after deducting what is necessary, we get the following figures approximately with regard to the consumption of spruce for various purposes in the four provinces mentioned:

	Feet.
Logs.....	2,958,926,740
Wood.....	1,556,412,166
Soft timber.....	212,582,464
Hardwood.....	111,889,150
Wood.....	130,400,000
Ray ties.....	98,267,801
Staves.....	67,749,166
Total.....	5,146,236,787

We get the following figures for each of the provinces respectively:

	Ontario.	Quebec.
	Feet.	Feet.
Logs.....	1,049,450,350	968,133,170
Wood.....	673,049,500	563,398,566
Soft timber.....	51,968,283	123,530,933
Hardwood.....	36,631,500	64,722,750
Wood.....	57,457,000	65,599,500
Ray ties.....	59,920,768	20,038,333
Staves.....	49,398,500	7,717,666
Total.....	1,969,880,901	1,812,740,018

New Brunswick Nova Scotia

	New Brunswick	Nova Scotia
	Feet.	Feet.
Logs.....	461,990,100	479,347,770
Wood.....	154,012,250	175,952,250
Soft timber.....	10,604,148	26,480,000
Hardwood.....	5,735,900	4,799,000
Wood.....	5,685,500	1,667,000
Ray ties.....	12,361,000	5,947,500
Staves.....		11,033,000
Total.....	650,388,898	705,226,450

What is the proportion of pulp wood? 2.53 per cent. for the four provinces together; 2.90 per cent. for Ontario; 3.51 per cent. for Quebec; 9.03 per cent. for New Brunswick; 0.23 per cent. for Nova Scotia. More than half of the pulp wood got out in 1891 was exported to the United States in the raw state.

LIMIT OF PULP CONSUMPTION.

Let us now see whether there exists any danger for the future. By multiplying ten times the quantity of pulp consumed in 1891 we get the following figures:

*Read before the Canadian Forestry Association, Ottawa, March 1901.

wood mentioned in the census of 1891 we get the following figures for each of the four provinces:

	Feet.
Ontario.....	574,570,000
Quebec.....	655,995,000
New Brunswick.....	56,855,000
Nova Scotia.....	16,670,000
Total.....	1,304,090,000

Taking 600 feet superficial or board measure for a cord of 128 cubic feet, and a cord and a half of firewood to make a ton of pulp, the exaggerated quantity of 1,304,900,000 feet of spruce would give enough wood to manufacture 1,448,988, or, in round numbers, 1,500,000 tons of pulp a year. This is very nearly the total actual production of the United States, the country which makes the most pulp and paper in the world. With this quantity the four older provinces would suffice for the domestic consumption of Canada, supply a couple of hundred thousand tons of pulp to our neighbour's paper mills, and allow of our shipping a million tons to Great Britain, France, and other European countries. It would be difficult, even for the most enthusiastic, to imagine a more brilliant future for this great pulp industry.

What extent of forest would have to be denuded every year to get the spruce required to make this quantity of pulp?

In the Maritime provinces, as well as in those portions of Quebec and Ontario comprised within the old limits, that is, situated to the south of the water-shed or height of land, the forests can yield an average of 5000 feet of spruce to the acre for pulp wood, which takes in seamy trees, small head logs up to four inches diameter, even small trees three and four inches in diameter growing in wet lands and swamps. Therefore, taking 5,000 feet of wood to the acre and multiplying the yield of 1891 by ten, the extent of forest annually denuded in each province is as follows:

	Acres.
Ontario.....	114,914
Quebec.....	131,199
New Brunswick.....	11,371
Nova Scotia.....	3,334
Total.....	260,818

EXTENT OF SPRUCE FOREST.

If, since the date of the last census, *2,500,000 acres in New Brunswick and 300,000 in Nova Scotia have been redeemed from the forest by settlement, the present extent of the forests in those provinces would be about as follows:

	Acres.
Ontario.....	52,818,420
Quebec.....	144,363,454
New Brunswick.....	11,224,540
Nova Scotia.....	10,853,544
Total.....	219,259,958

TOTAL CONSUMPTION.

