Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- [x] Coloured covers/ Couverture de couleur
- [ ] Covers damaged/ Couverture endommagée
- [ ] Covers restored and/or laminated/ Couverture restaurée et/ou pelliculée
- [ ] Cover title missing/ Le titre de couverture manque
- [ ] Coloured maps/ Cartes géographiques en couleur
- [ ] Coloured ink (i.e. other than blue or black)/ Encre de couleur (i.e. autre que bleue ou noire)
- [ ] Coloured plates and/or illustrations/ Planches et/ou illustrations en couleur
- [x] Bound with other material/ Relié avec d'autres documents
- [x] Tight binding may cause shadows or distortion along interior margin/ La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure
- [ ] Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/ Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

- [ ] Coloured pages/ Pages de couleur
- [ ] Pages damaged/ Pages endommagées
- [ ] Pages restored and/or laminated/ Pages restaurées et/ou pelliculées
- [x] Pages discoloured, stained or foxed/ Pages décolorées, tachetées ou piquées
- [ ] Pages detached/ Pages détachées
- [x] Showthrough/ Transparence
- [x] Quality of print varies/ Qualité inégale de l'impression
- [ ] Continuous pagination/ Pagination continue
- [ ] Includes index(es)/ Comprend un (des) index

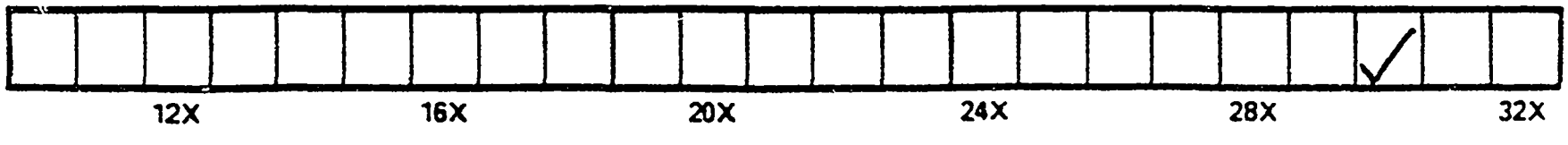
Title on header taken from:/ Le titre de l'en-tête provient:

- [ ] Title page of issue/ Page de titre de la livraison
- [ ] Caption of issue/ Titre de départ de la livraison
- [ ] Masthead/ Générique (périodiques) de la livraison

- [x] Additional comments:/ Commentaires supplémentaires: Some pages are cut off.

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X 12X 14X 16X 18X 20X 22X 24X 26X 28X 30X 32X



THE CANADA LUMBERMAN

Wood-Workers', Manufacturers' and Millers' Gazette

Volume XXII Number 8. | TORONTO, CANADA, AUGUST, 1902 | Terms, $1.00 Per Year Single Copies, 10 Cents

R. H. SMITH CO., LIMITED

St. Catharines, Ont.

We are the Sole Manufacturers of Saws under the **Simond's Process** in the Dominion of Canada.

There is no process its equal for tempering circular saws. Other makers recognize the fact, as some of them, in order to sell their goods, claim to have the same process. All such Claims are FALSE, as the patentee in the U. S. and ourselves are the only firms in the world who use it.

MILL STREAM, QUE., on I. C. R'y, December 17th, 1894.

R. H. SMITH CO., LTD., St. Catharines, Ont.

DEAR SIRS,—Driving a 20 in. 13 gauge saw into frozen hardwood, using a 9 in. 4-ply belt, if it can be done satisfactorily, is a very severe test. Your saws have stood that test better than any I have tried. I have been experimenting with different makes—both home and imported—during the last five years, and give yours the preference. Last order is just to hand and will report on them by and bye.

Yours very truly, JAMES McKINLAY.

CAMPBELLTON, N.B., Nov. 17th, 1894.

R. H. SMITH CO., LTD., St. Catharines, Ont.

DEAR SIRS,—In regard to your Shingle Saws, you can say that I have been using Shingle Saws of your make (Simonds) for the past four years, and they have given good satisfaction. I am running nine machines and use a good many saws, but have never had a saw yet that did not work satisfactorily. Before using your saws I used saws of American make, which worked well but after giving your saw a trial have continued to use yours, as theyare cheaper, and in regard to working qualities are all that is needed.

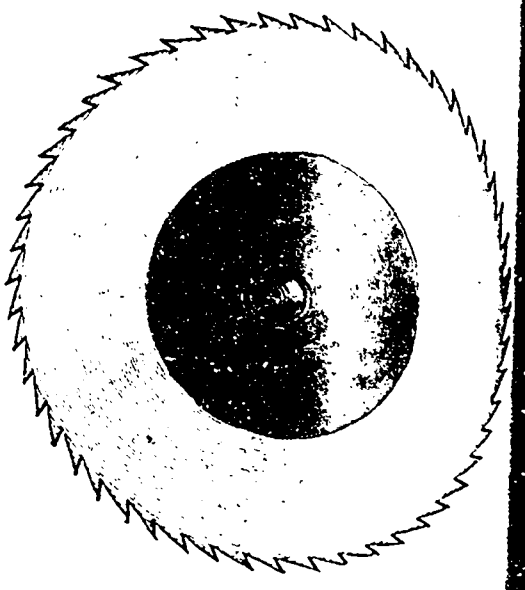
Yours truly, KILGOUR SHIVES.

CLAVERING, ONT., May 3rd, 1897.

R. H. SMITH CO., LTD., St. Catharines, Ont.

GENTS,—In reply to your letter asking me how I liked the 62" SIMONDS Saw, I must say in all my experience I never had a saw stand up to its work like the one purchased from you last month. Having used saws for the last 22 years, and tried different makes, I can fully say it is the best saw I have ever had in my mill, and would recommend the SIMONDS' Process Saws to all mill men in need of circular saws. Yours truly, W. G. SIMMIE.

P.S.—I am sending you my old saw to be repaired; please hammer to same speed as new one. W.G.S.



THE "LEADER" CROSS-CUT SAW

These Saws are made from the best DOUBLE REFINED SILVER STEEL, warranted four gauges thinner on back than front, and the only Saws on the market that are a perfect taper from the points of the teeth to the back, and require less Set than any other Cross-Cut Saw.

They are tempered by the Simonds' Patert Process, insuring a perfectly uniform temper throughout the plate, and stand without a rival as the BEST, FASTEST AND EASIEST-CUTTING SAW KNOWN. A gauge to regulate the clearing teeth is furnished with each saw.

Directions for Setting and Filing are plainly Etched on every Saw. None genuine without our Registered Trade Mark as shown in cut.

THE "LEADER" SAW SWAGE

Made in 3 Sizes—$2.00, $2.50, $3.00, etc.

OUR PRICES ARE RIGHT. KINDLY ALLOW US TO QUOTE YOU BEFORE PURCHASING.

R. H. SMITH CO., Limited, St. Catharines, Ont.

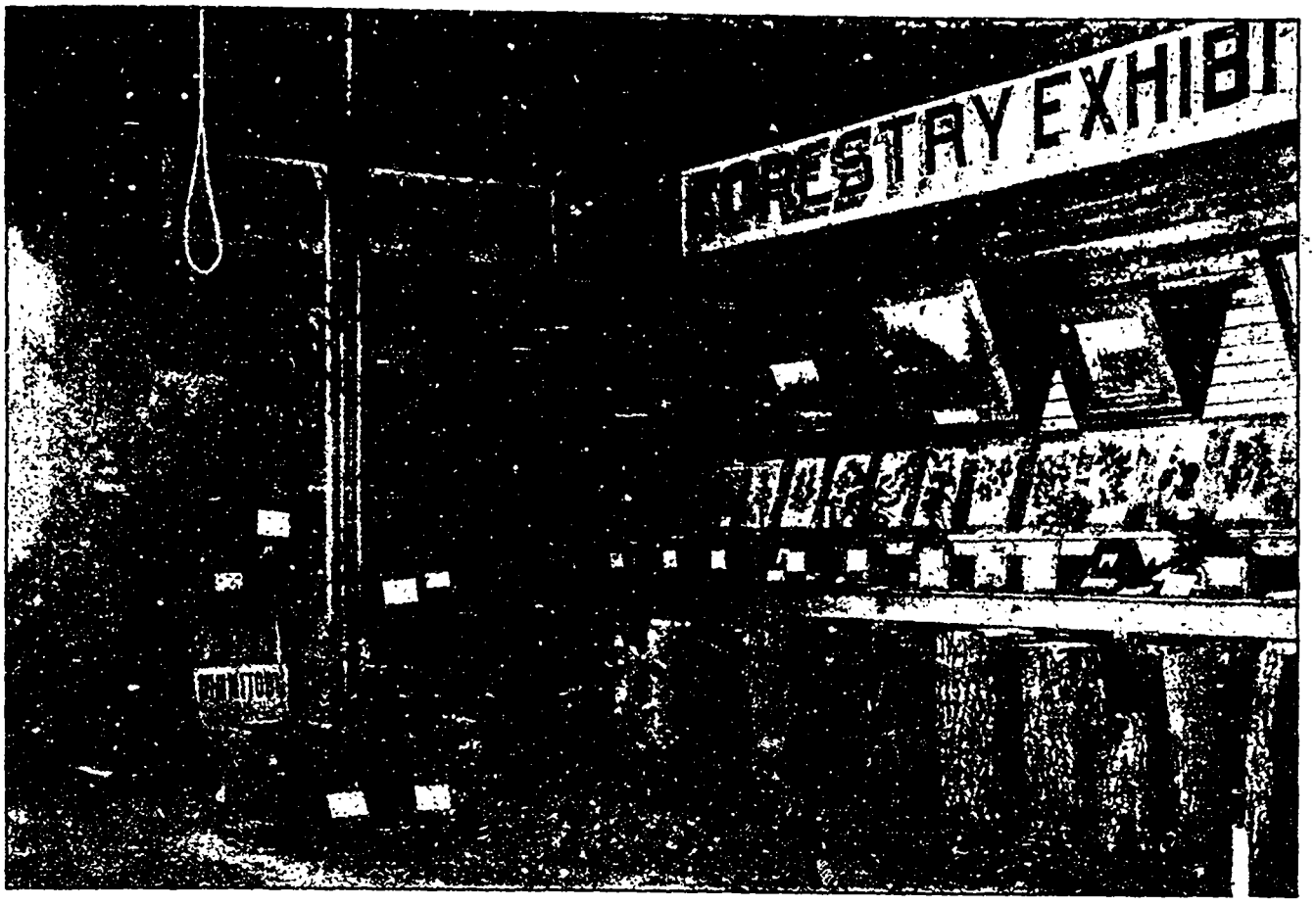
THE CANADA LUMBERMAN

VOLUME XXII. NUMBER 8 | TORONTO, CANADA, AUGUST, 1902 | TERMS, $1.00 PER YEAR Single Copies, 10 Cents

FORESTRY EXHIBIT AT THE MANITOBA FAIRS.

