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NO. 7.

### NEW BRUNSWICK'S WOOD TROPHY.

The St. John, New Brunswick, *Telegraph* says—If one may judge by the numerous acclamations of surprise and pleasure from the visitors at Messrs. Howe's ware rooms on Saturday as the wood trophy was nearing completion, it is undoubtedly a success both artistically, and from a more practical commercial point. It will no doubt form the chief feature in the New Brunswick display at the exhibition. Much uncertainty was felt as to the effect of this undertaking, but it is gratifying to note that it has surpassed the most sanguine expectations. A more pleasing combination of nature and art could not be well desired, considering the limited grant and the shortness of the time allowed for completion. It has also been an object in this case to economize space and the largest display has been made in the smallest space possible, endeavoring to combine every natural condition of the wood as well as every artificial application.

The main portion of the trophy embraces all the larger or commercial woods, which are sufficiently abundant to form an important item for trade. These are divided into three sections. The left wing comprises the evergreen or coniferous specimens, including hemlock, red and white pine, black and white spruce, hackmatack, cedar and fir. The central section is made up of the dense woods, such as black and white birch, rock and scarlet maples and beech. The right wing consists of black and white ash, red and grey oak, elm, butternut, basswood and poplar. At the base of each of these fifteen large panels there is a log of the same wood, 20 inches in diameter and three feet one inch in height, while the sides of the panels are formed with saplings or young trees of the same woods, resting upon turned bases and surmounted with carved capitals representing the foliage and fruit or flower of these trees. These again are surmounted by a scroll saw and carved bracket, all of the same wood.

Between the large panels and the logs an inclined case or frame, made of ash, has been placed, and contains thirty small panels showing the smaller woods, and, also, several of the larger kinds, which are not sufficiently abundant for commercial purposes or of sufficient importance for the large panels. All of those embraced in these panels are, however, useful in the arts and for ornamental trees. Many of them are comparatively unknown, and their beauty and utility unappreciated. Some, valuable for economic purposes, are used for tool handle, bobbin stocks and novelty work, and are susceptible of a very high degree of polish. These panels consist of sumach, aspen, poplar, ground or pasture ash, choke cherry, wild red cherry, wild black cherry, witch hazel, red hornbeam and hop horsebeam, thorn-plum,

maple, mountain maple or whitewood, black alder, swamp alder, yellow birch burl, gray birch and matted birch, billbury, May cherry, rowan tree or mountain ash, swamp rowan tree, dogwood, slippery elm, white willow, balm of gilead or balsam poplar, wild crab apple and princess pine. Each of the panels is framed with strips showing the back and the corners are transverse sections showing the end grain. The aim of the whole design is to show the woods in all forms, which will interest practically wood workers; therefore the combination in the large panels shows the slash of the grain, as well as an end section showing the density of the grain. These last named sections or quarters show at the base of the panels, also convey a better idea of the size of the growth of these trees being taken from more fully developed trees.

The cornice which surmounts these panels forms a very pleasing feature in the structure, and is composed chiefly of bark and specimens of each wood in mouldings. Above the central section is placed a poplar board with etched letters bearing the words "Woods of New Brunswick." The whole of the top will be surmounted by stuffed specimens of the best game of our forests, which is now being prepared by Mr. J. H. Carnell. A fine moose head will ornament the centre, with a caribou head on the right and a red deer head on the left. Foxes, coons, beaver, porcupine, partridges, etc., are to be added. All of the panels, as well as much of the surrounding woodwork, have been highly polished, showing the capabilities of the woods in their different applications in the arts and manufactures.

An important point in the close grained woods, and those free from resinous tendencies, is their adaptability for staining, and, to illustrate this, oblique bars have been stained across the tops, showing the effects of satin wood, cherry, mahogany, walnut, rosewood and ebony.

The foliage, flowers and fruit have been beautifully painted on both large and small panels, by Mr. John C. Miles, A. R. C. A., and the work does him infinite credit, although laboring under numerous disadvantages as to hurried work and obtaining appropriate specimens to work from. This forms the most attractive feature, from an artistic point of view, and will be a very valuable addition in other ways. So near do the pictures approach nature that many have expressed doubts as to their being painted, and thought them the original foliage.

Messrs. Geo. F. Matthew and Geo. U. Hay, of the Natural History Society, of New Brunswick, rendered valuable assistance in the botanical arrangements, etc., while the society kindly loaned the floral specimens. Mr. Jas.

information. Several of the logs for the base were obtained by Mr. Gabriel Merrit, of Moss Glenn, Kings county, showing that some fine timber still exists in the vicinity of this city. Mr. Thos. Crothers, of Upperagetown, Queens county, secured the handsome specimens of oak, elm and many of the smaller woods. Mr. Alex. Henderson, furniture manufacturer, of Woodstock, Carleton Co., also obtained some good samples.

Mr. George Draper, an experienced woodsman, of Southampton, York County, contributed many of the small woods. The carved capitals on the upper portion of the columns, or young trees, are the work of Edwin F. Erazier, John Rogerson, Lawrence Barry and Silas Hoyt.

The original idea as well as the design and construction, is due to the establishment of Messrs. J. & J. D. Howe, furniture manufacturers of this city. It may not be out of place to mention that the grant, which was made jointly by the Dominion and Local Governments, was only sufficient to cover the cost of collecting material and other expenses incurred. Therefore the work may be considered a donation from Messrs. Howe, who have spared no pains or expense to insure the best results, and have utilized to best talent in every department. The firm express themselves as most gratified at the hearty spirit shown by all interested in endeavoring to make it worthy of the Province. Too much credit cannot be given to Hon. Mr. Blair and the Local Government for the spirited way in which they undertook this work, even before assistance was secured from the Dominion Government.

### THE AGE OF FOREST TREES.

Royal Forester Gericke, of Breslau, in a recent treatise on forestry, gives expression to the opinion that the age of a thousand years attributed to German forest trees is fabulous, that it is impossible to prove a higher age than 700 to 800 years for even the so-called historical trees, and that no German tree can reach that age in a sound condition. Trees of so great an age are always hollow and only continue to grow as ruins. In connection with the question of the limit of endurance of our trees, it is evident that it will vary not only with the variety of the wood, but also with the climate and soil. Forester Gericke, through his own investigations as well as through communications received from German, Russian and Austrian schools of forestry on the age of the oldest woods to be found in their collections, arrives at the following conclusions. The highest age which a sound tree can reach is not reached by leaf-bearing trees, but by needle-bearing trees. After the highest point is reached the needle-bearing trees decay rapidly.

a long time after passing their limit of existence in a sound state. The highest age of trees obtained by actually counting the yearly rings is from 500 to 570 years, and the firs in the Bohemian forests and the pines in Finland and Sweden actually reach that age. The next highest age seems to be reached by the white fir in the Bohemian forests, which shows 429 years. The larch in Bavaria reaches 274 years. Of the leaf-bearing trees the oak appears to endure the longest, and the red oak of Aschaffenburg, the oldest healthy example, counts 410 years. The oldest long-stalked or white oak was only 315 to 320 years old when evidences of internal decay became visible. Notwithstanding this difference in endurance the white oak is much stronger than the red oak. The old red beeches were 226 to 245 years old. The maximum ages of other trees are as follows:—Ash, 170 years, elm 130, birch 160 to 200, red alder 145, common maple 224. The most frequent among the historical trees, the linden, is the most seldom found in the collections. Perhaps this fact may be taken to mean that it is very seldom possible to find a very old and sound linden. The most celebrated of the historical lindens is that in Neustadt, Wurtemberg, the branches of which were so long ago as 1448 propped up by 67 pillars.—*Exchange.*

### THE MORRISON TARIFF BILL.

WASHINGTON, March 18.—The Ways and Means Committee resumed consideration of the Morrison Tariff Bill to-day. Mr. Maybury of Detroit offered a substitute clause, changing the phraseology of the provision in the Bill subjecting the wooden articles placed on the free list to an import duty when the country from which they are imported levies an export duty, and his substitute was adopted. It reads:—"Provided that if any export duty is levied upon the above mentioned articles or any of them by any country whence imported, all said articles imported from said countries shall be subject to duty as now provided by law." It was stated that the provision was intended to cause a relaxation of the export duty now levied upon Canadian logs sent into the United States.

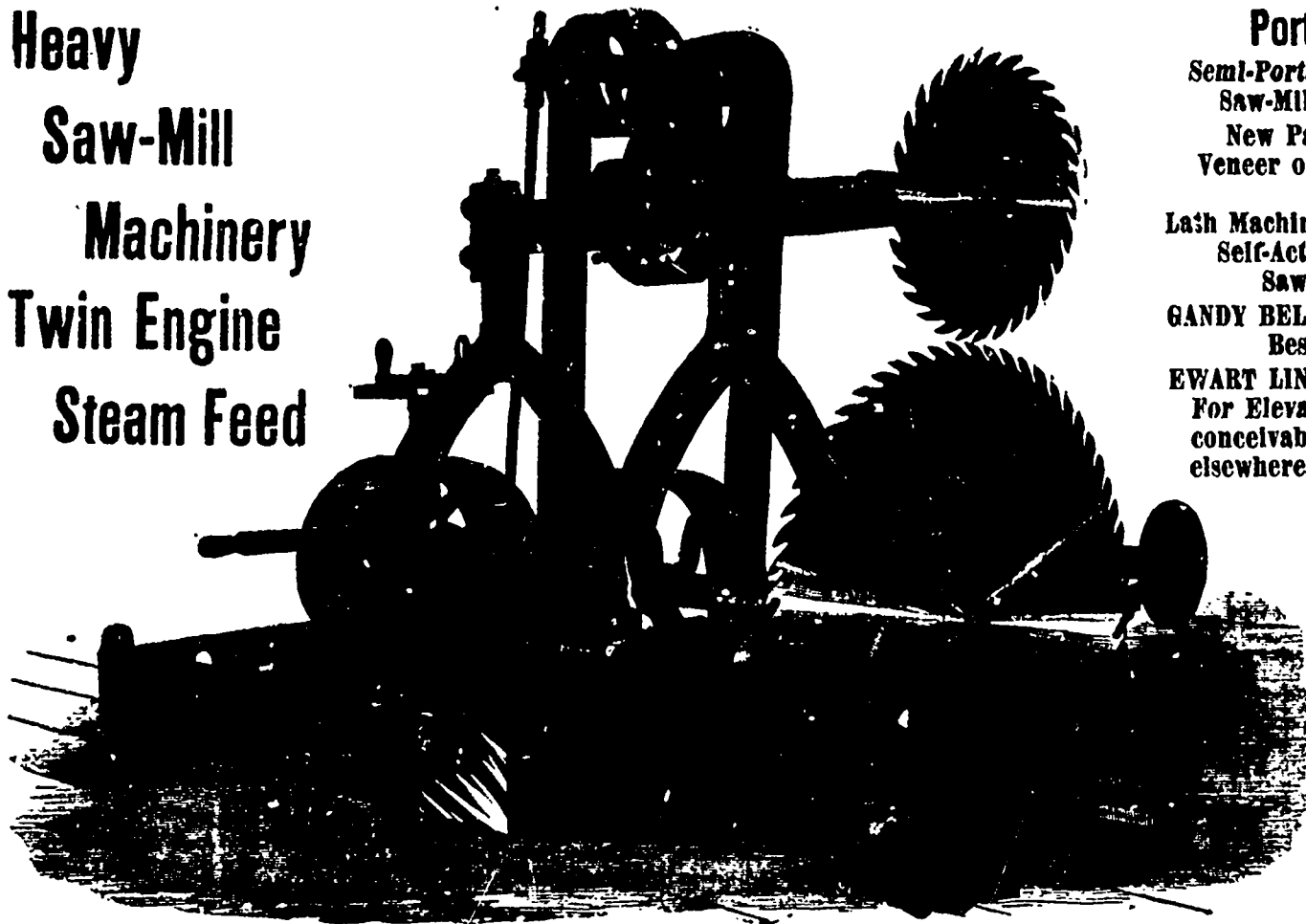
### A Timber Reserve.

The Quebec Provincial Cabinet have, it is understood, decided to reserve an extensive tract of country to the north of the Province for future timber supply. Forest rangers are to be appointed to watch and guard this domain. Hon. Mr. Joly has been the active agent in securing this from the Government.

On March 18th Round's saw and planing mills, Welland, were burned. O. H. Round's loss is about \$4,000; Ed. Round's loss is about



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**FRICTION OF BELTS.**

The friction of belts upon pulleys depends upon the extent to which they are tightened, the extent of circumference with which they are in contact, and their breadth. It is commonly believed that the greater diameter of pulley the more surely does the belt cause it to revolve without slipping. Theoretically, however, and we believe practically, says a writer in the *Circle of the Science*, it will be found that, with equal degrees of tightness, equal breadth of belt and equal circumference as to perfection of contact, the friction of a belt on the circumference of a pulley is the same, whatever be its diameter. The only circumference that can effect the constancy of the result, is that belts, not being perfectly flexible, lie more closely to surfaces curved to a large radius than to those of a smaller radius. When a certain amount of power has to be communicated through a belt, the speed at which the belt moves has to be taken into account, because, power being pressure multiplied by velocity, the greater the velocity with which the power is transmitted the less the pressure that has to be communicated at that speed. In this sense then, it appears that the larger the pulley the less the slip of the belt, because the greater the circumference of the pulley, revolving at a given angular velocity, the greater is the absolute velocity through space, and, therefore, the less the pressure required to communicate a given power. It is found, practically, that a leather belt eight inches wide, embracing half the circumference of a smoothly turned iron pulley, and travelling at the rate of 100 feet per minute, can communicate one horse power. When less than half the circumference of the pulley is embraced the strap must be proportionately wider; and when more than half the circumference is embraced its width might be less. The law according to which the friction of belt increases with an increased arc of contact is of a peculiar character, but may be readily understood by comparing the friction on arcs of different lengths. If a pulley (of any diameter whatever) were prevented from revolving, and a belt passing over part of its circumference were stretched by a certain weight at each end, additions might be made to the weight at one end until the belt began to slip over the pulley. The ratio which the weight so increased might bear to the weight at the other end would measure the amount of friction. For example, in experiments made to test a theoretical investigation on the subject, a belt passing over a pulley in contact with 60° of its circumference was stretched by a weight of 10 pounds at each end; and one of the weights was increased until it amounted to 16 pounds, when the belt began to slip. The ratio of 16 to 10, or 16 divided by 10, equals 1.6, was then the measure of the friction. When 20 pounds at each end were used to stretch the belt, the one weight was increased to 32 pounds, giving the ratio of 32 divided by 20 equals 1.6, the same as before; and likewise, when five pound were used for stretching, the weight at one end was increased to 8 pounds, giving still the same ratio, 8 divided by 5 equals 1.6.