The exigencies of the pulp industry represent a very slight proportion of the needs that spruce is called upon to satisfy. Let us see what is required yearly for other purposes. We have already seen the quantities given by the census of 1891 let us double these quantities, let us add the quantity multiplied ten times for pulp and we get the following results, showing the quantity of spruce required yearly:

	Feet.
Ontario.....	4,399,417,802
Quebec.....	4,150,376,076
New Brunswick.....	1,345,261,796
Nova Scotia.....	1,423,788,900
Total.....	11,318,844,570

*There has been cleared and put under crops 2,000,000 acres of wood lands in Ontario, 1,500,000 acres in Quebec. Divide this quantity by 260,818 acres, the extent denuded each year, and the conclusion will be arrived at that it will take this industry 840 years to exhaust our spruce forests. Province by province, the period of exhaustion would be 1,103 years for Quebec, 860 for Ontario, 987 for New Brunswick, and 3,255 for Nova Scotia.

The area denuded yearly to get these quantities of wood and the number of years required to exhaust the present extent of the forests, are shown in the following table.

	Area Denuded Yearly Acres.	Period of Exhaustion Years.
Ontario.....	879,883	60
Quebec.....	830,750	173
New Brunswick.....	269,052	41
Nova Scotia.....	284,757	38
Total.....	2,264,342	

It is a well-known fact that when operations are carried on in a wise and provident manner, a spruce forest renews itself in fifteen or twenty years at most, especially when the soil is rich and the climate favorable as in New Brunswick and Nova Scotia. It is therefore reasonable to infer that even in those two provinces, where the forest reserve is least extensive, the spruce forests are practically inexhaustible, inasmuch as the needs of domestic consumption, of trade and the pulp industry are below the capacity of production and reproduction of these forests.

WHERE IS THE DANGER?

These considerations show beyond contradiction that the pulp industry does not constitute a threat or a danger with the preservation of our spruce forests; on the contrary, it adds greatly to the productive value of those forests. The great, the true dangers in this respect are: Fire in the first place, then the abuses committed under pretext of colonization, and wastefulness in lumbering operations.

It is hardly possible without having made a special study of the subject to form an idea of the destruction caused by fire in our forests. Take the Province of Quebec, for instance. With the proceeds of the sale of the timber destroyed by fire in its splendid forests of Lake St. John, the St. Maurice and the Ottawa, the province could pay the whole of its debt and still have several millions to spend in developing its resources. In the Saguenay and Labrador districts the ravages caused by fire have been more extensive, if not more disastrous, as regards the value of the timber.

WASTE UNDER PRETEXT OF COLONIZATION.

The pillaging of the forest under the specious and alluring pretext of colonization is a danger more to be dreaded than the pulp industry.

Of late years the value of timber has increased considerably. To take advantage of this increase a great many people—I speak more particularly of the province of Quebec—have recourse to the colonization pretext to get at the timber. This practice is especially common in the vicinity of railroads and in places where the timber can be easily got out by water. Many interloping traders who hold no timber licenses, use this pretext for securing the cut of timber which they could not otherwise obtain. In most cases they advance to the pseudo settler the necessary money to pay for his lot, taking security that all the timber will be cut for them. Notwithstanding all the efforts of the government to stop these fraudulent practices, they are carried on to an extensive scale, and this explains how so much land unfit for profitable farming is every year given over to colonization.

These so-called settlers are a two-fold source of danger to the forests. In the first place, to hide their game, and give it a little color, they feign to make clearings, and for that purpose start fires which in many cases destroy considerable areas of green timber. In the second place, as their sole object is to get the wood and abandon their lots when denuded, they take only the trees that will give them the most money, wasting lots of young trees which would become valuable if allowed to grow. In the young timbers thus destroyed or wasted enough might be found to meet the requirements of the pulp industry.

Were this havoc wrought only on good lands, the practice might be tolerated, because the lots abandoned by these pillagers would be taken up again by bona fide settlers who would make farms of them. But unfortunately the quality of the soil is not considered in the selection made by these "winter harvesters," whose sole object is to get the timber, and, as in most instances the fine timber grows in mountainous regions or on lands the least fitted for cultivation, it happens that most of the lots given up to colonization are not suitable for profitable farming.

Some facts concerning the district in the vicinity of Ottawa may give an idea of this kind of colonization, the

object whereof is to make the settlers get their living out of the timber.