Last year a forestry exhibit was made at the summer fairs in Winnipeg and Brandon, Man. The exhibit was in charge of Mr. Norman M. Ross, Assistant Superintendent of Forestry, who, in his report to the Department of Interior, thus refers to the work :

"Towards the end of June I received instructions to get up an exhibit to be shown at the summer fairs in Brandon and Winnipeg held at the end of July and beginning of August. Owing to the short time given for the preparation of the exhibit the collecting of native woods was necessarily done hurriedly, and only average specimens were obtained. Some varieties we had not time to procure at all. The wood being green, it was not possible to finish it off at all to show the grain. The exhibit consisted of sections of as many of the native woods as we could collect in the time, and alongside of these were shown sections of the same and other introduced varieties grown under cultivation, affording a good comparison as to the rates of growth under natural and artificial conditions. The varieties of native woods shown were: Elm, scrub oak, basswood, white spruce, iron wood, green ash, birch (white), native white poplar, Manitoba maple, balm of gilead, and western black willow. Most of these were cut near Nelson, in southern Manitoba, and a few in the Turtle Mountains. The spruce came from the Riding Mountains. Seedlings, one, two and three years old, of the varieties of trees best suited for planting in this country were shown growing in boxes. Seed and cones were put up in glass jars, and the leaves of the principal trees were pressed and mounted on sheets."



DOMINION FORESTRY EXHIBIT AT THE MANITOBA FAIRS.

ELECTRICITY AS RELATED TO THE LUMBER INTERESTS.

The attention of lumbermen, as indeed of every mill man, has been directed at times in recent years to the advantages of the electric drive over the various forms of mechanical drive. Up to the present time, however, only a few lumber mills have adopted the electric drive. I believe the next year will witness a marked increase in the electrical H. P. used in the driving of lumber mills. I believe the history of the electrically driven cotton mills will be repeated as the electrically driven lumber mill. The first textile establishments using electrical transmission were in Connecticut and Massachusetts, but to the southern manufacturer is due the honor of first adopting the system which is now in most general use. The operation of the large cotton mills at Columbia, S. C., by a large number of small electric motors was so successful and satisfactory that many large mills soon followed their lead, using both steam and water power for the generation of the electric current. In June, 1899, the total electric power used in the driving of textile establishments was 13,000 H. P. One year from that time this amount was increased to 30,000 H. P., with more rapid growth since. On the surface of these facts is an unanswerable argument : If textile manufacturers have found it to their interest to use electrical transmission, even when the electrical energy had to be generated by steam, how much greater benefit should accrue to the lumber mill when the power is more widely scattered; the convenient and cheap handling of the product is one of the most important items, and when a tramway or cableway may be operated by electric power if desired. I believe portable motors can even be taken into the forest and used for felling the trees.

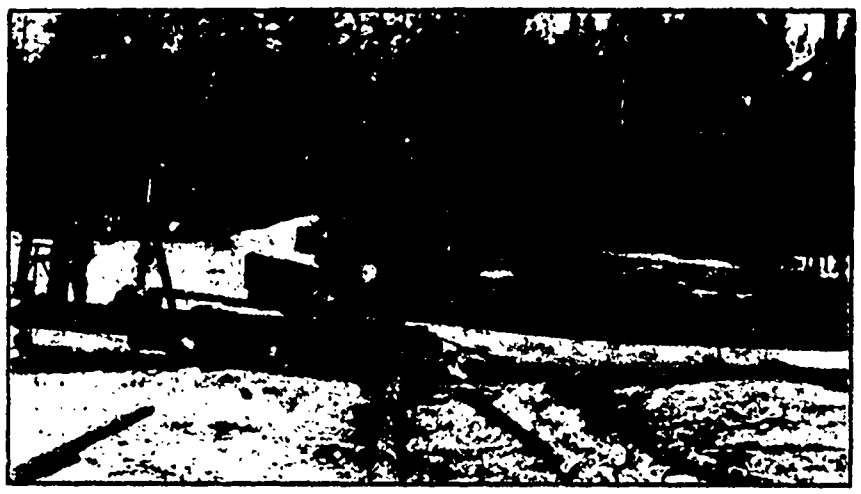
If I were allowed a lengthy discussion I would be glad to point out to you in detail the advantages of the electric drive. Dr. Bell, in his book on "Electric Power Transmission," gives the following comparison of the efficiencies of the various methods of transmission of power:

System.	Per cent. Efficiency. Full Load.	Half Load.
Wire Rope	68	46
Hydraulic high pressure	53	45
Hydraulic low pressure	50	50
Pneumatic	60	40
Pneumatic re-heated (virtual efficiency)	65	51
Electric	73	65

LOG HAULING MACHINES.

The lumbering operations of Lawrence, Newhall & Page are conducted near Eustis, Maine. Last winter they emp'oyed two machines for the hauling of logs which are said to have accomplished good results. The inventor of the machine, shown in the accompanying engraving, is Mr. A. O. Lombard, of Waterville, Maine, who has designed several pulp wood machines. The builder and mechanical engineer was Mr. Samuel W. Lombard, brother of the inventor.

The first machine built was the steam machine, which was used in the winter of 1900 and transported logs over a distance of about 25 miles at an average of four miles an hour. This machine is constructed of very heavy ma terial. It is fitted with a 25 horse power reversible engine. The drivers are endless lagg beds supported by roller bearings, and the frame of the bed is so pivoted that it adjusts itself to all cradle knolls. The machine weighs fourteen tons. The cog gear of the machine is so constructed that no matter what the position of the machine, the gear is always in place. In operating this machine the waggon sleds



HAULING LOGS IN THE MAINE WOODS.

are loaded just as though they were to be drawn by horses.

During the summer of 1901 Mr. Lombard invented a second machine, to be operated by electricity rather than steam. The frame of this machine, built like that of a common flat car, is 20 feet long and 6 feet wide. It is fitted with two 25 horse power Westinghouse controllers, and so geared that when the motors are running at normal speed the machine travels at about four miles an hour. This machine is fitted with a rocker pivotted over the axle of the machine so that one end of the load may be placed on the machine and the other end on a common wagon sled; and as many more sleds be atfached to the load as the machine will haul.

The trolley system employed consists of two trolley wires strung about eighteen inches apart at the side of the road supported by braces to the poles, and upon these run a miniature trolley car which makes the necessary circuit. The power house is located on Alder stream, the fall being ten feet. It is equipped with a 17 inch Leffel water wheel furnishing 110 horse power. Belted direct to this is an Edison generator. There is a reserve steam plant of 20 horse power which can be attached to the generator when the water is low.

The electric machine was given several trials during the past winter and was found fairly successful. With some minor alterations which will be made this summer the inventor expects to have a machine which will produce wonderful results when it is put into the woods next winter.

THE WHITE SPRUCE.

The Spruce has been an important timber tree in New Brunswick and Nova Scotia ever since the disappearance of the pine, but farther west the latter has overshadowed it up to the present, and it is only in recent years, with the great expansion of the pulp and paper industry, that it has begun to be realized what a great part the spruce is destined to play in the future history of Canada. The pulp-wood forests in Eastern Canada have been estimated as covering an area forty-four times that of England, or, by another calculation, an area of 219,259,958 acres, while in northern British Columbia there is stated to be a forest of spruce the immensity of which cannot be conceived of by any person who has not seen it. There is in the Dominion a supply in abuudance to meet the needs of the world, and it becomes our citizens, as thinking men and Canadians, to take due care that this great source of comfort and prosperity, which we can destroy in a day but cannot re-create in a century, be managed with skill and wisdom, so that not only shall the present need be supplied but the Canada of the future shall enter into an inheritance that shall stand as a monument to the wisdom and foresight of a generation that had sufficient power of imagination to have a vision of what the coming years might be, and strength enough to ensure that it should become a reality.

The spruces and other firs are differentiated from the pines by having their much shorter leaves arranged singly along the branches instead of two or more in a sheath, and the spruces have the additional distinguishing feature that the leaves are terete or four-sided. The White Spruce (Picea alba or Abies alba) attains a height of 100 feet and is a beautiful tree when growing in the open, its straight branches spreading in rows from the trunk and decreasing in extent from the bottom upward so as to give a pyramidal form to the whole. The foliage is light in color, sometimes approaching to a glaucous white. The branchlets are glabious, that is smooth or devoid of hairs, and this is, one of the chief distinctions between this and the Black Spruce. The cones are one to two inches in length, longer and slenderer than those of the Black Spruce, and drop from the branches. They are green at first, later changing to a brown or straw color, and the edges of the scales are entire. An examination of the cone is considered necessary to finally determine the species. The leaves, when crushed, have a peculiar feline odor, and for this reason it is not advisable to use this species in the manufacture of spruce beer.

The range of the White Spruce is from Nova Scotia westward to the Rocky Mountains and north indefinitely, it being yet undecided whether this or the Black Spruce has the more northern habitat. The White Spruce shows a preference for the higher and drier situations. It reaches tree-like proportions in about thirty years and is mature in one hundred, but in the Atlantic Provinces the rate may be more rapid. This is the timber tree among the Canadian spruces, and produces a white, clear, easily-worked lumber, a large part of which is exported to Great Britain.

The process by which this tree is turned into pulp and the qualities possessed by it which make it suitable for this purpose form a subject of much interest. The woody parts of the tree are largely built up of cellular tissue, or woody fibre. A fibre of good length and toughness ensures a strong paper, and a clean, white wood is a requisite for the production of a properly colored pulp. These qualities are found pre-eminently in the wood of the spruce tree. There are, however, other substances, such as resin, etc., in the tree structure, and the object of the manufacturer is to separate the wood fibre from the incrusting substances. The most simple method adopted is that for the production of mechanical pulp, which simply consists of breaking up the wood by pressure against a grindstone under a stream of water. This is a comparatively cheap process, but it results in the breaking up of the fibre and does not remove the impurities to any extent.

The chemical process, that which results in the production of what is called "cellulose" to distinguish it from mechanical pulp, is much more intricate and expensive, involving an additional output for boilers, chemicals, etc. The two main chemical agents used are sulphite and caustic soda, and the resultant products are designated as sulphite pulp and soda pulp. The wood is barked, cleaned of knots and imperfections, and after being cut into chips by a strong revolving knife, is placed in the boiler. By the assistance of heat and the pressure developed in consequence the sulphite is driven into the pores of the wood, dissolving the resin, and leaving finally the clear white pulp of wood fibre which is drawn off, washed and prepared for shipment by rolling and drying.—Rod and Gun.

Any kind of an advertisement may be better than none at all—but a good one is many thousand times better and costs little more.—The Advisor.

AN IDEAL FILING ROOM.

I want to say something about filing rooms and equipments which may be of value to a few of the many filers, foremen and others interested in this line. Where a shop, factory or mill is doing enough business to require the services of a filer day after day, year in and year out, much of his success depends on the size of the filing room and the quantity and quality of his equipment.

