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THE CANADIAN MANUFACTURER

And Industrial World.

VOL. I.

TORONTO, ONT., MAY 12, 1882.

No. 10.

As in our last issue we were compelled to encroach on the space generally devoted to editorial matter, in consequence of the great pressure of advertisements, we make amends in this number by omitting our usual illustrated notices.

"LET US HAVE PEACE."

It is not the business of this journal to engage in political discussion and the warfare of party politics. It is what its name implies—a paper devoted to the manufacturing interests of Canada. But with these interests the question of Protection or Free Trade is intimately and indissolubly connected, and hence a certain necessity. It so happens that this question has been made a political one in Canada, and how, then, can you discuss it without getting into politics? Better not discuss it at all, it may be suggested: just leave it severely alone, and say nothing. The suggestion is easily made, but that we should adopt it is wholly inadmissible. It is absurd on the face of it to ask that a journal devoted to the interest of Canadian manufactures should avoid that main question affecting manufactures—the question of Protection or Free Trade. The play of Hamlet with the part of Hamlet left out is one of those curiosities of absurdity which have been imagined: whether it was ever anything more than a joke of the imagination may be doubted. A journal of manufactures with no opinion on the question of protection to manufactures would be just such another. Nobody of common sense expects the CANADIAN MANUFACTURER to make the attempt, even, to occupy any such absurd and impossible position.

In the interests of manufactures it is to be regretted that this question of Protection or Free Trade ever became a political issue in any country whatever. The question is at bottom one of material facts and figures; one that must to a great extent be solved by application of the four rules of arithmetic. To get in a rage over such a question, and to make it a political issue, tends to obscure it all through, and to keep out of sight the solution we are trying to reach. This is a main reason why its ever having been made a political issue is to be regretted. To the extent that men favor either Protection or Free Trade, for political reasons only, the settlement of the question, *on its merits*, is defeated and delayed. And that its settlement on the merits should be thus defeated and delayed is, we hold, a general loss, and opposed to the public interest.

Taking the political relations of Protectionists and Free

Traders respectively, the world over, we find no uniformity of relationship, but contradiction instead; one thing here and the very reverse there. In England Free Trade was supported by the Reformers and opposed by the Conservatives, and the same relationship exists in Canada, though by no means to the extent that is generally supposed. In the United States it was the Radical party that carried high Protection, the Conservative party there—the party opposed to change—being all on the Free Trade side. The autocratic authority of the late Emperor Napoleon was strong enough to force France a step or two in the direction of Free Trade, much against the will of the people. But to-day France is a Republic, and Protectionist to the backbone. In the Australian colonies, again, the landowners' party is on the Free Trade side, while the Radical party is Protectionist. These various instances may well cause people in Canada to bethink themselves whether there is really in the nature of things any sound, logical reason why a Conservative must be a Protectionist, and why a Reformer must be a Free Trader.

It is for the country's interest that the trade question should be taken out of politics. And for this reason, namely (here we come to the second reason in the case, the particular and practical one for Canada), that as long as it continues to be a political issue there continues also the element of doubt and uncertainty as to the future, which is a prime hindrance to the country's development. In the interest of the country we take up General Grant's words, and say; "Let us have peace." Let us have an end of the *political* fight over this question; and then we can with more coolness of judgment proceed to its settlement, on the merits. As long as the political excitement over it lasts our minds are overheated, and the clear, cool light of reason, which should guide us to a true solution, is obscured. For want of complete assurance as to the permanence of the National Policy the country is losing millions annually. How much is being lost in this way each one may conjecture, on such information as he possesses, though of course no computation can be made. The current loss is an unknown quantity, but beyond all doubt a very large one. Capitalists require certainty, they want the assurance that the conditions upon which they embark their capital will be permanent. Something hinders this assurance from being as complete and as satisfactory as it ought to be, and what is it? Everybody knows that it is the interference of *political* contingencies with the question whether the investment of capital in this or the other industry would be safe. No doubt the country is progressing very rapidly with such assurance as we have already, but it would progress much faster if the idea of permanence in

our commercial system were more completely established. We say, therefore, let us settle the trade question for Canada as speedily as possible, and, after that, "let us have peace."

"HANDS" AND "BRAINS."

In some of the factories of Britain an interesting experiment is being tried, which might with advantage be imitated in this country.

With a view of encouraging employes to take more interest in their work, and at the same time stimulate their inventive faculties, the plan has been adopted of offering rewards to any of the men or apprentices who can devise any improvement in the machinery manufactured, or any means of reducing the cost of manufacture, either by improving the tools used, or altering the process of manufacture.

There can be no doubt that the more intelligent the workman, and the greater the interest taken by him in his work, so much the better will the quality of the work turned out be. It is possible to reduce a man almost to the level of a machine, but never can he be brought down altogether to that position. However low he may be sunk he still retains some feeling and some power of thought which will repeat themselves in his work.

If the feeling be of dissatisfaction, if the thought be mainly bent upon such questions as how to do the least amount of work in a given time, or how to get the most money with the smallest amount of return for it in the shape of labor, then the feelings and thoughts of the workman will be certain to injuriously affect both the quality and quantity of his work.

On the other hand, if the workman feel comfortable in his work, and if he be stimulated by due appreciation and hope of fair reward for useful improvements, then the feeling of comfort and the energy of thought will show themselves in increased skill and carefulness, and greater diligence.

The tendency of modern systems of manufacture is to trust more to machinery and less to the workman; yet no matter how perfect the machinery used, the employer must be dependent upon his employees for the keeping of that machinery in order, and for a hundred matters of daily routine. As a matter of fact, the more complex and complete any system of machinery may be, so much the more intelligent must the brain be that is to guide, direct, and adjust it.

The use of high-class machinery, while it leaves less to be done by the ordinary and less skilful workman, has opened up a necessary demand for some better "hands," who have the skill and sense to put their brains into their work. The hope of filling one of these more responsible and better paid positions should stimulate every young mechanic to acquire the necessary knowledge and skill.

If our manufactures are to continue successful and grow with the country, efforts ought to be made to educate employee, and not to depend upon the United States or Great Britain for those capable of filling the better paid positions.

One of the best ways of doing this would be to adopt the plan, or something like it, referred to in the beginning of this article.

THE TARIFF COMMISSION BILL IN CONGRESS.

After long debate the Tariff Commission Bill has passed the American House of Representatives, and its speedy adoption by the Senate is looked for as a matter of course. As it is supported by the party to which President Arthur belongs, and as there are no treaties with foreign powers to be considered, as in the case of the first anti-Chinese bill, it will be promptly signed by him and become law. The bill provides for the appointment of a mixed commission, half members of Congress and half private individuals, representing manufactures, commerce, and agriculture respectively. It will be the duty of the commission to go over the existing tariff item by item, from the beginning to the end, taking evidence as to its working, and hearing suggestions as to points wherein it might be improved. Then a report on the whole matter will be made to Congress, as the basis of an amended tariff, on which Congress will be invited to take action.