In 1891 there were in the county of Pontiac 440,795 acres of land occupied or taken from the Crown domain for colonization purposes, and of this quantity 138,548 acres, or about 31 per cent., were under crop. The average yield per acre of these farms was 6.31 bushels of grain, 1/4 ton of hay, 1.92 bushels of potatoes, and 1/4 bushels of turnips or other roots. The greater portion of the cereals consisted of oats. Estimating the cereals at 50 cents a bushel on an average, the potatoes and turnips at 25 cents, and the hay at \$12 a ton, the average yield of these farms was \$6.70 per acre, barely enough to cover the cost of cultivating and harvesting.

The county of Ottawa had 923,614 acres of land occupied, of which 241,443 acres, or 26.14 per cent., were under crop. These yielded on an average, per acre, 6.19 bushels of cereals, 0.37 ton of hay, 2.37 bushels of potatoes, and 0.80 bushel of other roots, of an aggregate value of \$7.79. In the centre of Cure Labelle's famous colonization region—the townships of Wentworth, Montcalm, Howard, Clyde, Joly and Marchand—73,258 acres were taken up for colonization, whereof 12,091 or less than 17 per cent. were under crops. The product of these crops gave an average yield per acre of 4.13 bushels of cereals, 0.38 ton of hay, 2.62 bushels of potatoes, 0.54 bushels of other roots, of an aggregate value of \$7.42.

Apart from this there were 62,210 acres in pasture in Pontiac and 103,754 in Ottawa, in all 165,964 acres. Supposing the value of products of the live stock to be equal to that of the crops, we find that the agricultural revenue of those 545,955 acres under crops and in pasture amounts to \$4,036,773.

Under a well managed cutting, carried on with prudence and discernment, these lands, most of which were richly timbered, would have yielded permanently 2,500 feet per acre of merchantable timber, say a total of 1,364,887,000 feet yearly, worth \$6,824,440 at the current prices of timber. The revenue derived from the timber thus exceeds that from agriculture by \$2,793,667, or over 69 per cent.

These lands are nearly all situated in the Laurentian Mountains; most of them are of poor, rocky, rugged soil,

on which improved implements cannot be used, and are difficult and costly to cultivate, but they were covered with the finest timber.

At the present prices for spruce saw logs, pulp wood, pine and hardwood, the timber would bring much more than the value of the crops and would entail less labor in working.

The time has perhaps come when, we should consider whether, in the interest of the country, it would not be advisable to put a stop to this kind of colonization which does no good to bona fide farming and is rapidly ridding our forests. These facts, however, show only a portion of the loss suffered by the country by this stripping of the trees from land that is unfit for profitable farming. The use of agricultural produce does not extend beyond its consumption, inasmuch as it cannot supply any large industry. The products of the forest, on the contrary, possess an industrial value far beyond their intrinsic value.

We have seen that the 545,955 acres of land under cultivation could produce annually 1,364,887,500 feet of lumber, worth, in logs or in the natural state, \$6,824,440. If these logs were converted into pulp or into paper they would yield 1,091,910 tons of merchantable pulp, 272,977 tons of chemical pulp and 682,443 tons of paper, taking only one-half the pulp to make paper. Calculating the cost of labor at \$2.50 per ton for making one ton of mechanical pulp, at \$8.00 for chemical pulp, and \$3.00 for paper, we find that this lumber would, in its manufacture, give the following in wages to workmen:

1,091,910 tons of mechanical pulp at \$2.50	\$2,729,775
272,977 tons of chemical pulp at \$8.00	2,183,816
682,443 tons of paper at \$3.00	2,047,329
	<hr/> \$6,960,920

At an average of \$1.25 per diem, this would represent the wages of 18,560 men over and above those employed in cutting the logs and driving them down the rivers. These workmen and their families would constitute a population of at least 100,000 souls, and with the additional population supported by these industrial centres we should have a total of 150,000 souls.

Who will maintain that, as regards population of the country, the settlement of infertile lands can produce more striking results?

From the standpoint of national wealth the result is more striking.

The 545,955 acres of land on which these calculations are based would yield farm produce to the value of \$4,036,773. The yield of the forest would give industrial products worth ten times more. Calculating mechanical pulp at \$10 a ton at the mills, chemical pulp at \$12 a ton, and paper at \$35, we get the following figures:

545,955 tons of mechanical pulp at \$10	\$5,459,550
136,488 tons of chemical pulp at \$12	1,637,856
682,443 tons of paper at \$35	23,885,505

The value of the farm produce from these lands would be \$7.35 per acre. For lumbering and industrial purposes to supply paper and pulp mills, the value of the products of these lands would be \$61.25 an acre, or eight times as much. As regards increase of population it is a greater from a manufacturing than from an agricultural standpoint.

