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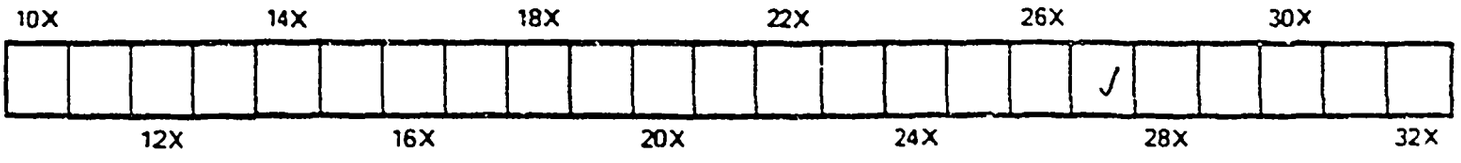

THE
CANADIAN MANUFACTURER
And Industrial World.

VOL. I. TORONTO, ONT., JUNE 23, 1882. No. 13.

THE BUSINESS VIEW OF IT.

There is occasion now for repeating what we have said before, that it is for the country's interest that the National Policy should be sustained. It is not within our province to meddle with party politics, but we may present the business view of the situation. Protection may be good for the country, or it may be bad As a matter of fact, the country voted for it in 1878. Since then several new lines of manufacture have been started in Canada, while the expansion in old lines has been something wonderful. There is an increased production in the country, and that means increased wealth. The truth of the remark that he who makes two blades of grass grow where only one grew before is a benefactor to his country, has long been conceded. In fact it had to be conceded, nobody has been found hardy enough to dispute it. Now, if instead of blades of grass we take yards of cloth or pounds of iron work, shall we say that doubling our production makes the country poorer? Perhaps it does, but the logic of the thing don't seem to run that way.

Be this view of the question right or wrong, it is the view accepted by the majority And it will have to be carried into effect, while the majority remains on the same side. Now, here comes in the business view, pure and simple. Disturbance and uncertainty injure business. Suppose that the tariff policy of the country is in debate, and that nobody knows which way it is going to turn, who then can make investments with certainty? Nobody can, and, as a matter of fact, nobody feels like trying it, under the doubtful prospects.

The country's interests gain by settlement of doubtful issues. No matter how they are settled, it is for the interest of business that they should be settled one way or the other. There is in business an immense power of accommodation to established circumstances. But the exhaustion of business power in coming to this accommodation because of changes is simply tremendous. Instead of giving their attention solely to improvements in their various lines, manufacturers have to fight the uncertainties arising from political chances. This is not good. Decide it one way or the other, say that we are to have either Protection or Free Trade, or one or other of such various mixtures of the two as have been suggested, and let that be settled. Business will accommodate itself, the best it can, to the decree. It will go on under Free Trade in one way, and also under Protection in another. In doubt between the two it will hesitate, and will not go on at all. To get rid of uncertainty makes business men sure of their ground, and makes money for the country.

THE EXPECTED 'BOOM."

The times change, and we change with them. It is permissible for us to do so, within limits. With regard to principles we should not change. our principles we should hold fast and firmly, if we have any. But we may change fashions without laying ourselves open to any serious charge. We may, for instance, indulge in a new fashion in words, if the popular ear seems to demand it. Of late there has arisen a popular demand for the use of the word "boom;" we bow to the popular will, and therefore use it, although the authority of great lexicographers cannot be pleaded in its favor.

Following the result of the general election, the present time is unquestionably a time of "great expectations." Be it right or wrong, be it wisdom or folly, on the part of the people, it has been voted that the National Policy is not only to be sustained but also extended in Canada. Not even the most enthusiastic supporter of the Finance Minister has imagined that his tariff of 1879, with subsequent amendments, was perfect. Some other changes of great importance have been pressed upon the Government, with very strong support of business and financial authority. But Ministers were not prepared to go farther without a renewal of the endorsement.

The expectation of a "boom" is founded on two things, one of which is a certainty and the other a contingency. The certainty is that existing industries are to be safe and undisturbed for a term of years. This includes, further, the development of some new industries, which have been held back by the previous uncertainty, by this and nothing more. The contingency is the starting of some different and new industries, which require, not merely the confirmation of the policy of 1879, but its extension by letter of the statute. This is especially the case with regard to the production of iron. There is where the "boom" is expected principally to come in. The "boom" is looking that way, most decidedly. But capitalists and business men generally, who may interest themselves in Canada's new venture in iron and steel, have a certain fair request to make. They are anxious to begin operations without delay, and they should not be compelled to wait until some day in March next, when the Budget Speech will be delivered, ere knowing whether they may go ahead or not. At the earliest date convenient, the now sustained Government should hold practical council, decide upon what is to be done, and then let the probabilities be known, for the general good. Timely action of this sort will do millions for the country. In some particular lines a year's work ahead may be got in by utilizing at once the present summer season. It is

to be hoped that current rumor will prove true, and that capitalists, whose contemplated investments go up into the millions, will soon have assurances that they can go to work upon. Then the great "boom" will come, most undoubtedly; the large expansion of old industries and the creation of new ones. The Government would be well warranted in taking extra measures for hurrying things forward. Give us assurance, give us confidence; the business community cannot have too much of it, nor can they have it any too soon, either.

FROM THUNDER BAY TO WINNIPEG.

The last rail on the Thunder Bay and Winnipeg section of the Pacific Road has been laid, and traffic will be opened through on Dominion Day. For the Sault Ste. Marie connection we may yet have to wait some time, and still longer for the section north of Lake Superior, but with the road completed from Prince Arthur's Landing to Winnipeg, thence two hundred and fifty miles beyond, and progressing towards the Rocky Mountains at a rapid rate, we are not badly off. It is now possible to carry freight from the heart of Manitoba to Halifax, or *vice versa*, all the way through on Canadian soil, or afloat in Canadian bottoms, and this for the greater part of the year. The lines of vessels sailing the long stretch from Sarnia and Collingwood to the head of the great lake, will do a larger business than ever before, while the Grand Trunk will certainly make "a big push" to develop traffic by the rising port of Midland City, on the Georgian Bay, which makes a short cut between Winnipeg and Montreal. The Syndicate will not be behindhand in pushing things, either, and between the two the country ought to be well served.

Probably few, even among our business men, have yet sufficiently realized what the future importance may be of the long inland link of deep water navigation between the foot of Lake Huron and of the Georgian Bay to the east, and the head of Lake Superior to the west. For about seven months of the year this connection can be used, but, until the iron link was completed to Winnipeg on land, the value of this long water route did not half appear. There ought to be an immediate cheapening of freight through to the Gate City of the west. It should be quite possible for the Dominion Government to secure this, either by arrangements with both the Grand Trunk and the Canadian Pacific, or in virtue of laws now on the statute book. The Syndicate's charter leaves larger powers in the hands of the Government than most people are aware of, and there are in the Consolidated Statutes of Canada railway powers reserved to the Government amply sufficient for most practical purposes. These powers have never yet been acted upon, but they legally exist, nevertheless, and they can be acted upon if the Government so decides. May we offer the suggestion that probably now would be a very good time to act upon the powers aforesaid? The Government, be it remembered, already revises the Syndicate's table of fares and freights; why not those of the Grand Trunk and other roads, too? With fares and freights through to Winnipeg reduced as they might be now, under the new circumstances that have supervened, there ought to be a wonderful expansion of this very travel and traffic before the present season is over.

SOME INTERESTING FIGURES.

We find in the *American Protectionist* the table given below, arranged from a census report for the New York *Herald*, which was intended to show as forcibly as possible the preponderance of New York and vicinity as the chief manufacturing centre of the Union. The reader will be able to see at a glance that of twenty cities New York heads the list in the number of manufacturers, the number of hands engaged, the wages paid, and the value of the product; while, with the suburban cities across the North and East rivers, without counting Paterson and Elizabeth, the figures more than double those of Philadelphia, the next greatest manufacturing centre. Here is the table:—

Cities	*Establishments.*	*Capital.*	*Wages Paid.*
New York	11,162	$164,917,856	$ 93,378,806
Brooklyn	5,089	56,621,399	21,072,051
Newark	1,299	23,919,115	12,809,011
Jersey City	555	11,329,915	4,347,034
Total	18,105	$256,788,285	$131,606,902
Philadelphia	8,377	170,495,191	60,606,287
Chicago	3,479	64,177,335	33,795,486
Boston	3,521	42,750,134	23,715,140
St. Louis	2,886	45,385,785	16,714,917
Cincinnati	3,231	43,278,732	18,571,687
Baltimore	3,590	35,760,108	14,467,852
Pittsburg	1,971	50,976,901	16,918,420
San Francisco	2,860	29,417,246	13,595,010
Cleveland	1,033	18,134,789	8,377,081
Buffalo	1,137	24,188,562	6,913,702
Providence	1,186	23,573,934	8,903,720
Milwaukee	821	13,811,405	6,305,487
Louisville	1,066	19,583,013	5,496,521
Detroit	875	14,202,159	5,841,426
New Orleans	906	8,401,390	3,658,152
Washington	961	5,381,226	3,897,120

Cities.	*Hands Employed.*	*Material.*	*Products.*
New York	217,977	$275,097,236	$448,209,248
Brooklyn	45,266	124,951,203	169,757,590
Newark	29,232	42,940,817	66,234,525
Jersey City	10,688	49,320,099	59,581,141
Total	303,163	$490,309,355	$743,782,504
Philadelphia	173,362	187,169,375	304,591,725
Chicago	77,601	174,244,364	241,045,607
Boston	56,813	77,586,607	123,366,117
St. Louis	39,724	68,154,990	104,383,597
Cincinnati	52,184	55,939,133	84,869,105
Baltimore	55,201	46,468,244	75,621,588
Pittsburg	34,465	41,201,998	74,241,886
San Francisco	26,062	44,537,430	71,613,385
Cleveland	21,499	30,850,977	47,352,208
Buffalo	16,838	25,888,263	40,003,205
Providence	21,336	21,376,467	39,596,053
Milwaukee	19,620	26,462,740	38,955,138
Louisville	16,569	19,180,212	32,381,733
Detroit	15,062	17,143,490	18,303,580
New Orleans	9,439	10,475,022	18,341,000
Washington	7,116	5,234,611	11,641,185

The city of New York, as is well known, receives the far larger part of all the foreign importations coming into the

United States, and the *Herald* finds this to be $841,631,929. It therefore appears that the manufacturing establishments of New York and vicinity, numbering 18,105, and employing 303,163 persons, come within twelve per cent. of producing as much value as the city's whole immense foreign importation. The *Herald* is rather surprised at this, and would like to see such a change towards Free Trade as would make New York the storehouse of the world. The *Protectionist* thinks things are better as they are, and that what the country wants is more manufactures rather than more commerce.

The tendency shown for manufactures to become massed together at the great centres is something to be remarked upon. Not a few may be surprised to learn that the western city, Chicago, ranks next to Philadelphia, and actually before Boston, in manufactures. The distribution of manufactures throughout Canada is a subject of considerable practical interest, and is worth looking into, in connection with the same thing over the border.

BACK PRESSURE IN THE STEAM ENGINE.

There is always more or less of loss connected with the working of the steam engine in getting rid of the exhaust steam in the cylinder. The "live steam," as it is often called, on the one side of the piston, has not only to push the piston before it with all the load of the mill resisting, but on the other side of the piston there is an opposing steam pressure resisting the motion. This is the "exhaust steam," which at previous half stroke of the engine entered the cylinder as "live steam." Its share of work has been performed, and by the time the piston has reached the end of its motion, there is still some capacity for work left in the steam, but it cannot be made use of in the cylinder, and now becomes a positive obstruction or opposing force. In some engines where expansion is not made use of, this opposing force of the exhaust steam becomes a very serious matter. How to get rid of it, and what to do with it, so as to get most advantage from the heat or power contained in it, have long been problems, upon which a great variety of opinions have been held by engineers and engine builders.