So far, then, the friction was precisely proportional to the stretching weight, as might have been expected from the ordinarily received doctrine on the subject of friction. On extending the arc of contact to 120°, the ratio was found to be 2.56, or 1.6-2. And, again, on embracing 180°, the ratio was found to be 4.1, or very nearly 1.6-2, the theoretical investigation brought out this result independently, and the following law may, therefore, be taken as established: If for any given arc of contact the one weight bears to the other at the point of slipping a certain ratio for double the arc, the ratio will be squared; for triple the arc, it will be cubed; for four times the arc, it will be raised to the fourth power, and so on. In all cases, however, much depends on the tightness of the belt, the limits to the force with which it is strained being, first, the tensile strength of the belt itself; and, secondly, the amount of pressure that it may be convenient to throw upon the shaft and its bearings. New belts become extended by use, and it is, therefore, frequently necessary to shorten them. Before use they should be strained for some time by weights suspended from them, so as to leave

less room for extension while in use. Wherever belts are employed they should be of the greatest breadth and travel at the greatest speed consistent with convenience, as it is most important to have the requisite strength in the form best suited to flexure, and the least possible strain on the shafts and bearings. When ropes or chains are employed, as in cranes, capstans, windlasses or the like, for raising heavy weights or resisting great strains, the requisite amount of friction is obtained by coiling them more than once around the barrel of the apparatus. It is found that one complete coil of rope produces a friction equivalent to nine times the tension on the rope, the barrel being fixed. Two complete coils of the rope produce a friction equivalent to nine multiplied by nine times the tension, and so on. The diameter of the barrel does not effect the result. Having regard to these facts, we may readily understand the force which a knot on a cord or rope resists the slip of the coils of which it consists, for the several parts of the coil act as small barrels, around which the other parts are coiled; and the yielding nature of the material of which the barrels are composed permits the coil to become impressed into their substance on the application of force, and prevents them from slipping more effectually than if they were coiled on a hard and resisting barrel.

**THE MATTER OF PRICES.**

The statistics show indisputably that prices of all kinds have been steadily sinking for the past four or five years. This decline has been so gradual and so general that it has not attracted as much attention as its importance has warranted and the people are beginning to see in a definite way that the process has gone on in it, and that the conditions which govern it are of a logical and irresistible character. It is difficult to believe that the general average of prices in this country at the present time is actually 20 per cent less than it was in 1860, and that accordingly the cost of living is one-fifth smaller than the rate which prevailed just before the war; and yet the figures prove such to be the fact beyond question. There it not a single article of ordinary food or clothing which commands as high a price as it did a quarter of a century ago, when we thought things were as cheap as they could possibly be grown or manufactured, and the tendency appears to be towards a still further reduction rather than in the opposite direction.

The situation is due to causes of a permanent kind—to the increased use of machinery, the development of new areas of farm lands, the regular growth and application of capital, and the multiplied facilities of transportation, and of easy and rapid commercial exchange. Our whole system of trade and industry has been revolutionized. We do business according to modes and calculations that were not present, or even dreamed of, twenty-five years ago. The old rules that were once deemed infallible have been trivialized and exploded, and the man who got his education in any pursuit before the war has to requalify himself for successful dealings with the circumstances which now exist. We cannot estimate values any more by certain universal standards. A bushel of wheat is no longer worth a given sum, below which it cannot fall in any event. There is no fixed limit that can be safely counted as to the coming price of pork or beef, regardless of all possible fluctuations. The only certainty in the case is that it is mainly a question of chance, with a probability of lower instead of higher rates than those previously obtained.

We are not differently situated in this respect from the people of other countries. The decline in prices has been general throughout the civilized world. It is an area of cheapness everywhere. The same causes which have steadily lowered the margins in the United States has operated to produce similar results in all other quarters of the globe. We have not constructed all the railroads or employed all the new and improved machinery, or opened up all the increasing areas of cultivation and production. The people of all the other leading nations have been using like energy and enterprise in those directions. We formerly enjoyed a monopoly in several branches of trade—

as cotton, grain, meat, etc.—but we do not hold it any longer. The markets that we once practically controlled are now filled with competing products, and our right to establish selling rates is disputed at every turn. There are new sources of supply being reached and utilized all the time, with an appreciable effect upon the issue of values wherever there is such a thing as commerce; and we may as well open our eyes to the significant truth that a good many advantages which we have heretofore been blessed with have gone never to return.

Our position is still a surprising one in some regards and must always continue to be so; but it is evident we have reached a spirit and encountered a measure of competition that must deprive us of the power to dictate terms and regulate prices to suit ourselves. Like all other nations we are subject to these familiar laws and principles which are the basis of every true system of commerce. The rule of supply and demand extends to all sorts of products and all forms of traffic, and there is no way to subvert or avoid it. We cannot sell our surplus grain and stock and minerals at any higher rate than those at which some other country stands ready to furnish them; and when the world gets as much as it needs of a particular product it will not buy any more at any price. These are simple propositions but very forcible ones, and they have just now a peculiarly distinct and very practical bearing upon our affairs. It is folly to ignore or disparage the fact that we are face to face with influences that must shape our commercial relations and adjust our profits in spite of all resistances on our part, and with doctrines that are as old as civilization itself.—*St. Louis Globe-Democrat.*

**COMPARATIVE COST OF FRAME AND BRICK BUILDINGS.**

A very interesting article is found in the *National Builder*, giving the comparative cost of frame and brick buildings:

The first idea that naturally suggests itself, after the general plan of arrangements has been perfected, is what material shall mainly enter into the construction of a building, brick, stone, or wood? In nearly every portion of the Eastern, Middle and Western States these three building materials can readily be had, and the cost of production does not vary much in any locality. Assuming, therefore, that the first cost is the same in the above localities, we may easily arrive at the ultimate cost of production. For the purposes of this article we may assume the cost of good, common brick during the summer to be eight dollars per thousand; cost of labor and mortar to lay the same in the wall, \$4 per thousand, wall measure. The cost of good quarry stone assumed at \$10 per cord; cost of labor and mortar to lay the same in the wall, \$8 per cord of 100 feet. The cost of framing lumber, \$12 per thousand feet; labor and nails to put the same up \$6 per thousand. With these prices as a basis, it is a matter of computation only to arrive at the proportionate cost of each material after it has been worked into the walls. As an example, suppose we have ten feet square of plain wall to build, what will be the comparative cost? Ten feet square equals 100 superficial feet. If to be built of brick, 12 inches thick, estimating 22½ brick to the superficial foot, it would take 2,250 brick; cost in wall, per thousand, \$12, equals \$27. To lay a good rubble stone wall it should be 18 inches thick; therefore 10 feet square, or 100 superficial feet, of stone wall 18 inches thick, at \$18 per cord of 100 feet, would cost \$27. In estimating a frame or studded wall, there should be included, 1st, the studding, say 2x8—12-inch centres; 2nd, the outside sheathing of 1-inch surfaced boards; 3rd, the siding of clear pine. For this example we have placed the cost of rough lumber at \$18 per thousand feet up. We will assume the cost of the inch surfaced boards for sheathing to be \$25 per thousand including labor, nails and waste. Ten feet square, or 100 superficial feet, 2x8 studding at \$18 per 1,000, equals \$2.43. The same surface covered with surfaced boards at \$25 per 1,000, costs \$2.50. One hundred and twenty-five superficial feet of siding, at \$40 per 1,000 would cost \$5, allowing one-quarter for lap and waste. Then we find the total cost of the frame wall to be \$9.93. Add

to this the cost of painting same, one square at \$3, we find the cost to be \$12.93. Comparatively, therefore we find the cost of 100 superficial feet of wall, built of the three leading building materials of the country, as follows:—

- Common brick, \$27.
  - Rubble stone, \$27.
  - Frame, \$12.93.
- The cost of window and door frames, cornices, etc. may be estimated about the same in either building. In brick and stone buildings we find the additional cost of cut stone window and door sills, water table, etc., but the cost of these adjuncts does not enter into the first cost of the walls, and should rather be estimated on separately, or considered as additional items of cost that may be dispensed with if necessary.

**TREE PLANTING.**

E. P. Roe, in *Harper's Magazine* for March, 1886, has the following article in regard to transplanting trees:

"As a rule, I have not much sympathy with the effort to set out large trees in hope of obtaining shade more quickly. The trees have to be trimmed up and cut back so greatly that their symmetry is often destroyed. They are also apt to be checked in their growth so seriously by such removal that a slender sapling, planted at the same time, overtakes and passes them. I prefer a young tree, straight stemmed and healthy, and typical of its species or variety. Still, when large trees can be removed in winter with a great ball of frozen earth that insures the preservation of the fibrous roots, much time can be saved. It should ever be remembered that prompt rapid growth of the transplanted tree depends on two things—plenty of small fibrous roots, and a fertile soil to receive them. It usually happens that the purchaser employs a local citizen to aid in putting his ground in order. In every rural neighborhood there are smart men; smart is the proper adjective, for they are neither sagacious or trustworthy, and there is ever a dismal hiatus between their promises and performances. Such men lie in wait for new comers, to take advantage of their inexperience and necessary absence. They will assure their confiding employers that they are beyond learning anything new in the planting of trees—which is true, in a sinister sense. They will leave roots exposed to the sun and wind; in brief pay no more attention to them than a baby-farmer would bestow on an infant's appetite, and then, when convenient, thrust them into a hole scarcely large enough for a post. They expect to receive their money long before the dishonest character of their work can be discovered. The number of trees which this class of men have dwarfed or killed outright would make a forest. The result of a well meaning, yet ignorant man's work might be equally unsatisfactory. Therefore the purchaser of the acre should know how the tree should be planted and see to it himself, or he should by careful inquiry select a man for the task who could bring testimonials from those to whom he had rendered like services in the past.

"The hole destined to receive a shade or fruit tree should be at least three feet in diameter and two feet deep. It then should be partially filled with good surface soil, upon which the tree should stand, so that its roots could extend naturally, according to their original growth. Good fine loam, should be sifted or sprinkled through and over them, and they should not be permitted to come in contact with decaying matter or coarse, unfermented manure. The tree should be set as deeply in the soil as it stood when first taken up. As the earth is thrown gently through and over the roots it should be packed lightly against them with the foot, and water, should the season be rather dry and warm, poured in from time to time to settle the fine soil about them. The surface should be leveled at last with a slight dip towards the tree, so that spring and summer rains may be retained directly about the roots. Ten inches of coarse manure is helpful, for it keeps the surface moist, and its richness will reach the roots gradually in a diluted form. A mulch of straw, leaves, or of coarse hay, is better than none at all. After being planted three stout stakes should be inserted firmly in the ground at the three points of a triangle, the

tree being its centre. Then by a rope of straw or some soft material the tree should be braced firmly between the protecting stakes, and thus it is kept from being whipped around by the wind. Should periods of drought ensue during the growing season it would be well to rake the mulch one side, and saturate the ground around the young tree with an abundance of water, and the mulch afterwards spread as before. Such watering is often essential, and it should be thorough."

**EXPANSION OF LUMBER BY MOISTURE.**

The supreme difficulty encountered by all manufacturers of wooden wares, materials, buildings and articles of every kind results from the shrinking and swelling—or, to put it more elegantly, the contraction and expansion—of wood when exposed to alternations of dry and moist situations. It may be asserted as a fact that no process of seasoning and no condition of dryness will render any wood unchangeable under varying conditions or moisture and dryness. The nearest approach probably that can be made to it is the oven-baked process for the closest grained of the hardwoods, such as ebony, lignumvite, boxwood, mahogany, etc., used by the instrument makers. Still, a general precaution, born of long experience, is observed by those who own them. In this connection there is a question that has never been settled in the public mind, and that is, does dry or seasoned lumber "stretch," or expand lengthwise when exposed to dampness, and "draw up" or contract in length after drying? Most people labor under the belief that lumber or timber is not effected endwise, or with the grain, by moisture and dryness, but such is not the fact. The expansion and contraction in the direction of the grain is not nearly so much as in a transverse direction, but is quite perceptible, and is common in a greater or lesser degree to all woods. A gate in the centre of a line of plank fencing that has an inch or more space between the posts will often be found difficult to open in wet weather. A long line of fencing put up with green lumber will often pull apart in one or more places in seasoning, more especially if the line of fencing crosses a knoll or sharp elevation. But the strangest phenomenon connected with the expansion and contraction of lumber is the withdrawal of a nail driven up to the head into two different pieces of wood. For instance, where white oak fencing plank are nailed to cedar posts, the nails will in time be drawn entirely out and fall to the ground. Unpainted poplar siding nailed to green oak studs will not loosen the nails. The acid in the oak rusts the nail so as to fix it immediately but will rot the poplar around the nail until the plank can be pulled off over the heads of the nails. No process of drying lumber will entirely prevent the expansion and contraction of lumber in any direction, but that which has been thoroughly air-dried and exposed for a long time to varying conditions of moisture and dryness will possess the minimum defect in this regard. —Exchange.

**THE OAK.**

The oak has not inaptly been called, says *Popular Science News*, the "king of the forest." The size and age to which it attains are noteworthy. Humboldt mentions an oak, near Berlin, which measured nearly ninety feet in circumference near the base. A tree in the same neighborhood was blown down in 1857 which measured 68 feet in circumference. Their ages have been estimated at from 1,000 to 2,000 years. Gilpin, in his "Forest Scenery," mentions a few old oaks. Of the most venerable of these monarchs is one in Norfolk, reputed to be the "Old Oak," during the reign of William the Conqueror, said to be 1,500 years old, a plate attached to the tree bearing the inscription: "This oak in circumference at the extremity of the roots is 70 feet; in the middle, 40 feet." This was in 1820. The "King's Oak," in Windsor forest, is represented as having been a favorite tree of William the Conqueror, and the largest in the forest, and is being reputed as being upwards of 1,000 years old, measuring, some twenty years ago, 26 feet in circumference at three feet from the

ground. An oak in Dunnington park ran up fifty feet before a limb appeared, the base squaring five feet. An oak in Holt forest, in Hampshire, measured, in 1859, thirty-four feet in circumference seven feet from the ground. An oak felled in Norbury, as stated by Dr. Platt, was of the enormous size of forty-five feet in circumference: so that when it was lying upon the ground, two men mounted upon horses, on opposite sides, were concealed from the view of each other. He also mentions an oak in Keicot, beneath whose branches it was estimated that 4,274 men could have stood. The largest sum ever realized from the sale of one tree was that of the Gerona oak, a few miles from Newport, Monmouthshire, felled in 1810. According to the *Gentleman's Magazine* for 1817, it was sold standing for 100 guineas, under the belief that it was unsound, and was resold for £405, and subsequently was sold again for £675, and was found to contain 2,426 cubic feet of timber. Its bark was estimated to weigh six tons. The Wadsworth oak in Genesee, N. Y., near the river Genesee, was a giant of the forest. It grew in one of the most fertile valleys of the Middle States. Its trunk measured thirty-six feet in circumference, and the tree was a marvel to all who saw it. In Flushing, L. I., formerly grew a rare specimen of the oak. It measured a little short of thirty feet in circumference.