The conclusion to be drawn from all this is that the Government should give up to colonization only lands that can be easily and profitably cultivated, and keep as forest reserves all that do not possess these qualities. It would be better to support at the expense of the state the unfortunately too large class of so-called settlers who take up lots merely for the purpose of cutting timber on them and abandon them afterwards if the forest is destroyed.

ADVANTAGES OF THE PULP INDUSTRY.

Apart from the advantages pointed out above, there are others connected with the pulp industry which demand the consideration of all who are interested in the preservation of our forests.

In saw mills nearly all the old establishments take logs under nine or ten inches in diameter at the end, and the portion of the trees out of which saw logs of that diameter cannot be made are left in the woods.

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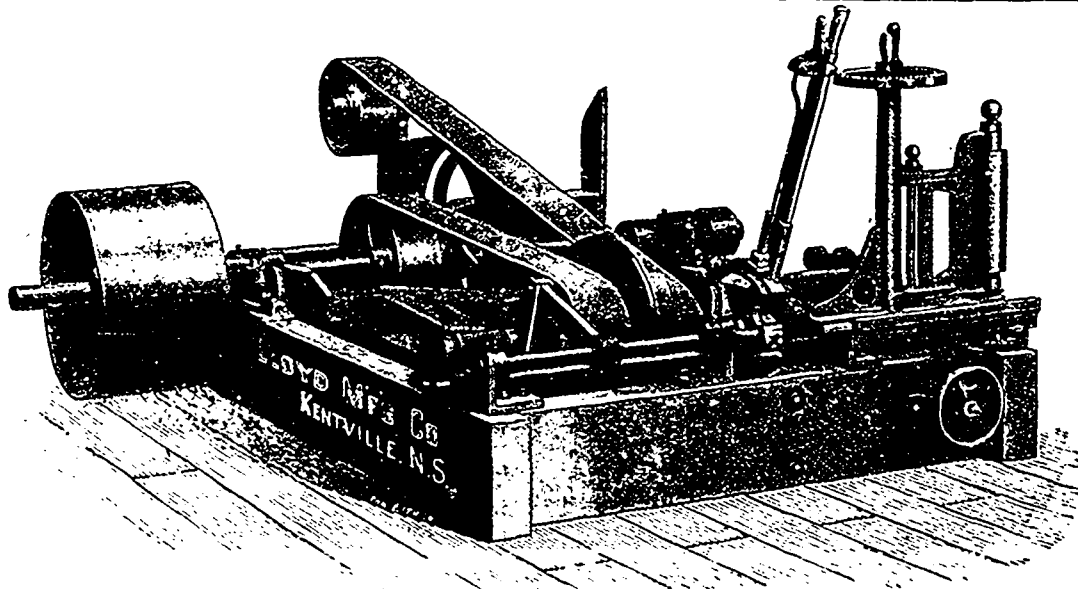
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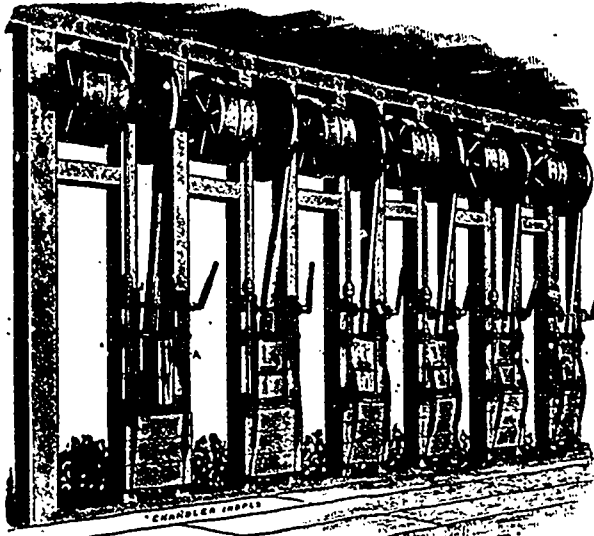
are also the small trees which are cut down merely for making roads and providing places for piling logs. But little use is made of seamy or crooked trees, those otherwise defective. Black spruce, even when of right size for saw logs, is nearly always left aside because it is almost impossible to saw it into deals of the thickness or to make merchantable lumber of it. The pulp industry makes use of all this wood rejected by the saw mills and thereby increases by at least 20 per cent. the productive value of our pulp forests. In the province several manufacturers doing business on a large scale are beginning to understand the advantages offered by the pulp industry in this respect, and are erecting pulp mills in connection with their saw mills for the purpose of utilizing the refuse stuff which has hitherto been lost. Some saw mills on the St. Maurice a system has been adopted which also possesses great advantages. Even in the case of saw logs only two or three choice deals are taken out for making board to square the logs. The thick slabs are discarded and converted into pulp wood, which is worth more than the inferior quality boards that were formerly used in preparing the logs for sawing into deals. By this system they get only first quality deals and avoid the accumulation of boards of inferior quality which would be a market and affect the price of good lumber. In all the seamy and broken logs are turned into pulp wood as they come from the boom instead of allowing them to be wasted as was formerly done. This system were adopted everywhere the pulp industry would be supplied with raw material in a great measure from the refuse of the saw mills, and 20 per cent. would be added to the productive value of our forests without hastening their exhaustion. It is therefore reasonable to say that the pulp industry does not constitute a danger for our forests, and that, on the contrary, it is calculated to add greatly to their value.