The ordinary slide valve engine, with valve set to get the greatest amount of steam *into* the cylinder, with the view of getting the greatest amount of power out of the engine, is very often found, on testing the Indicator, to have a very heavy amount of back pressure, especially at the beginning of the stroke, where it does most harm.

It would pay in most cases to alter the slide valve, that the exhaust port may be open even before the forward stroke has been completed,so that on the piston moving back the opening may be clear, and the greatest pressure of the exhaust steam already gone. This of course is of most advantage to non-condensing engines, and to engines running at high speeds, and is in keeping with the best locomotive practice.

Thus removing the forward pressure by opening the exhaust so early, certainly looks like letting the steam go away before its work is done, and it does take a little off the amount of power given by the engine at that part of the stroke, but it is more than made up by the gain at the beginning of the next half stroke.

The most efficient as well as most economical engines are those where the greatest forward pressure of steam is applied to the piston, while the crank is moving from its dead centre through the first ninety degrees, and less pressure applied during the remaining ninety degrees of crank motion necessary to complete the piston's movement from one end of the cylinder to the other. One reason of this is that during the first quarter revolution of the crank the piston is gradually increasing in velocity, and the weight of the reciprocating parts, the piston, cross-head, &c., absorb a considerable amount of the power, as their velocity has to be brought up from nothing to that of the crank pin. During the next quarter revolution of the crank the reverse is taking place; the velocity of the reciprocating parts diminishes from that of the crank pin down to nothing, and the power previously absorbed is now given off. Hence anything by which the pressure can be increased during the first quarter revolution, even though it should cause a loss during the second quarter, will be a gain.

The intelligent application of the Indicator to engines at saw mills where fuel is no object, but power is the main thing wanted, will often reveal just such a defect as has now been described. In the attempt to get "live steam" pressure as long as possible on the piston, the difficulty of getting rid of the exhaust has been overlooked, or not properly understood. This difficulty increases very rapidly as the piston velocity is increased, and the faster an engine runs the greater care should be taken to have a free exhaust,

Some experiments made by Mr. D. K. Clark on locomotives seemed to show that the back pressure from exhaust steam varied as the square of the piston speed.

It is often the case that the size of steam ports and setting of valve are determined without any reference to the speed at which the engine is to run.

(to be continued.)

POLITICAL ECONOMY.

(Communicated.)

Waggon-loads of books and papers have been written, printed, and distributed, world wide—on what has been popularly termed the "Science of Political Economy." And yet there are many thoughtful and wise men who question the propriety of designating any system or doctrine a science which, in theory and practice, has such various and contrary interpretations.

This brief paper is not designed to settle or even to discuss this aspect of the question, but rather to put the inexperienced reader on the track to make up an independent judgment on that Economy which shall secure to the greatest number, in every community, the highest degree of financial prosperity.

There is to every system a germ, origin, or tap-root, which gives character to the product. It is, generally, quite necessary to become acquainted with these "seeds of things" to know how to plant and cultivate them. We get the word "economy" from the Greek *oikonomia; oikos*,—house, and *nomos*—law, usage, rule; and this latter word from *nemein*—to distribute, manage, etc. Of course every reader knows that

political is from *polis*—a city. The origin, therefore, of the heading of this article is readily traced back to the ancient words expressive of the law, rule, and usage which should characterize a wise and well-regulated family. And the fact that the entire human race for many generations recognized no other human government but that of the head of the family, emphasizes the wisdom of studying family government and domestic economy to get at the germs of a wise administration of the affairs of state, as well as the best means of promoting the various industries and interests of the people.

When families built cities and became dwellers in the same, and for general protection encircled them with walls, their economies were only modified to suit an increase of numbers. Political economy, therefore, became only an enlarged family economy. And those rules and usages which have obtained among the wisest and best of civilized and enlightened nations, as the most judicious means of promoting family prosperity, have always been the most successful in advancing the interests of states and nations. Indeed the truest and best test of any and every policy is the effect which it has on the industries, morals, and relations of families.

The sentiment has become next to universal that no man is practically fitted for state or national responsibilities until he has demonstrated his ability to manage honestly and wisely his own affairs. Not only the Scriptures but common sense teach that men must give proof of talent, disposition, and integrity in the family relation in order to make them eligible to any responsible position in church or state.

Hence the wisdom and the philosophy of the Protective system. A wise and good government will never lose sight of its paternal relations to the people. It will foster all their interests, and by all legal means give special protection to those industries which furnish food, clothing, and shelter to the people; and incidental encouragement to the development of the national resources of the country. The mines, minerals, and various hidden resources of the Dominion are much more valuable than its most sanguine friends imagine. Motives should be kept constantly before the people to call into active exercise the genius, talent and skill needed to develop the latent wealth hidden in veins of copper, iron and gold, and the strata of coal, marble, plaster and sand-stone of the Dominion, as well as its forests and fisheries.

A judicious family policy is first to so manage the farm, the fishery, the manufactory, as to supply local domestic wants; and then to expand labor, machinery, and other means as to have a surplus of goods and products for sale and export. By this simple policy families, communities, states and nations, constantly advance in wealth, intelligence, and all other means of elevating and blessing humanity.

A NEW ENTERPRISE—CO-OPERATION ON A LARGE SCALE.

The following appears in the Toronto *Mail* of the 7th inst:

"Some time since *The Mail* made reference to the prospectus of the Steel Association of Canada, a company organized under the Joint Stock Companies' Letters Patent Act. This company owns seven hundred acres of the best mineral lands in the Province, upon which are two large and valuable iron mines, now opened. Much of this ore will run from 68 to 70 per cent. of metallic iron. One of the good features of the Association is that all workmen employed at the works are required to be holders of at least one share ($50) of the stock; thus, by giving to the workmen employed in the works a voice in the management of the business, and a share in the profits, the conflicts which so often arise between capital and labor will, it is anticipated, be prevented.

Understanding this feature, and convinced of the importance of developing our native industries, the Workingmen's National Union of Canada with commendable enterprise have formed a syndicate, and have obtained from the Steel Association five hundred thousand dollars out of the first issue of $700,000. The purpose of the Union is to distribute this stock among the workingmen of Canada, forming, in fact, a vast co-operative society to deal in one of the most important products of the industrial world. As the Dominion has an importation of $12,000,000 of steel and iron goods, the outlook for this enterprise is a very good one.

The present Government, through Sir Leonard Tilley, has expressed its intention of giving particular attention during the next five years of their administration to the development of this great industry—an industry which, in the United States, under the fostering care of the protective system, has grown to enormous proportions, as will be seen from the fact that the total production of iron ore in that country, in 1880, was 7,974,705 tons net, while the production of all kinds of steel was 1,778,912 net tons, and of pig iron, 4,611,561 net tons.

Should the present Government be sustained, as beyond doubt it will be, a vast business will be built up in Canada. The Workingmen's National Union of Canada are to be congratulated upon their enterprise, and also upon their adoption of a broad and liberal basis by which every workingman of the country can participate in the benefits to be derived from the development of this great industry.

The names of the syndicate are Messrs. Joseph Westman, J. Ick Evans, John W. Cheeseworth, Arthur R. Boyle, James M. Boddy, and George B. Boyle, from any one of whom stock can be obtained."

The *Mail*, of the 21st inst., makes this announcement: "The following telegram was received by us last night:—

"NIAGARA FALLS, N. Y., June 20.

"*The Mail Newspaper:*

"We congratulate the sensible action of the people of Ontario. Now we will put our capital up and make steel in Canada.

"THE STEEL ASSOCIATION OF CANADA,
"per T. G. Hall,
"President."

This is a significant despatch. It is an announcement of the intention of one company, which will invest very largely in developing the iron industries of Ontario. But it is only one of similar announcements that will no doubt be made during the year. The country has probably by this election secured the investment of many millions of dollars in developing the resources of Canada."

HOW (NOT) TO BUY A STEAM ENGINE.

Manufacturers requiring steam power are often very far astray in their estimate of the size of engine necessary for the work to be done.

They guess at the number of horses power which their proposed machinery will require, and they generally guess at too small an amount.

Sometimes a very careful estimate is made up by asking the maker of each machine how much power it will take to drive it. He naturally enough wishes to make it appear that power is not needlessly used or wasted by his machine, and states an amount which might possibly be sufficient with the machine in best possible condition and under most favorable circumstances, but which certainly is far below the average required to drive it during six months' regular use.

The amounts stated by the different makers are added together, and their sum taken as the true and accurate amount of power that will be required.

The number of horses power being thus definitely settled, the next step as to invite tenders from a number of engine builders for an engine of so many horses power.

If the engine builder be anxious to get the job, he will select the smallest size of engine from which the stated power can be obtained and for which he has patterns, and make his estimate of cost accordingly. Probably out of half a dozen makers, no two of them offer engines of the same dimensions and weight, and as it is only a question of horse power and dollars, the one who offers the smallest and lightest engine is almost sure to secure the contract.

By the time the factory is almost finished and the engine bed is ready and the engine partially made, it is usually found that the original estimate of the quantity of machinery necessary for the factory was insufficient, and several additional machines are ordered.

The engine is delivered and erected, and after the usual trouble with hot journals, and valves improperly set, and mysterious knockings in the cylinder, it is got in fair running order, but as the load comes on it, it is found to labor considerably and to lag in speed. About this stage is the right time for the discovery to be make, that in reckoning the number of horses power, the amount required for the friction of the engine itself, and for the shafting, counter shafting and guide pulleys, was either left out altogether, or reckoned at far too low a figure. The engine builder asserts that his engine lags because it has got a much heavier load upon it than he was asked to tender for, and that his engine is being badly used, and that if loaded with the proper amount it will work all right.

The dispute which follows is a lively one, and the estimates and guesses of the amount of power given off vary up and down as the guesser sympathizes with one side or the other.

At this stage another engine builder steps in, and has ready for immediate delivery an engine of just the exact size required to drive that amount of machinery and leave a margin for adding some new machinery as may be required.

He promises quick delivery, and offers to take the other engine in part payment, and so secures the order at his own price, and at once advertises that his "patent automatic, anti-friction, solid frame super-expansive cut-off engine" is to replace the engine recently put in the new factory, and which had failed to do the work required. After months of delay and enormous expense, the factory is got into fair running order, with an engine too big for economical working, and with a load of money sunk into so many holes that years of good times and no "breaks down" will be required to find it again.

Such is not an uncommon experience, and there ought to be no necessity for each factory started to go through the ordeal. In a future article we purpose showing a better way.

STEAM ENGINE CRANK PINS.

A study of the crank pin, its motion, the strains it has to endure, and the means of keeping it cool and in true working condition, forms one of the most interesting and important which can be taken up by any one interested in the practical working of the steam engine.

The crank pin has to receive the alternate thrust and pull of the steam pressure on the piston, and transmit it to the revolving shaft or wheel, at the same time converting the reciprocating motion of the piston into rotary or circular motion. In direct acting engines, such as an ordinary horizontal engine, the connecting rod joins the end of the piston rod to the crank pin, maintaining a constant distance between these two points when measured through the centre line of the rod. One end of the connecting rod partakes of the reciprocating motion of the piston, while the other end partakes of the revolving motion of the crank pin.