The oak is acknowledged to be the most picturesque of trees. As a shade tree it cannot be excelled. Of the oak family there have been enumerated by botanists more than one hundred and thirty species. Michaux the elder described twenty and Michaux the younger twenty-six species of North America; and Nuttall thirty-two. Emerson found twelve species growing in considerable numbers in Massachusetts. DeCondolle in his "Prodromus" described 281 species of the oak. The first to be named for planting is the white oak. This tree needs but little description as it is well known. Emerson said of the white oak that it is beautiful in every stage of growth, and is therefore a most desirable ornamental tree, and concludes with these words:—"Let every one who has an opportunity to do so plant a white oak." He measured one of the species in Bolton that was nineteen feet in circumference just above the surface of the ground, and one in Greenfield that was 17½ feet in circumference. The soil suited to their growth is a strong tenacious loam. There is ample room in the oak family to suit the most fastidious taste.

**WOOD AS A BEVERAGE.**

A sign in a Third avenue grocery window in New York City, read: "Pure Russet Cider, 4c. a Quart."

"That cider was never moved by a breath of country air," said a man who was passing the window, "and it was never any nearer an apple than it is now as it stands in the barrel in the rear of the grocery."

"Made of sulphuric acid, then," suggested a companion.

"No; that's too expensive."

"What is it made of?"

"Sawdust. I work in a shop where it's made. Pure apple cider is worth thirty cents a gallon. Sawdust cider costs about one-fourth of that. We take the sawdust from a couple of wood yards—hemlock, hickory, maple—every kind, just as it comes. We dump it into a big retort and heat with a coal fire. Just forty-seven per cent. of which boils over is crude vinegar. It has to be purified a bit and boiled down a little, but it is pretty good vinegar. When the wood reaches a certain point in the heating process it becomes charcoal, and is cooled off and sold to filter makers. We can beat the grangers on the vinegar business and not half try."—*N. Y. Tribune.*

**VALUE OF A TREE.**

A German railway which is building an extension at Niederlahnstein has just paid six hundred dollars for one cherry tree. The owner asked nine hundred dollars for it and proved that it crops sold for sums equivalent to the interest on that amount. This is really the true way to estimate the value of a fruit tree. The value of a business or a house is usually estimated by regarding the annual income

derived from it as interest on the capital and there is no reason why the value of an orchard should not be estimated in the same way.

No doubt this tree was exceptionally fruitful, but if any Canadian farmer will estimate the average annual crop obtained from one of the best fruit trees in his orchard, ascertain its market price and then calculate how large a sum of money must be put out at interest in order to secure as large an income, he will be surprised at the result. Suppose the rate of interest to be five per cent., then a tree whose average annual crop sells for ten dollars is worth two hundred dollars. If the rate of interest be four per cent. the value of the tree is two hundred and fifty dollars. Of course in making calculations a certain allowance must be made for the aging of the tree. A tree may have a certain value apart from its crop as timber, and it is important to know how long it may be expected to bear fruit and what its value as timber will be after it is cut down. Certain kinds of wood are very costly, and trees that do not bear fruit at all often command very high prices. Unfortunately the profit from trees of this class usually falls to speculators or middlemen instead of to producers. There are men who make a business of inspecting logs and buying up the valuable ones, often paying a mere trifle for what they are sure of selling for a small fortune. A good walnut log is sometimes sold at a very high figure. It would pay the farmers of Canada to make a thorough study of tree culture, the best methods of packing fruit and the value of various kinds of wood. If farmers realized the real value of trees of all kinds they would treat them tenderly and with care and would view with horror their indiscriminate cutting. They would take care to replace the large trees that they cut down either for use or for sale, by young shoots that would grow into valuable trees.

Aside from the direct income to be derived from an orchard or a plantation of walnut or other high priced trees, if the farmers in general devoted more attention to tree culture they would all be directly benefitted. It has been demonstrated by experience both in Europe and America that after a country is denuded of its trees seasons of prolonged drought and annual spring floods are certain to follow. Some districts of Europe formerly renowned for their fertility are now desert wastes, owing to the destruction of trees, and in some sections of the United States similar results have already been noticed. The floods on the Ohio and Hudson rivers have only occurred during recent years, and all who have studied the matter unite in saying that they are due to the destruction of the trees. The snow in an open, treeless country melts rapidly instead of gradually, as in a well wooded country.

So far as the value of a tree concerns only the individual the Government is not called upon to interfere, but it is evident that each tree has a general as well as a special value, and it is the duty of the Government to see that this general value is not converted into a source of general loss.

American newspapers are almost unanimous in advocating the free admission of lumber into the United States, and the chief reason they advance for altering the tariff, in this particular, is the fact that the forests of the United States have almost disappeared, and that unless a stop is put to the cutting of trees, floods, drought and famine will inevitably ensue. With the abolition of the American duty on lumber there is certain to be a wholesale slaughter of trees in Canada, and the Government should take every precaution to prevent disastrous results.—*Montreal Star.*

This question has been asked of contemporary whether boards ever shrink lengthwise—that is, with the grain or not. The same journal answers: "The effect of moisture upon the length of boards is the reverse of its effect upon their width. That is, when the board is wet it is shorter than when it is dry."

The oldest and the largest tree in the world is a chestnut near the foot of Mount Etna, Italy. The circumference of the main trunk is 212 feet.—*N. Y. Times.*

Perhaps the most extraordinary that success has been achieved in modern science has been attained by the Dixon treatment for Catarrh Outlets. Patients treated during the past six months, fully ninety per cent. have been cured of this stubborn malady. This is none the less startling when it is remembered that not five per cent. of the patients presenting themselves to the regular practitioners are benefited, while the patent medicines and other advertised cures never record a cure at all. Starting with the claim now generally believed by the most scientific men that the disease is due to the presence of living parasites in the tissues, Mr. Dixon at once adapted his cure to their extermination; this accomplished the Catarrh is practically cured, and the permanency is unquestioned, as cures effected by him four years ago are cures still. No one else has ever attempted to cure Catarrh in this manner, and no other treatment has ever cured Catarrh. The application of the remedy is simple and can be done at home, and the present season of the year is the most favorable for a speedy and permanent cure, the majority of cases being cured at one treatment. Sufferers should correspond with Messrs. A. H. DIXON & SON, 305 King street west, Toronto, Canada, and enclose a stamp for their treatise on Catarrh.—*Montreal Star* 1y122.

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# THE CANADA LUMBERMAN

DEVOTED TO THE LUMBER AND TIMBER INTERESTS OF THE DOMINION.

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PETERBOROUGH, Ont., APRIL 1, 1886.

### FOREST RESERVES.

THE report that the Province of Quebec has determined to establish a large forest reserve to the northward, is, if well founded, an evidence of a great improvement in the management of our forest wealth. We can well believe that to the efforts of Mr. Joly, this wise determination is to be largely attributed, and, if so, he has done a good service to the country in a matter which he has always seemed to have at heart.

In the Province of Quebec there has often been shown a more enlightened appreciation of the very important question of the conservation of our fast diminishing forests, and it is therefore only natural that Quebec should now lead the van in this marked change of policy. The other Provinces would do well to note her proceeding and imitate her action in this respect.

The first great desideratum in our forest economy is that there should be such a setting apart of our timber lands from agricultural lands. Settlement not only should not be encouraged, but should be absolutely prohibited in the section set apart for forest. In Canada with its enormous extent of country there is ample room for such forest reserves without denying to the agriculturist space for his plough. We certainly can afford to set aside a certain portion of our territory for this purpose at least as well as France, Germany, Austro-Hungary or even Russia.

There are in fact large tracts of country that are far better fitted for forest than for agriculture, and these should be determined, set apart and reserved from settlement. This would be no hardship to the farmer, for it is indeed no kindness to him to induce him to clear and break up land that can never give him an adequate return for his labour, while we have fertile soil in abundance for all who wish to till it. Even an exceptionally fertile spot in a forest region is not an advisable locality for a farm since the certainty that it can never become

the abode of a populous and flourishing agricultural community, must add to the expenses and diminish the facilities of the isolated farmer, as compared with his position in a good agricultural district. On the other hand the forest would not be exposed to the risks that necessarily follow a sparse agricultural settlement, with its burning of fallows and other dangers from fire.

All the Provinces should consider this matter before it is too late, and should immediately proceed to survey the lands that are adapted to be held in forest, and reserve them apart. This in itself would be a great gain even for the present, and it might facilitate hereafter the adoption of a system of scientific forestry, one of the few things in which Canada lags lamentably behind the rest of the civilized world.

### RECIPROCIITY.

To the Editor of the Canada Lumberman.

MR. EDITOR.—The more I look forward to reciprocity with the U. S. in lumber the more convinced I am it would eventually lead to a greater curse than a benefit. Many inexperienced persons in lumber would think none but a fool would express himself as such, but the day is drawing near when our home consumption to furnish the little world now getting a start within the bounds of our Dominion will require all the lumber it has got. Let those who are so anxious for reciprocity inquire and get posted up about our lumber resources from any old reliable lumber cruiser, and he will at once be informed that at the rate our forests are slaughtered a very few years will stop the output of it. On the river St. John, N. B., above the Grand Falls, not a stick of spruce was cut for St. John market. It was all large pine timber and pine logs thirty-two years ago; now no pine timber, now and then a pine log, and spruce taking from 8 to 10 trees to make one M feet, and now our cedar forests are getting slaughtered by the wholesale by Americans and manufacturers across the lines to save the duty.

I would ask those who are anxious for reciprocity, to show what we can expect to gain by it if we must lose the export duty. From Lake Superior to Nova Scotia, on the millions of feet of lumber we will be deprived of manufacturing, now growing in our forests, which will be utilized by Americans. It will be far better for the Dominion to not allow one stick to leave the country unmanufactured, and pay all import duties to any country we want to ship to. There are plenty of markets for our manufactured lumber besides Uncle Sam's, which would yield fully as good returns, and reap the benefit of its manufacturing to build up our army of labourers and consumers.

If I understand the object of our N. P. it is to build up and tear down factories, by protecting their interests, and I fail to see the justness to discourage the manufacture of our own staple article which is lumber, and encourage the staple article of foreigners, to manufacture cotton, sugar, etc., etc.

If an export duty is to be put on it will be necessary to know how to frame it, to place our mills on an equal footing with the Americans, to manufacture our forest lumber. For instance one cord of cedar will make 3 M shingles, American import duty would be \$1.05, which should be charged on every cord export duty. And 1,000 superficial feet of cedar logs will make 13 M shingles, and the import duty would be \$4.55, consequently any less than \$4.55 export duty on each and every M feet would be offering Americans a premium to manufacture our lumber.

Very respectfully

March, 1886. Yours,  
P. D. BYRAM.

### THE TIMBER SUPPLY.

To the Editor of the Canada Lumberman.

SIR,—We are again turning our eyes southward closely scanning the distant horizon for the appearance of any sign indicating the lessening or removal of the duty on lumber.

While we are so engaged it might be well to pause and take a retrospective glance, and learn some lessons from the past. The future may be big with coming events, but prior to their

development, and while still shadowy, it were well to make preparations for their advent, and for what will most inevitably follow.

The past twelve years teach us lessons which are necessary to be learned and considered well in their relations both to the present and future. The consequence of pursuing a certain line of action must be taken into consideration, more particularly when the evidence of what resulted from following the same elsewhere are clear, and declare in no ambiguous terms, that identical results will assuredly follow, whatever we may think to the contrary. We are not free, nor can we escape, from the punishment awaiting those who will not profit by the experience of others, however much we may delude ourselves with false hopes; nor can we expect positivity to avoid the penalty due to the descendants of the improvident and prodigal.

It is not the writer's intention to weary your readers with a long array of figures, but to place before them, as briefly as possible, a few facts from which they must deduct their own conclusions.

In 1874 the Lumbermen's National Association of the United States presented to Congress a memorial and remonstrance against free trade in lumber. From this document we learn as follows:—

The amount of standing pine and hemlock in the United States was estimated by Col. B. Wait to be 325,000,000 feet, with 100,000,000 feet in the Dominion of Canada. The United States Commissioner of Agriculture in his report for the same year stated: "If for 20 years to come the demand for lumber shall increase in the same ratio to the population as in the past 20, the timber on 10,000,000 acres of land will be needed each year for sawn lumber."

During the same year the amount of lumber cut was estimated to be 12,500,000 feet. Coming down the stream of time to 1880, we find the amount to be 18,000,000 feet, and, in 1884, according to N. H. Eggleston, Chief of the Forestry Division of the Department of Agriculture, Washington, the cut reached the enormous total of 28,000,000 feet.

Assuming for all practical purposes the estimate made by Col. B. Wait was about correct, the time is not far distant when the supply shall be exhausted. That such is the case evidence is not wanting. Prof. Sargent, special forest statistician of the United States Census Bureau, estimated in 1882 that the supply remained but eight years' supply. Mr. Leathers, Grand Rapids, in 1885, gives it as his opinion that there are but five years of lumbering in Michigan. He, however, looks to the south to supply the deficiency. It is needless to quote other authorities; the best of all evidence lies in the fact that enormous sums of money are being paid for pine lands. That the Southern and Pacific States possess an abundance is true, but true in a limited sense. The supply being exhausted in the Northwestern States as well as in the Eastern, in which are centred the principal manufactories, the amount to be required for them will be an increased consumption which will fall on these two areas. This consumption together with a rapidly growing foreign trade, will speedily deplete the forest treasury.

The unavoidable consequence of denuding the ground of trees will rapidly follow, in fact in many places they are now felt, and measures have been taken to remedy the evil so far as can be done at present.

Admitting the estimate of Col. B. Wait for the Dominion of Canada to be correct, we learn from the memorial, etc., that in 1884 the cut amounted to 1,600,000,000 feet. Ten years later it had reached 2,700,000,000 feet. This means that in about 40 years, provided the cut does not exceed 2,000,000,000 feet each year, our supply will be exhausted. This period of time is about the same as that given by so good an authority as Mr. J. K. Ward. En passant, the writer desires to acknowledge his indebtedness to both Mr. Ward and Mr. Little, from whose addresses, &c., he has obtained much valuable information.