In the passage of the Tariff Commission Bill the Protectionists have scored an important victory. It was strenuously opposed by the Free Traders, for much the same reason that the Fenians are opposed to the pacification of Ireland. They do not want the tariff amended, or made more satisfactory in its working, just because that would spoil their game, and leave them nothing to agitate for. The existing tariff has many and grave defects; its framework was constructed rather more than twenty years ago, since which time circumstances have greatly changed. Had it been as nearly perfect as possible when made, it would still need revision to adopt it to the changes of ten, fifteen, or twenty years. But it was far from perfect, it was made in a hurry in the first place, and of late years distractions of various kinds have hindered Congress from giving proper attention to its amendment. It is no argument at all against the principle of protection to say that the tariff of this or the other nation, established upon that principle, has proved defective in its details. We are nearly all agreed as to the principles of legal justice between man and man in matters of bargain and sale, and as to those which should govern the punishment of crime. Yet every session of every legislature sees many amendments to the law, both civil and criminal, the necessity for which is affirmed by the majority.

This important action now being taken by our neighbors is not without interest to ourselves. It has become one of the moral certainties of the near future, that there will soon be a revised American tariff, with many objectionable features of the present tariff eliminated, and many new and good ones added, as experience and evidence may suggest. This work done, the new tariff will be very much stronger and less open to attack than the old one. It will therefore stand the better chance of remaining as the nation's permanent decision on the principles of protection reduced to practice. The day of America's return to Free Trade is again indefinitely postponed; and Canada may learn a lesson from the fact. Still, we wait to hear from the *Globe* on the subject of America's sure and rapid progress towards Free Trade.

COVERED PULLEYS FOR BELTING.

In driving machinery which makes a great number of revolutions per minute it is often necessary to have comparatively

small pulleys, and as for very high speeds the belt should be light and thin as possible, some means of getting greater adhesion between the belt and pulley are required. To draw the belt very tight will not answer, as that means both straining the belt and putting a great pressure on the bearings next to the pulleys. To use a tightening pulley to increase the "arc of contact" is an awkward and troublesome expedient, as most who try it will find, even at low speed of belt, and one that causes friction and frequently destroys the belt. One of the best means of increasing the friction is to cover the iron pulley with some substance which will cause a greater friction between the surfaces of the belt and pulley. Wooden pulleys are sometimes used, but as they are apt to split, or get out of truth, they are not so reliable.

A very good plan is to make an endless band of rubber belting, and draw it tightly over the pulley; the friction between it and the pulley being round the whole circle of the pulley, will always be greater than can well be got between the driving belt and the new face of pulley made by the rubber.

Another plan, and one often much more convenient, is to cover the pulley with leather. A good way to do this is to bore a number of holes around the circumference of the pulley, and drive hard wood wedges into these, then tack on any old belting or strips of leather of nearly uniform thickness. Having done this, put the pulley in a lathe and turn up the leather face carefully but with a rough surface, and then cement or glue on another coating of new leather all in one piece; if possible, the joint had better be scarfed, and wooden pins may be driven through the leather, so as to fasten the whole together. This method has been successfully done even with large pulleys. In one instance, where a belt 22 inches wide was running on a pulley about 40 inches diameter and required a tightening pulley to prevent it from slipping and had frequently broken, the pulley was covered with leather in the manner described with the result that the tightening pulley was dispensed with, and a new belt gave no further trouble, and drove the machinery without any appreciable slip. The original belt had only been in use a few months, but was found quite brittle from overstraining, and broke short off across its whole width, the elasticity apparently being all exhausted.

It may appear a little troublesome to cover the pulleys, but once well done it is a permanent job and makes a great improvement in the wear and tear of the belt.

RAW MATERIAL.

That manufactured articles should pay duty, while raw materials should be admitted free, is a general principle in the protective system. To lay down the principle in a general way is easy enough, but the difficulty begins when we attempt to define what is raw material and what is a manufactured article. One of the latest contributions towards the solution of the difficulty is a letter from Mr. D. C. Robbins, of New York, to the *Tribune*, from which we make the following extract:—

"No line of division in the classification of commodities is more accurately and definitely drawn than the term 'Matières,' in the French list of commodities, as attached to their customs dues. The French divide all commodities into

two great classes, as 'matieres,' or matters, or raw materials, if you please, and fabrications or manufactures. To any one at all acquainted with this list, or of ordinary intelligence, an examination of this law for five minutes in the light of the French list will so instruct him as to enable him to tell without a moment's consideration the precise status of every commodity that may be suggested.

"As an example, take pig iron. What is pig iron? Is it a pig? or is it iron? or is it a combination of both? It is simply crude iron in a certain form to which the name 'pig' has been applied to describe the form. Now, if the pig form was the form to be used, it would be a manufactured article, as a wooden pen-holder, being made to be used as a holder for the pen, is a manufactured article; the wood only being crude material. Pig iron is a crude article, and I could furnish at a day's notice a list of every commodity in the market, so divided into the three great classes of raw materials, chemical preparations, and manufactured articles, that there could be no mistake or dispute in regard to any commodity in either list.

"Will you allow me to say as modestly as I can, that nothing surprises me more than the want of intelligence which seems to prevail in regard to the classification of commodities, and the limitations which should be assigned to the protective principle. We are really yet in the presence of the A. B. C. of all this matter."

THE ASSASSINATIONS IN DUBLIN.

The terrible tragedy of Saturday last in Dublin is not among any of those classes of events which naturally come under review in the *CANADIAN MANUFACTURER*, yet we cannot refrain from putting on record our abhorrence of the dastardly deed of butchering in cold blood two distinguished men; one of whom had just been appointed to the control of Irish affairs for the express purpose of carrying out a policy of conciliation. A double murder, attended with circumstances of peculiar atrocity, is the reply to the offer of the olive branch by the Government. We can scarcely on the instant realize the full consequences of what has happened. Pending recovery of the public mind from the shock, many voices are now hushed to whispers that will shortly speak out with burning indignation. As yet we are too near the event to judge of its real magnitude and probable serious consequences.

A LAW AGAINST CHINESE IMMIGRATION.

Some weeks ago the American Congress passed a bill practically prohibiting Chinese immigration for twenty years. President Arthur vetoed it on the ground that it contained enactments which would violate the existing treaty with China. But public opinion both in and out of Congress was strong in favor of stopping the Chinese invasion in some way or other, and the House by a large majority promptly suspended the rules to bring in a new bill, the term during which Chinese immigration should be prohibited being reduced from twenty years to ten. The new bill passed both Houses as quickly as parliamentary formalities would permit, and has been signed by the President, who very wisely refrained from attempting another veto. Consequences gravely affecting ourselves may now be looked for. The Chinese, shut out of California, will swarm like bees into British Columbia; and the Americans will at our expense rid themselves of an increasing and dangerous nuisance.

BOILER EXPLOSIONS IN BRITAIN IN 1881.

In Great Britain in the year 1881 there were 33 steam boiler explosions, causing the death of 41 persons and injuring 51 others.