One great object aimed at for steady running is to get a perfectly uniform motion of the crank pin; that is, that it will describe so many complete revolutions in a given time, and that each fraction of any one revolution will be performed in the same interval of time as every other similar fraction.

While doing this, the other end of the connecting rod which is transmitting the motive power is moving with a constantly changing velocity.

In an engine of five feet stroke, making fifty revolutions per minute, the piston moves at an average speed of 500 feet per minute, but the crank pin moves at a regular and constant velocity of fifty times the circumference of a circle five feet in diameter, equal to 785 4-10 feet per minute. The average velocity of the piston and cross-head is 500 feet per minute, its actual velocity is constantly changing from nothing or a state of rest, up to a speed slightly in excess of that of the crank pin.

The proportionate length of the connecting rod, as compared with the length of the crank, has much to do with the variations of motion and pressure, and the connecting rod should be made as long as possible; the usual practice is to make it from four to six times the length of the crank.

The *average* strain which comes upon the crank pin in pounds would be 33,000 times the number of horses-power divided by the number of feet per minute at which the pin was moving; but the average strain need scarcely be considered in estimating the size, as it must be made amply strong to withstand the greatest shock.

At the beginning of the stroke, when the crank and connecting-rod are in line, and the boiler pressure is admitted upon the piston, the whole force of the steam, less an amount due to the inertia of the piston, cross-head, &c., comes upon the crank-pin, tending to bend it, as it is usually, though not always, in the position of a beam fixed at the one end, and with a load distributed over the greater part of its length, but which may be concentrated at the extreme end. The calculation should be made, not to determine what size will not break, but what diameter will be necessary to prevent the deflection under the greatest load being more than an amount so small that it will not bind the bearings and make them heat. There is, however, another very important element to be taken into

account, viz., the lubrication of the crank-pin. If the pressure upon it be so great as to expel the oil from between the surfaces of the pin, and the bearing-in end of the connecting-rod, then heating and cutting will be sure to follow.

The length of the crank-pin in inches, multiplied by its diameter in inches and by five hundred, should be equal to the total pressure in pounds which comes upon the piston. When this is the case, and the rubbing surfaces are in good condition, heating will not be caused by excessive pressure, and the size will be such as to render it almost unnecessary to make any calculation for strength.

(To be continued.)

ONTARIO COTTON MILLS.

The Ontario Cotton Mills Co's large mill in Hamilton will soon be in full running order, the difficulties experienced with the motive power, as originally put in, having been got over by replacing the steam engines by a pair of Harris' Corliss high pressure condensing engines, made by the well-known maker, W. A. Harris, of Providence, R. I. The engines are coupled to same main shafts, with cranks at right angles to each other.

The cylinders are 18 inches diameter, and the length of stroke is four feet. The engines will make about 71 revolutions per minute, and with steam of 90 lbs. pressure admitted to the cylinders, and cutting off at about one-quarter stroke, will be capable of developing over 500 horses power, should the demands of the mill machinery require it. The valve gear is an improved form of the celebrated Corliss automatic cut-off, and in its proportions, and accuracy of workmanship, is an excellent illustration of good fitting and careful designing. The crank shaft is of steel, the bearings being about 10 inches diameter and 16½ inches long, the shaft being stiffened towards middle of its length, where the weight of fly wheel and stress of the work have a tendency to bend it.

The driving gear is leather belting running on face of the fly wheel, which is about 18 feet in diameter and broad enough to take two belts, each 24 inches wide, if required.

The engines are fitted with condenser and air-pump, but can be worked as ordinary non-condensing engines. The air pump is horizontal, and both it and the condenser are placed underneath the floor level, and the arrangement of driving gear, for air pump and of pipe connections seems admirable and well adapted for the work to be done.

Steam will be supplied by six steam boilers, made of steel plate, each about five feet diameter and twelve feet long, with tubes 3 inches diameter, and with furnaces adapted for coal-burning.

These boilers will be worked at a steam pressure of 100 lbs. per square inch, and will also supply steam for the dye house and for heating the mill in the winter time.

The use of steel for boiler making is rapidly coming into use in this country, and when of proper quality and judiciously handled has many advantages over ordinary iron boiler plate.

Inside the mill much of the machinery is already in use, the shafting having been kept in motion by a temporary arrangement of portable engines until the new Corliss engines were ready. The machinery is chiefly from England, and is throughout of the very best manufacture and most improved design.

Many of the machines are fitted with electric stop apparatus, by means of which, in event of the breakage of even one of the many threads of cotton which are being spun or twisted together, the machine is brought at once to a stand still until the attendant has remedied the defect. In this way inferior quality of work and irregularities in the yarn produced are prevented, as well as a great diminution effected in the quantity of "waste" produced.

The power from the engines drives a heavy length of shafting, strongly supported by iron columns and beams, and carrying pulleys 8 feet diameter and over 48 inches wide. The shafting generally throughout the mill has been designed and erected in accordance with the modern principles of high speed, with light shafting and short distances between the bearings, the brackets and hangers carrying the bearings being of such design that the inequalities arising from the bending of the floor beams, or settling of the walls, may be readily taken up and the shafting adjusted to run perfectly true.

The various flats are all well lighted, with high ceilings, and have a bright and cheerful appearance as compared with many other mills the writer has seen.

There are three main stairways communicating with each of the main flats, so that in event of an alarm of fire, ample means of escape for the workers would seem to have been provided.

Throughout the whole main building the "automatic sprinkler" fire extinguishing apparatus is provided, and as this contrivance has proved one of the most efficient ever invented for the prevention of the spread of a fire in a large mill, this should be a good risk for the fire insurance companies.

We congratulate the company on their having a mill so well arranged and fitted with machinery so excellent in workmanship and design, and trust their energy and enterprise will be duly rewarded.

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A FILE FOR BINDING PRESENTED TO EACH NEW SUBSCRIBER.

Editorial Notes.

It may interest dry goods men to observe what is said by our New York correspondent, to the effect that in certain lines of foreign goods the ample stocks held by retailers do not yet require renewal. Unless we are very much misinformed, the same thing is true in Canada, only far more so. Suppose that retailers were to hold up a little, and so impose caution upon the wholesalemen. It might be a good thing for the country.

Our American letters on the iron trade have of late shown a certain conjunction of circumstances which will bear reflecting upon. While very high protection prevails, we have reports of low prices at Pittsburgh and Philadelphia. In the States production has evidently overtaken consumption. This being the case, shall we say that protection has made iron dearer, or cheaper? There may be room for much argument of a practical kind on this question.

In connection with the business outlook there are two or three circumstances worth remarking upon. First, the election agony is over; we have settled it who is to rule this country for the next five years, and business may now go ahead; next, the finishing of the Thunder Bay and Winnipeg road, and the great importance which the mixed land and water route by Lake Superior is likely soon to develop, will be a powerful factor in the extension of business both east and west. Thirdly, the recent favorable turn of the season, bringing warm rains and fine growing weather, is likely to have a very good effect.

In Canada it is too soon yet to say much about crop prospects, except that the recent turn to moist and warm weather promises well for all crops in the West, and for grass and roots in the East. In some of the Southern and Western States, however, where the season is much in advance of ours, a large grain crop is already a certainty. The talk in Wall-street is that crop prospects generally are "brilliant" at present, though there is still time for misfortune to happen, especially to the corn crop, which requires all July and August to make it safe. Over the greater part of the country a heavy grass crop, and consequent abundant feed for cattle, is considered to be already assured.

In accordance with the Bill recently passed by Congress, the President of the United States has nominated nine gentlemen to constitute a Commission for revising the tariff. These nominations have still to be confirmed by the Senate, but it is not likely that serious opposition to any of them will be offered. The Commission, as nominated, is a highly Protectionist one, and will, without doubt, take for its special task the work of strengthening the tariff by eliminating the weak points in it which invite attack. Next winter the report of the Commission will be presented to Congress, and then will come the tug of war over its recommendations. The Commission is likely, however, to take counsel from the most influential quarters, and to make few recommendations except such as have a good chance of being carried. Next year's legislation on the subject will probably set the tariff question at rest in the States for a term of years.

The *Globe* has the following cable despatch, dated London June 21:—

"The progress of the arrangements for the fusion of the Great Western and Grand Trunk Railways has met with an obstacle which renders the immediate completion of the fusion impossible for the present. Technical legal flaws, which have been discovered in the proposed method of effecting the fusion of the two roads, will entail a delay of at least 28 days before the arrangement can be concluded. The Directors cordially agree to complete the union, which, it is expected, will be ratified by the end of June. A heavy fall in stocks has been the result of the enforced and unexpected delay."

The above looks as if it required to be read between the lines. A delay of twenty-eight days, more or less, because of "technical legal flaws" only, is no sufficient reason for "a heavy fall in stocks"—of the G. T. R. and G. W. R., we suppose. Some "hidden hand" or other has most probably been making itself felt, and in a very influential manner. All the more interest will now attach to the proceedings of June 29th, the day on which ratification of the recent agreement is to be passed upon by special meetings of both Companies.

The Montreal *Gazette*, with every disposition to do justice to the force of Mr. Smithers' cautious counsel, still does not see any particular danger ahead. The truth appears to be that Mr. Smithers has been differently understood by different persons; not, perhaps, because he did not speak plainly enough, but rather because of preconceived ideas on the part of hearers and readers of his remarks. It appears quite among the probabilities that, as we have already said, the warning given by him may, to a large extent, have the effect of preventing the thing predicted. The prediction may actually defeat its own fulfilment, and so appear to falsify itself, but it would be founded on facts nevertheless. This would be the most pleasant result, and we venture to suggest that it is also the most probable one. Ever since Mr. Smithers spoke, a little over two weeks ago, circumstances elsewhere alluded to are turning up, which point clearly to an expansion of *bona fide*, real business, founded, not upon sham or "accommodation" of any kind, but on actual transactions, in which solid value is both given and received.

It would not be surprising were the American Tariff Commission to embrace among its recommendations something with reference to Canada. American manufacturers know that since our change of policy they have lost their former Canadian market to a large extent, and they will urge that measures be taken to regain it, if possible. Another thing there is to be remembered; the whole question of the fisheries must come up again within a year or two, as the existing treaty expires in 1883. Following the elections of this year, the expected negotiations for a new arrangement of some kind will almost certainly be one of the first things to engage the attention of the Dominion Government. Canadian commercial bodies, and the press generally, cannot too soon prepare themselves for passing judgment on the various proposals that may be submitted. With British negotiators, as we know to our sorrow, the tendency is very strong to sacrifice their Canadian relations at all points for the sake of conciliating the United States. The services of Sir Alexander Galt should by all means be secured for the Canadian side. We should say that, for dealing with the questions at issue, the Dominion Government is as a whole stronger now than the Government of 1871.

It is probably a prevailing supposition that, when points in dispute arise between importers and the custom house authorities, the latter are apt to decide almost every time in favor of the strictest interpretation of the law, as that which makes the importer pay the most duty. Singular as it may appear, however, this has not been the case in the United States, at all events. Taking American treasury decisions of the last dozen years all together, it would probably be found that more than three-fourths of them in number and importance, had been against the Government and in favor of the importer. And probably the same may be said of those decisions which have been rendered by the courts. For many years the statute was read as imposing a duty of 50 cents per lb. and 35 per cent. on imported hosiery. Recently, however, this reading of the law was challenged, and a United States Court has affirmed that the 50 cents per lb. is not authorized by the letter of the statute, and that only the 35 per cent. *ad valorem* can be collected. Nobody doubts for a moment that the intention of Congress was to impose both duties, but the Court says the law must be taken as it reads. The extensive hosiery firm of the Morleys, in England, are the parties who will principally benefit by this decision. It is tolerably certain that when Congress next revises the statute, no such loophole as to defeat its well understood intention will be left. Anxiety on the part of manufacturers to close up the many loopholes which have been found in the law, and to put it beyond the power of anybody to defeat the well understood intentions of Congress, has been a principal reason why the appointment of a Tariff Commission has been so strongly pressed at Washington.