When we consider that in the list of exports of the products of Canada, next to animals and their produce comes lumber, amounting in 1885 to nearly \$21,000,000.00, it behooves us to look

well into the source of its supply, and endeavor to get at some idea of the results following an unhealthy development of the trade. Of the 2,700,000,000 feet we export 1,000,000,000 feet, the balance representing home consumption. Have we no faith in the future of Canada that we must hasten to destroy the source of one of the most important, in fact the most important, of her products, exporting to foreign climes that which can scarcely be replaced in a life time, and for the reproduction of which we are making no adequate provision? The fact of our having what to-day seems a superabundance of a comparatively cheap material, is no warrant that the near future will not be in want of that same commodity. Bad as it is for this to be done by ourselves, how much worse to permit aliens to strip us of what is most requisite to the building up of our country. What is a forty year supply in the history of a nation; and that supply based on the assumption that no increase of consumption will take place during that period. The increase already in ten years amounts to 1,000,000,000 and that during the time when lumber was comparatively abundant in the U. S., how much greater will it be now that a scarcity has come? Inroads are being made upon our forests by the painfully expeditious and destructive Americans. Attention has been called to them and hopes are entertained that our Government will place a heavy export duty on logs. Neither the difficulty of collecting, nor the gloomy anticipations of American sympathizers, need be a barrier to the imposition of a prohibitory rate of duty. We shall ere long require every stick for our own consumption.

What is to be done must be done at once. Our country is young and in the natural course of events we may look forward to an increased demand for our own wants, with a constantly decreasing supply.

Coming generations have claims upon us which we cannot and must not ignore. Let us leave them a portion of a goodly heritage, from which they will know that, instead of squandering our forest wealth in barbaric splendor, or still worse, barbaric sensuality, we, looking down the long vista of coming years, were mindful of them ere yet they reached this tenetrial scene.

A. SIMPSON.

Toronto, March 20th, 1886.

### LUMBER PROSPECTS.

"Lumber prospects are exceedingly good this season, indeed better than they have been for many," said Mr. J. R. Booth this morning. "We have had no good season in the woods, and there has been a great cut made."

"How are the foreign markets?"

"Well, we don't often have both the markets English and American, good at once, but this season both are lively. There is a great deal of speculation in the English market, more than there has been of late years."

"Has much square timber been made?"

"Yes, a good deal, more I think than there will be demand for. The consumption has been steadily decreasing."

"For what reason?"

"Chiefly owing to the increased facilities for carrying small lumber, and again because the price has not yet been remunerative. The increase use of small lumber has also affected the making of square timber."

"Do you think this decrease favorable or otherwise to the trade?"

"It is doubtably a benefit to the trade. You see in making square timber only the best trees are used, the inferior being left standing. Then in order to square it there is a great deal of waste left in the woods. When small lumber is cut the best, and inferior trees are taken out together and the logs are brought down, and in cutting at the mills the waste is avoided. I think in the interests of trade it is desirable to discourage the making of square timber, and hope to see the cut altogether done away with."

—Ottawa Free Press.

A MAN named Carey, employed at Hurdman's shanties on the Mississippi river, Ont., was instantly killed a few days ago by being struck upon the head by a falling tree, his brains being scattered all around.

**HARD WOODS.**

A steady consumptive demand exists for a variety of our hard woods, and a constant change and substitution is going on in the kind of woods used for certain purposes in building, fitting and furnishing. The demand of cherry is steady and we quote \$60 to \$75 per thousand, for Nos. 1 and 2 of this kind of wood in this market. A car was sold this week at the high or figure. Walnut is firm and in request, more selling at \$95 than at \$85 per thousand, dealers tell us. Birch, although plentiful enough in the forest, is not easy to find in the market of the quality and dimensions most called for. There is very little selling at \$17.00, buyers pay \$18.50 to \$20 as a rule. Chestnut is quiet and not much sought after. There is more inquiry for butternut, which we now quote as high as \$40 to \$50. Basswood is an article in very steady request. Soft elm is higher and rock elm unchanged.

The *Lumberman* had recently the following about the Chicago market: "Stocks on hand in the city yards are large and ample for all immediate requirements. The only exceptions are, perhaps, in whitewood, which is very scarce, in dry walnut culls, and in red oak finishing lumber and quarter-sawed stuff. No one can tell why, but red oak actually seems to be more popular than white oak for inside finish, and often commands a higher price."—*Monetary Times*.

**THE CAUSE OF DISCOUNTS.**

First and last a great many articles have been written setting forth the demoralizing influence upon trade of the practice of making discounts. In this matter, as well as in all others, we find two sides to the question, and both present objectionable features. The habit of perpetually kicking prevails to a greater or less degree in every business house in the country. There are many firms who have a reputation as kickers, that acquire such a distinction entirely through the acts of employes, and while morally responsible are not personally dishonest. A salesman, inspector, or other employe, may become possessed of the idea that he can advance the interests of his employers if he shuts his eyes to justice and secures an advantage over some person with whom they are dealing, by means, which, to use a mild term, we will designate as sharp. There are plenty of employes whose idea of honor does not extend beyond the confines of the lumber yard in which they work, and who believe that to gain an advantage, just or unjust, is to advance the interests of their employer and that it will be appreciated by him and make their services indispensable.

There are dealers who ship lumber and deal with customers on the principal that every identical one of them intends to cheat on the count of inspection, and to offset that possible result will skin the grades or stretch the tally to the utmost limit. Such a policy does not go unnoticed and the average person will retaliate by adopting the other extreme and the ultimate result is a request for a discount. A shipper undertakes to load a car, and from various causes the job extends over a space of several days. It may be that two or three different persons have taken a hand at the tallying, or even if but one is engaged on that duty, the fact of dropping the work and starting again at odd times is sufficient grounds for asserting that an error could very easily have been made in the count. A car load arrives at its destination and the party who holds an order for its delivery sends a truck and hauls away a load or two to one customer and the balance to his yard. The teamster has taken tally of the loads he hauled away, and one or more tally boys in the yard measure the balance and if it does not hold out to the invoice, a claim for discount is made.

A shipper in measuring pieces which contain a fraction of a foot either throws off or adds on the remainder or adopts the just rule of give and take. The firm receiving the lumber may refuse to add on or divide and of course there is a shortage. The system of tallying by hundreds and placing the score on the side of the car or on a shingle, and in other unbusinesslike ways is frequently the cause for a great many unjust kicks, and the allowance of a great many discounts.

There are salesmen by the score who have

occasionally so far forgotten themselves as to sell lumber by sample, taking the standard from a pile shown them in the buyer's yard. If a car load shipped on such an order turns out satisfactory it is the exception, not the rule, and the salesman is largely to blame for the discount which is claimed.

The competition of the last two years has caused certain shippers to elevate the standard of grade made by them beyond the limit of any commonly accepted rules of inspection, and now a great many buyers insist upon making the standard severely rigid, and the manufacturer who ships an honest, straight grade of lumber is frequently obliged to discount because a competitor is giving away some of his lumber as an advertisement to secure orders.

These are but a few of the many methods that are in vogue to secure a discount on shipments, and it will be observed that the blame is not to be cast all on one side. The manufacturer in his greed for orders will practice what is commonly called "stuffing;" the salesman will overrepresent, or accepting a low offer will attempt to get out whole by working in a portion of an inferior grade, the consumer will kick because from a laxity of system he has made a purchase fall short, or from a preconceived determination to secure a discount he authorizes his employe to cut the measurement for defects, and to make the standard so high that the system verges on robbery.

This combination of affairs produces the inevitable result—discount.—*Northwestern Lumberman*.

**LUMBER AND TIMBER.**

It is a matter of satisfaction that the prospects of the lumbering trade, as a whole, are good. The demand from the United States is strong. The discussion in the American Congress on the Morrison Tariff Bill, and its passage through committee, are held to be of a hopeful character, though they are far from being a guarantee that the measure will pass. Were it not for conflicting interests continually fighting for supremacy, and the side issues introduced into the discussion, there seems no room to doubt that the duty of two dollars a thousand on lumber would speedily be taken off. The effect of this would be to enhance the value of our lumber products generally, and the lower grades especially. It is these lower grades that are more and more difficult to dispose of, and to the export of many of them the duty is an insuperable obstacle. There seems to be an opinion in lumber circles in the States that the abolition of the duty is only a question of time and contracts are being made in advance, on this assumption.

Our exports of timber and timber products to England are not so satisfactory as a whole. Deals have done well, and are likely to do so still; but heavy timber is very slow and difficult of sale, and prices are not encouraging. A good deal of timber has been held over at Quebec for more than one season. If trade were to revive in England an entirely different aspect would be put upon matters; but that appears far off, even yet.

The lumber and timber trade occupy so prominent a position in our industries as to affect the whole mercantile and financial condition. To a certain extent this is true of every part of Canada; but it is more particularly the case in the whole of the regions watered by the Ottawa, certain portions of the province of Quebec, the whole of the Trent Valley district, and the region north of Lake Simcoe.—*Monetary Times*.

**GRAPHITE AS LUBRICATOR.**

The following interesting matter relative to the use of Graphite (better known under the name of "black lead") is from Prof. John A. Walker's report in "Mineral Resources of the United States" for the year 1893-84:

"With the introduction of heavier machinery the service demanded of a lubricant has become more and more severe. For much of his work it is found that oil will not answer at all, and for much more it answers only at great expense, hence the uses of greases and the more solid lubricants, such as graphite, mica, soapstone, sulphur, etc. When graphite first began to be as a lubricant, anything which gave a stove-

polish luster when rubbed was assumed to be "black lead" and fit for lubricating purposes. Experience soon proved it to give varied results—sometimes very good and sometimes the reverse; in fact, it was not reliable because of a lack of uniformity correct sizing and purity and soon fell into disrepute among practical men, though continuing to be well spoken of in the books. In 1886, however, systematic experiments were begun in this country with a view to producing arollable lubricant from graphite, and the final result has been very satisfactory.

"Water-dressed dry foliated American graphite is a little thin flake of graphite of extraordinary properties. Its superiority as a lubricant has been attested by all recent writers on friction. Its coefficient of friction is very low. Its enduring qualities are several times greater than those of any oil. Unlike either oil or grease, it is not effected by heat, cold, steam, acid, etc., and acts equally well under varying conditions of temperature and moisture.

"Many and carefully conducted experiments in the laboratory with Professor Thurston's testing machine, and experience in shops, have shown that for the highest usefulness the flake must be of a certain size and dressed perfectly pure. Graphite never occurs of the proper size and purity for use. Its natural impurities contain substances fatal to anti-friction purposes. Its proper selection, sizing, and perfecting for lubricating purposes is a matter requiring large skill, much machinery, and great experience. The difference between a perfectly pure graphite and one almost pure, but still totally unfit for lubricating, can not be detected by either sight or touch.

"It is recommended dry for steam and air cylinders, mixed with grease for heavy bearings and mixed with oil for light bearings. On being applied to a bearing, it readily coats the surface with a shiny, unctuous veneer. These surfaces then slide on each other with very little friction. On being applied to heated bearings, the graphite soon fills up any inequalities of the bearing surfaces due to cutting, abrasion, etc., making them smooth and even, after which the bearing soon cools down and is equally useful for wood or metal surfaces: in short, in all cases where friction exists. If the bearings are loose enough for the introduction of this thin flake graphite, it will prevent heated bearings, cool those already heated, and reduce friction better than anything else. In all cases where the service required of a lubricant is very severe graphite will be found specially useful, as in mill steps, gears, heavy bearings, bed plates, etc.

"This is the most rapidly growing use of graphite. In 1884 a single company sold 250,000 pounds of it for this purpose, branded as 'lubricating graphite,' and probably as much more not so labeled, which was used for the same purpose."

**Cholera Preventative.**

In order to withstand Cholera and such like epidemics a perfect purity of blood, and the proper action of the stomach, are required. To insure that end, in the cheapest, most available and complete manner, use McGregors Speedy Cure for Dyspepsia and Impure Blood. There is no purer, safer or more reliable remedy in existence for Indigestion, Dyspepsia, Costiveness, etc. Ask your neighbor or any person who has used it. Sold by John McKee. Trial bottle given free.

**Health is Wealth**



DR. E. O. WALKER'S NERVE AND BRAIN TREATMENT, guaranteed specific for Hysteria, Dizziness, Convulsions, Fits, Nervous Neuralgia, Headache, Nervous Prostration caused by the use of alcohol or tobacco, Wakefulness, Mental Depression, Softening of the Brain resulting in Insanity and leading to misery, decay and death, Premature Old Age. One box will cure recent cases. Each box contains one month's treatment. One dollar a box, or six boxes for five dollars; sent by mail prepaid on receipt of price. We guarantee six boxes to cure any case. With each order received by us for six boxes, accompanied with five dollars, we will send the purchaser our written guarantee to refund the money if the treatment does not effect a cure. Guarantees issued only by J. D. TULLY Druggist, Sole Agent for Peterborough.

**J. & J. T. MATHEWS**  
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LUMBER AND TIMBER CARGONS  
A SPECIALTY.  
TORONTO, Ont., 109 Bay Street.

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WHOLESALE and RETAIL  
**HARDWOOD LUMBER**  
MERCHANT

Car Lots sold on Commission, railway switch in to yard and plenty of room for storage. Yard corner of St. John and Wellington Ave. Office, 9 Victoria St. Telephone Connection.

**FOR SALE**  
—  
**VALUABLE**  
**Timber Limits**  
AND  
**50,000 SAW LOGS**  
**ON SEVERN RIVER**

The undersigned being desirous of confining their operations to their Lakefield Mills on the Trent waters, offer for sale the following limits:—

Township of Hindou, 70 square miles.

" Oakley, 45 " "

" Redout, 22 " "

— An area of 137 square miles.

These limits are estimated to contain 180 million feet of Logs, well watered, and afford means of short hauling from all points, and quick and cheap driving to Georgian Bay. Are offered for sale together with plant, depots, farms, 1,200 acres deeded lands and 50,000 logs, nearly all of which are on the main river, a large proportion of which are 16 feet long. Apply to

**R. & G. Strickland,**  
Sml. LAKEFIELD, ONT.



**NOTICE.**

SEALED TENDERS, addressed to the undersigned, and endorsed "Tender for Indian Supplies," will be received at this office up to noon on TUESDAY, 30th APRIL, 1886, for the delivery of Indian Supplies during the fiscal year ending 30th June, 1887, consisting of Flour, Bacon, Beef, Groceries, Ammunition, Twine, Oats, Corn, Hulls, Agricultural Implements, Tools, &c. duty paid, at various points in Manitoba and the North West Territories.

Forms of tender, giving full particulars relative to the supplies required, dates of delivery, &c., may be had by applying to the undersigned, or to the Indian Commissioner at Regina, or to the Indian Office, Winnipeg.

Parties may tender for each description of goods (or for any portion of each description of goods) separately or for all the goods called for in the Schedules.