The causes of these explosions were various, 6 were from deficiency of water, 6 were from improper staying, 5 from corrosion of plates, 1 from accumulation of scale, 4 from undue pressure, 4 from weak flues, 2 from poor material, and 4 from uncertain causes.

Another way of looking at the record shows 12 explosions from defective construction, 7 from bad condition brought on by neglect, and 10 from direct carelessness.

One case, causing the death of 16 and the injury of 11 others attracted a great deal of attention, from the fact that the Government took notice of it, and prosecuted the owner on the charge of manslaughter. Culpable negligence was proved, and he was sentenced to 12 months' imprisonment.

One very singular case occurred to a locomotive. Part of the moving machinery broke down, and the end of the connecting rod was driven up through the boiler plate.

During the month of January, 1881, the weather was unusually cold in Britain, and in many houses water-pipes were frozen. This led to no fewer than 24 explosions of heating apparatus and domestic boilers, intended for heating water, but, from the circulation being stopped, steam formed and explosion followed. By these accidents, 6 persons were killed, and 16 injured. As more than one-third of the steam-boiler explosions were caused by defective construction, we have strong evidence how many must be engaged in the manufacture of boilers, who have but a very imperfect knowledge of the strength of materials and of the laws governing the production of strains in the different parts of a boiler by the pressure of the steam.

FLOUR MILL EXPLOSIONS.

A recent disastrous explosion in a flour mill in Macclesfield, England, has been very fully investigated by one of the Board of Trade engineers, and a report on the subject presented to the Imperial Parliament. It is a well-known fact that explosions in flour mills are of frequent occurrence, and the report must be of considerable interest to mill-owners, as the investigation appears to have been very full, and many suggestions are made of means to be adopted for the prevention of such accidents.

About ten years ago a very violent explosion occurred in a mill in the city of Glasgow, Scotland, much property being destroyed and life lost.

Professors Rankine and Macadam made an investigation and conducted a number of experiments to determine the causes and conditions necessary to produce such an explosion. They found that the dust must be thickly diffused through the air, and that the explosive force arises from the expansion of the air by the great increase of heat due to the rapid combustion of the floating particles. It was estimated that the pressure thus generated was equal to 120lbs per square inch, quite sufficient to wreck any ordinary building.

Of course, although the dust may be in the air, and all

things ready, there will be no explosion unless fire be applied, although even a small spark seems to be sufficient.

The most common source of fire or origin of the 'spark' seems to be in the millstones. A piece of nail getting in with the wheat, and the supply of wheat failing, thus allowing the millstones to grind together, have been causes.

It is claimed by some that in roller mills, where stones are not used, the danger both of fire and explosion is largely diminished. Yet as lights must be used, and it seems dust must be produced, one very evident precaution would be to have all lights protected in the same manner as are the miners' lamps in "fiery" mines, by surrounding them with fine wire gauze.

THEORY AND PRACTICE.

The old belief in a sort of double system of natural laws, the one, pure and true and exact, governing the theory; the other, changing and uncertain and inaccurate, governing the practice of the science of mechanics, still exerts considerable influence on the thoughts and doings of many who have to do with questions concerning machines and structures. Notwithstanding there are Chairs of Engineering, Mechanical Colleges, and Schools of Practical Science, the belief is still wide-spread that while some mechanical point may be quite true in theory, it is altogether wrong and false in practice, and theory is supposed to be necessarily antagonistic to practice.

All true theory is founded upon practice, but many mistakes have been made in propounding theories based upon too limited practice and upon insufficient and inaccurate observation.

That cannot be a correct theory which will not stand the test of practical use, but the theory should only be applied to the circumstances and precise conditions for which it was intended.

Any theory which assumes perfection of workmanship, rigidity without weight, and unlimited velocity without friction, is sure to mislead; because experience has shown that workmanship is always more or less imperfect; that the materials of which machines are made vary in almost every quality they possess; that rigidity implies weight to some extent, and motion cannot be produced without friction.

This theory will take these changing conditions into its calculations, and in doing so merges into practice, and hence there is no antagonism between true theory and correct practice, but the one is dependent upon the other.

The so-called "practical" man, who is inclined to sneer at book-learning, carries on his operations in accordance with theories which he has formed to agree with his own experience. How foolish to deny to others the right which he claims for himself.

On the other hand, the student fresh from the school of science is apt to make too much of his mathematical knowledge, and his theoretical formula. He may be able readily to work out the design of a bridge, and to calculate the amount of the stress produced on its different parts by the weight of a passing train, but without practical experience he cannot know that the materials used in carrying out the design are of the kind and quality his theoretical rules called for, or that the

struts and joints and bolts are so nicely fitted and adjusted as really to take the strains for which they were designed.

As a matter of fact, while the "theory" of a given machine or structure may be fully described and laid down in mathematical formulæ and studied and understood by the student, yet "practice" is absolutely necessary to enable him to carry the theory into successful use.

There are questions of vital practical importance, every day involving risks in which life and property are at stake, for the correct solution of which true theories have not yet been established.

How many engineers or boiler-makers could tell at what pressure the flue of a steam boiler will collapse? *If* the flue be not a perfect circle, *if* the rivets do not exactly fill the holes, *if* the arrangement of the rivets be not so and so, or *if* the metal be not of a certain strength, then the pressure of any or all of these *ifs* in the actual boiler may upset the theory, collapse the flue, and destroy property and life. And so with very many other practical questions relating to the successful use of machinery or the operations carried on in our manufactures.

There should be no necessary antagonism between theory and practice.

The man whose business it is to plan and devise should avail himself of all possible practical experience, and check and correct, when necessary, his theories in accordance with the results of practice. The practical man, whose business it is to carry into execution the plans and theories of others, should be careful to be accurate and exact, and not blame the theory for what was really caused by a defect in his own work.

Every mechanic should cultivate a habit of close and accurate observation, leaving nothing to chance, guessing at nothing that can be made certain. He should never copy the work of another, or, like the lawyers and judges, follow a precedent, unless he understands all the reasons and conditions and principles involved.

RAILWAY FUSION.

The fusion of the Grand Trunk and the Great Western Railways together is not likely to furnish occasion for rejoicing to the people of the Western Peninsula. At the Grand Trunk meeting in London, the end of March, Sir Henry Tyler said that if fusion were agreed to competition between the two roads would cease, which was of course to be expected. And the leader and most active promoter of fusion, Mr. William Abbott, said the same thing at the Great Western meeting two weeks ago. The end of competition means that the favorable freight rates which many places have enjoyed because of its existence will cease, and that higher figures will have to be paid. Theoretically speaking, the tendency of fusion should be to *equalize* rates, and to do away with the special favors heretofore enjoyed by some places, and the special disadvantages put upon other places. Whether the Grand Trunk authorities will carry the thing out in practice, however, remains to be seen. The equalization of rates per mile, without giving any one town better terms than another, is of course just and right, standing by itself. But it may be accompanied with a general advance of freight rates

all round, which is exactly what people in Western Ontario are afraid of.