Manufacturers and shippers will find that an excellent stencil ink can be made by mixing lampblack, fine clay, and gum arabic together. The lampblack gives the color, the clay furnishes a body, and the gum an adhesive. Water will answer as a solvent, but lampblack is so high that a few drops of vinegar or other acid will facilitate its admixture with the other ingredients. Any good adhesive substance, such as dextrine or gum tragacanth, may be found to answer as well as gum arabic to hold the mixture.—*Sewing Machine Journal.*

Manufacturing Notes.

The CANADIAN MANUFACTURER will be pleased to receive items of industrial news from its readers in all parts of the country, for publication in these columns.

Notes of new machinery, improvements, increase in capacity, &c., will be of special interest. All communications must be accompanied by the writer's name as a guarantee of good faith.

The forge works of Smale & Hazleton, St. Thomas, are to be run by a joint stock company, and an increase of capital put into the business.

A new foundry, for the manufacture of wood-working machinery, is now ready for operation in Galt, under the management of Messrs. Cant, Laidlaw & Co

Messrs. M. B. & H. Jewell, of East Farnham, Que., have finished an addition to their mowing machine shops, nearly or quite as large as the original shops, and are putting in important additions to their machinery.

The Lewiston (Me.) Machine Company are making 800 looms for the new cotton mill at St. Stephen, one-half of them fancy. They also have made looms this season for Montreal, Dundas, Hamilton, and other places in Canada.

Messrs. J. M. Williams & Co., manufacturers of stamped tinware and japanned goods in Hamilton, have added a stove foundry to their already extensive premises. This addition to the stove foundries of Hamilton adds to the extent of that important industry at that point.

The directors of the Ogilvie Milling Company, Winnipeg, receive $2,500 per annum each as directors. The president, Mr. W. W. Ogilvie, receives in addition to his salary as director, $2,500, and the vice-president, John Ogilvie, receives $7,500 in addition as such.

The machinery for Mr. Brodie's woollen mill is here and is being drawn up to the factory. Before long the hum will be heard on Dickson's race as it never was heard there before. The other factories are rapidly going ahead also, and in the course of a few weeks now they will be in full blast, it is expected.—*Peterborough Review.*

A new company composed of J. S. Anthes, Joseph C Bowers, Berlin; and Samuel Bricker, Listowel; has been formed to carry on extensively the manufacture of brooms. The new broom which they are going to make is one only recently patented, and does away entirely with the old fashioned wire binding, which is always the first to give way in the present style of brooms.

A joint stock company, with a capital of $60,000, has been formed at Montreal, for the manufacture of fire-proof paints, cement, boiler covering, &c, to be known as "The Sparham Fire Proof Roofing Cement Co." Letters of incorporation have been applied for, the first directors to be Messrs. A. F. Gault, Thomas Craig, A. S. Hall, W. J. Whitehead, W. L. Maltby and Dr. T. Sparham.

The Jarvis Furnace Co. report that they have set over 1700 boilers on their system in the United States and Canada. Among their recent work here are seven boilers at the Merchants' Manufacturing Co.'s Cotton Mill, Montreal, three at the Canada Worsted Co.'s, Quebec, three at the Ogilvie Milling Co.'s, Winnipeg, and one each at the Almonte Knitting Co.'s, and Elliott, Sherift & Co.'s, Almonte, Ont.

The boilers of the Windsor Cotton Co., Windsor, N.S., the Nova Scotia Cotton Co., Halifax, N.S., and the St. John Cotton Co., St. John, N.B., are all to be set with the Jarvis Furnace. These mills will use Nova Scotia slack coal for fuel, which will cost, delivered in their boiler sheds, from $1.20 to $1.30 per gross ton. This slack coal is also used by a number of concerns in the Provinces of Quebec and Ontario.

As will be seen from our minutes of Council meeting, Messrs. Halter & Sauermann are about to start a new enterprise in Paris, namely, the manufacture of buttons. They will make pearl and cloth buttons, not elsewhere manufactured in Canada. They hope to employ two hundred hands in two years, and we hope they may be even more successful than they anticipate. They begin operations at once.—*Brant Review, Paris.*

It is stated that it is the intention of Mr. S. Neelon, M. P. P., to at once erect at St. Catharines a new flouring mill of a capacity of four hundred barrels per day. The new mill is to be built on a site adjoining the present mill, the latter to be used as a storehouse. The new structure will be adapted to the new patent roller process and have all the modern improvements. It will be two hundred feet long by sixty wide and five storeys high.

The Sydney and Louisbourg Coal and Railway Co. have contracted for the whole of this season's output of slack coal to parties in the States, to be used principally under boilers set with the Jarvis Furnace. Large quantities of slack from the Lower Province mines is used in the New England States, and last season one coal firm in New York City bought 60,000 tons from Cape Breton mines. Until recently this slack was thrown away as useless, but it is now proving a source of revenue, besides furnishing manufacturers with a cheap fuel.

The "hum" at the Moncton Cotton Factory has commenced. Yesterday about thirty men were at work at the site of the factory and on the railway siding. The siding has been laid in to the factory grounds, where there is to be a double track. The factory grounds are now being graded. A tool house is in course of erection, and Mr. Job McFarlane is expected up the river to-day with a scow-load of stone for the foundation of the main buildings. Some stone is also expected by rail from Albert. Altogether, things begin to look brisk about the site.—*Moncton Times.*

We noticed last week at the warehouse of Geo. F. Haworth, Toronto, who is agent for H. L. Fairbrothers' American Leather Belting, some mammoth belts, among which were two 24-inch double leather belts, 89 ft. long; three 18-inch double belts, 85 ft. long; one 16-inch double belt, 65 ft. long; one 24-inch 8-ply rubber belt, 69 ft. long; one 16-inch 8-ply rubber, 65 ft. long, and one 14-inch 8-ply rubber, 100 ft. long. Some of these belts are for Mr. H. H. Cook's large saw mill at Midland, and from the heavy and strong appearance of them, one would think they were made never to wear out.

A gentleman in Chicago has been in correspondence with Mr. R. Thompson, provision merchant, in reference to establishing a large refinery in this city after the style of that of Mr N. K. Fairbanks, Chicago, so as to meet thn requirements of the trade in the Dominion, and do away with American importations as much as possible. The establishment would include beef-canning, evaporating apples, packing-house, &c., and it is estimated that it would cost to build and fit up from $30,000 to $40,000. It would afford employment to a large number of boys and girls, who would be utilised in packing and labelling the boxes.—*Toronto Mail.*

The Canadian Pacific Railway have transformed the town of Perth into a hive of industry. Their workshops there are nearly completed, and 200 men are now engaged in them. They have one shop for car-building 200 feet long by 75 feet wide, another for wood-working machinery 160 feet x 75, a smith and machine shop 120 feet long, a dry kiln, a saw mill, and a boiler house. Their motive power is supplied by a 150 horse power engine. The workmen include some of the best mechanics in Canada, and it is intended to build all the passenger and freight cars at that point. The hotels and boarding-houses are full, and there is not sufficient accommodation.

Messrs. B. Mowry & Son have decided to remove to Gravenhurst their foundry and machine business, and a part of the plant used in Lindsay has already gone forward. They anticipate that a favorable trade can be done in their line at Gravenhurst, a large amount of repairing and new work being constantly required by the large sawmills in that vicinity. We regret very much that the Messrs. Mowry have decided to leave Lindsay. They have always been most obliging, and the party who went to them in a fix over his machines was always sure of prompt and cheerful assistance. We have no doubt that they will work up a large trade in their new location and that the lumbermen will appreciate the convenience of getting what they may need done almost at their doors.—*Peterborough Review.*

At the Peters' Combination Lock Co.'s works there are now employed about 85 hands, and the monthly pay roll foots up to $2,000, which is distributed among the merchants and others. A new iron foundry, about 40 x 80, has just been finished and occupied. The goods manufactured comprise all classes of builders' hardware in brass and iron, which is sold all over the Dominion, the company's best customers being the large wholesale hardware houses of Montreal. Among the articles manufactured are padlocks, mortise door locks, post office locks, door knobs in bronze metal, and nickel and silver-plated, store door handles, lifts and japanned thumb latches, flush, chain and other bolts, butt hinges in bronze and iron, drawer pulls, gong door bells, call bells, sash fasteners, coat, wardrobe and cage hooks, shutter hooks, lamp and flower pot brackets, plain and ornamental shelf brackets, and a hundred and one other articles of hardware.

The Lindsay *Post* says that Messrs. Parry & Mills, of Chicago, have leased from Messrs. O'Brien, Shortiss & Co. the Victoria iron mine, in the township of Snowden, and having tested the mine thoroughly as to the quantity of iron ore it contains with a diamond drill, have now commenced building a hot blast charcoal furnace of a capacity of thirty-five tons per day. All the castings for the furnace have been ordered from the St. Lawrence foundry, 35 Berkeley-street, Toronto. The foundation of the furnace is completed, and as soon as the castings are ready the work of completing the furnace will be commenced. They have built a saw mill to cut their own lumber, and have secured about 17,000 acres of timber land for the purpose of making their charcoal. Messrs. Parry & Mills have a large amount of capital of their own, not depending upon others for funds. The furnace will be in full blast early in November, when the first furnace in Ontario will be running.

Recently a *Sun* reporter inspected the works of the St. John Knitting Company, in White's Block, Germain street, and found the operations there being carried on of such a character as to assure the early development of another important industry in this city. The large room in which the manufacture of cotton and woollen hose and socks is being carried on, at present contains twelve machines, eleven of which are of the most approved type made by the firm of Creelman Bros., Ontario, the remaining one being an old "Lamb" machine, kept mainly for the purpose of showing or to contrast the improvement recently made in this class of industrial appliances. This machinery (which already gives full and remunerative employment to sixteen young girls) is but the nucleus of the enterprise, as thirty-four additional knitters will be in use in a short time, when the number of hands required for the manufacture and preparation of the goods will be increased to seventy-five. The whole of the appliances for the production and finishing of the goods are of home manufacture, the cotton yarns being from Messrs. Parks and Sons' New Brunswick Cotton Mills, and the woollen yarn from the Yarmouth Woollen Co's. works, but dyed and dressed here.

The mills of the Canada Paper Company at Windsor add to the old process of producing paper from rags and ropes the extensive production of paper pulp from wood by a chemical process. The wood is cut by a powerful rotary machine into chips, which are shovelled into immense revolving boilers, where they are boiled with a mixture of soda ash and water, previously prepared. The boiled mass comes out thoroughly reduced to soft pulp, the rosins and other ingredients of the wood, except the fibre, having passed into the liquor. This black liquor is then passed into an oven of enormous size, where it passes down, as it were, from story to story, and finally over a long bed of coals. Here it is dried away and burned; everything that is not soda ash is turned into vapor and the vapor is consumed by flames passing over the surface of the mass. The soda ash then becomes again fit for use. The pulp is secondly washed with water, and the product is used for the first washing of the next lot, and finally with water again, the product of which is drained away. The pulp then goes through a complicated process of straining, and bleaching with chlorine, when it is ready to mix, in proper proportion, with other stock. The pulp made from wood by this chemical process is much better than what is merely ground. Mr. Angus, of the Canada Paper Company, is erecting pulp mills at Angus, on the Quebec Central, where he expects to prepare that article for the paper mills of the Dominion. It seems strange that Canada should not long ago have become an exporting country for what now is a large article of commerce and one she is so peculiarly well circumstanced to produce.—*Montreal Witness.*

The Iron Trade.