Each tender must be accompanied by an accepted Cheque in favor of the Superintendent General of Indian Affairs on a Canadian Bank for at least five per cent of the amount of the tenders for Manitoba and the North-West Territories, which will be forfeited if the party tendering declines to enter into a contract when called upon to do so, or if he fails to complete the work contracted for. If the tender be not accepted the cheque will be returned.

Tenders must make up in the Money column in the Schedule the total money value of the goods they offer to supply, or their tender will not be entertained.

Each tender must in addition to the signature of the tenderer be signed by two sureties acceptable to the Department, for the proper performance of the contract.

In all cases where transportation may be only partial by rail, contractors must make proper arrangements for supplies to be forwarded at once from railway stations to their destination in the Government Warehouse at the point of delivery.

The lowest, or any tender, not necessarily accepted.

L. VANROUGHENET,  
Deputy of the Superintendent-General  
of Indian Affairs.

Department of Indian Affairs,  
Ottawa, 3rd March, 1886.



### LAKE MICHIGAN TRADE—AN IMPENDING CHANGE.

That the lumber trade of the Lake Michigan districts is passing toward an important change can be plainly seen. The tendency to transition is especially visible in this city, where a large portion of west Michigan, upper peninsula and Green Bay lumber finds a market. The past two years of general depression and close competition, to sell on a weak market has nearly wiped out the profit margin between mill and retail yard, when the lumber has to be handled in a wholesale or jobbing way. This has caused manufacturers here, who have distributed their lumber as wholesale dealers, to conclude that lumber at the mill, or by the cargo, has more profit in it than when run through the yards in the line of assorted stock. Some of the Menominee manufacturers are seeking to place their business on a more profitable basis by relinquishing their yard trade in this city, piling at the mills and shipping direct to retail yards or consumers. Others contemplate throwing up the grading and finer manipulation of lumber entirely, and substituting therefor the selling in cargo lots, or in any way the call may come to them.

It is the general impression among the wholesale dealers of this city that the carrying on of yards here is so costly that a handling bill cannot be made in the sale of lumber, to say nothing of fair profits. But this cannot be the real reason of the merchants' dissatisfaction, for with the exception of difficulty of obtaining a safe line of insurance, and a late increased rate of insurance, it costs no more to run a yard now than it did five years ago. Indeed it may be asserted that a yard can be conducted more economically now than it was before dock rates weakened as they have done during the past two years, if it were not for insurance.

The fact is that the cause of so much dissatisfaction with the yard trade is the fierce competition between the various manufacturing districts, which has grown worse under the influence of depressed demand, low prices, and the new transportation facilities that have been furnished. By reason of the last named evolution, new fields of production have been made accessible, and new avenues to market have been opened up. It has come to this, that a buyer in Kansas, Nebraska or Iowa, can have a choice of any market along the river from St. Louis to St. Paul, of any mill stock in Wisconsin or the upper peninsula, or he can even go around the lake in lower Michigan, if he likes, and thus steal a march on the Chicago wholesale dealer—all because the railroads and the seller will part the Chicago profit in the middle and divide it between them. Thus the manufacturers are brought to the conclusion that there is no object in trying to distribute their product through yards when it can be sold at a fair profit at the mill, without so much risk and worry as the yard business involves. Besides, an important factor in the new departure is increasing demand in the east for product—a requirement that has recently taken a longer reach westward, and grasped larger handfuls than formerly. In order to get what they want, eastern buyers are offering a little more for lumber than it would bring in this or other western markets. This tends to a stiffening of cargo values compared to prices in the yards. The mill owners along the lake shores have also acquired sufficient capital to hold their lumber for all they can get for it. In other words, the conditions that prevailed a few years ago have been reversed. Whereas once the dealers or factors in lumber held the purse strings and permitted the mill men to go on with their sawing by loaning them money, now the manufacturers are the capitalists of the heavier calibre of the two. This change in circumstances enables the mill owners to more nearly hold the balance of power than formerly, and insist on prices that are not favorable to the wholesale handlers.

Besides, the tendency of the retail dealer and the contractor is to go to the mill for their lumber. Retail handlers are also becoming capitalists, for they have relatively made more money within the past two or three years than the wholesale merchants, for the reason that they have been able to buy at almost their own figures. The handlers of large stocks in a

retail way are more than ever inclined to buy of first hands, and thus secure the profit that the wholesale dealer is supposed to make by assorting.

What, then, will be the result of the change in the lake white pine trade that seems inevitable? Will the wholesale trade of this city, South Chicago, Michigan City, Milwaukee and Racine be wiped out? Probably not; but it will, within a few years, fall below its present proportions. While the white pine that is accessible to lake ports lasts, there will be stocks held in this city and at other points for sale by wholesale. The business of assorting will be maintained, if for no other reason than that retail handlers are constantly running out of sorts that have to be supplied at short notice. But the jobber will also more and more cultivate the retail trade at home as well as throughout the country. The time will come when the holders of stock here will lose their distinctive character of "wholesalers," and will sell in round lots at wholesale prices only as an incident of their business, as do large country retail dealers of merchandise sometimes. But this market will always remain a large repository of assorted stocks, which can be drawn upon as occasion requires, by the trade at large.—*Northwestern Lumberman.*

### WARPING OF TIMBER.

W. S. Stevenson writes as follows to the *Timber Trades Journal*:—There is a great amount of popular error associated with the wood of the south as compared with the wood of the north side of the tree, it being held that the centre or pith is nearer to the north, and that the annular layers of wood are thicker on the south, and that they possess various degrees of density, shrinkage, &c. This is put forward as a rule, whereas it is only a rare exception, and, wherever it is pronounced, it is invariably traceable to local and other influences. In forest-grown trees, the heads of which are small and uniform in height, the growth of the tree is upwards, and the branches and foliage form umbrageous heads fairly equal all around. In the sections of such trees the woody fibres are found fairly and evenly disposed, the pith, or medulla, in the centre, and the wood on the north and south sides identical in every way. It follows from this, that, as forest-grown trees furnish the bulk of the woods of commerce, the question of north or south side wood has no practical appreciable bearing upon the trade. In trees grown in the open, as in the centre of our fields, the stems will be short, the lateral branches large, and the heads, as a whole, well rounded. The reason of this is that the light which is the life of the tree, is all around them. The sides towards the sun, say the south, may possibly be the most verdant, but as the sun is at a great altitude during the few months of the year it has influence upon vegetation, but no marked action upon the disposition of woody layers on the south or north sides of timber trees. The above close and open-grown trees for the rule of vegetation, and we must look to the exceptions for any details touching the questions advanced by "Zero." Take a wood or plantation occupying a given area of ground, the trees surrounded by others will be of straight and uniform growth, whereas those on the outside fringe or skit will be distorted. Such trees, from being partially shaded from the light, will grow all upon one side, the side to the light. Here they will put out large lateral branches, and form thick layers of wood upon the stems, and develop great roots to correspond with the branches above. Such trees in sections will show annular layers of woody matter, those towards the open side thick, soft and porous, and those towards the shaded side thin, hard and horny. It matters, say, in England, little whether the light or open ground is on the east, west, north or south, for, wherever it is, there we shall find the thick and thin layers of woody matter, irrespective of polar position. To this rule of one-sided growth there is the exception of trees depositing their woody fibres in spiral form; the position of the pith, or medulla, in such trees would be erratic. You might in a section, say three feet from the ground, expect to find it inclining to the shaded side, whereas it might be found directly opposite. It is true you may

find exceptions in forest growth, for where trees are grown on a hillside, one sloping above another, the foliage will all be produced on the side of the trees towards the light, and the pith or medulla, be found, where spiral growth does not intervene, inclining to the sides where the vegetation is weakest. It would matter but little whether such hills rose towards the east, west, north, or south, the vegetation would all incline to the light. In the far north of Europe the case is somewhat different, there the north and south have distinct influence, the trees being stunted, and only putting out branches towards the south. Linnaeus noted such trees in his travels in Lapland, but was unfamiliar with them in the centre of Sweden. He remarked that the wood on the north sides of the fir trees (*Pinus Sylvestris*) was so hard, tough, and close grown that the Laplanders made their bows of it, and had recourse to it for purposes where hardwood was required. It is fair to suppose that "Zero," in his experience of wood, will never come across a tree so influenced in their growth by the south and the north; but if he does he will find the south sides soft, light and shrinkable, and the north sides hard, heavy and subject to little change by the extraction of the moisture. "Zero's" question is put under the erroneous supposition that all trees are influenced in their growth towards the south and north; I therefore find it impossible to frame a clear or fitting answer.

### LARGE OR SMALL ENGINES—THE SAFE SIDE.

The natural and commendable desire to be on the "safe side" in making a calculation may be, and often is, carried to an extreme, which leads into a greater error than that which it is sought to avoid. A man is going to put in an engine; he has often heard and read of the wastefulness of too small a motor; and so, to be on the safe side he orders an engine which is correctly proportioned for about four times the load which it will be run under, reasoning that a pig horse can drag a little load but a little horse cannot drag a big load. There is this difference between a horse and an engine; that while the big horse might not cost any more to buy or to keep, both the selling price and the cost of running an engine increases with its size, owing not only to the increased friction of the larger engine, but to the fact that in order to keep it from exerting its great power it must be run with low steam, a high grade of expansion, and at a very low speed. The owner finds in consequence that he has paid a number of hundred dollars more than he needed for a machine which is less economical than the smaller and cheaper would have been, in order to be on the "safe side."

It is quite as possible, though not so frequent in occurrence, that the boiler power may be too great as it is too little, and as for the boiler material the government authorities are obliged, in the interests of safety, to restrict the fire sheets to a given thickness.

Many superintendents and managers will, to be on the "safe side," fit their boiler room up with all manner of patent traps and get it where it will almost run itself, or so that anybody can run it, and then to be on the "safe side" of the ledger they put any "thing" in to run it. Any "thing" depends upon the safety automatic machinery to look out for everything—he does not even look after the machinery itself, and when it slips up at some critical moment with more or less damage, who is to blame? Any "thing," the automatic safety appliance, or the man who substituted it for brains, to be on the "safe side."—*Saw Mill Gazette.*

### BIG WEEK'S BUSINESS.

It is almost impossible to interview T. W. Hastings, the stirring, pushing, enterprising head worker in the business of Mosher & Fisher, of West Bay City, Mich., without getting some interesting and reliable facts for the ear of the reading public.

"How is business, Mr. Hastings?" said the pencil pusher.

"Business is excellent, if we may judge thereof by our own transactions," retorted Mr. Hastings. "During the week back the transactions of Mosher & Fisher have been on a scale of magnitude. Their sales and purchases

have been as follows: 350,000 feet of lumber sold to Ohio parties; 4,500,000 to eastern parties; 1,100,000 to western parties. They have also purchased during the week 10,000,000 feet of logs from Thomas H. McGraw & Co.; 25,000,000 feet of logs from Sibley & Bearinger; these latter were intended for East Saginaw mills, but will be brought to Bay City for conversion into lumber; they also purchased during the week 5,000,000 feet of lumber, and invested a sum appropriating \$50,000 in pine lands."

"How much do your sales amount to since the close of navigation," queried the seeker after news.

"At the close of navigation the firm had lumber on hand aggregating 21,000,000 feet.

"They have sold up to date 20,000,000 feet. The purchases during the same time amount to 5,000,000 feet.

"Leaving lumber on hand at this date 6,000,000 feet.

"Since January 1st, the log transactions of the firm are as follows: Purchased of Smith Bros., Cheboygan, 3,000,000 feet; of T. H. McGraw, 16,000,000 feet; of Sibley & Bearinger, 25,000,000 feet; they have cut on their own land 10,000,000 feet; and having 5,000,000 left over in the Tittabawassee, it gives them a stock for the next season of 57,000,000 feet.

"The mills of McLean, Son & Co., Malone & Co., Laderach Bros., Miller Bros., and Green & Stevens will do the manufacturing for the firm during the season of 1884."—*Lumberman's Gazette.*

### BEARINGS FOR MAIN SAW MILL SHAFTING.

In reply to "W. S. F." the *Timber Trades Journal* says that bearings for saw mill shafting are in the latest and best practice made considerably longer than they used to be, with a very satisfactory result both as regards wear and tear and steadiness in running. If you are remodelling your mill we should recommend you to put in bearings about four times as long as the diameter of your shaft, and by all means have them arranged to pivot so that they can adjust themselves to any deviation in the shaft. This is an important matter, but one very often lost sight of, consequently there is a considerable daily loss through increased friction and wear and tear on the bearings, and more power is consumed in driving. It is astonishing how these important matters are neglected even in these days when people should know better. As an illustration we may say we recently went into a box factory where the power was conveyed by a twisted belt running at 10 ft. centres, and the saw benches were about the same distance off, and almost immediately beneath the main shaft. We need hardly say that, with this arrangement, the loss was large, probably nearly £100 a year from loss of steam, loss of speed on benches through slip on belts, increased wear on belts and bearings, less output from benches and worse work. When we pointed it out the reply was, "Yes, perhaps so; but it has done for us for some years, and I don't think we shall alter now." We had therefore nothing further to say.

### MATCHES.

Many people now living can remember the time when there were no matches, and people were obliged to depend upon tinder boxes and similar contrivances when they wished to strike a light. It is possible that the time is not far distant when the matches now so universally used will again go out of use. At least a patent is said to have been granted in Russia for a lucifer match that can be used an indefinite number of times, the wood being impregnated with a special chemical solution. Match making is one of the Canadian industries that has attained a high state of development, and matches have usually been much cheaper in Canada than in the United States, partly because the American Government imposed an excise duty on matches, and every box sold had to have a Government stamp.—*Montreal Star.*

The tug *Nat Stickney* has been chartered by the Cheboygan Lumber Company to tow logs from Spanish river, Ont., to Cheboygan, Mich., for the season to come.

LIVERPOOL STOCKS.