Dealers in farm produce and lumber excepted, there is no class of business men that will be as much affected by a rise in railway freights as the manufacturers. The annual freight account of a large manufacturing firm or company is a big item in the years' statement, and twenty or thirty per cent. advance on it is not to be sneezed at. Practical men will not be slow to see the profound effect which the railway revolution upon which Canada has now entered must have on the location of large and important industrial enterprises. Already, in many such enterprises, the question of freight has been among the most important of all in determining the choice of a location; and it will not be any the less important if even such qualified competition as we have had is to disappear, and be succeeded by monopoly. Let any man having a map of Western Ontario before him run his eye over the districts that are tributary to the Grand Trunk or the Great Western, or both, and then consider the vast traffic which will be all in the hands of a monopoly, from the day the authorities of the former commence running the latter road as well as their own. But in fact all Ontario will be practically in the hands of the Grand Trunk, and there will be no serious competition with that company, unless Vanderbilt or the Syndicate choose to enter the field in earnest, and to make it.

One result of considerable importance may be foreseen; manufacturers seeking locations will be apt to look for towns having the advantage of transportation by water as well as by rail. This will be especially the case with the heavier manufactures; in the lighter branches, of course, it does not so much matter. In view of the extensive railway combinations of the day, it should be the patriotic endeavor of the Canadian people, and of the Government too, to carry to the furthest feasible extent the improvement of our splendid system of inland navigation.

FOREIGN WEIGHTS AND MEASURES.

(From the *Textile Record*, Philadelphia.)

The following tables, giving the equivalent of the foreign weights and monetary divisions, are very often called for in ordinary business, and they are prepared for the use of our readers in the condensed forms given below, in order to make reference to them easy.

The English weights are the same as those of the United States, but it is often overlooked that the cwt. so constant in English use is 112 pounds, and the qr. (quarter) is 28 pounds. The introduction of the "net ton" of 2,000 pounds causes some confusion, and the cental of 100 pounds is much in use in California, but has been rejected, after much controversy, in the Eastern States and New York.

In French and Continental use the kilogramme is the turning point on all designation of weights, and its divisions are in grammes or thousandths. The kilogramme is 2.2046 pounds—nearly 2½ pounds, but an awkward fraction to compute. As the terms or designations of grammes and kilogrammes are those in constant use, the following calculated equivalents will be useful in referring to French statements:

1 kilogramme equals	2.2046 pounds, or	2 ¹ / ₂ pounds nearly.
2 kilogrammes equal	4.4092 " "	4 ¹ / ₂ " "
3 " "	6.6138 " "	6 ¹ / ₂ " "
4 " "	8.8184 " "	8 ¹ / ₂ " "
5 " "	11.0230 " "	11 " "
6 " "	13.2276 " "	13 ¹ / ₂ " "
7 " "	15.4322 " "	15 ¹ / ₂ " "
8 " "	17.6368 " "	17 ¹ / ₂ " "
9 " "	19.8414 " "	19 ¹ / ₂ " "
10 " "	22.0460 " "	22 " "
20 " "	44.0920 " "	44 ¹ / ₂ " "
50 " "	110.2300 " "	110 ¹ / ₂ " "
100 " "	220.4600 " "	220 ¹ / ₂ " "

100 grammes equal 0 pounds and 3 ¹/₂ ounces nearly.

200 " "	0 " "	7 " "
300 " "	0 " "	10 ¹ / ₂ " "
400 " "	0 " "	14 " "
500 " "	1 " "	1 ¹ / ₂ " "
600 " "	1 " "	5 ¹ / ₂ " "
700 " "	1 " "	8 ¹ / ₂ " "
800 " "	1 " "	12 ¹ / ₂ " "
900 " "	1 " "	15 ¹ / ₂ " "
1,000 " "	2 " "	3 ¹ / ₂ " "

The *dekagramme* of 10 grammes, and the *hectogramme* of 100 grammes are rarely used; the practice being to give either grammes or kilogrammes. The metric quintal is 220 ⁴/₁₀ pounds, or 100 kilogrammes.

The reverse equivalents are nearly as follows:—

1 ounce, avoirdupois.	equals	28.35 grammes.
2 ounces,	equal	56.70 " "
3 " "	" "	85.05 " "
4 " "	" "	113.40 " "
5 " "	" "	141.75 " "
6 " "	" "	170.10 " "
7 " "	" "	198.45 " "
8 " "	" "	226.80 " "
9 " "	" "	255.15 " "
10 " "	" "	283.50 " "
11 " "	" "	311.85 " "
12 " "	" "	340.20 " "
13 " "	" "	368.55 " "
14 " "	" "	396.90 " "
15 " "	" "	425.25 " "
16 " (1 lb.)	" "	453.60 " "

Values are always given in francs of 19 ³/₁₀ cents each, the same for France, Italy, Switzerland, and Belgium. It is common to compute roughly at 5 francs to the dollar, but the exact equivalents are:—

1 franc equal to	19.3 cents,
2 francs " "	38.6 " "
3 " " "	57.9 " "
4 " " "	77.2 " "
5 " " "	96.5 " "
6 " " "	\$1 15.8
7 " " "	1 35.1
8 " " "	1 54.4
9 " " "	1 73.7
10 " " "	1 93.0

The standard of measures used in the textile industries in France is the *metre*, equal to 39.37 English inches, or 1 ¹/₂ yards nearly. Ten metres equal 11 yards, less 2 ¹/₄ inches, nearly. One hundred metres equal 109 yards, 13 inches. The square metre is one-fifth greater than the square yard, being 1550 square inches to 1296 for the square yard.

Official values of foreign coins and currencies declared January 1st, 1881:—

Austria, florin, silver.....	40.6 cents.
Belgium,	} franc, gold or silver..... 19.3 "
France,	
Italy,	
Switzerland,	
Brazil, milreis, gold.....	54.6 "
Chili, peso, gold and silver.....	91.2 "

Cuba, peso, gold and silver.....	93.2 cents.
Denmark, 1	} crown, gold 26.8 "
Sweden,	
Norway, 1	} mark, gold 23.8 "
Germany,	
Great Britain, pound, gold.....	\$4 86.6 }
Greece, drachma, as franc.....	19.3 "
Italy, lira, as franc.....	19.3 "
Spain, peseta, as franc.....	19.3 "
Portugal, milreis, gold.....	81 08 "
Canada and all Brit. N. America, dollar, gold.....	51 00 "
Russia, rouble, silver.....	65.8 "
Egypt, piaster, gold.....	4.9 "
Turkey, piaster, gold.....	4.4 "
India, rupee, silver.....	39. "
Japan, yen, silver.....	88.7 "
Sandwich Islands, dollar, gold.....	\$1 00 "
Peru, sol, silver.....	82.3 "
United States of Colombia, peso, silver.....	82.3 "
Venezuela, Bolivar, gold and silver.....	19.3 "
Mexico, dollar, silver.....	89.4 "

Special Notice.