PITTSBURGH.

THE GREAT STRIKE OF IRONWORKERS CONTINUES—PROCESSION OF TRADES UNIONS—STOCKS OF NAILS AND IRON DECREASING—PRICES FIRM AT CARD RATES.

(From Our Own Correspondent.)

PITTSBURGH, June 19, 1882.

The strike of the ironworkers of this district, which began on the 1st inst., and which has therefore lasted eighteen days, continues, and there is not the least prospect that it will soon end. Two mills—the Superior, in Allegheny city, and the Apollo, in the adjoining county of Armstrong—have partially resumed operations with non-union men, and will increase their output as fast as they can secure the services of more men. At the former mill, the union men have annoyed the new employees considerably, but as yet nothing serious has occurred.

The colliers at the mines along the Panhandle railroad, who struck against a reduction of wages on the 1st of April, are still out, but half or more of the mines are again producing coal, the operators having employed a great many negroes and foreigners. The miners have shown a great deal of pluck, and have preserved good order among themselves; but they are as good as beaten, and they may go to work at any time.

The various trade organizations in this vicinity and the adjacent parts of Ohio and West Virginia had a large procession here on Saturday. The papers estimate the number of persons in the procession at from 12,000 up to 30,000. Probably 10,000 would be nearer the correct number. At any rate, it was the largest labor parade ever before seen in the United States, and there was "no end" of music, flags, mottos, etc., while many public businesses and private houses were draped with flags. They were a respectable appearing body of men, and they maintained the very best of order throughout the entire day. Nor did they look as if they had been "crushed by capital."

The window-glass and green bottle factories will commence their usual two months' stoppage on the 1st prox. The pressed ware factories usually only stop about a month, the work not being so hard nor the heat so great in the latter as in the former.

The stocks of nails and iron are growing quite small, and manufacturers reject large orders, it being their desire to accommodate as many of their customers as possible, and as long as possible. They could probably have no trouble to dispose of their entire stocks to speculators. As to prices, they are firm at full card rates.

Pig Iron.—A little foundry iron is selling, but that is about all. The prices obtained for No. 1 ranged from $25 to $26.50 four months, and for No. 2 $23.50 to $24.50. A little grey forge sold for foundry use at $24, 4 months. *Manufactured Iron.*—Card, which there is no trouble to obtain, continues as follows: Bar, $2.50; 24 sheet, $4.30; tank, $3.30; C. H. No. 1 boiler plate, 5½c; homogeneous steel do., 6½c, hoop iron for common barrel hoops, $3.10 to $3.30; lighter sizes, $3.20 to $5.10—all 60 days, or 2 per cent off for cash. *Nails.*—There is little that is new to report. About the only change since last report is the refusal of makers to sell carload lots (250 kegs), and hence the usual abatement of 10c. per keg, which the card allows on carload lots, is obsolete. Card rate remains $3.40, 60 days, or 2 per cent. less for cash. *Wrought Iron Pipes and Tubes.*—No change in prices. Discounts remains as follows: On gas and steam pipe, 60 @ 62½ per cent; on boiler tubes, 42½ @ 45 per cent; net prices of oil well casing, 67½ @ 70 cents per foot; do. oil-well tubing, 20c. *Steel.*—Trade continues quiet; best quality refined cast steel, 12c. per pound; crucible machinery steel, 7½c. *Steel Rails.*—Manufacturers report prices steadier, and quote at $50, f.o.b. cars at works. Sale of 52-pound rails at $50. *Iron Rails.*—Business done at $44 per ton for 40-pound rails. *Railway Track Supplies.*—The situation remains about the same, except that the strike is interfering with production. Spikes, 3 @ 3.15c. per lb. 30 days; splice-bars, 2.50c. (not 3.50c., as printed in last issue), f. o. b. Pittsburgh track-bolts, $3.75c. per pound for square nut, and $3.90c. for hexagon, cash f.o.b. Pittsburgh. *Old Rails.*—Tees may still be quoted at $28 for American. Double heads have sold at $30 within the last few days. *Scrap Iron.*—Transactions very few indeed. No. 1 wrought sold a few days ago at $27 per net ton, 4 months. Cast borings are quoted by dealers at $15 @ $15.50 per gross ton; and old car-wheels at $26 @ $28. *Window Glass.*—There are no changes in prices; double strength 60 and 20 per cent discount; single strength, 60 and 10 per cent. The demand for fruit jars is quite good. *White Lead.*—As is usual at this season of the year, the demand for white lead has declined, but prices are without change—7c @ 7½c. per pound, in kegs, whether dry or in oil. *Linseed Oil* is lower. Raw is now quoted at 55c. per gallon, by the barrel; and boiled, 58c. *Connellsville Coke.*—Prices unchanged at $1.50 @ $1.75, as to size of order, on cars at the ovens, the ton being of 2000 pounds.

PHILADELPHIA.

THE IRON TRADE STEADY—WATCHING FOR IMPROVEMENT—THE STEEL RAIL SITUATION—BAR IRON EASY—THE OIL FIELDS—BLAST FURNACES—OLD RAILS—THE LOCAL TRADE.

(From Our Own Correspondent.)

PHILADELPHIA, June 22, 1882.

The expected wonderful changes in the iron situation have not taken place. Prices are steady, much to the surprise of many who looked upon the suspension of one hundred mills or over as fraught with serious consequences. The tendency of prices during May was marked. But for the suspension half the mills would have been driven to single turn. Stocks would have accumulated, prices declined, and consumers would be afraid to buy a week's supply. But as it is, prices are very firm. As to the future there are diverse opinions. Manufacturers refuse future contracts at current rates, and consumers regard a resumption of operations as sufficiently probable to do with small supplies. Even when a resumption does come, unless a revival of railroad building comes with it, more iron will be made than can be used. The trade is therefore studying the situation in order to discern the coming of stronger demand. Heavy crops are expected to open the flood gates of prosperity. New railroad lines, projected a year or more ago, still exist only on paper. Some of them will be prosecuted to completion if indications continue favorable. Enterprise is taking fresh courage in several directions. More contracts have been given out during the past two weeks than for six weeks previously. Steel rails are still held at $48 for large lots—winter delivery, to $54 for small lots of light sections, summer delivery. Mills have taken very few large contracts of late. Requirements are not presented. Low prices are not desired, but more favorable inducements are looked for. The negotiations referred to in last letter resulted in the sale of about 25,000 tons steel rails of all kinds. The situation in the Bessemer mills is about this. The railroad builders have not fully made up their minds to go on with new work. The countermanding of orders has been stopped. If matters take a favorable turn, work on some fifteen hundred miles of road will be undertaken afresh. If not, the delay will be continued. Foreign capital is more friendly to American roads than six months ago. When the heavy crops are ready, and should the foreign demand for cereals be up to speculative expectation, then will railroad building be prosecuted. Our record so far this year is not bad, double last year's mileage, viz: 3500 miles.

It is hardly out of the way to say that steel rails will be ordered at $45 within a year. To have asserted a year ago that in June, 1882, rails could be had at $47 would have been to invite ridicule. Yet in 1877-78 rails sold at $42. Southern demand is looming up. A large cotton crop will help that section. The north-eastern textile mills are crowded with orders, and new works are being erected. Cotton seed oil mills are attracting capital. This industry is remunerative and has a great future before it. The result of this expansion is that small branch roads are wanted, land is rising in value, and labor is in constant demand.

Eastern bar mills are taking orders this week at 2.6, but not for remote delivery, as the possibilities of a sudden ending up of the western strike have not been discounted. For present needs there is no trouble in

getting iron at this price. A long idleness will naturally harden prices, but everything will be done that can be to meet current demand at the very lowest prices.

Nails are firm and active at $3.40 @ $3.50. Buyers of pipes and tubes are placing fall contracts with a good deal of spirit. The oil men in western Pennsylvania have been buying tank iron as they have not done before for years. The sudden strikes have rendered demand imperative and prices have hardened about $5 per ton for prompt delivery.

The extension of oil producing territory is attracting attention outside of oil circles. Large investments are being made in the new territory, notwithstanding the unfavorable outlook for prices. Experiments in process promise to open up a new source of demand for fuel. That petroleum will be largely used as a fuel is a fact asserted by competent engineers, but the method has not as yet been satisfactorily demonstrated.

The enormous losses just chronicled would not have any serious effect on market prices in view of the enormous production and the possibilities of an increase.

Exports are increasing, and, with the completion of new pipe lines, will be stimulated.

The blast furnaces are roaring day and night, east and west, just as though two thousand furnaces in the mills west of the Alleghanies were not cold. The market quotations show very little change. Foundry irons, east, are firmer, if there is any change. Mill iron has not awakened as was expected, but is firm at $21 at furnace.

Old rails are very dull, at $26 for ties and $37 for doubles. Sellers are asking more, but cash will bring supplies at above rates.

Selected and railroad scrap is in fair demand at $28 to $30. Other inferior qualities at $25 to $27.50.

The coal trade is good under the iron grasp of the monopoly which keeps 40,000 miners in comparative poverty through half-time, in order that by the artificial scarcity thereby produced they can charge the consumers the outside penny. The strikes in the coal fields continue, and as soon as the men get rested they will resume at the reduction, unless a boom should strike the country, a not likely accident.

Congress will soon adjourn, leaving much valuable legislation not enacted. The knit goods manufacturers have been urging remedial legislation to make duty 50c. per pound on goods instead of 25 per cent. *ad valorem*. The master mechanics held a convention here last week, and numerous valuable papers on car construction and relating to railroad interests were read, and in due time will be published.

MONTREAL.

An Improved Feeling in Pig Iron—Sales of Canada Plates, Charcoals and Cokes—Quotations.

(*From Our Own Correspondent.*)

MONTREAL, JUNE 20th, 1882.