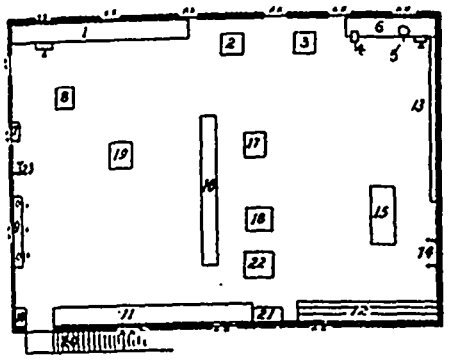
There are many filing rooms whose equipment is far from being complete. Planer knives have to be sent out to be ground; saws have to be sent away to be sheared, retoothed, brazed, etc.; when boxes need babbitting, ladles must be borrowed and the metal heated in the fire room, and many other little jobs have to be done outside, which could be done at home, if the proper equipment were at hand, thereby saving many a dollar and lots of time to the employer.

Many filing rooms are not properly lighted, either naturally or artificially, which is another handicap. I know of one filer, who, when filing a large band saw, is obliged to stand in his own light, and when it gets dark he has to stop work for want of light.

Some filing rooms are laid out with a view to saving space for other work, and the result is a small, crowded corner, poor light and plenty of jar and vibration, caused by the line of shafting, put through from the mill, with which to run the grinders, etc. I have worked in just such places and know how to appreciate a good thing when I get it, and am happy to say I have a filing room now which I think a model for anybody to copy. I take pride in keeping it in good condition, having everything handy and convenient, a place for everything and everything in its place. I herewith give a detailed description of my filing room and its equipment, feeling certain it will serve the majority of purposes.

Room is 30 feet wide and 29 feet deep, with height of 14 to 18 feet. There are six large windows on the front and three on the side, besides some on the back that give an indirect light. In the front and left corner is the bench on which is the band resaw sharpener. This bench has a large drawer for tools, etc. Next is the automatic planer knife grinder, and next to that is the circular saw sharpener for circular rip saws.

In the front and right corner is a bench 7 feet long and 2 feet 6 inches wide. On this is a vise and circular saw filing clamp, also a saw set. On the left end I have brazing clamps, gas jet, glue pot, wire belt lacing machine and a clothes closet. On the right end is a rack for all the circular saws, matcher knives, collars, etc., and pegs for unused band saws. On the right rear and center is an 8-horse power engine, and in the



PLAN OF FILING ROOM.

1—Band resaw grinder. 2—Automatic knife grinder. 3—Circular saw grinder. 4—Vise. 5—Filing clamps. 6—Bench. 7—Closet for clothes. 8—Belt lacing machine. 9—Brazing clamps. 10—Supply closet. 11—Work bench. 12—Belt shelves. 13—Circular saw rack. 14—Band saw pegs. 15—Engine, 8 h p. 16—Band saw stretcher. 17—Radiator. 18—Forge. 19—Lap grinder. 20—Stairway. 21—Bench. 22—Trap door. 23—Gas jet and glue pot. X—Drawers. XX—Windows.

center of the room is the portable forge, radiator and saw stretcher. On the left end and center is the lap grinder and retoother.

In the back and left corner is a locker for supplies, such as belting, fasteners, rivets, glue, babbit, wire lace coil, rawhide, etc. Next is the main work bench, 10 feet long and 2 feet 3 inches wide, on which I repair belts; back of this is the stairway. There is a small bench for odd ends of belting, etc., and two long shelves on which I keep made-up belts, old belting, arbors, chain belts, pegs, rope, etc.

There is a large trap door in the floor, for various purposes, and a large stepladder and ordinary 15-foot spurred ladder come very handy. I also keep on hand several sets of belt clamps and rods, and several wide boards of various lengths, used in cementing large belts. Seven 16-candle incandescent lights, placed judiciously, give fairly good light, and with a 40-foot and 18-foot extension string light, there is no excuse for working in the dark.

Every tool necessary for a first-class filing room is contained in this room. During hot weather there is a small blower, which can be connected and which sends a cool breeze across the room. There is also an electric bell, used for signals between the foreman's office and the filing room.

I think I have given a pretty fair description of an ideal filing room. I wish every filer had as good a one to work in, for it makes work systematic and easy.—"Judd," in Wood-Worker.

CUTTING BELT HOLES IN FLOORS.

BY "A. B. C."

To those who have occasion to belt machinery through floors, a few remarks on the subject may not come amiss. Of course, most machine operators and mechanics have methods of their own for doing these things, but I have seen men go at such jobs in such a hap-hazard way that a sort of "Oh, that's good enough" job is apt to be the result. There is a right way to do everything, and the right way is always the cheapest in the end. Belt holes are often cut through floors as much by guess as anything else, and when you get through and find you are not in line, then the hole has to be made twice or three times as large as is necessary before a belt will run through it. The result is an unsightly job that will always be an eyesore to the one that did it.

The first item of importance is placing the machine to be belted. As a general rule, a machine can not be put in any old place, but must be set in just exactly a certain spot, in order to not conflict with other machines, posts or other obstacles; sometimes it is necessary to have it right in front of a certain window, in order to get light. So first and foremost, place your machine just where you want it, then go below and see that the countershaft and the drive belt are not going to conflict with any other shafting, belting, beams, or anything of the kind. Also see that you are going to have room on the line shaft to put the drive pulley, for where the pulleys are pretty thickly distributed on the line shaft, and where there are hangers and couplings to look out for, you can not always put a pulley where you would like to. These obstacles can generally be overcome by moving the pulleys on the countershaft, or, if necessary, by moving the machine a few inches one way or the other.

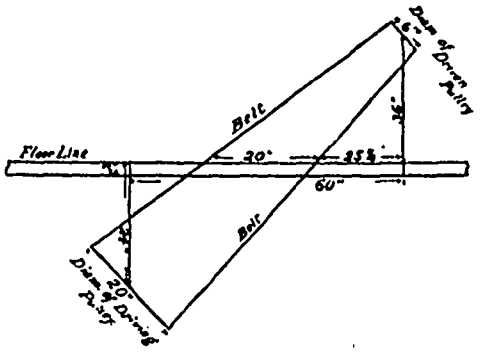
After having seen to these matters, the next step is to line the machine with the line shaft. In order to do this, a line should be drawn on the floor directly over the line shaft. This may be done by squaring from the floor to the center of the line shaft, boring a couple of ¼-inch holes up through the floor at each end of the shaft, drawing a tight chalk line from one to the other, then plumb from one end of the cylinder or arbor on the machine, to the floor, and move the machine till the other end of the cylinder plumbs to the floor the same distance from the chalk line that the first end did. When this is right, the machine may be bolted down.

It is not advisable to put the countershaft directly under the machine, as this gives such a short belt that if the machine is a planer or other machine requiring a good deal of belt power, it is necessary to run the belts very tight, which is hard on the belts and hard on the bearings. It is better, therefore, to put the counter a few feet one way or the other from directly under the cylinder, and it should be toward the feeding-in end of the machine if possible, so the belts will draw from under side of pulleys; and it should be as far in that direction as possible without having it where the belts will be in the way as they come up through the floor.

The counter may be put in proper position by plumbing from the center of end of cylinder to the floor, and boring a ¼-inch hole through the floor, then measuring back 4, 6 or 8 feet, as the case may be, and put up the counter so the edge of the driving pulley on the counter will come directly in line with the hole through the floor, providing the driven pulley on the cylinder above is flush with the end of cylinder, as is generally the case. Then line the counter with the line shaft by means of a long rod or a steel tape, if you have one, so that both ends of counter will be just the same distance from center of line shaft.

Next come the holes through the floor. You have already plumbed from center of cylinder to floor and bored a small hole through. You also have the distance from cylinder to counter, which we will say is 60 inches along the floor. Now get the distance from center of cylinder to floor, which we will say is 36 inches, also the distance from center of counter to floor, which we will call 24 inches.

Next select a clean spot on the floor and draw a line 6 to 7 feet long, with a straightedge. This will be top of floor line. Draw another line parallel to it, 2 inches



PLAN FOR CUTTING BELT HOLES.

below, if the floor is 2 inches thick. Now at the right-hand end of floor line, square up 36 inches, which will be center of cylinder. Then measure back along floor line 60 inches, and from this point square down through floor lines 26 inches, which will give center of counter.

We will say the diameter of driving pulleys on counter is 20 inches and the diameter of driven pulley on cylinder is 6 inches. Draw a line the diameter of driven pulley across the end of 36-inch line at an angle of 45 degrees with floor line, also a line 20 inches (the diameter of driving pulley) across the end of 24-inch line, at the same angle, so that the two pulley diameters will be parallel with each other. Then with a straightedge draw the belt lines from outside to outside of pulley diameters. Where these belt lines intersect the floor line will be the center of belt holes; or, in other words, by measuring back along the floor, the center of the first belt hole will be found to be 25½ inches from line of cylinder, and the center of second belt hole 20 inches from the first one.

It takes but half as long to lay out this outline on the floor as it has taken to explain it, and when it is done there will be no mistake about location of belt holes.—The Wood-Worker.

THE COMMERCIAL RECORD.

In the report of failures in Canada and the United States, compiled by Bradstreet's, the present year compares favorably with 1901, which was regarded as a favorable year. Comparisons for either the past month, the quarter or the half year show a marked improvement. The record for June is the best, with one exception, during the past nine years, and the same is true of the record for the past three months. The number of failures for the half year closing with June exceeded the record for the corresponding half year in 1899 and also in 1900, but with these two exceptions it is the best record made since 1888.

Canadian failures for the past half year number 603, with liabilities $5,113,404, and assets $2,247,210, a decrease, as compared with the previous year, of 15 per cent. in the number of failures, and 20 per cent. in the aggregate liabilities. Ontario had 230 failures as compared with 251 for the corresponding six months of 1901; $1,782,123 liabilities, as compared with $2,574,436, and $655,631 assets as compared with $1,124,533. The record for Quebec was 224 failures, compared with 251, while the total liabilities were $1,770,990, and total assets $734,500, as compared with $2,312,128 and $847,750, respectively, a year ago. British Columbia's phenomenal growth is shown even in her record of failures, which increased in number from 51 to 53, in total liabilities from $717,550 to $1,073,791, and in total assets from $464,500 to $624,220.

THE Canada Lumberman

MONTHLY AND WEEKLY EDITIONS

PUBLISHED BY

The C.H. Mortimer Publishing Cmpany of Toronto, Limited,

CONFEDERATION LIFE BUILDING, TORONTO.

BRANCH OFFICE:
IMPERIAL BUILDING, MONTREAL.

The LUMBERMAN Weekly Edition is published every Wednesday, and the Monthly Edition on the 1st day of every month.

TERMS OF SUBSCRIPTION:

One Copy, Weekly and Monthly, One Year, in advance . $ 1.00
One Copy, Weekly and Monthly, Six Months, in advance.. .50
Foreign Subscription, $1.00 a Year.

ADVERTISING RATES ON APPLICATION.

THE CANADA LUMBERMAN is published in the interests of the lumber trade and allied industries throughout the Dominion, being the only representative in Canada of this foremost branch of the commerce of this country. It aims at giving full and timely information on all subjects touching these interests, discussing these topics editorially and inviting free discussion by others.