We would draw the attention of our readers to the advertisement of Messrs. Hodge & Williams, dealers in roofing materials, in another column. As many new buildings are going up at this season of the year, a question of much importance to the owners is where to secure a durable and serviceable roof, and from the many styles to choose the best. Messrs. Hodge & Williams are sole agents for "Warren's Natural Asphalt Roofing," and claim that it is the best covering for buildings in the market, in proof of which they give the following facts, viz:—

Because it is much more durable than the old roof in its best days.

Secondly: It requires no coating, as all Pitch and Gravel Roofs do, and in this saves annoyance, and, adding the price paid for coating the old roof, makes it nearly the same in cost.

Thirdly: It makes a perfectly fire-proof roof, and now has the endorsement of the New York Board of Fire Underwriters.

Fourthly: It has more body, its adhesive qualities are better, and it therefore will not run.

Fifthly: It is better adapted to climatic changes than any roofing ever offered.

Manufacturers who are contemplating erecting new factories, or extending existing ones, would do well, before deciding on their roofing material, to drop a line to Messrs. Hodge & Williams, 4 Adelaide street East, Toronto.

W. & F. P. CURRIE & Co..

100 GREY HUN STREET, MONTREAL.

Manufacturers of

SOFA, CHAIR & BED SPRINGS.

A large Stock always on hand.

Importers of

DRAIN PIPES, VENT LININGS.

FLUE COVERS, FIRE BRICKS,

FIRE CLAY, PORTLAND CEMENT,

ROMAN CEMENT, WATER LIME.

PLASTER OF PARIS, &c.

To Mill Owners and Manufacturers.

USE

F. E. DIXON & CO.'S

PURE BARK-TANNED

Star Rivet Leather Belting !

**FIRST PRIZE FOR
LEATHER BELTING**

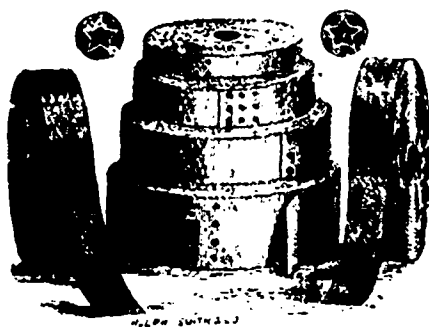
—AT—

Provincial Exhibition, Ottawa, - 1875.
" " Hamilton, 1876.
" " London, - 1877.
Industrial Exhibition, Toronto, - 1879.
" " Toronto, - 1880.

**EXTRA PRIZE FOR
Genuine Oak Tanned Belting.**

—AT THE—

Provincial Exhibition, Hamilton, 1876.



INTERNATIONAL MEDAL

Centennial Exhibition,
PHILADELPHIA, 1876.

FIRST PRIZE FOR

BELTING LEATHER

AT THE

Industrial Exhibition, Toronto, 1879.
" " " " 1880.

Our Belting is **Short Lap**, and is warranted to run straight and even on the pulleys, and certainly cannot be surpassed in quality by any other Belting in the market at the same prices.

Our **Leather is of Pure Bark Tannage**, and consequently is much more durable than the chemical tanned leather of which most of the American Belting imported into Canada is made, though sold under the name of **Oak Belting**.

To accommodate those who desire to have a really genuine article of **Oak Belting**, we beg to say that we keep in stock a quantity of

Oak Leather of the Celebrated Tannage of J. B. HOYT & Co., of New York,

and as the duties on imported rough Leather are much less than on the manufactured Belting, we are thus enabled to sell the Belting made from this quality of Leather much cheaper than it can be imported.

LARGE DOUBLE BELTS A SPECIALTY.

Please note that our Price List averages **Twenty to Twenty-five per cent.** lower than the American Price List at which all American Belting is sold in Canada.

Lace Leather of the very best quality always on hand.

All Work Warranted.

Orders Solicited.

F. E. DIXON & Co.,

81 Colborne Street, Toronto

To Mill-Owners.

AMERICAN LEATHER BELTING.

OUR tannery near Providence, Rhode Island, is devoted to the tannage of Leather for Belting and no other purpose. Our Belt Factory in connection is second to none on this continent. The Belting we manufacture is of a very superior class, and such as cannot be compared with that made and sold by makers who sell at such low prices that the quality has to be reduced. If users of Belting would keep an account of the time lost in "taking up" and repairing these poor quality belts, they would find cheap belting a very expensive article. We offer a guarantee that our Belts will stand more strain, run straighter, and last longer than any bark-tanned Belting made. We keep on hand at our Toronto warehouse a larger stock than any other makers or dealers in Canada.

ORDERS SOLICITED.

H. L. FAIRBROTHER & CO.,

Manufacturers,

PAWTUCKET, R.I.

Geo. F. Haworth, Agent,

65 YONGE STREET, TORONTO.

THE
Canadian Manufacturer
AND INDUSTRIAL WORLD.

Published fortnightly by the CANADIAN MANUFACTURER PUBLISHING
Co., (Limited).
18 WELLINGTON ST. EAST, TORONTO.

ANNUAL SUBSCRIPTION, IN ADVANCE, \$2.00.
CARD OF ADVERTISING RATES ON APPLICATION.

FREDERIC NICHOLLS,
Managing Editor.

All communications to be addressed CANADIAN MANUFACTURER,
Toronto, Ont.

AUTHORIZED REPRESENTATIVES.

Montreal, Que.	Mr. C. R. Scott.
St. John, N. B.	Mr. J. S. Knowles.
Winnipeg, Man.	Mr. K. Graburn.

OUR OFFER

Having noticed with much satisfaction that many of our subscribers carefully preserve the CANADIAN MANUFACTURER, but that in some instances certain copies are lost through the want of a ready contrivance for filing away each successive number as it arrives, we have had manufactured a large quantity of a simple but very handy description of file, which we will present and send postage paid to those of our subscribers who will mail us a postal card to the effect that they wish them to preserve their copies.

Editorial Notes.

We are pleased to observe that the *Canadian Manufacturer*, published in Toronto, is showing signs of genuine prosperity. Although not long established, it is quite evident already that it has come to stay. The mechanical work on the paper is excellent, and the literary matter is always appropriate for a journal of this class. A feature which the owners no doubt appreciate is, that it has a large and increasing advertising patronage from the manufacturers. Mr. Nicholls is Managing Editor. We wish our enterprising contemporary continued success.—*Dundas Standard*.

The Government have granted twenty-six thousand dollars for the establishment of water privileges at Welland, on the new canal. We understand the work will be proceeded with without delay, and in accordance with the plan and report of Mr. W. G. Thompson. When the improvements are completed Welland will be likely to rank high as a manufacturing centre.

In our last issue, under the heading of Manufacturing Notes, we alluded to the great activity prevailing in the Nail and Spike Works of Messrs. S. R. Foster & Son.

By an oversight, the industry, which is the largest of the kind in the Maritime Provinces, was credited to Moncton instead of St. John, where it is located; but as the firm in question is so well known, the error would be at once apparent to most of our readers.