We take from the *Timber Trades Journal* the following Comparative Table showing Stock Timber and Deals in Liverpool on Feb. 27, 1885 and 1886, and also the Consumption for the month of Feb. 1885 and 1886:—

	Stock, 1885	Stock, 1886.	Consumption 1885.	Consumption 1886.
Quebec Square Pine.....	260,000 ft.	135,000 ft.	40,000 ft.	68,000 "
Wandy Board.....	318,000 "	824,000 "	1,000 "	8,000 "
St. John Pine.....	20,000 "	40,000 "	4,000 "	8,000 "
Other Ports Pine.....	63,000 "	40,000 "	4,000 "	2,000 "
Red Pine.....	42,000 "	20,000 "	02,000 "	01,000 "
Pitch Pine, hewn.....	650,000 "	384,000 "	143,000 "	210,000 "
Sawn.....	560,000 "	087,000 "	0,000 "	0,000 "
Planks.....	00,000 "	00,000 "	4,000 "	2,000 "
Dantsic, &c., Fir.....	90,000 "	68,000 "	5,000 "	1,000 "
Sweden and Norway Fir.....	60,000 "	214,000 "	27,000 "	83,000 "
Oak, Canadian and American.....	203,000 "	173,000 "	02,000 "	02,000 "
Planks.....	121,000 "	0,000 "	0,000 "	2,000 "
Ballo.....	0,000 "	29,000 "	1,000 "	4,000 "
Elm.....	14,000 "	143,000 "	20,000 "	23,000 "
Birch.....	01,000 "	14,000 "	2,000 "	4,000 "
Ash.....	37,000 "	164,000 "	10,000 "	11,000 "
East India Teak.....	10,000 "	130,000 "	14,000 "	32,000 "
Greenheart.....	63,000 "	18,305 stds. }	1,840 stds. }	1,808 stds. }
N. B. & N. S. Spruce Deals.....	24,284 stds. }	954 "	931 "	672 "
Pine.....	500 "	0,027 "	233 "	107 "
Quebec Deals.....	4,623 "	3,293 "	29 "	00 "
Baltic Red Deals, &c.....	3,104 "	349 "	615 "	1,035 "
Baltic Boards.....	107 "	1,431 "		
prepared Flooring.....	3,032 "			

**Chips.**

TRIES to the number of 20,000 are being got out near Neesing, Ont., Crawford & McDonald having a contract for 10,000.

WILMOT WILSON, of Pickering, Ont., was killed by a falling tree while cutting wood three miles east of Newmarket.

FOREST fires have caused great destruction of timber lately in Sussex county, Va. Considerable cordwood was burned.

AMONG the new firms announced in Quebec is M. Stevenson & Co., lumber, etc.; James Timmony and Walter Stevenson, partners.

In some parts of Mexico precious woods are so plentiful that the natives build pig styes of rosewood logs.—*Journal of Commerce.*

A FIRE was started in the woods south of Jamaica, L. I., N. Y., March 7th, by tramps who built a fire to cook. A large lot of timber was destroyed.

A JOURNAL in the interests of carriage builders says hickory axles have advanced 20 per cent. within a year, while good dry wood material is scarce and will naturally increase.

MAINE is one of the states in which great trees grow. A spruce was cut in Caribou, Aroostock county, lately, which at a distance of 106 feet from the ground measured 14 inches in diameter.—*Chicago Tribune.*

RAILWAY men complain of the weight of the passenger cars now built, and show by figures that an engine hauls between five and six pounds of dead weight for every pound of paying passenger weight, reckoned when all the seats are filled.

SOMEBODY has taken the pains to figure out that the United States produces enough lumber each year to load 1,428,581 railroad cars, each carrying 7,000 feet. It is also said that this would make a train 8,500 miles long, or about one-third around the world!

THE Parry Sound Lumber Company, says the *North Star*, have commenced fitting up their steam barge, the *Lothair*, for the coming season's work. Work on the other vessels of the company to get them ready for sailing by the opening of navigation will be commenced shortly.

A CONTEMPORARY says:—A feminine "Pooh-bah" has just come to light. She is Miss McBrown, of Chesterville, Ill., and is station agent, baggage mistress, and telegraph operator for the Midland Railway, at that place. Besides this she runs a lumber yard and a dairy, and holds the enviable position of village belle.

A REVIEW of the season's lumbering operations in Minnesota and Wisconsin shows that the lumber cut has been curtailed to the extent of about 123,500,000 feet, though the demand for lumber is equal to the supply, which covers large stocks left over from last year.—*St. Paul Press.*

It is said that \$15,000 was once paid by Messrs. Broadwood—the famous English piano makers—for three logs of mahogany from the same tree, each fifteen feet long and three feet and two inches square; that is something over \$33 per cubic foot. The attraction was the unusual beauty of the "burls," which made it valuable for veneers.—*Wood and Iron.*

A REMARKABLE explosion which occurred in Germany shows the force possessed by dust. A sack of flower falling down stairs, opened and scattered the contents in a cloud through the lower room, where a burning flame set fire to the dust, causing an explosion which lifted a part of the roof of the mill and broke almost all the windows.

A NOTABLE example of the utilization of smoke is afforded in the case of a charcoal furnace at Elk Rapids, Mich. In this furnace, as stated, are manufactured fifty tons of charcoal per day; there are twenty-five charcoal pits, constructed of brick, each pit being filled with 100 cords of hardwood, and then fired. The vast amount of smoke thus produced is made to yield acetate of lime, alcohol, tar and gas.

MESSRS. Scott & Scott, an enterprising young firm of lumber dealers in Toronto, have purchased the mill, machinery, plant, &c., together with the timber and limits belonging to the Medonte Lumber Company, near Hillsdale, Ont. The company's contracts for supplying timber, lumber, &c., will be carried out by the new owners. The purchasers have been operating the limits since December last.

As Murney Sills, working in the shingle department of the Deseronto cedar mill, was leaving the mill for his dinner on March 16th, and, while in the act of pulling on his coat, it caught in the driving shaft, pulling him up over it twice and breaking his right arm off about four inches from the shoulder. The unfortunate man was carried to his home, where he had to lie over an hour without a doctor, both physicians being out of town.

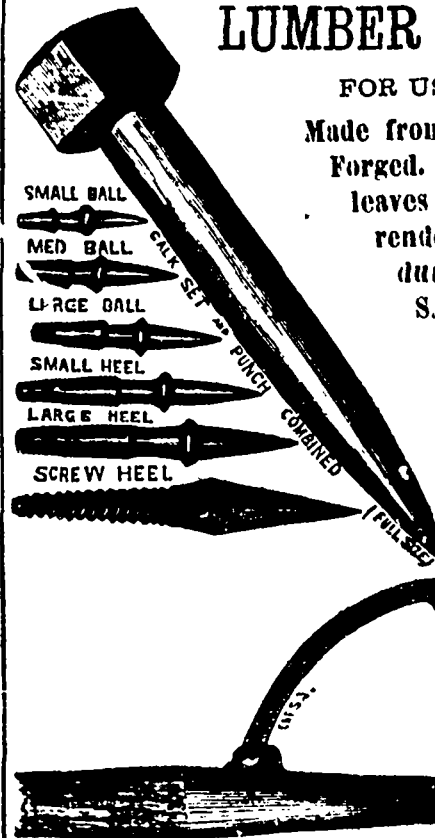
Wonderful is the instantaneous effect of West's Pain King in relieving cramps, colic and all bowel difficulties. Worth its weight in gold and costs but 25 cents! Should always be kept in every household. Sold by J. D. Tully druggist.

**Advice to Mothers.**  
Mrs. Winslow's Soothing Syrup should always be used when children are cutting teeth. It relieves the little sufferer at once; it produces natural, quiet sleep by relieving the child from pain, and the little cherub awakes as "bright as a button." It is very pleasant to taste. It soothes the child, softens the gums, allays all pain, relieves wind, regulates the bowels, and is the best known remedy for diarrhoea, whether arising from teething or other causes. 25 cent a bottle. Be sure and ask for "Mrs. Winslow's Soothing Syrup," and take no other kind.

LUMBER DRIVERS' CALKS

FOR USE IN STREAM DRIVING.

Made from the Best Refined Tool Steel and Forged. The method used in tempering leaves every one of the same temper rendering them stronger and more durable than any other Calks made. Samples and prices free on application to the undersigned.



THE **Oroonc Cant Dog**

Strongest and Lightest in the market. Made of Best Cast Steel by drop forging process. The Handles are made of best quality straight grained split and turn 1 Rook Maple, 5 to 6 feet in length, bored specially to suit the pick. Prices on application.

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ALL ORDERS Filled same days as received.

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Market Reports.

TORONTO.

From Our Own Correspondent.

MARCH 24.—All the retailers of lumber here agree that trade is unaccountably dull, and any stranger driving through our city at the present time, and viewing the large number of excavations for buildings now being taken out would come to the conclusion that all the lumber yards were doing a flourishing trade; but a close scrutiny would soon let him in to the secret, and fully explain why our retail men are not doing a brisk trade. Contract work has not yet fairly opened out, and nearly all the building operations that are now being so vigorously pushed forward is chiefly in the hands of speculators, and most of our retail men give them a wide berth, and it remains for the wholesale men to furnish such men by car load. Of course there are exceptions, some of our speculative builders have made their pile, and can command credit from any dealer. This is not the rule, however, wholesale dealers take more chances in this respect than the retail men, and frequently get severely bit for their temerity, as lumber sold in car load lots soon foot up a heavy account, and the lien law as it now stands on our statute books is quite inadequate as a means of protection for any one except a mechanic, consequently our dealers frequently suffer severe losses, and the only effectual way to avoid such losses is to insure, that the parties advancing the funds in building shall secure the individuals furnishing materials.

Wholesale dealers are disposing of car load lots readily and prices have weakened on some kinds of stock in consequence of the action of the N. & N. W. R. R. Company in refusing to allow dealers to unload by side of track. The ostensible reason for this course is that the company intend to rearrange their tracks in view of affording more unloading room, which they hold will be needed consequent upon the opening of their extension, north from Gravenhurst to the junction of the C. P. R. R., and dealers have had to push off their stuff at best prices available to avoid demurrage. It is only fair to the railway company to say, however, that they have not pushed their customers at all closely as to time for unloading.

All who are interested are anticipating a good season's trade, and the demand for dry stuff will give the yards plenty to attend to before long, as nearly all the available supply from the mills will soon be forward, so that any one wanting dry lumber will have to go to the yards and get it there.

Some few cases of stocks and 1 1/2 in. plank are still arriving here from Ottawa, but not of a class at all inviting to dealers, being nearly all composed of culls and outs; said outs being mostly thrown out of the clear and picks by reason of shakes. 1 1/2 in. is so hard to obtain, however, at present, that anything that can be worked up will sell at fair figures, and as soon as the new cut is started this class of pine will have to be taken in its green state and put into the dry kilns. Lath are in good demand just now and no large stock of dry to come in. Shingles are plentiful and demand slow, and it is doubtful if the demand will equal that of former years in this city at least, as slate and metallic shingles are largely taking the place of wood and bid fair to come into more general use. There is constant inquiries for 1 1/2 flooring, and in the rough it is hard to obtain any large supply. All kinds of hardwood are in fair demand. Prices are ruling low, as compared with pine, and the freight is nearly double that of pine, and cost of hauling and cutting nearly double also, yet a good floor of ash or maple can be put down nearly as cheap as one composed of pine, and the day is not far distant when the owners of hardwood lands will come to the conclusion that their timber and time has been literally wasted.

Table with 2 columns: Item description and Price. Includes Mill cull boards and scantling, Shipping cull boards, various stock prices, and Beantling and jobs.

Table with 2 columns: Item description and Price. Includes various sizes of lumber (28 ft, 30 ft, 32 ft, 34 ft, 36 ft, 38 ft, 40 to 44 ft), Cutting up planks to dry boards, Round dressing stocks, Picks Am. Inspection, Three uppers, Am. Inspection, 1 1/2-Inch flooring, Beaded Sheeting, Clapboarding, XXX sawn shingles, Sawn Lath, Red oak, White, Basswood, Cherry, White ash, Black ash.

MONTREAL.

From Our Own Correspondent.

MARCH.—The activity in business noted in our last report has continued during the past fortnight with regard to city distribution, and a large number of orders have been executed; but the snow storm of last week, and the usual bad state of the roads at the break up of winter, militated somewhat against the country trade.

Business generally compares very favorably with the corresponding period of last year, and some dealers are expecting that their sales during this month will nearly double those of March 1885.

There are no changes in the quotations to note, but the wholesale men are looking for better prices, and this fact seems to have encouraged contractors and others to secure a large portion of their supplies before the anticipated advance takes place.

The following are the quotations at the yards:—

Table with 2 columns: Item description and Price. Includes Pine, 1st quality, Pine 2nd, Pine shipping culls, Pine 4th quality deals, Pine, mill culls, Spruce, Hemlock, Ash, run of log culls out, Bass, Oak, Walnut, Cherry, Butternut, Birch, Hard Maple, Lath, Shingles, 1st, Shingles, 2nd.

CORWOOD.

Table with 2 columns: Item description and Price. Includes Long Maple, per cord, Long Birch, Long Beech, Tamarack.

OSWEGO, N.Y.

From Our Own Correspondent.

We cannot change quotations. The movement has been larger than usual since our last report; the better grades of lumber have been more in demand, and dealers having good selection have had a good trade. Stocks are very much broken and all are anxious for the opening of navigation to replenish. Collections are rather slow but prospects are fair for a good trade.

Table with 2 columns: Item description and Price. Includes Three uppers, Picking, Cutting up, Fine Common, Common, Culls, Mill run lots, Siding, selected, 1 in., 1 1/2 in., Mill run, 1x10, 13 to 16 ft., Selected, Shippers, Mill run 1 1/2x10, Selected, Shippers, Mill run, 1 & 1 1/2 in. strips, Selected, Culls, 1x6 select, 1 for clapboards, Shingles, XXX, 18 in. pine, XXX Cedar, Lath 1 1/2, No 1, No 2.

CHICAGO.

AT THE YARDS.

The Northwestern Lumberman of March 27th says:—Despite the railroad blockade at St. Louis and southwestern points, caused by the Missouri Pacific strike, the outward movement of lumber during the past week has been heavy,

In fact it is doubtful if in any previous March there was more lumber shipped in one week than there has been during the current one. It is also an encouraging feature that the trade this spring is legitimate, not greatly forced, and the lumber is sold at prices within a narrow and positive range—a condition entirely different from that of last season, when prices were soft and yielding, and almost bottomless. Prices are somewhat higher than the highest last year, which gives some chance for profit on last season's purchases, but are yet too low in view of cargo prices for dry lumber.

The strike on the Missouri Pacific lines, and the blockades at St. Louis, Kansas City, Sedalia, and Atchison have been some hindrance to a speedy delivery of lumber on the lines affected, yet this has not checked trade as much as might have been supposed. Orders have continued to come in and cars have been loaded and sent out. The more serious embargo has been at St. Louis, and has been longer continued than at Kansas City. One heavy shipper to Missouri and southern Kansas points jocosely says that if the glut at St. Louis continues much longer the front end of his train will be in Missouri while the rear will be in his yard—thus hyperbolically indicating how heavy his shipments are in spite of the strike.

On Thursday morning the newspapers stated that the switchman's strike at Kansas City was over, and trains were moving on all lines except the Missouri Pacific. This was good news to shippers, and the vividly appreciated because on Wednesday they had been notified by the freight agents that no more lumber would be taken on the Rock Island and Alton roads. If Kansas City can be kept open, Chicago can get along fairly well, as a comparatively small portion of the aggregate of shipments go by way of the Gould lines, though in the segregate the amount is considerable.