Since our letter of the 7th inst., a better feeling has taken hold of the pig iron market, and several round lots have changed hands within the past few days, and we hear of the sale of 800 tons No. 1 Gartsherrie on p.t., but the terms are believed to be in the close vicinity of $21.75 *ex*-ship. Coltness and Summerlee have changed hands at $22.00, in car lots, for western destination, and Calder is quoted at $21.75 @ $22.00. A lot of 100 tons of Eglinton was sold yesterday, to arrive, at $20.00. In bar iron a fair demand exists at $2.00 for round lots, and a number of jobbing transactions are reported at $2.10 @ $2.15. Siemens bar is quoted firm at $2.35. There is still a fair inquiry for Canada plates, a lot of 1,000 boxes having changed hands at $3.00, *ex*-ship Montreal. Tin plates meet with fair inquiry at $5.20 @ $5.25 for charcoals, and at $4.25 @ $4.50 for cokes. We hear that some merchants have received advices of a further advance in cokes, but they are not yet generally confirmed. Ingot tin is dull, and if anything a trifle weaker at 25c. @ 25½c. Ingot copper remains steady at 17¾c. @ 18¼c. General hardware is in moderate inquiry at about our former basis of valuation. Remittances have shown some improvement during the week. We quote prices as follows:—Ex-ship and store, 4 mos., Coltness, $22.00 to $22.50; Siemens, $22 to $22.50; Summerlee, $21.75 to $22; Langloan, $21.75 to $22; Eglinton, $19.50 to $20.75; Calder, $21.50 to $22; Carnbroe, $21.00; Hematite, $26 to $27. Bar, per 100 lbs—Siemens, $2.25 to $2.35; Scotch and Staffordshire, $2.00 to $2.10; Best Staffordshire, $2.00 to $2.15; Swedes, $4.00 to $4.50; Norway, $5; Lowmoor and Bowling, $6.25 to $6.50. Canada Plates, per box—Glamorgan & Budd, $3.15 to $3.25; Penn, $3.15 to $3.25; Nentgwynt, $3.15 to $3.20; Hatton, $3.15; Thistle & Clifton, $3.15. Tin Plates, per box—Charcoal, I. C., $5.25 to $5.75; Charcoal, I. X., $7.00 to $7.25 Charcoal, D. C., $5.25; Charcoal, D. X., $7.00; Coke, I. C., $4.30 to $4.40; Tinned Sheets, No. 26, Charcoal, 10c. to 11c. Cookly K. or Bradley, 10c. to 11c.; do, Coke, 10c. to 10½c.; Galvanized Sheets, 28 best, 7c. to 7½c.; Hoops and Bands, per 100 lbs., $2.75 to $3.00; Sheets, best brands, $3.00; Boiler Plate, per 100 lbs.—Staffordshire, $3.00 to $3.25; Bradley, $4.50 to $4.62½; do, Lowmoor and Bowling, $7.00 to $12.00: Russia Sheet Iron, per lb., 12½c. to 13c. Lead—Pig, per 100 lbs., $4.50 to $4.75; Sheet, do., $5.50; Bar, $5.00 to $5.50; Shot, do., $6.00 to $6.25. Steel—Cast, per lb., 11½c. to 12½c.; Spring, per 100 lbs., $3.25 to $3.50; Tire, do., $3.25 to $3.50; Sleigh Shoe, $2.40 to $2.50; Ingot Tin, 25c., to 26c.; Bar Tin, 30c. to 32c.; Ingot Copper, 18c. to 18½c.; Zinc, sheet, per 100 lbs., $6.00 to $6.50: Spelter, $00.0 to $6.00; Horse Shoes, per 100 lbs., $4.25 to $4.50; Proved Coil Chain, ⅝ in., $5.50: Anchors, $5.00 to $5.50; Iron Wire, No. 6, per bdl., $1.75 to $1.80. Cut nails are quoted as follows, cash:—Hot Cut American or Canadian Patterns, 3 inch to 6 inch, $2.70; 2½ in. to 2¾ in., $2.95; 2 in. to 2¼ in., $3.20; 1¾ in. to 1⅞ in., American, $3.45; 1½ in., $4.20; 1¼ in. to 1⅜ in. cold cut Canadian, $3.20; 1¼ in. ditto, $3.70.

Window glass is firm, and prices are—7½×8½, 7×9, 8×10, 10×12, and 10×14, $2.00 to $2.10; 10×16 and 14×20, $2.20 to $2.40, 18×24, 2.40 to $2.50.

Wool.

MONTREAL.

An Improved Tone in the Wool Market—An Important Statement—Alleged Low Prices of Canadian Wools, as given in Toronto Daily Papers, Challenged—These Quotations Declared to be Misleading—Farmers Holding for Better Prices.

(*From Our Own Correspondent.*)

MONTREAL, June 20th, 1882.

In sympathy with the improved feeling in the English market for fine wools, and the enhanced values recently obtained at the Colonial wool sales now in progress in London, a better tone has been imparted to the situation here, and we hear of a better inquiry from country mills, with sales reported of 20,000 lbs. greasy Cape at 18½c. and 15,000 lbs. at 18¾c. and prices for this class of wool range from 18½c. to 19½c. In Australian there have been a few sales at 23½c. to 24c. for ordinary, and at 28c. to 30½c. for fine combing. A lot of 10,000 lbs. of Canadian wool was sold at Boston, on Thursday last, on p.t. but it is known to be at a low figure. In Canadian wool, the market is as unsatisfactory as ever, but we are in a position to state that the low prices of domesti wool quoted in the Toronto daily papers of late are very misleading, as we have had several conversations recently with buyers, who are not likely to err against their own interests, and who state they have been in the different wool sections in Canada during the past week or ten days, and that they cannot touch a pound of wool from the farmers under 22½c. to 23c. per lb. In this market prices are purely nominal for Canadian wool, and we therefore drop prices until we meet with sales whereon to base values.

Dry Goods.

NEW YORK.

EFFECT OF FAVORABLE HARVEST REPORTS ON WHEAT—AN ADVANCE IN LOCAL FREIGHTS EXPECTED—EXPORT TRADE IN COTTONS FAIR—AN EXTENSIVE FALL TRADE LOOKED FOR—STRIKES THE ONLY DRAWBACKS IN THE PROSPECT—THE COURSE OF BUSINESS IN VARIOUS LINES.

From Our Own Correspondent.

NEW YORK, June 20, 1882.

The dry goods market has during the past fortnight shown rather more animation, and, now that a bountiful wheat crop at least is assured buyers are steadily gaining confidence. The probability of an early advance in West-bound freights has, also, caused many buyers to somewhat anticipate future requirements in order to have the advantage of present low rates. Fabrics, however, adapted to the Fall trade almost entirely monopolized this improvement, and staple goods remain comparatively quiet at first hands. Jobbers transacted a fair business in summer fabrics, and the activity in the retail trade was reflected in the frequent calls for small assortments. There has been a fair distribution of goods on back orders, and supplies at the mills and with agents, though larger than at this time last year, are held with confidence in view of an extensive fall trade. The most unfavorable feature in connection with trade is the numerous strikes: though it is to be noticed there are few of importance in the textile manufacturing branches, probably for the reason that the chances of success would be small. Another and a new check to business, which, if continued any length of time, will prove serious, is the strike of railroad employees in this city, and the consequent decision of the roads to refuse freight.

Cotton goods are quiet, except where the demand was stimulated by small concessions in prices, as was the case in low and medium grade bleached goods, and where buyers were anticipating the advance in freight rates. For brown cottons fair export orders were received and considerable shipments made on previous account. Colored cottons are moving quietly, and, stocks being in good shape, values rule steady. Considerable quantities of cotton flannels were shipped on account of recent orders, but the fall trade in these goods has not fully set in, and prices consequently are not yet determined upon. In print cloths business has been moderate, present quotations being 3 13-16c for 64x64s and 3¾c for 56x60s. Stocks are steadily increasing. Prints are in spasmodic demand and some of the large jobbers disposed of considerable quantities of "off style" goods at very low prices. The demand for ginghams fails to show desired improvement, notwithstanding the lately reduced prices. One or two of the leading makes have moved fairly, but it is probable that the production will be curtailed before long. Dress goods are quiet, aside from a limited reassorting demand for light summer materials.

In woollen goods there has been a slight but healthy improvement and more confidence is expressed. Increased attention has been bestowed upon flannels and blankets by purchasers from distant markets, and there was also a fair call for small assortments of clothing woollens, the warm weather of the past few days having stimulated the clothing trade, and enabled retail clothiers to somewhat reduce their stocks. Heavy clothing woollens are being distributed in fair quantities on back orders, and all attempts at cancellation, of which there are still more than agreeable, are opposed as much as possible. For men's woollens the preference is chiefly for the better qualities, and the leading makers of these are well sold up. Kentucky jeans are irregular in price and demand. Doeskins begin to show an improvement, while carpets have fallen into a state of quiet, after the recent activity.

Foreign goods are as quiet as usual at this season. Certain specialties were in fair request, but only for small lots, and the jobbing trade remained dull, in spite of a certain degree of improvement among retailers, whose ample stocks do not yet require renewal. Values are usually well maintained, but such fancy materials as are subject to changes of fashion, are now freely offered at lower prices to clear out stocks. Staple silks find a limited outlet at steady prices, and dress goods are generally dull. Linens and white goods continue slow, while laces and lace goods are fairly active.

Leather, Hides, and Skins.

MONTREAL.

DULLNESS IN THE MARKET STILL UNBROKEN—NO SIGNS OF LARGE DEMAND—A DEMORALIZED CONDITION OF THE MARKET—QUOTATIONS OF LEATHER AND HIDES.

(From Our Own Correspondent.)

MONTREAL, June 20th, 1882

The monotonous dullness of the leather market is at the moment unbroken, and dealers talk in a most discouraging strain. Boot and shoe manufacturers have commenced to cut up for the fall trade, but still there are no signs of their coming into the market for fresh supplies of leather, as they laid in heavy stocks some time ago at cheap figures, and what round lots are actually changing hands refer to those forced upon the market from time to time, and which are picked up because of the temptingly low rates at which they are offered. It can be seen at a glance, therefore, the demoralized condition of the market. The only exception to the ruling stagnation is in plump Spanish sole, which sells well at 25c. to 26c. as to the size of lots, sales aggregating some 1,500 sides being reported at 25c. In slaughter sole there is no improvement, and prices rule easy at 27c. to 28½c., the sale of a round lot having just transpired at 27½c., for which the seller stated he could have realized 28c. to 28½c. easily about five or six weeks ago. In China sole there is the same complaint of inactivity and easier rates, with a few sales reported at 20½c. to 22c. as to size of lot. Black leather is exceptionally dull, no sales being mentioned outside of a small jobbing trade, but chiefly at inside rates. Waxed upper and splits are drugs on the market and prices lean wholly in buyers' favor. The sale of a lot of 11 tons of very fair quality of heavy splits is reported to-day at 21½c. In buff and pebbled leathers there is a light inquiry at unchanged prices.

There is no change in the hide market, green butchers' selling at $6.00 $7.00 and $6.00 per 100 lbs. for Nos. 1, 2, and 3 respectively. The receipts recently have been light owing to the scarcity of cattle. Cured hides have been taken in moderate sized quantities by tanners at $9.00 to $9.25 per 100 lbs. for No. 1, and we hear of one lot selling at $9.37½. Western hides are held steadily at $9.25 to $9.50. The Chicago hide market is very quiet and prices have recently been shaded, which has caused a slightly easier feeling here in Western hides. The sale of a carload is reported on this market of No. 1 buff hides at $9.25. Calf skins remain steady at 14c. per lb; sheepskins are in rather light supply at $1.25 to $1.75 each, as to size of skin and quality of wool. Lambskins are steady at 35c. to 40c. each, and clips at 25c. to 30c. each.

We quote prices as follows: No. 1 Hemlock Spanish Sole, 25c. to 26c.; No 2 ditto, 22½c. to 23½c., Buffalo Sole, No. 1, 21½c. to 22c½. No. 2 ditto, 20c. to 21c; Hemlock Slaughter, 26c to 28c; Harness, 28c. to 31c.; Waxed Upper (light), 33c. to 37c.; Waxed Upper, medium and heavy, 29c. to 33c.; Grained Upper (long), 31c. to 37c.: Scotch Grained Upper, 37c. to 40c.; Buff, 13c. to 16c.; Pebbled Cow, 12c. to 15c.; Splits, calf, per lb., 30c. to 35c; Splits, medium, Crimping, 27c. to 30c.; Splits, Juniors, $0.18 to $0.25; Calfskin (light), $0.60 to $0.75. Calfskin (heavy), $0.75 to $0.85; French Calfskin, $1.05 to $1.35; French Kid, $15.75 to $16.50; English Kid, $0.60 to $0.70; Busses Kid, $15.50 to $16.50. Patent Cow, $0.15 to $0.16; Enamelled Cow, $0.14 to $0.16; Green Hides, inspected, $0 to $9.25; Calfskins, per lb., $0.14 to $0 00; Sheepskins, $1.25 to $1.75; Lambskins (spring), $0.35 to $0.40; Sheepskins, dressed, No. 1, $5 to $5.75; Sheepskins, dressed, X, $6 to $6.75. Sheepskins, dressed, XX, $7 to $7.75; Sheepskins, dressed, XXX, $8 to $8.75; Sheepskins, dressed, XXXX, $9 to $9.75. Sheepskins dressed, XXXXX $10 to $10.50.