It appears that Krupp, the great Prussian steel manufacturer, has secured a contract for steel rails for an English railway, having underbid the English makers. Heretofore, foreign competition has been felt in England only in the lighter iron trades and in shelf hardware. But if foreigners can meet the English iron masters on English ground, in the sale of such heavy products as steel rails, then we may say that a new era in competition has opened.

It is almost definitely decided that the next annual meeting of the British Association for the advancement of Science will be held in the Dominion. As this Society is one of the foremost scientific bodies in the world, the news that it will come to this country will be hailed with satisfaction. Several cities are already setting forth their special claims, with the odds in favor of Ottawa being selected as the most favorable location for the holding of the session.

The *American Textile Manufacturer*, of Philadelphia, in reproducing our article on "Wages and the Cost of Living," which appeared in our issue of the 14th ult., adds the following note:—

[We fully endorse the following article, which we extract from a late issue of *The Canadian Manufacturer*, on a subject in which our good neighbors of the Dominion are conjointly interested with ourselves. In it the whole case is plainly and sensibly stated; and we commend it to the attentive perusal of our readers.—ED. AM. TEX. MAN.]

The following despatch, dated Victoria, British Columbia, May 9, may be read in connection with our remarks elsewhere on the Chinese invasion of this continent:—"Ships and steamers continue to arrive with Chinese, who are forwarded to the mainland as rapidly as possible. It is said that twenty-four thousand in all are expected before August. The Chinese in the province will then number about thirty-two thousand, and will outnumber the whites. Fears are expressed of the Mongolization of the province." An American despatch says that there are now 80,000 coolies at Hong Kong awaiting shipment to America.

Since our article on the American Tariff Commission Bill was in type, the news has come that the bill has passed in the Senate by a vote of thirty-five to nineteen. Six Democrats voted with the majority, and two Republicans with the minority. The bill was opposed by the Free Traders at every step, and with all their might; and the significance of the result is therefore all the greater. A new tariff, strongly Protectionist, but with the weak points of the present tariff left out, is now among the certainties for next session of Congress. With the necessary modern improvements the new tariff will be likely to last long and wear well; and once more a long set-back is given to the cause of Free Trade.

The town of Paris, Ont., has had surveyed, recently, its undeveloped water-power, with a view to utilizing the same for manufacturing purposes. The engineer who made the survey reported that the power below the town was equal to 500 h.p., and that an expenditure of only some eight or nine thousand

dollars would be sufficient to put it in a position to be offered to manufacturers. Above the town there are three excellent powers aggregating 800 h.p., which could also be developed at a small outlay. The *Brant Review* believes that valuable assistance would be given any manufacturer who would help in the development of these privileges by locating in Paris, and calls on the Board of Trade for that town to be "up and doing," and not let the present boom of prosperity pass by.

The English correspondent of the *American Manufacturer* (Pittsburgh), writes that "an unsatisfactory appearance is beginning to mark the British iron trade. Orders are neither arriving, nor is it clear when they will arrive in numbers enough to inspirit the trade. Purchases in advance of requirement, he says, it is more and more manifest are to be credited with the considerable activity in buying which was lately noticeable, and which led to makers reporting that they were well sold forward for much time to come. The market is being over-supplied, with the result that prices are perceptibly weakening. Efforts to avert the mischief are being devised, branches in which the manufacturers are numerous attempting restrictive operations."

The following suggestive paragraph from the *Toronto World* forcibly illustrates the evils that must accrue from a prolonged fight between capital and labor. The carpenters' strike was very much like a triangular duel. In this instance, the city, the bosses, and the carpenters are all materially injured:

A *World* reporter was credibly informed yesterday that there were a large number of carpenters out of work in this city. While the recent strike was in progress, all tenders for buildings were withdrawn, and contracts about to be closed were held over pending a settlement. The cost of building has increased fully 25 per cent., and many people contemplating building this season have abandoned the idea. Work is therefore scarce, and the prospects of an increased demand for carpenters are not encouraging.

There seems to be no limit to the purposes for which both glass and paper may be used. We may expect that in time to come both these materials will largely take the place of timber in buildings when the latter commodity becomes scarcer than it is at present. We have noticed in previous issues that paper has been successfully used for car wheels and flour barrels, and now we learn from our Pittsburgh correspondent that textile fabrics, bobbins, and shingles are being made of glass in that city. The glass bobbins are said to be specially suitable for textile manufactures, as they are more durable than wooden bobbins. The glass shingles are made in various colors, and we can well believe the statement that they make a handsome and fire-proof roof. By referring to our Pittsburgh letter on another page, a description of the glass-weaving process may be read.

The *Montreal Gazette* summarizes the statements regarding Montreal industries made by Mr. M. H. Gault, M.P., in his speech during the Budget debate. In the factories named by him the number of hands employed had increased between 1878 and 1881 from 6,920 to 13,048, and the weekly wages

paid had increased from \$40,544.55 to \$90,321.31; an increase in employees of 6,128, and in weekly wages of \$49,676.86. In 1878, the average annual earnings of each person employed, including the young women in the cotton, tobacco, and other factories, and apprentices, was \$304.67. In 1881, the annual earnings of each person so employed had increased to \$359.63, an increase which represents a substantial improvement in the condition of the working classes. The above is a remarkable statement, and testifies to the benefit the country is deriving from the manufacturing boom.

In Philadelphia the propulsion of street cars by the expansion of steel springs is having its first trial. The motor consists of six springs coiled upon a cylinder, each spring being made of a flat bar of steel, 30ft. long, 6in. wide, and $\frac{1}{4}$ in thick, and are so delicately and uniformly tempered by a new process that their power becomes tremendous. When first coiled, their diameter is 18ft.; they are then tempered and wound up till the diameter is only 7 $\frac{1}{2}$ ft. In this condition, they are placed upon the motor truck and the appliances adjusted. A stationary engine at the terminus of the road then winds the springs to a diameter of 40in., and it has been demonstrated that the power of the expansion of the six springs from 40in. to 7 $\frac{1}{2}$ ft. in diameter is sufficient to drive an ordinary street-car full of people five miles on any track in Philadelphia. A check prevents the car from running at a greater speed than nine miles an hour, and the whole apparatus is so completely under the control of the brakeman, that he can use the power of all of them at once, or limit the power to one, or on going down a steep grade can shut them all off. As Chicago street cars are being driven by means of endless cables, and in the Old World electricity is being experimented with at different places with the same end in view, it is not improbable that the horse-car in Canadian cities will soon give way to modern improvements.

ANILINE DYES.

An interesting report of U. S. Consul Mason, at Basle, Switzerland, appears in the January report of the State Department. It affords some valuable information as to the character of the dyes upon which the great textile industries in this country depend; and it shows the folly of continuing to rely exclusively upon the supply of these necessary products on such remote sources when they are derived by an easy process of manufacture from our own crude materials. Both aniline and alizarin—the indigo and madder dyes as heretofore known—are now derived by skilful analysis from coal tar. The raw material is almost a waste product, and we export it at a low valuation in the form of the incomplete distillation called anthracene and benzole, to return to us under high-sounding names, the highest priced dyes of the world.