It is probable that current shipments have been stimulated by the fear that has prevailed in the West that the railroad troubles would be long-continued, and that they would spread to other systems than those now effected. In fact the yard dealers here have used this motive in their letters and circulars to their customers and travelling salesmen. Be sure that the latter have not failed to use the argument upon the retail yard men; and it is a good one it must be confessed. The trouble is not yet over, though it is hoped that the settlement at Kansas City, the vigorous measures being adopted in Missouri, and the cautionary signals being displayed by his highness, General Master Workman Powderly, may be the beginning of the end of the war.

The heavy drain on stocks since the middle of February has seriously broken up assortments that were not too complete in some particulars when trade went into winter quarters. Twelve-inch common boards, 10, 12, 18 and 20, feet long, are very scarce, some yards being out of them entirely. The same is true of some middle river markets, and dealers on the river are now buying boards here in order the eke out small stocks and keep along with their trade. In dimension there is a great scarcity of 2x12, and a considerable lack of 2x4, 2x6, 2x8, 2x10, and all small, and all long timbers and joists. Fencing is also in good demand, and is running low in numerous yards. Some houses have their assortments so broken up that they report having almost too much trade, for the reason that scalping around the district has become a serious matter, as holders are so firm in their views that buying from neighbors is unprofitable. It is expected that the mills will start rather late this season, and there will be little receiving by lake until May 1st. In fact there is no great surplus of dry lumber at the mills that has not been sold. Of course when the lumber was bought last fall or winter by the larger yards begins to arrive, it will ease the pressure for assortments somewhat, but the purchasers will need the bulk of it to keep up their own shipments. It cannot be seen how their is to be much relief to the scarcity of dry sorts throughout the spring if trade is maintained at its present volume. Home consumption is now calling for a large amount of lumber, and this demand will

increase until May 1st, anyway. After that the eight hour movement may check building. Just now nobody can tell just how far railroad strikes may spread, and how complete will be the resulting freight embargo. If the labor storm that is prevailing shall increase until it covers the West, the effect would be disastrous to the lumber trade; if it should fair off distribution would continue in heavy volume.

The demand for shingles has been very large this spring, and the houses that make a specialty of carrying a heavy and diversified stock have done a rushing business in this line. Shingles are shipped in every direction. White cedar shingles are making their way into remote regions. One house ships a shaded A brand, which is sold at 90 cents here, to Colorado, New Mexico, Arizona and California. Such shingles can be laid down in the Rocky mountain regions for \$2.10 a thousand.

Redwood lumber from California is attracting attention among the pine dealers. Recent statements in the Lumberman about the low prices at which clear redwood can be delivered here has awakened general attention. Cut rail rates from the Pacific coast have brought the matter to the front. A car load of redwood has been received at the yard of Perley, Lowe & Co., Centre avenue and Twenty-second street. Circulars, with price lists, are being received by the dealers. Agents from the Pacific coast are here or on the way for the purpose of working up a trade in redwood. Considerable of this lumber has already been placed this side the mountains, especially at Missouri river points. If the railroads shall encourage this trade from now onward, a large amount of redwood will be distributed within the coming year in the territory tributary to this city.

Receipts of lumber and shingles for the week ending March 25th, as reported by the Lumberman's Exchange:—

Table with 2 columns: Year and Receipts. Includes Receipts for Lumber and Shingles for 1886 and 1885, and Receipts from Jan 1 to Mar 25 inclusive for 1886 and 1885.

STOCK ON HAND MARCH 1.

Table with 2 columns: Item description and Price. Includes Lumber & timber, Shingles, Lath.

EASTERN FREIGHT RATES.

Table with 2 columns: Item description and Price. Includes New York, 1 ton, Philadelphia, Baltimore, Washington, Albany, Troy, Buffalo and Pittsburgh, Shenectady, Wheeling, Suspension Bridge, Salamanca, Black Rock, Dunkirk, Erie, Toronto.

LONDON.

The Timber Trades Journal of 13th says Messrs. Churchill & Sim were somewhat favored in the matter of attendance, there being a tolerably full room at their sale this week. On Wednesday, especially, most of the benches were occupied, and though the keen north-easter that was blowing kept the passage into Bishopsgate pretty clear, in the sheltered corners members of the trade were noticeable discussing the aspects of the market and the future of prices, those agents who had some yet unplaced stocks to dispose of being on the qui vive to buttonhole a country buyer, if any of these somewhat rare visitors just now attracted by the likelihood of getting a little lot or two that would bear the railway charges to this locality happened to be on the spot.

The pitch pine went cheap, only one lot reaching 57s. 6d., really nice logs too, a couple of lots going as low as 50s. Mobile and Apalachicola, however, are not generally so well appreciated as the Penacoola logs. The Quebec waney pine ex Queen of Beauty sold fairly well as things go, but we cannot recollect when \$5 has been thought a reasonable figure. The parcel ex Queen of the North went at var, low

figures, but the logs were chiefly under 20 feet. If a chivalrous buyer had not come to the rescue so feeble was the demand that prices would have even fared worse for this description. The lot ex Hispania had to be withdrawn on account of no bidding. The square pine likewise was cheap at the prices obtained. The hardwoods were in better request, though the apparent demand assisted prices but slightly, the bidding lying amongst a few of the leading dealers, these having a limit of their own, which they took care not to exceed.

The Guysborough birch, described as fresh, went wretchedly, but the heavy stock in hand is sufficient of itself to account for the depressed prices, in addition the parcel was not a particularly choice one; nevertheless large dimensioned stuff at 50s. is a rare bargain to those who got hold of it.

The St. John timber was better received, though here again the buyers had it all their own way. The nine pieces of curly at 87s. 6d. read better, but this is a description that is not always come-at-able

The deal portion of the sale began with the Simo planks ex Rosa, which sell at £7 10s., 1st and 2nd yellow deals going at similar prices, and battens 15s. less, fairly good values.

Another of the well sold parcels was Soderham 3rd deals ex Abrota, at £10 10s to £10 15s. The mark O x H is not the best known out side of London, and accepting them as not representing a leading stock the stagnant state of trade would not warrant much higher. The Skutakar, with which they would about compare, disposed of on the last occasion, went at much the same figures. There was a very large line of battens in this shipment, prices being about at their last level. We noticed Sx8 excited competition when under offer.

The Gefe deals ex Abergrange we consider well sold at £14 10s. for mixed Sx9, and the 3rd £10 15s., with 4ths at £8.

The Sundwall parcel ex Diana was cheap at £12 15s. for the mixed deals, and, though not so well favored in the upper sorts, the room apparently did not make any distinction in the price of the next lower qualities between the Gefe and the higher port.

We consider Sundwall 4th and 5th every bit as good as Gefe; in fact, in many respects, rather to be preferred, leaving out the two leading productions.

The room was a full one on Thursday's sale, and the trade seemed in rather better humor to buy, though with such a long spell of frosty weather and consequent stagnation in the building trade, dealers have no inducement to go in largely, and though in a few instances several lots fell to one buyer, the parcels were mostly distributed over the room. Battens appear to be a drag just now, the natural result of the check building operations have received, and most of the lots were bought speculatively rather than for supplying any immediate demand. We shall not be surprised to find this class of wood improving in price when the present frost disappears, which cannot, in the natural order of things, be much further delayed, that will be the time when those who have bought so cheaply now will reap the benefit.

There is no question that but that stocks now are very heavy, but the late opening of the shipping ports will come to the assistance of the market. We shall be having mild spring weather here to carry off the stuff weeks before the Baltic ports are open. The Swedish lower Gulf deals submitted without reserve were not the same fine stock usually coming from that favorite district, the Gefe ex Hispania being S P, and at £12 5s., though it reads low for 1st and 2nd red, was a fair enough price as things go. The flooring seemed a bit better, but we cannot say the demand took an active turn. A change to mild weather, we believe, would work wonders.

Hewn and sawn the dock deliveries are about 700 standards behind the corresponding week last year. That building has received a serious check by the severe weather is allowed on all hands. The trade seems to consider itself frozen up, and to acquiesce in the visitation, jobbing a little here and there, just to keep its hand in, and thinking it useless to attempt to do more till a great thaw comes and melts the

ice and the hearts of capitalists at the same time. On Monday, the 8th, the thermometer, in a sheltered situation, stood 20 deg at 7 o'clock, the lowest of all the winter, and there have been eight to ten degrees of frost at the same hour ever since.

As illustrating the sanguine hopes which influenced many of the trade at the close of last season as to prospects improving with the new year, we may instance the Petersburg boards ex Ebrov sold by Messrs. Churchill & Sim, on last Wednesday, at £5 to £5 5s. per standard. When these goods were first brought in last November, we understood importers refused an offer of £6 10s. to clear the entire parcel of these sizes, some 120 standards 1x4, 4 1/2, and 5, preferring rather than make such a reduction on the holding price of £7 5s. to take their chance of the market later on. From £7 5s. to £5 5s. is a great come down, leaving out of sight the dock rent and brokers' charges; yet we are assured things are rather improving — we may well ask since when?

LIVERPOOL.

The Timber Trades Journal of March 13th says:—The arrivals of timber continue very light in quantity, which is a matter for congratulation in the face of the small consumption going on at present. A visit to the dock shows an utter want of life and animation, and very little business is evidently being done, from the bare aspect of the carrying companies, wharves and railway stations.

Much of this depression is no doubt due to the continued severity of the weather, which is still so intense as to put a stop to what small quantity of housebuilding there is in progress.

In consequence of this, the distress amongst the laborers usually engaged in the various timber yards, and in the discharging of timber vessels, is assuming a grave appearance. To alleviate this as much as possible proposals are before the corporations of Liverpool and Bootle to commence public roadmaking and other works, and thus give some employment to those who are in such distressed circumstances.

The building for the forthcoming International Exhibition is making rapid progress towards completion, and happily is causing more work in the local joinery shops, which are now engaged in preparing the fittings for stalls, refreshment-rooms, etc., and this little spurt will be welcomed by a branch of the trade which for a long time past has suffered severely amidst the general depression.

We hear of little doing in arrival business, either for Baltic, Quebec, or pitch pine cargoes, and low as prices are, especially for the latter named goods, there is no disposition to buy ahead, the outlook being in no wise such as to induce prudent buyers to operate.

The freight market, in consequence, is in a dull and languid condition. The present quotations to Liverpool may be put down as follows: from Quebec, 20s. for timber, 45s. to 47s. 6d. per standard for deals; St. John, N. B., 17s. 6d. for timber, 42s. 6d. for deals; White Sea, 42s. 6d. to 45s. deals and boards; pitch pine ports, 29s. hewn, and 80s. to 82s. 6d. per standard for sawn timber and deals.

TYNE.

The Timber Trades Journal of March 13th says:—The snowstorm of the past seven days has been an effectual stoppage to all business, and has entirely laid aside all outdoor operations. Every railway leading from or to Newcastle has been more or less blocked with snow, some of them for days together. Your readers at a distance will have gathered from the daily newspapers some idea of the havoc committed and the amount of stoppages all works in progress must have sustained. To give to those at a distance some idea of the total stoppage of trade over the district, it may be remarked that the North-Easter Railway traffic return for the week ending March 6th shows a decrease of £7,733, in merchandise and cattle £14,962, and in minerals £12,650. The total decrease of the year up to March 6th as compared with last year amounts to £75,203, which are certainly most alarming figures to ponder.

No arrivals except a few parcels of hogs are reported from abroad. A few charters for f.o.w. are reported as con-

cluded during the last few days, but they are very few, the rates averaging about 24s. from Sundswall to Tyne.

Most of the saw mills have been closed the greater part of the week, and the time employed in carting away the huge masses of snow.

GLASGOW.

The Timber Trades Journal of March 13th says:—The indications of the state of trade afforded by the auction sales of timber and deals held here within the past week are not encouraging. Of a large catalogue, Quebec timber chiefly, submitted at Messrs. Allison, Cousland & Hamilton's sale at Greenock, on 4th inst., only a small proportion changed hands. The following were the prices:—

Table listing timber prices: Quebec waney boardwood, Quebec yellow pine, Quebec red pine, Quebec 2nd yellow pine deals.

There were offers made for various other lots of timber and deals, but they did not come up to a figure satisfactory to the brokers the goods were withdrawn.

The sale at Yorkhill and Queen's Dock, Glasgow, on 10th inst., by same brokers, was also indicative of a dull state of trade.

Bay Verte spruce deals, 14 ft. 10x3, sold at 9 1/2d. per cub. ft. A varied catalogue was gone over, comprising Quebec and Michigan pine deals, Pictou birch, &c., but failed to elicit bidding, the company showing unusual apathy.

The long-continued wintry weather is hindering outdoor operations and preventing improvement in the wood trade.

Imports during the past week have not been of importance. On the whole arrivals since the year began, chiefly made up at this season of teak and pitch pine, are under those of same period last year.

There has only been one arrival of deals since January—a cargo of spruce from Dorchester, N. B.

ALBANY.

Quotations at the yards are as follows:—

Table listing various types of wood and their prices, including Pine, Spruce, Hemlock, Black walnut, etc.

BUFFALO.

Table listing cargo lots with prices for Upper, Common, and Culls.

TONAWANDA.

Table listing cargo lots—Michigan Inspection, with prices for Three upper, Common, and Culls.

WINNIPEG.

The Winnipeg Commercial of March 22nd says:—There has been at last some indications of returning life in the lumber trade, though the actual movement has not yet assumed any decided proportion. The improvement noted has been principally in enquiries, which goes to show that contractors are now on the alert and making their calculations for the coming season's work. Dealers expect a fair trade to set in soon and with the steadier and firmer prices now ruling, together with the reduction in the supply, a more prosperous season may be looked for.

BOARD OF TRADE RETURNS.

The following are the returns issued by the Board of Trade, for the month of Feb. 1886; and also for the two months ending Feb. 1886:

Large table with columns for Month ended 28th Feb., 1886, and Two months ended Feb. 28th, 1886. It lists Timber (Hewn), Russia, Sweden and Norway, Germany, United States, British India, British North America, and Other Countries, with their respective quantities and values.

WOOD-WORKING PATENTS.