WHEREIN THE DANGER LIES. The apprehensions that have arisen in connection with the pulp industry are due to the confusing of the cutting of wood for our own mills with the cutting of pulp wood for exportation to the United States. The owners of Canadian mills get nearly all their timber

from limits belonging to them. They are interested in preserving their forests to keep up the value of the capital invested in their mills. Take, for instance, those of the Laurentide Pulp Company, which cost from \$1,500,000 to \$2,000,000 and require yearly a supply of some twenty million feet of lumber. What would the two million dollars represented by its mills, machinery, and plant be worth if the lumber were to fail? The management of this company are so alive to the danger that they have adopted a complete system with regard to cutting timber which assures its supply and maintenance. They carefully watch over the protection of their forest, and their only fear is that, under the pretext of colonization, their domain may be so encroached upon as to render it unable to supply all the lumber needed for its mills. The same applies to all the large companies having mills in this country, but

is otherwise in the case of pulp wood cut for exportation to the United States. The raising of the duty on pulp wood cut for exportation on Crown lands has brought in a host of merchants who buy timber cut on patented lands or lots belonging to individuals which are not subject to the regulations of the provincial government respecting the cutting of timber. As prices are comparatively high and purchasers take timber as small as three inches diameter, the forests are razed and not even the young trees are left for producing seed and the reproduction of the forest. This is really a devastation worse than the ravages of fire. The danger lies in this, and it is all the greater that the quantity of pulp wood cut for export is much greater than that cut for the Canadian mills. Unfortunately, the provincial government have no way of

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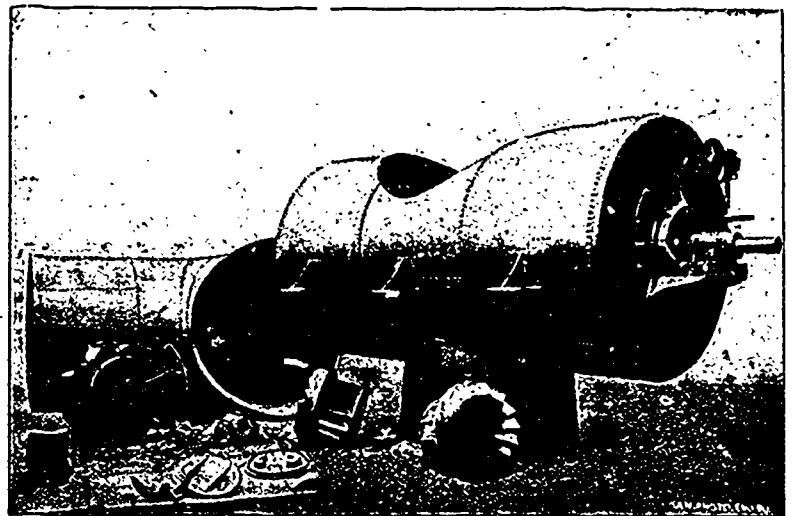
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controlling this cause of the ruin of our spruce forests. The only remedy would be to have an export duty imposed by the federal authorities. The wise measures taken by the provincial government will have but slight results until completed by imposition of an export duty which also affect the timber cut on lots under patent. The present state of affairs is conducive to fraud and is a source of trouble for the provincial governments. To evade the stumpage duties, lots are taken under the pretext of colonization, and all means are resorted to in order to get the patents for them so as to free the timber from the duties imposed by the provincial authorities.