Anthracene is made in Pennsylvania in considerable quantities by ready distillation from coal tar, and exported in a liquid state—about 1,000 barrels yearly—at a valuation not far from \$50 per barrel. In 1878-9 the export was \$51,304; in 1879-80, \$50,700, and in 1880-81, \$38,650. The importation of alizarin in 1880-81 was valued at \$449,244, all free of duty, and of aniline dyes \$84,608, free of duty, \$1,361,474 paying duty. None of the true indigo or madder dyes are included in this aggregate; they reached \$1,541,664 for indigo, and \$41,864 for madder, the latter being almost entirely superseded by the artificial alizarin prepared from coal tar, as described by Consul Mason. The report shows the growth of this country in dyes in a strong light, but the German dye factories are far greater than those of Basle.—*Textile Record*.

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.

Portage la Prairie is to have a \$100,000 woollen mill.

R. M. Wanzer & Co., of Hamilton, are about to build a large wood-work factory.

The rumors that the Napanee Brush Co. is in financial difficulties are without foundation.

The St. Croix Cotton Mill Co. have begun work on their new boarding-house at Milltown.

A cotton mill enterprize is about to be started at Yarmouth, N. S. The capital stock is \$200,000.

Morrison's foundry on the Esplanade, Toronto, is being rebuilt. A second storey will be added.

Pringle's foundry, Napanee, has received a new steam whistle, which is said to be the largest in Canada.

The Thorold Knitting Co. will be known in future as the Thorold Woollen & Cotton Manufacturing Company.

A new furniture and wood-work factory has been started at St. John, N. B., by Messrs. Strumbert & Johnson, from Nova Scotia.

The Moncton Cotton Manufacturing Company are having a suite of offices fitted up in Mr. E. Taylor's building, next the sugar refinery office.

The two Napanee paper mills turn out about 9,000 lbs of paper per day. The paper mills are importing pulp—poplar from Thorold, Quebec, and Niagara Falls.

The frame work of the extension of Toomey's Blanket Mills, Napanee, was raised on Monday morning. It is two and a-half stories in height and 20x40 in area.

The New Brunswick chair factory, at St. John, is to commence work early next month. Mr. D. L. Richards has gone to Boston to purchase machinery for it.

A hosiery manufactory has been started at Richmond, Que., by Messrs. McMorine Bros. Samples shown are said to compare favorably with English or American hosiery.

A meeting of those who have subscribed for stock in the Belleville car works and of those who feel inclined to become stock-holders, was held in the City Hall last Friday.

A hosiery manufactory has just been started in Richmond, P. Q., by Messrs. McMorine & Bros. The samples compare favorably with English or American hosiery goods.

The new Hudon mill at Hochelaga will contain 200 looms. All the machinery will be supplied by Messrs. Howard and Bullough, England. The engine will be 500 horse power.

It is stated that Messrs. John Herring & Son, the present proprietors of the Napanee Glass Works, are taking steps to organize a joint-stock company to operate the works, and to double their capacity.

Another evidence of the beneficial effect of the National Policy on manufacturers was furnished to-day, when Messrs. John Stewart & Co., of Hamilton, shipped 165 of their fanning mills to Portage la Prairie, Manitoba.

The firm of James Hay & Co., Woodstock, Ont., have just received from the manufacturers, Messrs. Haggart & Co., Brampton, a traction engine which will be used for drawing logs from the bush to the factory. It works nicely.

Messrs. Jas. Harris & Co., of St John, N. B., completed their contract for 110 coal hoppers for the Inter-Colonial Railway, on Saturday last, and they are now engaged on the balance of the contract of flat-cars for the Canadian Pacific.

The Napanee Cement Works find business unusually brisk; they have disposed of over one thousand barrels of cement already this season, while at this time last year scarcely a barrel had moved. Cement has gone up considerably in price.

Mr. D. Vrooman, agent at Welland for the Globe Agricultural Works, of London, Ont., sold in five days last week nine machines, amounting to \$1,025. That speaks well for the quality of the machines manufactured by the above company.

Bonus by-laws were carried at Sarnia lately as follows:—For stove works 460; against, 19—majority, 441. For malleable iron works, 459; against, 17—majority, 442. For the extension of the water works, 436; against, 42—majority, 394.

Mr. M. McAulay, who has been doing a carding and cloth fulling business in Mount Forest for the past year, has bought out W. T. Petrie's carding mill at Holstein, where he will carry on the business of carding, cloth fulling, and dressing.

A new cotton factory is to be established in Hamilton, in the neighborhood of the North-Western freight yards. The machinery has been ordered in England, but the boilers and engines will be made here. Mr. A. Duncan, of Hamilton, is the local head of the firm.

The new stave and barrel factory, at Picton, Ont., is now almost ready for operation. It is the intention of the owners to manufacture 35,000 or 40,000 barrels—or sufficient for the shipment of the season's crop of apples—and also to manufacture large quantities of staves for shipment.

Brick laying was commenced on Mr. Sylvester's agricultural works at Peterborough, on Wednesday last. The contractor is getting on rapidly with the work, and by the end of the present month the building will be about completed. Mr. Sylvester is determined to push business there.

The *Intelligencer* says:—The machinery for the manufacture of cheese, which Mr. H. Ashley proposes to manufacture here, consists of Fraser's Patent Gang Cheese Press and Printnell's patent cheese machinery. Neither of these is manufactured in Belleville at present, as some appear to think.

Messrs. Morrison Bros. shipped this week a complete outfit, including machinery, plant and stock, for a foundry and machine shop at Rapid City, Manitoba. Whellams & Lamps are the purchasers. They are now erecting the works on the Whellams estate, and expect to be in operation in the middle of June.

A New York Company, with \$1,000,000 capital, called the Copper Prince Mining Co., has been formed and will soon commence operations upon a valuable copper property at Digby Gut, N. S. It is said the veins crop out boldly and can be traced for miles. Nuggets of native copper can be knocked off with a hammer.

A new company consisting of Hon. Dr. Schultz and Messrs. E. A. Pew, Dawson, M. P., Hay, M. P., (Toronto), Colby, M. P., and Hillair, of Montreal, has been organized for the manufacture of prairie houses. The factory will be situated at Welland, and for the present will give employment to fifty men. The company has a capital of \$120,000.

The Woodstock (Ont.) *Sentinel Review* has the following item from Norwich:—Hose knitters promise to be one of our most important industries. The success of Mr. Rotz in his venture in the business has induced Mr. Wilson, late grocer, to try his fortune in the same sphere. And soon he expects to have Pitcher's block swarming with operatives.

The Picton *Gazette* says: "Messrs. Boulter and Dunning have established their canning works for the present in the upper flat of Vincent's foundry, but it is probable they will build before long. The manufacture of cans has been commenced, the most improved machinery for that purpose having been imported. When fairly under way the works will be well worthy of a visit."