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

Advertisers will receive careful attention and liberal treatment We need not point out that for many the CANADA LUMBERMAN, with its special class of readers, is not only an exceptionally good medium for securing publicity, but is indispensable for those who would bring themselves before the notice of that class. Special attention is directed to "WANTED" and "FOR SALE" advertisements, which will be inserted in a conspicuous position at the uniform price of 15 cents per line for each insertion. Announcements of this character will be subject to a discount of 25 per cent. if ordered for four successive issues or longer.

Subscribers will find the small amount they pay for the CANADA LUMBERMAN quite insignificant as compared with its value to them. There is not an individual in the trade, or specially interested in it, who should not be on our list, thus obtaining the present benefit and aiding and encouraging us to render it even more complete.

THE FIELD OF THE WHOLESALER.

In the United States there are well defined lines indicating the field of the wholesale dealer. This line is occasionally disregarded by unscrupulous persons, but it is generally recognized as representing the rights of the wholesaler. It would be folly to say that this section of the lumber trade could, without detriment, be eliminated from the business.

The wholesale dealer has cultivated new markets for lumber and has assisted in many ways in building up the trade. He has been a necessary medium between manufacturer and consumer, giving valuable advice to both. The National Wholesale Lumber Dealers' Association is perhaps the greatest organization of the kind that exists to-day, representing as it does the leading dealers of the United States.

In this country, unfortunately, the wholesale dealer does not occupy the prestige that has been attained by his confrere across the border. The reason for this is obvious. Owing to the scattered population and the absence of large wholesale lumber centres, the mill man frequently sells direct to the retail dealer and in many instances to the consumer. The business of the wholesale dealer is thus limited. His rights are frequently encroached upon and altogether his lot is not an enviable one.

The time is coming when the wholesale dealer will occupy a more prominent position in the lumber trade of Canada. This country is growing, and as our industries expand and multiply the field of the wholesale dealer will be more clearly defined. Wholesale dealers have purchased more lumber in Canada this year than in any previous season, and mill men are becoming more accustomed to transactions of this kind. There has been some opposition to the work of the wholesaler; this is, to say the least, imprudent. By cutting out the profit of the wholesaler, it may be possible sometimes to give the consumer cheaper lumber, but the ultimate result will show little to be gained thereby. The business of the wholesaler is perfectly legitimate and should be encouraged.

FOREST MANAGEMENT.

The demand for something practical along the line of forest management has in a measure been met by a recent bulletin issued by the Bureau of Forestry of the United States. It is entitled "A Working Plan for Forest Lands near Pine Bluff, Arkansas," and although particularly appliable to yellow pine timber, contains much of general interest.

The Bureau of Forestry was commissioned by the Sawyer & Austin Lumber Company to present a scheme of management for a forest tract comprising 105,000 acres, and to determine whether this tract would be sufficient to furnish a sustained yield equal to the capacity of their mill, which is 40,000,000 feet annually. Thus the results may be said to be a business policy recommended after an expert investigation.

It is shown that placing the cutting limit at 12 inches diameter, an area of 276,906 acres would be required for a sustained annual yield of 40,000,000 feet, and the time required before a second cut equal to the first could be obtained would be 42 years. Cutting to the advised diameter limit of 12 inches breasthigh, or about 14 inches on the stump, with stumpage reckoned at $2 per thousand feet, and the value of cut-over land at $1 per acre, the annual average interest represented by the future crop on cut-over lands would be, for a period of forty years, nearly 9 per cent. In other words, after the Sawyer & Austin Lumber Company had lumbered their present tract at the rate of 14,500,000 feet per year, the lands which had been cut over would be producing timber which, at a conservative estimate, would represent an income of 9 per cent. on the capital invested. It is shown that, in order to assure a sustained annual yield equal to the capacity of the mill, the addition of 170,000 acres to the present tract would be necessary.

It is recommended that the cutting limit for pine should be placed at 14 inchs on the stump (12 inches breasthigh), this limit being advisable for the reason that a sustained annual yield equal to the capacity of the mill could be obtained by the addition of a much smaller forest area than that required by a higher diameter limit, and an equal cut could be harvested after the same number of years required in case a higher cutting limit were used.

One of the main points urged is a thorough system of fire protection for the cut-over land. The tops of felled trees are said to be a source of great danger and should be burned as soon as they are dry enough, probably the cheapest and most effective way being to skid them into piles and burn as many together as can conveniently be skidded to one point.

A summary of the rules for lumbering recommended by the Bureau of Forestry include the following: (1) The cutting limit for pine to be 14 inches on the stump. (2) A certain number of pine trees over 14 inches on the stump to be marked and left standing for seed purposes. (3) Hardwoods on pine lands to be cut whenever practicable. (4) All pine 18 inches and over in diameter on the stump to be sawn not higher than 18 inches from the ground, and that below 18 inches diameter on the stump at 12 inches from the ground. (5) Care to be used in the felling to do as little damage as practicable to valuable young growth.

SOUTH AFRICAN TRADE.

WITH the ending of the war in South Africa will come a period of great development in that country and a consequent demand for many lines of manufactured goods. German and Austrian syndicates are said to be forming to exploit the South African market. With cool audacity the continental countries which as far as possible supported the Boer cause and obstructed the British, are now seeking to reap the commercial advantages arising out of the conditions established by Great Britain at an enormous cost in men and money. The United States have been exporting largely to South Africa, and their trade returns for the first half of this year show a substantial increase above the same period of 1901. It seems only fair to her own interests that Great Britain should impose some restrictions in the form of duties on foreign goods entering the South African market, thereby giving a preference to home and colonial industries, which will have to bear a considerable proportion of the expenses of the war, and compelling foreign countries to pay something for the commercial advantages which are the direct result of the long continued and successful struggle conducted by Great Britain. Canadian exporters of manufactured goods should lose no time in establishing trade connections in South Africa, and should be properly represented at the South Africa, British and Colonial Industrial Exhibition to be held in Cape Town from November to February, 1903-4.

EDITORIAL NOTES.

The recent visit to this country of Mr. Horatio A. Massey, of New Zealand, emphasizes the importance of Canada as a timber producing country. Mr. Massey is the owner of large timber areas in New Zealand and desired to learn the extent of our resources in order to assist him in placing a reasonable valuation upon his property. Thus the timber of Canada regulates to some extent the value of timber in New Zealand, and vice versa.

The British Columbia law prohibiting the export of timber from the province has been subjected to bitter attacks, since its enactment, by persons interested in the business of exporting timber to Washington. We are told that the Chief Commissioner of Lands and Works has promised to further investigate the matter and to provide some relief for the loggers. The Loggers' Association is reported to have received legal assurance that the Government cannot grant a special license to loggers to cut timber and then prevent their selling it where

they choose. We fear, however, that in this connection they are being misled. The case is analogous to that which existed in Ontario, and it will be remembered that the decision of the Trial Court so strongly upheld the Legislation of the Government that the licensees decided that it would be fruitless to appeal to the Privy Council, as was originally intended. Doubtless if any action is taken in respect to the British Columbia law, the result will be similar.

The man who finds time to study market conditions and places himself in a position to take advantage as far as possible of the fluctuations as they occur, is usually successful in business. This is especially true of the lumber business. Many persons are familiar with the incident which occurred in Buffalo at the time of the last sharp rise in hardwoods. A dealer had for some time relied upon such trade as came to him unsolicited or without the aid of salesmen; consequently he was not as familiar with the shortage of stock and the favorable conditions for a sharp advance in prices as were his competitors. They, more closely in touch with the market, entered his yard and purchased practically all the hardwood lumber in stock, with the result that within a few weeks they turned it over at a handsome profit. White ash which they purchased for $34 per thousand was sold for $45. The dealer in question profitted by the experience and has since given more attention to studying the prospects for a rise or fall in the market.

RIGHTS OF LUMBERMEN TO CONSTRUCT DAMS.

Following is a judgment delivered by Mr. Justice Street, of Toronto, in an interesting case affecting the rights of lumbermen to construct dams.

Neely v. Peter.—Judgement (R.) in action tried without a jury at Parry Sound. The plaintiff was the owner of land upon the Seguin River, and brought this action against the administratrix and administrators of the estate of William Peter and against the Parry Sound Lumber Company for flooding his land by a certain dam upon that river, which, he alleged, was maintained and used by William Peter in his lifetime, and by the company. At the trial the Parry Sound River Improvement Company were added as defendants, and the statement of claim was amended by adding allegations that they owned the dam and charged toll to the other defendants for using it. The new defendants admitted these allegations, but relied upon the powers conferred upon them by the act under which they are incorporated. The original defendants with their defence brought $142 into court, and said it was sufficient to satisfy the plaintiff's claim, and such payment in was afterwards attributed to the new defendants, as well as the orginal defendents. Held, upon the evidence, that the effect of the dam has been to throw upon plaintiff at certain seasons a larger quantity of water than would naturally be there, and to inflict upon him a certain amount of injury and inconvenience. There is nothing in the timber act, R.S.O., ch. 194, under which the defendants the improvement company are incorporated, which confers upon them any right to flood private property unless they have first taken steps authorized by the act for expropriating the property or settling the compensation for flooding it, and that has not been done here. As regards the other defendants, they cannot be held liable for any damage sustained by plaintiff by reason of their having during any freshets caused damage to plaintiff by using or repairing or maintaining any dam necessary to facilitate the transmission of their timber down the stream. But the improvement company are in a different position. The rights giving to persons desiring to float their own timber down a stream should not be extended to companies incorporated for the purpose of making a profit by improving streams and charging tolls to lumbermen. The improvement company built or acquired a dam below plaintiff's land; there was an opening in the centre of the dam which could be closed with stop logs. When the stop logs were out all that remained of the dam at this point was the "bed timber." The result, at times when there was more water coming down the stream than could escape through the loose framework of the dam, was to back the water to the depth of about three inches on the lowest parts of plaintiff's land. The effect of confining the flow of the water to the opening in the dam after the stop logs had been taken out was to prolong the period of high water upon plaintiff's property. The dam as built was necessary for the purpose of enabling the lumbermen to get their timber down the river, and no unnecessary damage has been inflicted upon plaintiff. As against original defendants, action dismissed with costs. The added defendants are liable to plaintiff for the injury caused by the dam. But the plaintiff has accepted $30.75 in full of his damages to the end of 1898 and his claim must be limited to damage done in 1899 and 1900, this action having been begun in March, 1901. The sum of $142 paid into court was sufficient to cover plaintiff's damage for 1899 and 1900 as well as his increased outlay upon a certain bridge. Judgment for plaintiff for $142 against added defendants without costs. The $142 to be applied pro tanto in payment of the costs awarded against plaintiff.

THE LATE E. D. DAVISON.