The following list of patents relating to the wood-working interests, granted by the United States Patent Office, March 16th, 1886, is specially reported by Franklyn H. Hough, solicitor of American and Foreign patents, 926 F. Street, N. W., Washington, D. C. 338,104—Rafting logs, &c.—H. R. Robertson, St. John, New Brunswick, Canada. 338,005—Saw, drag—I. B. Warren and C. M. Potter, Waucoma, Iowa. 337,912—Saw machine, band—D. K. Allington, East Saginaw, Mich. 338,017—Saw mill, band—H. R. Barnhurst, Erie, Pa. 338,170—Saw mill, band—A. F. Griswold & H. R. Barnhurst, Erie, Pa. 338,124—Saw mill, reciprocating—W. M. Wilkin, Erie, Pa. 338,125—Saw mills, saw ash for—W. M. Wilkin, Erie, Pa. 337,947—Sawing machine, circular—D. A. Greene, New York, N. Y. PATENTS ISSUED MARCH 23. 338,669—Log turner—W. Ingalls, Mobile, Ala. 338,334—Lumber, device for binding together—J. T. Barber, Hanibal, Mo. 338,440—Lumber dryer—P. B. Raymond, Indianapolis, Ind. 338,570—Plane, bench—J. A. Traut, New Britain, Conn. 338,434—Saw mill set works—A. I. Loop, North East, Pa. 338,434—Saw, machine for rolling—L. O. Orton, Philadelphia, Pa.

## THE HENDERSON LUMBER CO. Limited.

DAVID H. HENDERSON, President; NORMAN HENDERSON, Vice-President; CHAS. P. WALTERS, Sec-Treas.  
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## CANOES

Patent Cedar Rib Canoes, Patent  
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wood Canoes, Folding Canoes,  
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Gold Medal, London Fisheries Exhibition, 1883.

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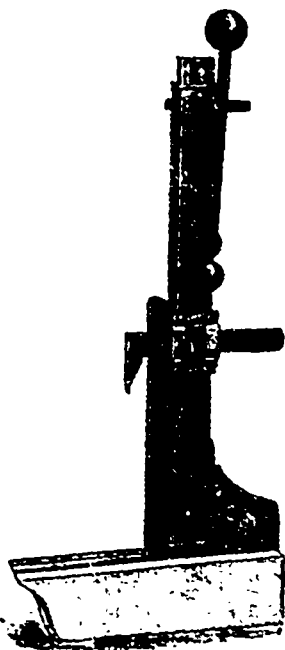
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These Milldogs I guarantee to give satisfaction in every case.  
They will hold a frozen log as well as a soft one, for cutting  
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I sell them all on their own merits, give ten or fifteen days trial,  
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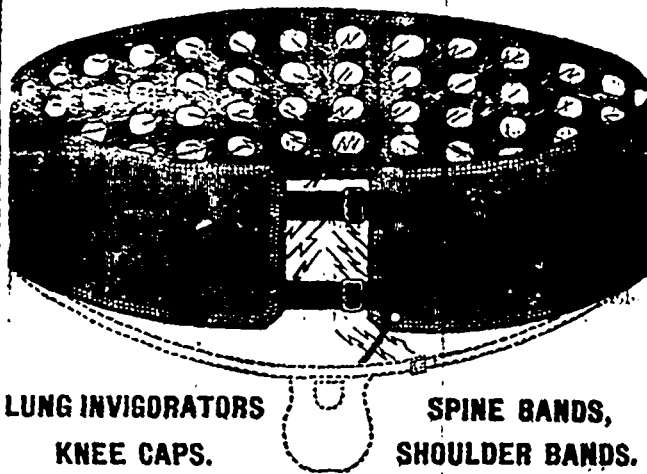
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in the treatment of sore eyes and skin  
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may be "fairest and foremost of the train  
that wait on man's most dignified and  
happiest state," but the dignity and hap-  
piness of man cannot long endure with-  
out the health that may be obtained in a  
few bottles of Ayer's Sarsaparilla. A. W.  
Parker, lumber dealer, 209 Bleury street,  
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### My Little Girl,

and must say that she never took anything  
that helped her so much. I think her eyes  
never looked so well, as now, since they  
were affected, and her general health is  
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half a bottle." A. J. Simpson, 147 East  
Merrimack st., Lowell, Mass., writes:  
"My weak eyes were made strong by  
using Ayer's Sarsaparilla." C. E. Upton,  
Nashua, N. H., writes: "For a number  
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### For a Number of Years,

I was cured of both diseases by using  
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Traine, Duxbury, Mass., writes: "I have  
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remedy for bilious troubles and Dyspep-  
sia." Henry Cobb, 41 Russell st., Charles-  
town, Mass., writes: "I was completely  
cured of Dyspepsia, by the use of Ayer's  
Sarsaparilla." Wm. Lee, Jopps, Md.,  
writes: "I have tried Ayer's Sarsaparilla,  
and it has done me so much good that I  
shall always regard it as the best of blood  
purifiers." Eminent physicians prescribe  
Ayer's Sar-

## Ayer's Sarsaparilla

saparilla. I believe it to be the best of  
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in all cases requiring a powerful alterative  
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It has a circulation among saw mill owners, manufacturers, lumber and timber dealers and all classes connected with the timber business.

Examine the field, count the cost, and you will at once decide that the CANADA LUMBERMAN is the

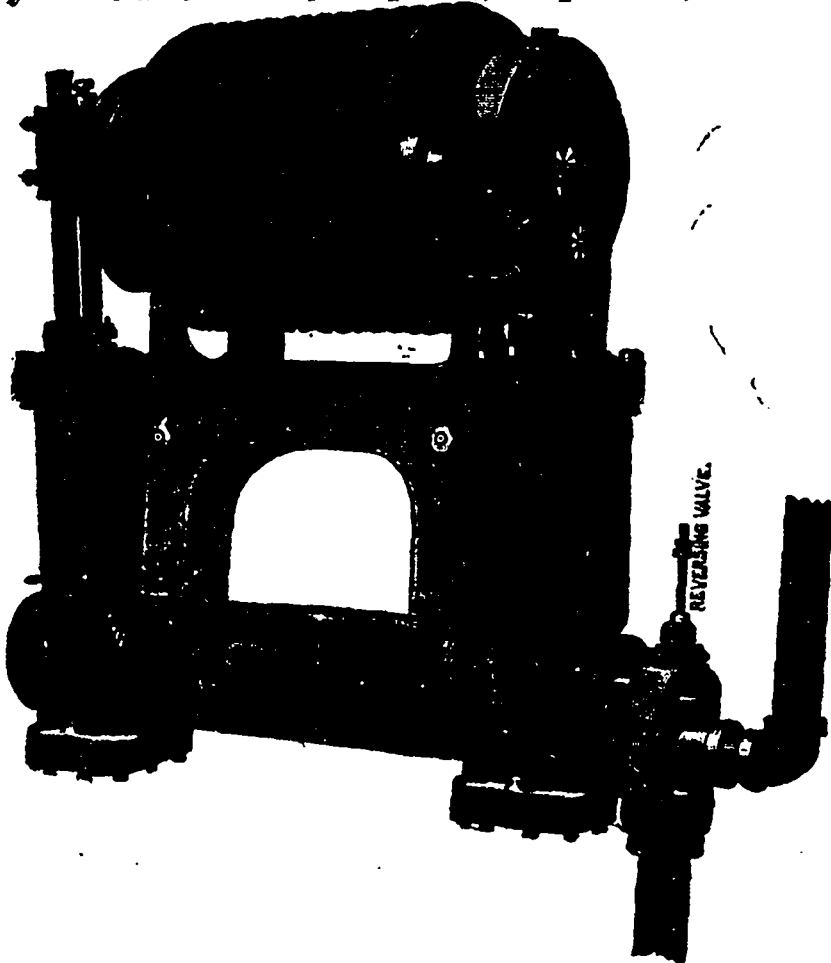
—CHEAPEST, BEST, MOST RELIABLE and ONLY TRUE MEDIUM—

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# CUNNINGHAM'S PATENT OSCILLATING TWIN ENGINE

FOR STEAM FEED IN CIRCULAR MILLS WITH RACK OR ROPE.

*This Engine has practically but two moving parts, aside from cranks and shafts. The whole array of eccentrics, valves, valve rods, connecting rods, cross heads, slides, levers, rock shafts, bell cranks, etc., is done away with, and the very perfection of simplicity, compactness, durability and cheapness attained.*



The above engraving illustrates the Twin Engine, 10x16, for Rope Feed, for Saw Mill Carriages. The spool is 27 in. diameter, 30 in. face, is grooved 2 in. pitch for 1½ in. rope. The shaft is steel, 4½ in. diameter, with disk cranks. No connecting rods, eccentrics or valve rods to get loose and out of order. The ports are in the trunions, and worked by an oscillation of the cylinders, and are held in their place in the downward motion by a steam cushion below. The sawyer's valve is a perfect balance, and by moving this valve the engine can be reversed, stopped or started almost instantaneously if necessary, as the sawyer has perfect control of it by his lever either to go fast or slow. Should the sawyer let go of his lever either by mistake or any other cause, it is balanced so that the valve will come to the centre and cut the steam off both cylinders and stop the feed. When standing, the lever is locked or fastened, so that it is impossible for it to start off itself. The engine stands upright below the carriage, and bolted to two upright beams, placed on the mill for the purpose. When a rack is preferred in place of the rope, we put on a steel wheel 30 in. in diameter, and the engine placed high enough to work into the rack on carriage bar, or if the beams come in the way, an idler wheel can be used between engine and rack segs; or, the engine can be placed at a distance and have a shaft

from it to the carriage; or it can be placed in the engine room, where it is under the control of the engineer for oiling, thence by shaft and pinion to carriage rack bars. These engines are well adapted for cutting long logs, or where the logs are mixed, the advantage of this feed will be apparent to mill men. When the carriages are used in two or more sections, the couplin and uncoupling of each section is quick and simple.

There were two of these feeds working this summer and giving the best of satisfaction, one with rope feed at James Playfair & Co's Mill, Sturgeon Bay, near Waubauskene, and one at the new mill furnished by us to Francis Carswell & Co., at Calabogie Lake, on the Kingston and Pembroke R. R. This mill is working with the Rack and Pinion feed, and drops from fifteen to seventeen stock boards per minute. We have also sent one to the Rathbun Company, Deseronto, to put in to feed their heavy Circular Mills. They will also commend themselves for various other cases, especially for running Elevators, hoisting Engines, and wherever a simple and easily reversible motion is required.

## We would also call attention to our Improved Hand Saw-Mill for cutting logs

*We guarantee this to be the best Mill of its kind got up, and would ask any one wanting a good Band Saw-Mill to communicate with us. We would also call the attention of Mill Men to our new IRON GANGS, CIRCULAR MILLS and M.L.E. MACHINERY. For further information, prices, &c., address the Manufacturers,*

# The Wm. Hamilton Manufacturing Co'y, Limited

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*Pumps for Fire Protection a Specialty.*

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*Our Combined Boiler Feed and Fire Pumps are a NECESSITY IN EVERY WELL ORDERED STEAM MILL or FACTORY.*

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*Cheaper than any Pump built.*

*Our Independent AIR PUMPS and Condensers will effect a saving of 30 to 50 per cent. when applied to high pressure Engines.*

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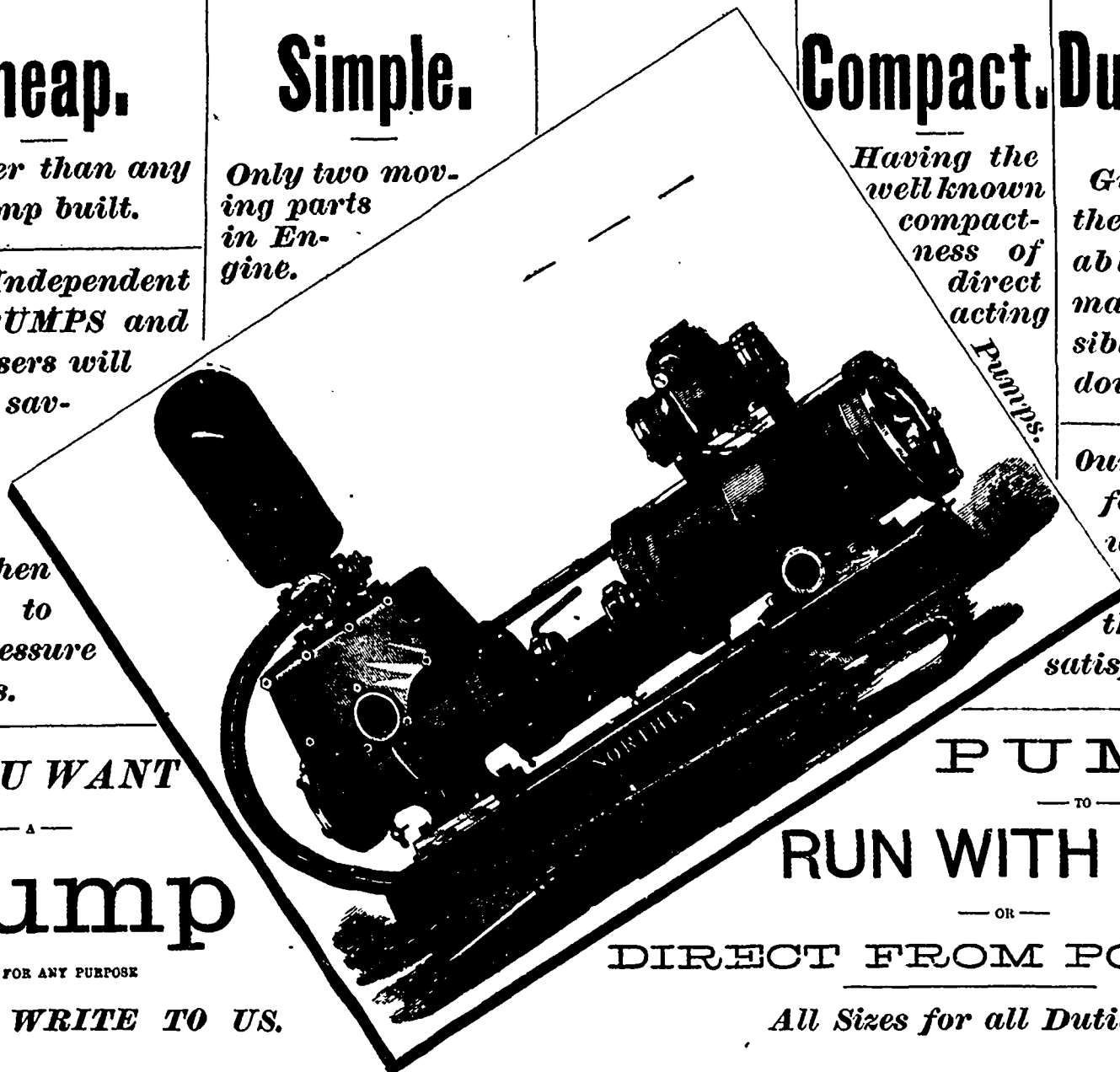
*Only two moving parts in Engine.*

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*Having the well known compactness of direct acting Pumps.*

*Guaranteed the most durable Pump made; impossible to break down.*

*Our PUMPS for general water supply give the greatest satisfaction.*



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