Selections.

ORIGIN OF NAMES OF FABRICS.

WOOL AND TEXTILE FABRICS.

Many kinds of dry goods possess old English names which are used, more or less corrupted, throughout the world. The origin of these old names is given by Sir George Birdwood as follows :—

Damask is from the city of Damascus ; satin from Zaytown, in China ; calico from Calcutta ; and muslin from Mosul.

Buckram derived its name from Bochara ; fustian comes from Fostat, a city of the Middle Ages, from which the modern Cairo is descended. Taffeta and tabby from a street in Bagdad. Cambric is from Cambrai. Gauze has its name from Gaza ; baize from Bajae ; dimity from Damietta, and jeans from Jaen. Drugget is derived from a city in Ireland, Drogheda. Duck, from which Tucker street in Bristol is named, comes from Torque in Normandy.

Diaper is not from D'Ypres, but from the Greek *diaspron*, figured. Velvet is from the Italian *vellute*, woolly (Latin, *vellus* —a hide or pelt). Shawl is the Sanscrit *sala*, floor, for shawls were first used as carpets and tapestry. Bandanna is from an Indian word, meaning to bind or tie, because they are tied in knots before dyeing. Chintz comes from the Hindoo word chett. Delaine is the French "of wool."

The Chicago, Milwaukee & St. Paul Company has closed a contract for a large number of new paper car wheels. The supply, it is thought, will be more than sufficient for all the company's parlor, sleeping and dining coaches. It is the intention of the company, furthermore, to furnish its entire complement of passenger cars with these wheels at an early day.

A CONNECTICUT mechanic has made a trial of rotary files for finishing planed surfaces. He is of the opinion that quicker and truer work can be done with these than with hand files, and that the surface is in better shape for trueing with the scraper. His experiments have been confined to the planer : but he believes that his device may be properly and economically adapted to the lathe and milling machine.

IN experiments with belts made of textile fabric employed as a substitute for leather belts in driving machinery, it has been found that belts of Italian hemp will endure a strain of twice that which cotton belts will bear. The latter have been considerably used in England, but nothing has, so far, competed with leather belting except rubber ; and the use of the latter is still limited in comparison with leather belts.

When the vessel La Provence, which sank in the Bosphorus, was being raised, the telephone was added to the diver's equipment. One of the glasses of the helmet was replaced by a copper plate in which a telephone was inserted so that the diver had only to turn his head slightly in order to receive his instructions and report what he had seen. The adoption of this means of communication in diving operations will, in case of danger or accident, tend to insure safety to lives that otherwise would have been sacrificed.

A NEW POLISHING PAPER.—As in cleaning woodwork, particularly pine and other soft woods, one process is found to answer better than another, we may describe the manner of manufacturing a stone paper, which, in some cases, will be preferred to sand paper, as it produces a good face and is less liable to scratch the work. Smooth on both sides, with pumice stone, any good tough paper, and tack it on a board, give the paper a coating of strong glue, size, and then sift a quantity of finely-powdered pumice stone through a sieve of moderate fineness. When the surface has hardened repeat the process till a tolerably thick coat has been formed upon the paper, which, when dry, will be fit for use.—*Millstone.*

The name of James Little, of Montreal, has become almost a household word with every person interested in lumber production or forestry. The initiator and organizer of the forestry association, Dr. John A. Warder, planted a Canadian elm at the recent convention in Cincinnati, naming it "James Little," in acknowledgement of this Canadian veteran lumberman's many years' service in directing attention through the press and in pamphlets to the extent, value and waste, of the commercial woods of both countries. The name of the association was changed to the "American Forestry Congress" so as to include Canada in its jurisdiction. James Little was elected vice-president for the province of Quebec, and Prof. Wm. Saunders, of London, for the province of Ontario.—*Lumberman's Gazette, Bay City, Michigan.*

WEIGHTS OF LOGS AND LUMBER.—We extract the following from a neat and very useful little book issued by Messrs. H. K. Porter & Co., Pittsburgh, Pa., builders of light locomotives :—

WEIGHT OF GREEN LOGS TO SCALE 1,000 FEET, BOARD MEASURE.

Yellow Pine (Southern)	8,000 to 10,000 lbs.
Norway Pine (Michigan)	7,000 to 8,000 lbs.
White Pine (Michigan), off of stump	6,000 to 7,000 lbs.
" " out of water	7,000 to 8,000 lbs.
White Pine (Pennsylvania), bark off	5,000 to 6,000 lbs.
Hemlock (Pennsylvania), bark off	6,000 to 7,000 lbs.

WEIGHT OF 1,000 FEET OF LUMBER, BOARD MEASURE.

Yellow or Norway Pine	Dry, 3,000 lbs. ; green, 5,000 lbs.
White Pine	Dry, 2,500 lbs. ; green, 4,000 lbs.

WEIGHT OF ONE CORD OF SEASONED WOOD, 128 CUBIC FEET PER CORD.

Hickory or Sugar Maple	4,500 lbs.
White Oak	3,850 lbs.
Beech, Red Oak, or Black Oak	3,250 lbs.
Poplar, Chestnut, or Elm	2,350 lbs.
Pine (White or Norway)	2,000 lbs.
Hemlock Bark, Dry	2,200 lbs.

(1 cord bark got from 1,500 feet logs.)

—*American Manufacturer.*

NOTICE TO CONTRACTORS.

SEALED TENDERS, addressed to the undersigned and endorsed "Tender for Post Office, Hamilton, Ont.," will be received at this office until THURSDAY, the 6th day of July next, inclusively, for the erection of

POST OFFICE, &c.,

AT

HAMILTON, ONT.

Plans and specifications can be seen at the Department of Public Works, Ottawa, and at the Post Office, Hamilton, on and after Thursday, the 15th June.

Tenders must be made on the printed forms supplied.

Each tender must be accompanied by an *accepted* bank cheque, made payable to the order of the Honorable the Minister of Public Works, *equal to five per cent.* of the amount of the tender, which will be forfeited if the party decline to enter into a contract when called upon to do so, or if he fail to complete the work contracted for. If the tender be not accepted the cheque will be returned.

The Department will not be bound to accept the low est or any tender.

By order,

F. H. ENNIS,
Secretary.

Department of Public Works, Ottawa, 24th May, 1882.

STOREY'S "EUREKA" SPRING GLOVE FASTENER, PAT'D

W. H. STOREY & SON, Glove Manufacturers, ACTON, ONT.

The quality of our Goods is unsurpassed.

WANTED.

AN ENERGETIC MAN OF BUSINESS, resident in WINNIPEG,

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LOCAL OR PROVINCIAL AGENT

for one or more Ontario Manufacturers. Best of references. Address C. G., at office of this paper.

H. W. BUTTERWORTH & SONS,

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MANUFACTURERS OF

DYEING, DRYING, AND FINISHING MACHINERY

For COTTON, WOOLLEN, and WORSTED GOODS.

DRYING MACHINES, with cylinders of tinned iron or copper, for PRINT WORKS, BLEACHERIES, &c.

DYEING, SIZING & DRYING MACHINES

For COTTON (CHAIN) WARPS.

TENTERING MACHINES,
With clamp chain for Lawns, Ginghams, &c.

TENTERING MACHINES,
with Pin Chain for Woollen and Worsted Goods.

SINGEING, WASHING, CRABBING,
DYEING, DRYING & FINISHING
MACHINERY, for Worsted Dress Goods

PHOTOGRAPHS AND PRICES SENT ON APPLICATION.

JAMES LESLIE,

Manufacturer of

CARD CLOTHING,

LOOM REEDS, &c.

Dealer in

COTTON & WOOLLEN MILL SUPPLIES.,

OFFICE AND FACTORY:

Junction of Craig and St. Antoine Sts., WEST END, MONTREAL.

P. O. Box 996.

WELLAND CANAL.

NOTICE TO CONTRACTORS.

SEALED TENDERS, addressed to the undersigned, and endorsed, "Tender for the WELLAND CANAL," will be received at this office until the arrival of the eastern and western mails on TUESDAY, the 11th day of JULY next, for certain alterations to be made to, and the lengthening of Lock No. 2 on the line of the old Welland Canal.

A map of the locality, together with plan and specifications of the works to be done, can be seen at this office, and at the Resident Engineer's office, Thorold, on and after TUESDAY, the 27th day of June next, where printed forms of tender can be obtained.

Contractors are requested to bear in mind that an accepted bank cheque for the sum of $1,500 must accompany each tender, which sum shall be forfeited if the party tendering declines to enter into contract for the execution of the work at the rates and prices submitted, and subject to the conditions and terms stated in the specifications.

The cheques thus sent in will be returned to the respective parties whose tenders are not accepted.

This Department does not, however, bind itself to accept the lowest or any tender.

By order,

F. BRAUN,
Secretary.

Dept. of Railways and Canals, Ottawa, 22nd May, 1882.

THE CANADIAN REPORTING & COLLECTING ASSOCIATION.

Head Office:

Union Loan Buildings, 28 & 30 Toronto Street, Toronto.

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SPECIAL REPORTS furnished and COLLECTIONS MADE in all parts of the Dominion, Great Britain, the Continent of Europe, Australia, United States, West Indies, and South America.

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A copy of "Law's Mercantile Cypher Code" is included with each membership, and as each agent has a copy, members can communicate by wire direct with the agent and thereby save time and expense, as well a have their communications confidential.

For further particulars apply to the Head Office.

TRENT NAVIGATION.

Fenelon Falls, Buckhorn Rapids, and Burleigh Canals.

NOTICE TO CONTRACTORS.

SEALED TENDERS addressed to the undersigned and endorsed "Tender for Trent Navigation," will be received at this office until the arrival of the Eastern and Western Mails, on WEDNESDAY, the 5th day of JULY next, for the construction of two Lift Locks, Bridge Piers, and other works at Fenelon Falls; also, the construction of a Lock at Buckhorn Rapids, and for the construction of three Locks, a Dam, and Bridge Piers at Burleigh Falls.

The works at each of these places will be let separately.

Maps of the respective localities, together with plans and specifications of the works, can be seen at this office on and after WEDNESDAY, the 21st day of June next, where printed forms of Tender can be obtained. A like class of information relative to the works at Fenelon Falls will be furnished at that place, and for those at Buckhorn and Burleigh, information may be obtained at the resident Engineer's office, Peterborough.

Contractors are requested to bear in mind that Tenders for the different works must be accompanied by an accepted bank cheque, as follows:—

For the Fenelon Falls work $1,000
Do Buckhorn Rapids work $500
Do Burleigh Falls work $1,500

And that these respective amounts shall be forfeited if the party tendering declines entering into contract for the works at the rates and prices submitted, subject to the conditions and terms stated in the specifications.

The cheques thus sent in will be returned to the different parties whose tenders are not accepted.

This department does not, however, bind itself to accept the lowest or any tender.

By order,
F. BRAUN,
Secretary.

Dept. of Railways and Canals,
Ottawa, 22nd May, 1882.

INTERCOLONIAL RAILWAY.

The Great Canadian Route to and from the Ocean. For Speed, Comfort, and Safety, is unsurpassed.

Pullman Palace Day and Sleeping Cars on all through Express Trains. Good Dining-rooms at convenient distances.

No Custom-House Examination.