The business community of Lunenburg County has been greatly shocked by the sudden death of E. D. Davison, senior member of the lumber firm of E. D. Davison & Sons, Limited, which is a close family corporation, with headquarters at Bridgewater, N.S. Mr. Davison was holding the position of representative of the County of Lunenburg in the House of Assembly and serving his third term as the Mayor of the town of Bridgewater, so besides his extensive interests in the lumber business he was actively engaged in the public service. He was in his 57th year and had spent his lifetime in the lumber business, being particularly engaged in opening the streams and roads and providing timber for the mills. The principal operations were on the branches of the LaHave, Medway and Nictaux Rivers circulating through the 200,000 acres of the firm's timber lands which have been conducted under his direction.

Having always been of a studious, observing character, Mr. Davison had established the reputation as the best authority on forestry and timber values of any man in Western Nova Scotia. Having educated juniors to conduct his lumber operations, he had lately taken a great interest in public affairs in his section of the country, and his advice and counsel were highly esteemed by the public men of the province.

Though he had warnings of failing health during the last year, Mr. Davison's ability to prosecute his work seemed as good as ever, and he was never more closely tied to his various occupations than at the time of his death. He has been universally regretted by the whole community. His surviving children are Mrs. Henry Howell, of Atlanta, Ga., and two boys, Edward and Harold by his second marriage, who inherit his estate subject to several legacies.

The business being a joint stock company, the transfer of shares will be the only change, and as Mr. Davison had arranged to dispense with his personal attention to the business it will likely proceed in the same lines.

Mr. Davison was particularly interested in the construction of the Halifax & South Western Railway now being located in the district, and his influence will be greatly missed in reconciling the various interests along the route of the railway, as there is no one of his influence and experience whose counsel would have the same effect with the Government or the county.

His sudden removal makes it impossible at this time to fully estimate the loss sustained, which will only be learned as the years pass by. His friends fondly hoped he would have been spared to fill a higher place in the councils of the country. His funeral at Bridgewater was attended by very many of his friends from the surrounding country.

FEEDING A BOILER.

The operation of getting water into a steam boiler is so closely interlinked with the operation of heating it, that it is scarcely practical to consider the two separately. It is unnecessary to point out the saving obtainable from heating the feed water; this is amply and strikingly demonstrated by the fact that using live steam to heat the feed water before it enters the boiler is more economical than putting it in cold. But it is frequently perplexing to determine just what method of heating and what means of delivering the feed water will be most economical. The first cost of the apparatus considered enters into the question, of course, as the interest and cost of maintenance form part of the operating expense of the plant, and the class of help obtainable must also be considered, simplicity frequently being preferable to economy.

Speaking generally, it is safe to assert that for all plants of a size too small to justify the installation of economizers, it is good practice to employ heaters in the exhaust pipes of the engines, absolutely regardless of the condensing question. If the plant be non-condensing, it is self-evident that exhaust steam heaters are imperative; even if the exhaust steam be used for heating purposes, it will usually pay to put in a heater between the engine and the heating system.

In condensing plants, primary heaters will be found advisable under average conditions. Of course, if the plant is a very large one, economizers claim consideration, but in a plant of ordinary size an economizer is usually barred by the cost of installation and attention. A primary heater will bring the feed-water temperature from 40 to 50 up to about 110 degrees F.; a higher temperature could be secured by imposing back pressure on the engine, but this is obviously not good practice with a condensing engine. It will be advisable, therefore, to still further heat the feed water by passing it through a secondary heater after it leaves the primary heater. If sufficient heat can be obtained from the exhaust steam of the air, circulating and boiler-feed pumps to carry the feed-water temperature up to about 200 degrees F., without deliberately using pumps of low efficiency for the sake of their exhaust heat, then the combined exhausts from all the pumps should be passed through the secondary heater.

If, however, the efficiency of the auxiliaries is so high that a gain of only 40 to 50 degrees in temperature is obtainable in the secondary heater, it will usually be advisable to run the pumps condensing, still passing the exhausts through the secondary heater in order to extract as much heat as possible before delivering to the condenser, and to reinforce the secondary heater with live steam bled from the receiver or the high-pressure exhaust of the engine. If the engine is provided with a reheater which superheats the receiver steam, says the American Electrician, then the steam used in the secondary feed-water heater should be taken out from the high-pressure exhaust before that steam reaches the reheater, in order to avoid a waste of superheat. The plan outlined would be almost universally more economical than to sacrifice the efficiency of the pumps in order to obtain sufficient heat from their exhaust steam to give the feed-water the proper temperature. Air and circulating pumps should preferably be engine-driven, but whether they are of this type, or are ordinary forms of direct-acting pumps, they should be run condensing unless their exhaust steam added to that of the boiler feed pumps will supply sufficient heat for the feed-water without bleeding the engine receiver.

Belt-driven pumps are not, as a general rule, commendable for boiler feeding, on account of their inefficiency at partial loads when driven at constant speed, as they would have to be in all modern central stations and isolated plants. If it were practical to vary the speed of the pump according to the requirements of the boilers, without interposing a lot of power-consuming gear, the belted type would show the highest efficiency of any form of boiler feeder.—Boston Journal of Commerce.

THE PRODUCTION OF TANNIN IN ONTARIO.*

By J. A. DeCew.

One of Ontario's important industries is that of tanning, and for this purpose hemlock bark is the commonest and cheapest material used. The bark is taken from the common Hemlock (Tsuga Canadensis) by felling and peeling it in the spring of the year, when the bark has been loosened by the growth of the cambium layer. The bark is cut into four-foot lengths and carefully piled in order that it may become properly seasoned, for if a fermentation occurs in it the tanning properties will be greatly reduced. During the winter following the bark is drawn on sleighs to the nearest siding and shipped by rail to the tannery, where it is ground to a powder and leached with the hot water of exhaust steam, the liquors coming off from these leaches being used in the tanning.

As the consumption of bark goes on, all that country contiguous to the railways becomes denuded of hemlock trees, thus each year the haul to the railways becomes greater and is an ever increasing factor in the price of bark. The stumpage value of the bark need hardly be considered, for the average settler will sell his bark for a price barely sufficient to pay him for his labor expended since he gains thereby a market for the peeled timber and a winter's work near home. But with the recent increased demand for labor and the rapid rise in wages the settler can now find much more lucrative employment elsewhere and this has forced the tanners to put in camps themselves in order to procure a sufficient quantity of bark. This places the price of tan bark at last absolutely upon a labor basis, with its value varying directly with the price of labor and the amount of work done upon it. And this being the case the time must surely come when we shall be forced by economy to separate the tanning ingredients from the bark at the source of the supply and thereby save the unnecessary expense of freighting a very large amount of non-essential materials. That the time has already arrived the following discussion will attempt to demonstrate. Let us first investigate some of the properties and sources of the materials that are generally used in tanning.

There are a number of substances found in certain woods, barks and leaves which have an astringent taste and acid reaction, and are known under the general term, "Tannin," on account of their resemblance or relationship to tannic acid. They are formed in the leaves of the plant under the conditions necessary for general assimilation, transmitted through the leaf stock and distributed through the permanent structure The tannins formed in the various plants differ somewhat in properties and composition, but they all possess in common the property of combining with hides to form leather penetrating and reacting with the animal fibres in such a manner that hides thus treated will not be decomposed and are insoluble.

The tannins are subcrystaline solids, neither fusible nor volatile, and although fairly soluble in cold water, they are quite soluble in hot water and such solvents as alcohol, acetic ether and acetone.

They may be identified by two typical reactions.

1. With the salts of iron they give a blue, black or green color, and this reaction is the basis of most of our writing inks.

2. With a solution of gelatine they form artificial leather, the reaction being quite similar to that taking place with hides.

All of the natural tannins are strong reducing agents, absorbing oxygen readily, especially in alkaline solutions.

The tannins have quite an extensive application as mordants in the dyeing industry, for they have the property of combining with the textile fabric and giving to it an increased affinity for coloring matters.

It is quite apparent that these valuable properties will give to the tannins an extensive industrial application, and as their synthetic preparation on a commercial scale is as yet merely speculative, the vegetable kingdom remains the only source of supply and an exceedingly variable one it is. We find tanning principles in the fruit, wood, bark and leaves of a great number of plants and future investigation will doubtless reveal them in many more at present unknown. The following incomplete list will indicate somewhat the wide diffusion of these principles:

Northern trees—Oak, chestnut, willow, sumach, elm, ash, elder, birch, cherry, poplar, hazel, pine, fir, hemlock, etc.

Other sources and products — Tea, gall nuts, gambier, divi divi, catechu, valonia, quebracho, etc.

The most important of the tropical tannin producing plants are exported to England, United States and other countries and there made into extracts which are used for tanning and other purposes.

Galls or gall nuts are excrescences formed upon the leaves and leaf stocks of a species of oak (the Quercus Infectoria) which grows in the Levant. They are produced from the puncture made by the female gallwasp in depositing her eggs, around which the juice of the tree exudes and dries in concentric portions. The galls are gathered before the insect has escaped from its shell, when they contain a large percentage of gallotannic acid.

Gambier is an extract prepared from the leaves of the "Uncaria Gambier," and is principally imported from Singapore.

Divi-divi is the pod of a leguminous shrub, the Cæsalpina Coriaria," which is indigenous in South America, and from it a tannin extract is made.

Catechu or "Terra Japonica," is an extract prepared from the heart wood of the Acacia Catechu, which is generally imported from India.

Valonia is an extract made from the acorn cups of the Quercus Aegilops, which grows in Morea in China.

Quebracho is an extract made from the wood of the Aspidosperma, many species of which are found in tropical America.

Sumach is the name applied to a number of plants of the genus Rhus, which although natives of Asia, are cultivated in Sicily and other parts of Europe for the tannin which they contain. The leaves are cut from the tree just before it blooms, and after being dried are ground to a fine powder. Nearly all the Sumach we use is imported from Sicily either as powder or extract.

The willow bark is used extensively for tanning in Russia and the oak was the native tan bark of England, but in North America the hemlock, chestnut and oak have the commercial importance, both as a local and foreign supply.

The chestnut extract is prepared from both wood and bark, and is greatly valued on account of its freedom from the coloring matters common to other extracts, with which it is often used in admixture as a modifying agent.

The oak derives its tanning properties from the Quercitannic acid contained in both wood and bark, and although the bark is the prevailing source, an extract is also made from the sawdust. This tannin also occurs in the elm and produces a leather that is highly esteemed. It belongs to that class of tannins which produce a bloom upon leather during tanning.

Many other barks are rich in tannin, but are very little used, either from lack of knowledge concerning them, or that they are not found in sufficient quantity to become a marketable commodity.

As the oak and chestnut are fast becoming rare and valuable, they are scarcely to be counted on as the source of any considerable quantity of tannin in the future, and in order to maintain or increase the supply we are forced to look to other sources.

Now we have in our own Province the hemlock tree, which occurs in such enormous quantities that with proper treatment it might be and forever remain an extensive source of tannin. At present, however, the cost of hemlock tannin in Ontario is more than it should be on account of the expensive methods employed, and in consequence its consumption is limited to the local tannery and barely keeps pace with the demand for the timber, in spite of the cheap grade of lumber that the tree produces.