Therein lies the great danger as regards the pulp industry.

PULP NOTES.

The pulp mill of the Canada Paper Company at Riviere du Loup, Que., was destroyed by fire last month.

The pulp mill to be built by a syndicate on the Knight property at Musquash, N.B., will be a sulphite mill of 60 tons capacity per day. Chas. F. Burrill, of Weymouth, N.S., is one of the promoters.

QUEBEC WOODS AND FORESTS.

From the annual report of the Commissioner of Lands, Forests and Fisheries for Quebec, it is learned that during the twelve months ended June 30th, 1900, the receipts from woods and forests were \$1,112,589.52. The territory under license, 51,194 square miles, realized \$170,508.71 for ground rent and annual charges, and \$942,020.81 for timber dues and bonuses on current year's sale, transfer bonuses, trespass penalties and interest. The total receipts as given above do not include the proceeds of the sales of May 30th and June 26th, 1900, at which 4,903 square miles realized the sum of \$394,604.11, representing an average per square mile of \$80.50.

The Commissioner draws attention to the large purchases of timber lands that have been made by pulp companies, and expresses his belief that in a short time the major portion of the area purchased will be operated upon.

It is pointed out that many incipient fires quenched in consequence of the well directed efforts, and the activity displayed by the staff fire rangers. The service, up to the present organized in the Ottawa and St. Maurice districts should, in the opinion of the Commissioner, be extended to all other agencies in the province.

The following statement is given of timber on Crown lands during the year:

Pine logs, at \$130 per thousand	223,696,254
Small pine logs, at 80 cents	67,036,677
Spruce, at 65 cents per M	308,914,079
Boom timber	48,139
White and red pine	419,331
Cedar	233,300
Cord wood	3,519
Birch timber	222,431
Ties	388,176
Pickets	4,813
Pulp wood	6,938
Posts	2,177
Rails	8,111
Shingles	13,067
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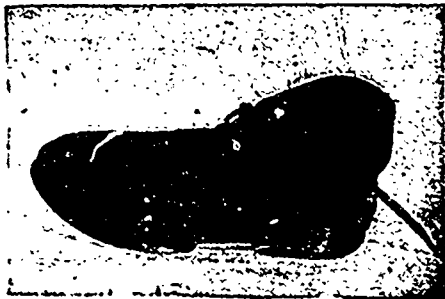
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APRIL, 1901

The importations of mechanical pulp into France last year amounted to 78,483 tons, as against 87,068 tons in 1899 and 92,577 tons in 1898. The import of chemical pulp shows a substantial increase last year, being 56,161 tons, as compared with 46,424 tons in 1899, and 40,479 tons in 1898.

A bill has been presented in the Quebec Legislature to incorporate the Methabetchouan Pulp Company, which is to form a part of the Consolidated Pulp & Paper Company, of Toronto. This latter company will control the pulp and paper mills at Newburg and Napanee, Ont.,

and the Methabetchouan mills at Lake St. John and Indian Lorette, near Quebec, about to be erected. The Lorette mills will be built on the old Reed property and will consist of two mills of 30 tons and 40 tons respectively.