Passengers from all points in Canada and the Western States to Great Britain and the Continent should take this route, as hundreds of miles of winter navigation are thereby avoided.

IMPORTERS & EXPORTERS

Will find it advantageous to use this route, as it is the quickest in point of time, and the rates are as low as by any other. Through freight is forwarded by

FAST SPECIAL TRAINS,

and the experience of the last two years has proved the Intercolonial route to be the quickest for European freight to and from all points in Canada and the Western States.

Through express trains run as follows:—

GOING EAST.	GOING WEST.
Leave Toronto 7.35 a.m.	Leave Halifax 2.45 p.m.
" Montreal 10.00 p.m	" St. John, N.B., 7.25 p.m.
" Quebec 8.10 a.m. next day.	Arrive Quebec 8.20 p.m. next day.
Arrive St. John, N.B., 7.30 a.m., day after.	" Montreal, 6.00 a.m. day after.
" Halifax 12.40 p.m., day after.	" Toronto 11.15 p.m., day after.

The Pullman cars which leave Montreal on Monday, Wednesday, and Friday run through to Halifax without change, and those which leave Montreal on Tuesday, Thursday, and Saturday, run through to St John, N.B., without change.

All information about the route, and also about freight and passenger rates, will be given on application to

R. ARNOLD, Ticket Agent,
Cor. King and Yonge Streets, and 90 York St., Toronto.

R. B. MOODIE,
Western Freight and Passenger Agent,
72 Yonge Street, Toronto.

GEORGE TAYLOR,
General Freight Agent, Moncton, N.B.

A. S. BUSBY,
General Passenger and Ticket Agent, Moncton, N.B.

D. POTTINGER,
Chief Superintendent, Moncton, N.B.

Railway Office, Moncton, N.B.

MURRAY CANAL.

NOTICE TO CONTRACTORS.

SEALED TENDERS addressed to the undersigned, and endorsed "Tender for the MURRAY CANAL," will be received at this office until the arrival of the eastern and western mails on TUESDAY, the 27th day of JUNE next, for the formation of a Canal to connect the head waters of the Bay of Quinte with Presqu'ile Harbor, Lake Ontario.

A map of the locality, together with plans and specifications of the works, can be seen at this office and at Brighton, on and after THURSDAY, the 8th day of JUNE next, where printed forms of tender can be obtained.

Contractors are requested to bear in mind that an accepted bank cheque for the sum of $3,000 must accompany each tender, which sum shall be forfeited if the party tendering declines to enter into contract for the execution of the works at the rates and prices submitted, subject to the conditions and on the terms stated in the specification.

The cheques thus sent in will be returned to the respective parties whose tenders are not accepted.

This Department does not, however, bind itself to accept the lowest or any tender.

By order,
F. BRAUN,
Secretary

Dept. of Railways and Canals,
Ottawa, 22nd May, 1882.

Industrial Directory.

Asbestos.

FENWICK & SCLATER, Montreal.—Asbestos packing, paints, and roofing.—Send for lists. Files, &c.

Agricultural Implements.

A. S. WHITING MANUFACTURING CO., Cedar Dale, Ont.—Manufacturers of scythes, forks, hoes, etc.

WELLAND VALE MANUFACTURING CO.—Lock No. 2, St. Catharines, Ont., Canada—Manufacturers of axes, scythes, forks, hoes, rakes and edge tools.

Bridge Builders.

TORONTO BRIDGE CO., Toronto.—Builders of Steel and Iron, Railway and Highway Bridges.

Chemicals.

JOHN McARTHUR & SON, Montreal.—Offer at closest figures chemicals required by soap-boilers, oil refiners, paper-makers, and by manufacturers of woollens, cottons, leather, &c.

Coal and Wood.

P. BURNS, Offices cor. Front and Bathurst Sts., Yonge St. Wharf 51 King St. East, 532 Queen St. West, Toronto.—Wholesale dealer in Coal and Wood. Telephone communication between all offices.

Cotton Brokers.

M. WRIGHT, next Exchange Bank, Hamilton, Ont.—Sole agent in Canada for Ordway & McGuire, cotton factors, Nashville, Tenn.

Cotton Mills.

HAMILTON COTTON MILLS CO., Hamilton.—Denims, tickings and yarns.

Dye Stuffs.

EMIL THOURET & CO., Montreal.—Agents for K. Oehler, Offenbach O. M., Germany.

JOHN McARTHUR & SON, Montreal.—Supply of best quality at closest prices. Every description of coloring materials required by manufacturers of woollens, cottons, silks, paper, leather, &c. Are sole agents in Canada for the celebrated analine dyes of A. Porrier, Paris.

LYMAN BROTHERS & CO., Nos. 71 and 73 Front Street East, Toronto—Dye Stuffs of all kinds for Woollen and Cotton Manufacturers; Warps, Shuttles, Bobbins, Card Clothing, etc., etc.

Edge Tools.

R. T. WILSON, Dundas, Ont.—Manufacturer of axes, picks, mattocks, grub hoes and railway contractors' supplies.

WELLAND VALE MANUFACTURING CO.—Lock No. 2, St. Catharines, Ontario, Canada. — Manufacturers of axes, scythes, forks, hoes, rakes and edge tools.

Emery Wheels.

HART EMERY WHEEL CO., Hamilton.—Manufacturers of every description of Emery Wheels and Emery Wheel machinery.

Engines and Boilers.

G. C. MORRISON, Hamilton.—Engines, boilers, steam hammers, etc.

THOS. WILSON, Dundas, Ont.—Manufacturer of stationary and portable steam engines, boilers and machinery of every description—cotton mill calenders, hosiery steam presses and propeller wheels, all sizes.

Files.

PHŒNIX FILE CO.—Hand-made files and rasps. No machines in our factory.—Fenwick & Sclater, Agents, Montreal Anchor Brand.

FILE & SPRING CO., Cote St. Paul, Montreal.—All kinds of files and springs. Files recut. Sole manufacturers of Spauldings' patent concave spring.

G. OUTRAM & SON, Dominion File Works, Montreal.—Manufacturers of every description of files and rasps.

Fire Hose.

FENWICK & SCLATER, Montreal.—Canvas hose, plain and rubber lined, for fire departments and factories.—Write us before purchasing elsewhere.

Furniture.

JACOB ZINGSHEIM, Hamilton, Ont.—Manufacturer of Parlour and Bedroom Sets, Centre Tables, &c.

Glove Manufacturers.

W. H. STOREY & SON, Acton, Ont.—Manufacturers of fine gloves and mitts in every variety and style.

Hubs, Spokes and Bent Goods.

F. W. HORE & SON, Hamilton, Ont.—Manufacturers of hubs, spokes, rims, shafts, poles, sleigh and cutter stuff, etc.

Iron Works.

CANADA SCREW CO., Dundas.—Manufacturers of iron and brass screws, bolts and rivets.

COWAN & CO., Galt—Manufacturers of every description of wood working machinery.

DOMINION BOLT CO., 139 Front St. East, Toronto.—Manufacturers of every description of bolts, hot pressed nuts, railway spikes, bridge, boiler and iron rivets.

H. R. IVES & CO., Montreal. — Hardware manufacturers and founders; iron railing and ornamental iron work a specialty.

HAMILTON BRIDGE & TOOL CO., Hamilton.—Iron railway and highway bridges and iron working machinery.

LEITCH & TURNBULL, Central Iron Works, cor. Rebecca and Hughson Streets, Hamilton, Ont.—Patent safety hand and power elevators.

McKECHNIE & BERTRAM, Dundas.—Machine tools and wood working machinery.

MONTREAL MALLEABLE IRON WORKS, St. George Street, Montreal.—Manufacturers of malleable iron, steam, and gas fittings.

PILLOW, HERSEY & CO., Montreal.—Manufacturers of cut nails, horse shoes, railway and pressed spikes, tacks, brads, &c.

THE OSHAWA MALLEABLE IRON CO., Oshawa, Ont.—Manufacturers of malleable iron castings; also patent screw wrenches.

SMITH'S FALLS MALLEABLE IRON WORKS, Smith's Falls, Ont.— Manufacturers to order of agricultural, carriage, and other malleable iron castings.

Knife Works.

THE WHITMAN & BARNES MANUFACTURING CO., St. Catharines, Ont.—Manufacturers of mowing and reaping machine knives, sections, guard plates, cutting apparatus complete, spring keys and cotters, etc.

Knitting Mills

S LENNARD & SONS, Dundas.—Manufacturers of plain and fancy hosiery.

Leather Belting.

DOMINION BELT AND HOSE CO., Toronto.—Oak tanned belting, lace leather, etc.

Machine Brushes.

ULLEY'S BRUSH WORKS, 74 Bleury St., Montreal.—Machine brushes for cotton factories, flour mills, &c. Machine brushes of every description a specialty.

Oils.

JOHN McARTHUR & SON, Montreal.—Afford best value in pure olive and lard oils, also in all other leading lines of vegetable, animal, and mineral oils for factory use. Invite special attention to their celebrated crown diamond "engine" and "machinery" oils.

Paper Box Manufacturers.

ALBERT GIBB, 122 King William Street, Hamilton, Ont.—Manufacturer of all kinds of paper boxes,

Paper Manufacturers.

JOHN FISHER & SONS, Dundas.—Manufacturers of printing and wrapping papers.

LINCOLN PAPER MILLS CO., Merritton, Ont.—Manufacturers of every variety of paper, paper bags and flour sacks.

WM. BARBER & BROS., Georgetown—Manufacturers of book and fine papers.

Saw Manufacturers.

R. H. SMITH & CO., St. Catharines.—Manufacturers of all kinds of saws, plastering trowels, straw knives, etc. Sole manufacturers for the Dominion of Canada of the celebrated "Simond's Saw."

SHURLY & DIETRICH, Galt, Ont.—Manufacturers of circular and cross cut saws, plastering trowels, etc.

Scales.

C. WILSON & SON, 45 Esplanade Street East, Toronto.—Manufacturers of the Improved Wilson Scales. Designers to the Government. Received 29 first prizes, medal and Governor-General's grand diploma.

Silk Mills.

CORRIVEAU SILK MILLS CO., Montreal. —First manufacturers in Canada of black and colored dress silks, ribbons, handkerchiefs, &c.

Stereotypers, Engravers, &c.

F. DIVER & CO., Toronto.—Electrotypers and stereotypers. Designers and engravers on wood.

Wire Works.

B. GREENING & CO., Hamilton, Ont.—Manufacturers of wire ropes, cloth and genera wire workers.

MAJOR & GIBB, 646 Craig St., Montreal.—Manufacturers and importers of wire cloth and wire goods and dealers in railway and mill supplies.

TIMOTHY GREENING & SONS, Dundas, Ont.—Manufacturers of the strongest description of steel wire cloth, malt kiln floors and general wire weavers.

Wooden Goods.

C. T. BRANDON & CO., Toronto.—Have special facilities and machinery for the manufacture of all kinds of wooden articles. Correspondence solicited.

J. R. McLAREN, Jr., 63 College St., Montreal —Manufacturer of Sharpe's patent safety oil cabinets; also, refrigerators, children's carts, waggons, sleighs and general woodenware.

Woollen Manufacturers.

J. ROUTH & CO., Cobourg.—Woollen Manufacturers.

JOHN WARDLAW, Galt, Ont.—Manufacturer of Scotch fingering, wheeling and knitting yarns.

Wools and Cotton Warps.

WINANS & CO., Toronto.—Dealers in wools and cotton warps.

Printed by the GRIP PRINTING AND PUBLISHING COMPANY, 55 and 57 Adelaide Street East, Toronto.