In the United States the annual production of solid hemlock extract is said to be considerably over ten thousand tons, but none is produced in our Province notwithstanding the enormous hemlock limits it contains and the small value of the timber, the hemlock extract we actually consume being shipped to us from Nova Scotia. Our Government has apparently endeavored to encourage its local manufacture, for hemlock is the only extract on the market upon which there is an import duty, and the export of the bark is prohibited. What more favorable conditions could be required for its manufacture, and yet the tanners say that the making of extract is unprofitable. They shudder at the enormous and expensive plant that would be required, and as they should be more familiar with the subject than any one else their decision is final. They have in mind, however, the large permanent extractive plants of the United States, which make tannin and dye wood extracts from materials gathered from all parts of the world. These plants contain huge and expensive extractors and vacuum pans, resembling those employed in sugar refining, and are of course too costly to establish in the forest.

But if we are to experience the industrial evolution of other nations we must change our methods and in this instance adopt those that were employed by the Germans under similar conditions. When they were confronted by an expensive tan bark, which was made so solely by the excessive cost of transportation, they solved the question in the following manner: Small plants, consisting of a cheap portable power, a bark cutter or grinder and wooden extraction vats, were set up in or near the source of supply, and with these they made a fairly concentrated extract. The cost of shipping this extract to the tannery was but a fraction of the transportation cost of the bark, and the cost of extraction in the forest but slightly in excess of the grinding and leaching process that would have been eventually employed by the tanner.

The plant may be stationed for a season's run in any locality where there is a sufficient block of timber, and this is not hard to find in Ontario. After the bark is peeled it should be treated as soon as possible and consumed the same year. It may be cut into fine shavings by being fed from the end against a series of revolving knives, and as each shaving is a thin transverse section of the bark cells the tannin is extracted without difficulty. The bark may, however, be ground to a fine powder by the usual form of grinder. It is now placed in a series of ten wooden tanks, which are arranged in a circle, the bottom of each being connected by a pipe to the top of the other. Steam from the boiler is now turned into number one, and passed through each in turn, until it is drawn off from number ten as a quite concentrated extract. A number of these vats are employed, because the extraction of the tannin depends upon the laws of diffusion. Thus, if boiling water, the tannin will leave the bark and become diffused throughout the solvent until equilibrium is established. If the solution is now removed and more solvent added the tannin remaining in the bark will now become diffused, forming a weaker solution, and if this process is continued all of the tannin will be finally extracted. Therefore if hot water is passed successively through ten vats, in which the bark of number two is richer than number one and number three richer than number two, etc., it is evident that the solution must become continually stronger as it passes through each in turn, and when discharged from number ten is a quite concentrated extract. When the tannin in tank number one is exhausted it is refilled and then becomes number ten.

By this process we eliminate the harmful effects of the open evaporating pan, in which the tan leach is concentrated in the open air, and a large part of the tannic acid thus destroyed by oxidation. Tan liquors or extracts should never come in contact with iron pipes or tanks, for the tannic acid will corrode the iron, combining with its salts with the formation of ink, and correspondingly neutralizing its tanning properties. Carbolic acid or corrosive sublimate added in minute quantities to an extract will prevent the growth of fungi and an addition of one-half cubic centimeter of glacial acetic acid to one litre of extract is valuable as a preventative of oxidation.

If several of these portable plants are in operation in the same locality and an extract for export is desired, solid extract may be prepared by further concentration in a vacuum pan. This apparatus will evaporate all the moisture in the extract at a temperature below 100 degrees centigrade on account of the partial vacuum in which it is kept, and as there is no access of air, the tannin can not be decomposed either by hydrolysis or oxidation. A solid extract may be composed of varying quantities of tannic, gallic or other organic acids, coloring matters, starch, gums and any other extractive ingredients soluble in hot water. Therefore the percentage by weight of tannic acid is an exceedingly variable factor, depending upon the method of extraction and the relative amount of extractive matter contained in the original substance. In the liquid extract all of these inert ingredients affect the specific gravity of the solution, and the customary habit of expressing the strength of the extract in terms of degrees Baume is very unreliable, and often gives a fictitious value to a worthless extract because all of the tannin might have been decomposed during extraction, yet the density remain the same.

The extraction of tanning materials is not an exact process, but proper methods are necessary to obtain good results, and it is more than probable that failures in the past in the preparation of tan extracts are traceable to mistakes in this respect rather than that the business is in itself unprofitable.

The possibilities in the development of this industry appeal more to the lumbermen who own the limits than even the tanners, for it could be carried on in harmony with other lumbering operations, and other trees beside the hemlock, such as ash, birch, etc., could also be profitably introduced. There is no reason why our lumbermen should not supply all of the local tanneries with an extract at a price less for equal tanning power than that now paid for bark, and still have a considerable amount for export. Under these conditions a large quantity of hemlock timber now inaccessible could be lumbered with a profit, as the bark would have a stumpage value and would pay the cost of seasoning the timber. Hemlock is now taken off in localities where the bark has no value, and in endeavoring to float it in the green state large quantities are lost. As hemlock has also a value for sulphite pulp making, there will soon be an urgent necessity for some method of consuming the bark in the depths of the forest, and if one such as has been suggested be employed it will pave the way to the more scientific development that accompanies the application of the principles of forestry and economy.

*From the last Report of the Director of Forestry for Ontario.

THE NEWS

Scott's saw mill at Springhill, N. S., has been pped with an electric light plant.

A. Jardine has sold his saw mill at Main Gut, to the Comberland Company.

Austin Blaine has purchased the lumber business of as Greenway at Crystal City, Man.

Captain Clarke has purchased an interest in the mill owned by John Collins at Honora, Ont.

Robinson & Company are installing considerable machinery in their saw mill at Selkirk, Man.

Henry F. Blair has sold his wood-working factory Fredericton, N.B., to the J.C. Risteen Company.

T. H. DeCew, of Fenelon Falls, Ont., is looking suitable place at which to build a stave factory.

The Pigeon River Lumber Company, of Port r, Ont., are opening a lumber yard at Fort am.

The saw mill of the New Richmond Lumber Com- at New Richmond, Que., is being removed to ion Point.

John Warren, of East Branch, N.B., has purchased saw mill and farm property of R. N. Dougherty at Branch, N.B.

Efforts are being made by the people of Fallbrook, to induce Donaldson Bros. to rebuild their saw ently destroyed by fire.

The largest raft of timber ever sent down the ssippi river is now on its way to St. Louis. It ins 11,000,000 feet of logs.

John Fenderson & Company, of Sayabec, Que., ilding a new shingle mill at Salmon Lake to e the Amqui mill recently burned.

A. H. F. Randolph has been elected president and ger of the Fredericton Boom Company, as suc- to the late Hon. A. F. Randolph.

Jas. K. Ratz has sold out his lumber business at Talon, Ont., and is about to re-establish himself twelve miles north-east of North Bay.

The Board of Examiners for Cullers of the Prov- of Quebec will meet in Quebec on August 12th, to ine candidates desirous of obtaining licenses to as lumber cullers.

It is the intention of E. W. Tobin and F. N. Mc- who recently purchased the lumber property of Bros., of Quebec, to form a joint stock company proceed at once to cut the timber on the limits.

The Batiscan River Lumber Company, composed ally of American capitalists, has been incorporat- Head offices at St. Gabriel, Que., and Elizabeth, N.J. Champlain is manager of the Canadian branch.

James Sheppard, of Sorel, Que., has installed in his mill a new dry kiln, manufactured by the Mc- ren Heating & Ventilating Company, of Galt, It has a capacity of 40,000 feet. He is also in- a shaving and saw-dust exhaust blowers in his mill.

Special summer meeting of the American Forestry ation will be held at Lansing, Mich., on August nd 28th, followed by an excursion through the od forests of northern Michigan to Mackinac and return. The meeting will be devoted to a on of forest conditions and methods in Michi-

George Chew & Son, of Midland, Ont., claim to e fastest two-band saw mill on the Georgian ore. On June 28th, with James Patterson p), Fred Tuer (filer), L. McMillan and J. Mc- n (sawyers), A. Nolan and Geo. Snyder (setters), es Coulson (edger), 170,500 feet of lumber 00 bundles of laths were manufactured in a ten hours.

Action has been instituted in the Superior Court e by O. W. Orgway, of Beaupre, against Villeux, of Levis, to recover $37,500 claimed as commission on a sale of timber limits. The owned extensive timber limits on the Port , Saguenay county, which were sold recently Easton & Company, of Albany, N. Y., the purchase price being $112,500. The plaintiff claims $37,500 in virtue of a deed of transfer between both parties. The action will be contested, and it is reported that heavy damages will be claimed owing to the allegations contained in plaintiff's declaration.

—The new mill of the Pigeon River Lumber Company at Port Arthur, Ont., is now in operation. The main building is 180 feet long and 50 feet wide, with an annex in which the shingle and lath machines are installed. The perfection of machinery for handling lumber is reached in the mill, the only purpose for which human agency is required being the operating of levers to bring certain rolls or conveyors into play. The speed of handling is increased by the first band saw being only required to square the log, which is rapidly passed from it to the resaw, where it is automatically fed, and a man by the kick of a foot operates a lever which either switches it back to the saw or allows it to travel to the edger. The power is supplied from four 60-inch by 16-foot boilers, and one 68-inch by 14 feet, to a 14x32 cylinder engine. An electric plant of 400 lights capacity is being installed.

TRADE NOTES.

Dyment, Butterfield & Company, of Barrie, Ont., have secured the contract for supplying machinery for the new saw mills of the Imperial Lumber Company at Warren, Ont.

The Dodge Manufacturing Company, of Toronto, have just issued blue book No. 4, containing illustrations, price list, testimonials, etc., of the Dodge standard wood split pulleys, also fac similes of diplomas awarded for these pulleys at various expositions.

A SCHOOL OF FORESTRY FOR ONTARIO.

By W. L. Goodwin.

In the April Quarterly, Dr. A. T. Drummond has given reasons for a more scientific treatment of our forest areas, and has shown that to this end we must provide for the education of foresters and forest engineers. He cites President Roosevelt's forcible allusions to forestry and irrigation in his recent message to Congress, and the expansion of the U. S. Division of Forestry into a Bureau of Forestry, with an appropriation this year of $185,440. Colleges of forestry have been established at Cornell and Yale universities, and forestry departments in several other universities. Lumbermen, pulp companies, and owners of forest areas in thirty-three states, from Maine to the Rocky mountains, have taken advantage of the offer of the Bureau of Forestry to make working plans of their forest lands. The Dominion has an equal interest in the subject. Private owners and provincial governments derive large revenues from forests, and the sources of these revenues should be conserved by scientific management. Problems of water supply for canals, lakes, and navigable rivers, and of drainage and irrigation, are also involved. Both Provincial and Dominion governments have made good beginnings by setting aside large areas as forest reserves, by inaugurating systems of tree planting and fire protection, and by popularizing the idea of forest conservation. Dr. Drummond also points out that there are thirty species of trees now being used in the United States for manufacturing, and that an investigation of our woods other than pine and spruce would probably show some with valuable qualities of an especial kind. He concludes that the time is ripe for the appearance in Canada of the forest engineer. Many companies in the United States now employ such college educated men, and the Forestry Bureau employs only skilled foresters. The forest engineer must be a highly educated engineer with an especial knowledge of forests. A suitable place for training such men would be a school of forestry connected with the school of mining, where practical experience could be obtained by utilizing the Ontario government reserves to the north of Kingston.