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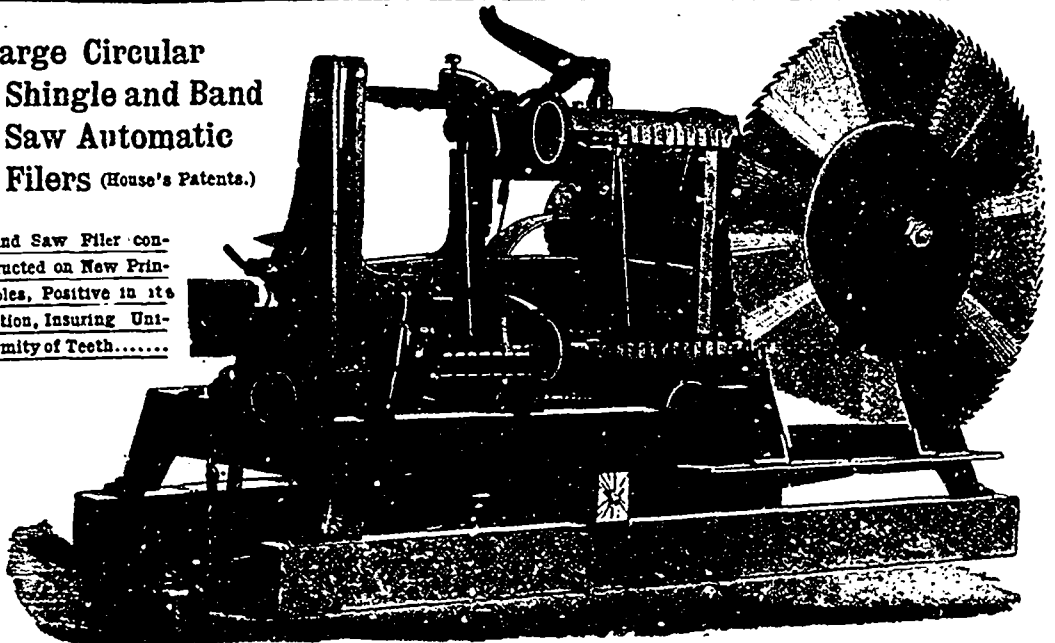
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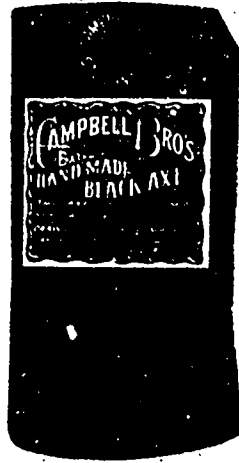
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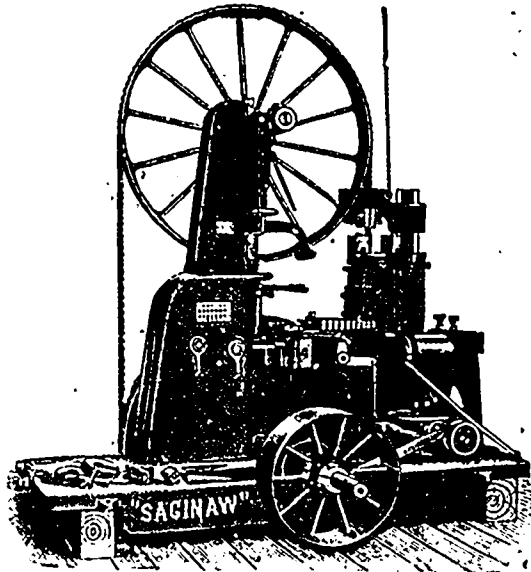
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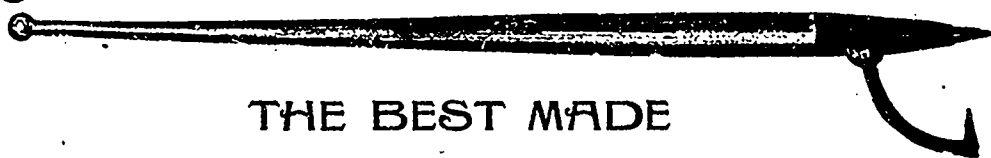
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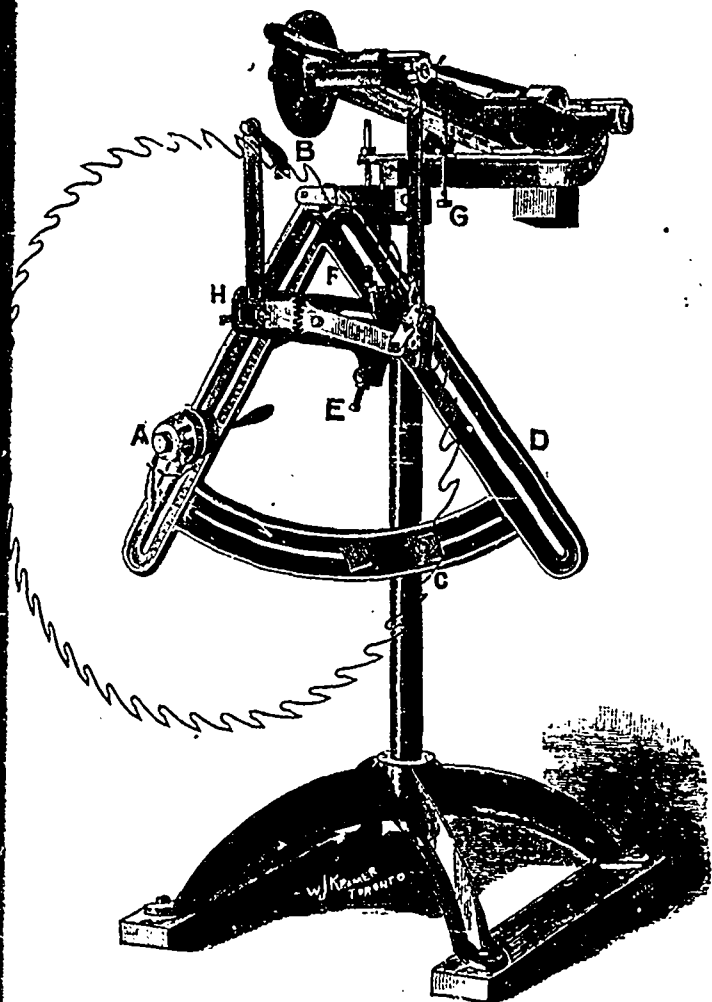