Dr. Drummond has clearly shown the necessity of forest engineers for Canada, and of a School of Forestry to educate them; but he has not indicated the way in which students for such a completely new profession might be brought to the school, nor the steps which might be taken to ensure their finding employment after graduation. It is quite plain that the mere opening of a School of Forestry in Canada would not cause fifty or a hundred young men to seek its walls the first session. There is no great thirst for forestry education yet. The very meaning of it is just beginning to be known throughout the land, and forestry as a profession would be looked upon as very problematical by our practical youth. The conditions are somewhat similar to those prevailing some ten or fifteen years ago in mining, when the men who were studying mining engineering could be counted on the fingers. Now there are some two hundred students of mining engineering in Canada. When the School of Mining was opened at Kingston nine years ago, the outlook for students was not more promising than it is now for forestry. To create the demand for such education was our problem. It was solved by three means: (1) Short courses for practical men (prospectors and others), held here in January and February. These attracted many students, some of whom entered upon and completed a four years' course and are now practising as mining engineers. (2) Summer mining classes in mining camps and other centres. These classes have been found so valuable and popular that they are still being carried on, an annual appropriation for that purpose being made by the Ontario government. Students have been attracted to longer courses in this way. (3) By exploring parties of students and others interested, under the guidance of professors. In all these ways education in mining has been popularized, and the supply of educated men has created a demand for them, so that, at this date, graduates have no difficulty in securing employment.

The Provincial and Dominion governments have helped on this movement by adopting in part a policy which they might well carry out in toto, viz., reserving for students of this class the minor positions on survey and exploring parties, and other scientific work carried on during the summer.

The educational problem in forestry is precisely like that just described, and a somewhat similar course will lead to the same results. There are large numbers of men now engaged in Canada in the care of forest areas. Some of these could be gathered to the school every winter for short courses of a simple and practical character but scientific enough to open their eyes to the larger fields beyond. The professor of forestry would spend part of each summer in visiting places where forest interests

are large. He would by lectures and class instruction spread the idea and arouse the interest of young men looking toward a scientific profession. Squads of men could be instructed every summer in the practical details of forestry, by assembling them on the forest reserve in charge of the school. Provincial and Dominion Governments would naturally adopt the policy now pursued in the United States of employing students in the summer on their forest reserves and survey parties. But it must be remembered that the great majority of ambitious and able young men in Canada are almost too poor to bear the expense of a scientific education. 'Earning their way' is undoubtedly a fine discipline, but it is often too severe a trial of endurance, and I have sometimes seen it fatal. There is another way—a ladder of learning. Great Britain is now pouring out her wealth in scholarships for this purpose, and in many counties in which these scholarships are awarded, there is a 'poverty limit.' A boy whose parents have an income above that limit cannot take a scholarship. The limit ranges in different counties from $750 to $2,000. Such limits might have to be considerably lowered to suit our case. The Dominion might well make an annual appropriation to defray in part the expenses, at the School of Forestry, of a certain number of students from each Province, the selection to be made by a matriculation examination, or in some other way which would secure the ablest students. Fellowships or scholarships could also be awarded to the best graduates, in the form of appointments to certain junior positions in the Departments of Forestry (Dominion and Provincial.) In this way two purposes would be served, (1) Graduates would be initiated into their profession, and (2) The country would secure in time a corps of finely educated and practically trained men to work out our problems in forestry, irrigation and drainage. Private owners would, as in the United States, soon see the advantage of employing such men as managers of their forests; and the profession would thus become an established one.

The first step was taken towards this at the School of Mining in January, 1901, thus appropriately marking the beginning of the new century. A conference was held on the subject of forestry education, opening with a most brilliant and suggestive lecture by Professor B. E. Fernow, of New York State College of Forestry. We were fortunate in having with us on that occasion the Minister of Education, who expressed himself as delighted to see that the question of forestry was receiving attention here, and thought it would be a grand thing for the country, if a school of forestry were established at Kingston; for Canada had reached the time when she must face the question of how her lands are to be re-timbered. A year has passed, and the interest then shown in the subject by the Minister of Education and many others gathered at the conference has become widespread. The growing interest was evident at the annual meeting of the Canadian Forestry Association in Ottawa in March. The sessions were largely attended, and a noticeable feature was the presence of many prominent lumbermen, whose contributions to the discussions showed that they are ready for the coming of the forest engineer. His coming has now been assured by the announced intention of the Ontario Government to assist the School of Mining in establishing a College of Forestry in Kingston. —Queen's Quarterly.

In the Rocky Mountains, near Lake Louise. Spruce and Lodge Pole Pine on the Mountain Sides.
(From the Annual Report of the Dominion Superintendent of Forestry.)

THE LATE J. W. MUNRO.

Recently the news were flashed throughout the province of the death of J. W. Munro, M.P.P., of Pembroke, Ont., who only two days previously had been re-elected as Liberal member for North Renfrew in the Ontario Legislature. His illness was the result of blood poisoning, which in the excitement of an election campaign, was probably neglected. In his native town and neighboring vicinity intense grief was caused by his death, but it was by no means confined to that locality. Hundreds of acquaintances and friends, Conservatives and Liberals alike, mourned, for Mr. Munro was a man of great energies and one of the largest lumbermen and contractors in Canada. He was a man who had done much for Pembroke, a true friend of the working man, for although a large employer he always advocated that the working man should be paid his worth. He was of a kind and genial disposition, a man whose life it is said showed not a flaw. His death is a national loss.

Mr. Munro was born in Rossshire, Scotland, and came to Canada with his parents in 1854. They settled near Fitzroy Harbor where Mr. Munro was brought up on a farm. Afterwards he learned the trade of stone mason. In 1873 he married Miss Martha Trail, of Lanark county. He afterwards moved to Renfrew, where he started in business as a builder and contractor. He removed to Pembroke in 1885 and soon became a prominent contractor, erecting many of the finest buil

ings in the town. His ability and thoroughness as a contractor could not be concealed and he shortly was called upon to execute important works in other places. He secured large contracts from the Canadian Pacific Railway, and just before his death had been awarded one of the most extensive contracts that had ever been given by that road. The building of pulp and paper mills at Webbwood, Ont., for the Spanish River Pulp and Paper Company had engaged his atttention for a year or more, and was nearing completion at the time of his death.

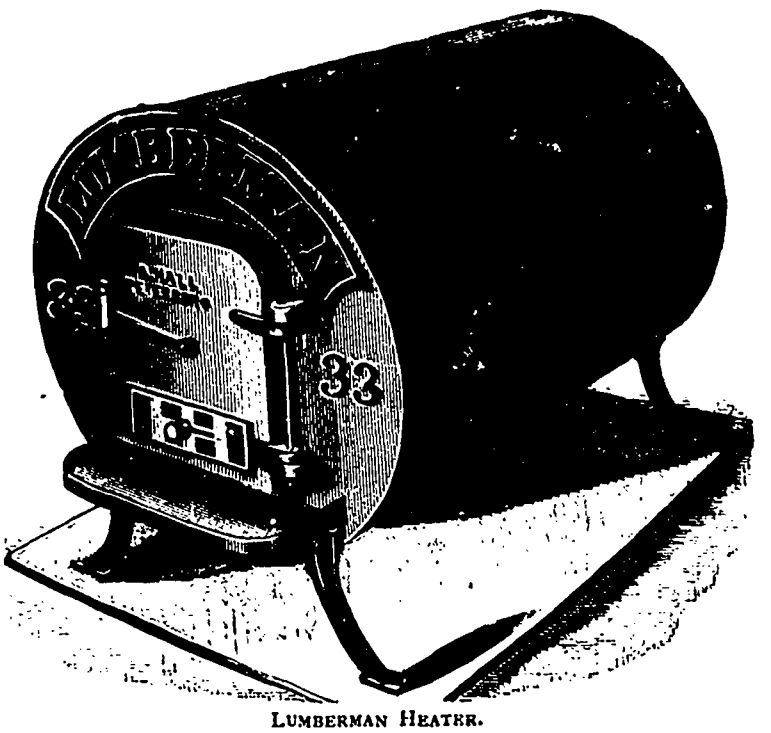
In 1900, on the death of Mr. A. T. White, Mr. Munro was elected to the Ontario Legislature by acclamation. He has served his constituents faithfully and well and obtained for them, it is said, more than did any other member in a similar time. His large business connections and parliamentary duties frequently called him to Toronto, where he was a familiar figure.

As a lumberman Mr. Munro was most successful. He was a large holder of Ontario pine timber limits, and his operations in the woods each winter were quite extensive. The firm of Munro & Son are well known as operators in square and waney timber, the stock usually being sold to Quebec shippers. Mr. Munro was a shrewd buyer and a recognized authority on the value of timber limits.

Individuality in journalism has attained its most surprising results in trade papers. People are seeking more technical information, and while they skim hurriedly over the great dailies for the press news of the world, they study the technical paper for the more vital references to their own immediate business and concerns.—Charles H. Bergstresser.

THE LUMBERMAN'S HEATER.

The accompanying illustration represents a type of stove familiar to many lumbermen. It is manufactured by Adam Hall, of Peterborough, Ont., and is commonly termed the Lumberman's Heater. It is manufactured for the special purpose of heating lumbermen's camps and boarding houses, for which service it has given excellent satisfaction. The standard sizes are 36, 42 and 48 inches. The body of the heater is made of heavy boiler plate and the ends of heavy cast metal, with a large fire door. The construction is such as to make the heater very durable.



LUMBERMAN HEATER.

Mr. Hall has been engaged in the manufacture of steel ranges for 24 years, being the oldest manufacturer in the business. His goods are well known to lumbermen throughout the Dominion and his sales are constantly increasing. He is prominent in commercial circles in Peterborough, being president of the Canadian Cordage Company and vice-president of the Otonabee Power Company.

Any lumberman who is not acquainted with the Lumbermen's heater should ask Mr. Hall to send him one of his latest catalogues.

The Price-Porritt Pulp & Paper Company has been organized at Quebec, with a capital of $250,000. The promoters include William, Edward and Arthur John Price all of Quebec.

An ad in a trade journal will do what travelling men as a rule do not do. It will go to towns off from the railroad where there are no hotels. It will work nights, Sundays and holidays, in wet weather or dry, hot weather or cold. It will talk to a merchant before some of the boys are out of bed in the morning and after they have gone to bed at night. It's one of the few things that has not yet struck for eight hours.—Construction and Supply Review.

WOOD PULP DEPARTMENT

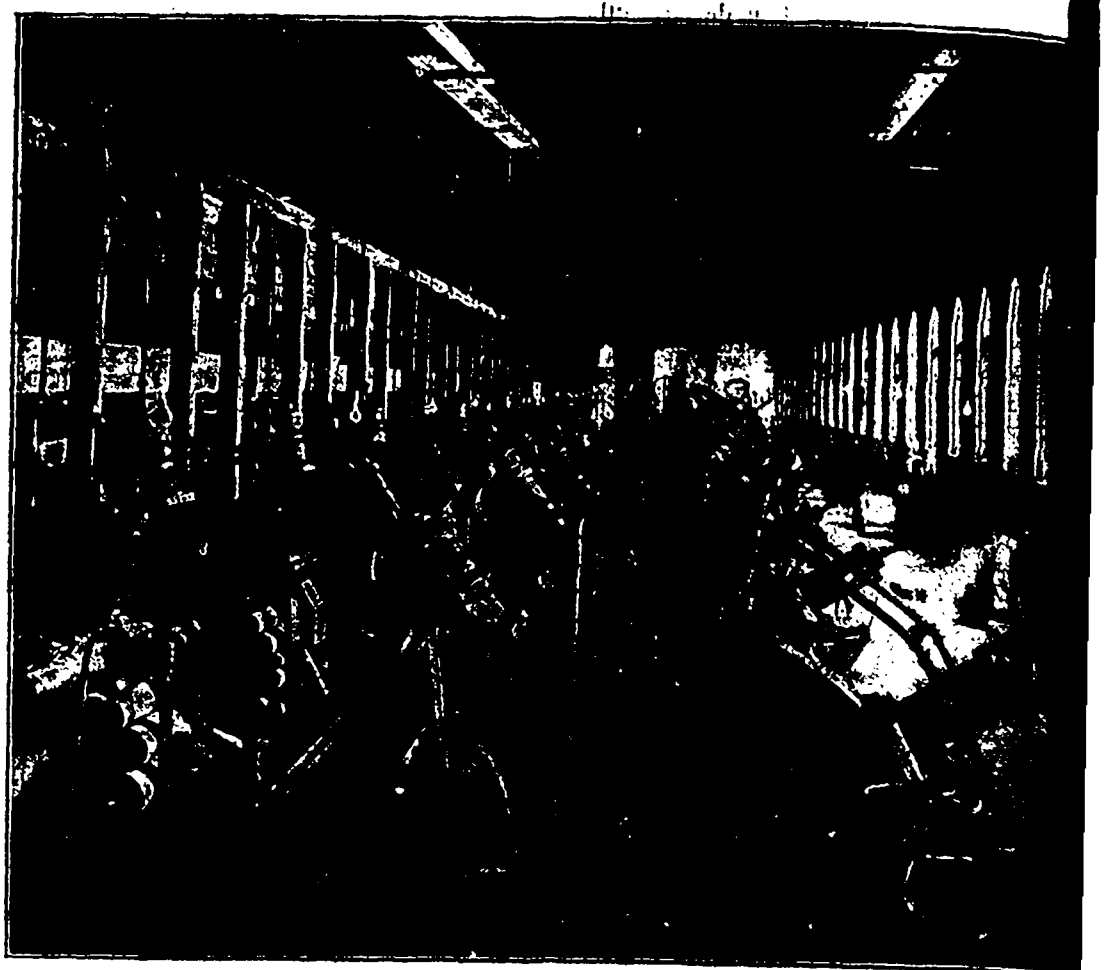
THE SAULT STE. MARIE PULP MILLS.

The pulp mills of the Sault Ste. Marie Pulp and Paper Company at Sault Ste. Marie, Ont., are capable of turning out 170 tons of dry pulp every twenty-four hours, the operators working in two shifts. The mills are exceedingly handsome buildings, of mottled sandstone blasted out in the construction of the power canal. Mill No. 1 is 600 x 80 feet, and Mill No. 2 300 x 100 feet. Somewhere around $2,000,000 was expended in the construction of the two buildings and in equipment. A view of the grinder room is shown on this page, and below is given some particulars of the process of manufacturing mechanical pulp there adopted.

The wood is cut along the line of the Algoma Central Railway, brought to the Soo on cars and thrown into the bay beside the mill. Here it is ready for the sawyers, who drag it out of the water, saw it into lengths of twenty-four inches, which are thrown into a tank that extends half the length of the mill, and from this the men who run the barking machines pick out the blocks. They strip the wood of its covering, which is immediately blown by an ingenious device to the boiler room. The stripped blocks are then thrown into endless carrying channels and these convey the blocks to the floor above, where they are piled on little cars which run to all parts of the building. From these cars the men running the grinding machines help themselves.

The grinder is an iron case containing an ordinary grindstone fifty-four inches in diameter and twenty-six inches wide. On each side of the grindstone is an iron wheel clamped to the stone to keep it from flying to pieces when it gets hot. To overcome this difficulty a stream of water is also kept going on the stone. Hydraulic cylinders, adjusted in position about the circumference of the grindstone, press the blocks of wood against the surface of the stone, which is revolved at the rate of 2,300 revolutions a minute by a turbine wheel. Each grinder requires the enormous power of 350 horses. A grinder will produce about five tons of pulp per day. There are thirty-two now in operation, and preparations are now being made to double the capacity of No. 2 mill, which has a dozen at the present time. From the grinders the pulp passes over a series of screens, from which it emerges free from all impurities. Up to this period the process has been by gravity, but as the screens are situated on the ground floor it becomes necessary to pump it back to the pulp machines, which are situated upstairs. To this end huge pumps are brought into requisition. The pumps convey the pulp to the pulp machines, of which there are twenty-four in operation, each having a capacity of six tons per day.

These machine are the acme of perfection, and were invented and manufactured in the company's works. The wet pulp passes into a metal receptacle, and is in turn caught up and evenly distributed on a revolving blanket, from which it passes between huge metal rollers, which subject it to a pressure of 500 pounds to the square inch. After emerging from the rollers it is 50 per cent. water and 50 per cent. pulp. It then passes over a large steam heated metal drum, and is in turn rolled on a spindle, a continuous sheet of thin, dry, pressed pulp, resembling a grade of coarse wrapping paper. The pulp dryer is considered the ne plus ultra of pulp machinery. It solved the water problem, and made the manufacture of dry pulp a possibility.



GRINDER ROOM OF THE SAULT STE. MARIE PULP AND PAPER COMPANY.

THE SHAWINIGAN PULP MILL.

Some particulars have been furnished the CANADA LUMBERMAN of the pulp mill of the Belgo-Canadian Pulp Company at Shawinigan Falls, Que. The ground wood pulp mill was designed to produce 100 net tons per day of twenty-four hours; 50 tons of this to be dried on a drying machine to 88 per cent. dry, and 50 tons from the wet machine 45 per cent. dry. The mill started and made its first pulp January 13, 1902, and ran without any delays whatever until May 28, 1902, when they were obliged to stop for the want of wood.

On June 9th they got wood down the river and started again. On June 13th they made 100 tons, June 26th 104 tons, July 2nd 113 tons, and are now making over 100 tons every day.

The greater part of this product is shipped to Belgium, and the mill is advised that it is the finest grade of ground wood pulp, and commands the highest price of any pulp ever shipped into the Belgium markets, and when it is considered that this mill was started with only eight experienced operatives, and educating the balance from common laborers, we think the results exceed any ever before produced in Canada, if not in the United States.

The mill was designed by the well known engineer, A. C. Rice, State Mutual Building, Worcester, Mass, and was built under the personal supervision of Mr. C. A. Ring, who is also general superintendent.

PULP NOTES.

The death is recorded of Mr. John Cassils, vice-president of the Laurentide Pulp Company, of Grand Mere, Quebec. Mr. Cassils was born at Renton, near Glasgow.

The Bagley and Sewell Company, of Watertown, N.Y., have secured the contract for paper and pulp machines for the Sturgeon Falls Pulp Company at Sturgeon Falls, Ont. The S. Morgan Smith Company, of York, Pa., will supply the turbines.

During the five months ended May 31st last the British imports of pulp wood amounted to 177,136 tons, of the value of £816,552, a heavy falling off compared with the corresponding period of last year, when the quantities were 180,944 tons, of the value of £1,011,185.

The Tacoma Steel Company is reported to have obtained 150 square miles of timber at Quatsino Sound for the purpose of commencing immediately the construction of a large pulp mill. The timber will be towed out by cable to the coast. It is expected that markets for the pulp will be found in Japan, China and Australia.

Concerning the market for mechanical wood pulp the World's Paper Trade Review says: "The market continues dull. From various sources, however, it seems pretty clear that stocks on the other side are only small, and as there is a good British enquiry, especially for early delivery, no further reduction in prices is anticipated. On the other hand, whilst no big advance is likely, sellers are inclined to believe that an advance of 2s. 6d. to 5s. per ton will rule before long. The weakness of the market has largely been due to the anxiety of some mills to effect sales."

There is little change to report in the market, although there now seems to be a better inquiry for all classes of pulp, says the London Paper and Pulp. Prices, however, have not advanced, and, if anything, have dropped slightly. For mechanical pulp 40s. c. i. f. seems to be about the utmost paper-makers will pay for moist pulp. Low prices have been ruling for chemical pulps, especially for delivery this year, and sales have been made at from £7 upwards, according to quality. As the American Sulphite Association has collapsed, it is more than likely that makers will dump their surplus in this country again at the best prices obtainable, and, if so, this will prevent any advance for some time to come at any rate.

The capitalists interested in the St. George Pulp & Paper Company, which has commenced the construction of a pulp mill at St. George, N.B., include James Goodfellow, of Fort Edward, N.Y., president; E. G. Murphy, of Sandy Hill, N.Y., vice-president and manager; E. W. Murphy, of Albany, N.Y., secretary and treasurer. A dam 15 feet high and 120 feet long is nearing completion. The mill will be located on the property formerly owned by Messrs. Gilmour and will be 65 x 120 feet, one story high. It is planned for eight grinders, with a daily capacity of 50 tons of pulp. The water wheels and steel tubes are being manufactured by the Jenckes Machine Company, of Sherbrooke, Que., but the pulp machinery, it is understood, has not yet been ordered. The electric light and power equipment will be furnished by John Starr, Son & Company, of Halifax, N.S.

MESSRS. LUNNY & CO.'S NEW MILL AT HINTONBURG.

J. Lunney & Company have erected a new planing mill on Queen street, Hintonburg, the flourishing suburb to the west of Ottawa. It is a two-storey factory with modern equipment. The saws for rough work and the four planers are situated on the first floor. The shavings from each planer are carried to the furnace room through a special tube, power for the purpose being furnished by compressed air.

The light band saws, turning lathes and scroll saws are situated on the second floor.

The machinery is operated by a 120 h.p. engine steam driven. All sawdust and shavings carried by the tubes above described are used as fuel. There is thus absolutely no waste. On the right side of the mill are two large drying kilns, heated by coils. Transportation is facilitated by a C.P.R. switch connecting with the mill yards. A gang of 30 men is now employed.