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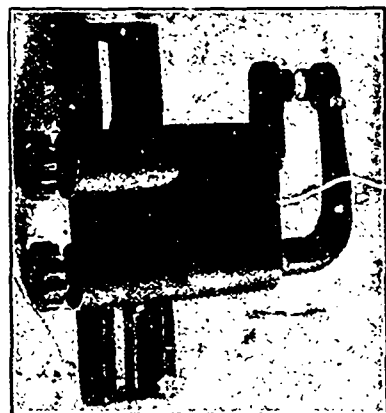
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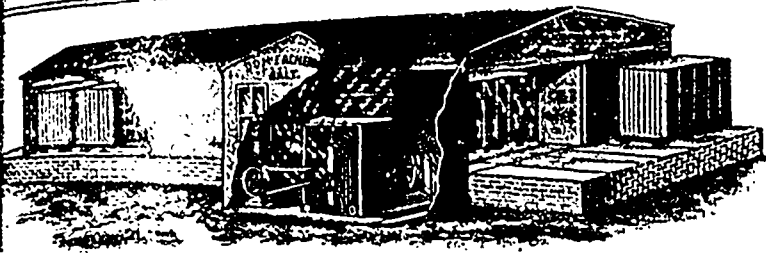
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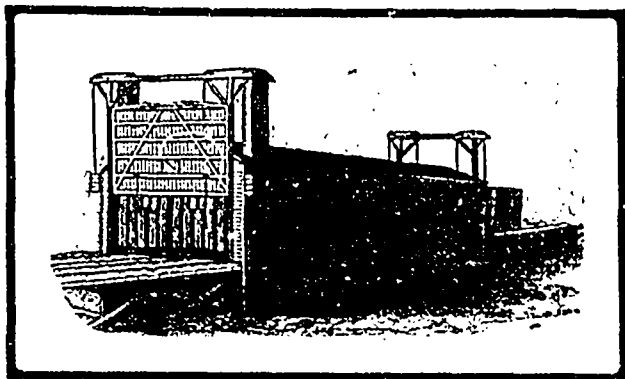
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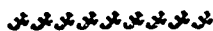
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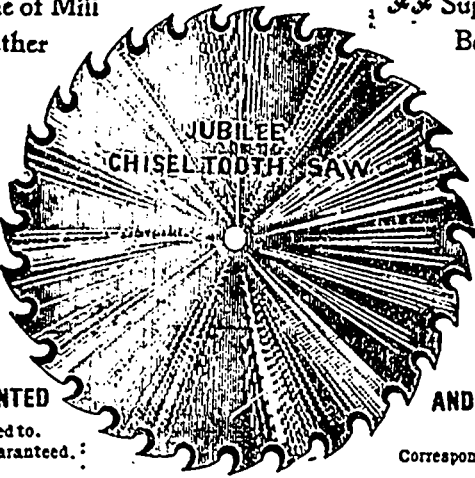
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