At a recent meeting of the directors of the Halifax Cotton Manufacturing Company it was decided to go on with the construction of the building under their own supervision. The work will be pushed forward vigorously to completion. It is hoped to have the roof on the building by August, and to have the machinery put up and the whole mill ready to begin work by the 1st of January.

The *Chronicle* says Messrs. McLachlin Bros., Arnprior, are making arrangements to have their mills and lumber yard lighted by electricity this season. They also intend placing water works, with hydrants at convenient distances, all through their lumber yard, for the purpose of acquiring more efficient protection against fire. Their forethought and enterprise in this direction is worthy of emulation.

Mr. Armant, of Toronto, is in Kingston for the purpose of effecting arrangements for erecting hinge and washer factories. The proposed capital is \$50,000. He waited on some capitalists to-day, and his proposition was received with favor. If a factory be started from fifty to seventy-five men will be employed. Recently Mr. Armant was instrumental in establishing a wheel factory in Toronto.

The prospectus of a large carriage factory, to be established at St. Catharines, has been issued. It is intended to manufacture street cars, railway cars, waggons, and buggies, and the concern will be called the St. Catharines Manufacturing Company. It will employ between 80 and 100 men at the start. Capital \$75,000, in shares of \$100 each. The stock books are opened, and a large amount has already been subscribed.

Morrison Bros. are enlarging their "Soho Machine Works," which were partially destroyed by the late fire on the Esplanade, so as to have about 10,000 square feet of shop room, and intend to have, when their tools and machinery are all in place, one of the best equipped machine shops in Canada. In addition to their present mill and machinery business, they are preparing to manufacture iron and wood tools, which will be another new industry for Toronto.

The boom at the Peterborough paper mill goes on apace. Mr. McKay, the manager, returned on Friday, from a trip to Montreal, where he had confidential communication with the capitalists of the company. From Montreal he went to Brattleboro, Vermont, where he placed the company's order for a large part of the paper machinery. Having now got the dimensions of the various machines everything can be made ready for their reception.—*Review*.

The prospects for the erection of smelting works in Three Rivers are daily brightening. We are assured that there is no difficulty in regard to raising the capital, and, provided the city is willing to exempt the enterprise from taxation, and the charter is obtained, together with other necessary arrangements for building a branch road from the mines in Leeds to the Q. C. R. R., &c., the completion of the works may be looked for with reasonable certainty.

Mr. Alex. Reid, of Port Elgin, N. B., has lately purchased the woollen mills of Grant Bros., Springville, Pictou Co., N. S., and intends to open up business up there shortly. Mr. Reid for a number of years had charge of the weaving department of the Oxford Woollen Mills, Cumberland, and has lately occupied the same position in the Port Elgin Mills, N. B. He is therefore well acquainted with the business, and may be expected to manufacture good cloth.

The manufacture of houses is being rapidly pushed by the company formed for the purpose at St. Romuald, Que. The company commenced by building little wooden houses twenty-four feet square for transportation to Panama for the use of workmen on the isthmus canal. They have now entered into a contract with Sheriff Queanel, of Arthabaska, to construct a thousand houses to be forwarded to Manitoba, some of which are three storeys high and 60 by 83 feet.

The *St. Thomas Journal* says:—"There is a boom in old iron among the boys. A number of kids were noticed yesterday afternoon skirmishing around back yards, in lanes, and on the railroad tracks, picking up broken pots, pieces of old stoves, etc. It would be well for our citizens to keep their eyes open, lest the boys should carry off a whole stove." To which let us add that the cause of this is probably to be found in the great demand for scrap iron since rolling mills and nail works started into activity in Canada.

Work at the Phoenix foundry, St. John, N. B., is going on apace, Messrs. G. Fleming and Sons being busily engaged on two locomotives. The driving wheels from the Krupp Gun Factory (Germany) underwent the finishing process under a powerful lathe a few days since. Thirty men are engaged in the boiler shop, making, in addition to locomotive boilers, a large one for the steamer "May Queen," which will be finished in about a fortnight. Over 100 men are employed in various parts of the works engaged in moulding, forging, and finishing machinery of various descriptions.

The *Belleville Ontario* says that Mr. Wm. Coe left on Wednesday night for Toronto, to arrange with parties there to supply the firm of Carnegie Bros., Pittsburg, with 300,000 tons of magnetic iron ore. The ore will be taken from his mine in Wollaston Township, which is said to

be one of the most valuable magnetic iron mines in Ontario, being over 2,000 feet long and about 200 feet in depth. The ore taken from this bed contains about 65 per cent. of metallic iron, and is free from phosphates or other impurities. Mr. Coe took with him a specimen of this ore for the Hon. Mr. Pardee, who has frequently expressed a desire to examine it.

In an article on "Maritime Manufactures and their Market," the *Moncton Times* says:—"The older Provinces of the Dominion, it is true, are capable of sustaining a much larger population than they now contain, and their growth is likely to be much more rapid in the future than in the past. But new manufactures are springing up with astonishing rapidity, and should the ratio of increase be maintained it is only a question of time till the supply will equal the demand in old Canada for certain lines of manufactured goods. The market for the surplus and for the increased production must be found in the North-West. There is no doubt that the Maritime Provinces are advantageously situated for this trade.

Messrs. S. R. Warren & Son, the well known church organ builders, of Toronto, have just completed an organ for the English cathedral, at Quebec, that may well be considered a masterpiece. We had the pleasure of seeing it set up in their workshops, before being taken apart for shipment, and in our opinion it is by all odds the handsomest piece of work we have yet seen in this line. It has three manuals, and 46 stops, is 28 ft. in height, 10 ft. deep, and 20 ft. front. The blowing bellows will be up in a gallery some 30 ft. away from the organ. The pipes are very handsomely decorated with crimson flook, gold and sage green. The case is of oak, ornate following the Norman style of architecture. Two cars at least will be required in which to ship it to its destination.

The *Amherst Gazette* says that Mr. W. G. Beach, manager of the N. S. Glass Works, New Glasgow, has been visiting that town with a view to organizing a company for the manufacture of pressed table glassware.

Mr. Beach, who has had many years experience in the business, and is thoroughly acquainted with the trade of the Dominion, states that we can compete successfully with old establishments in the United States, and send the goods all over Canada. He does not intend to sever his connection with the Nova Scotia Co., but proposes to make in the new factory a class of goods which will not to any extent conflict with the production of the former. Such an industry as that proposed would give employment to 100 men, of whom 25 would be skilled artizans, and consume \$450 worth of slack coal and five tons of straw per month.

The Royal Navy Tobacco Works, of Paris, Ont., are gaining for themselves an enviable reputation for the excellence of their tobacco produced. The energetic proprietor, Mr. N. P. Bunning, is now pushing the brand called "Nectarine," of which every leaf is selected from the best tobacco to be had in the market. It is already making itself a name, and the manufacturer has sent large quantities to British Columbia, and has actually found a market in the States in spite of their tremendous duty. Mr. Benning leaves this week for the South where he will purchase his supply of raw material for the coming season, and will provide himself with a larger stock than has been necessary in the past years, but which will be required for this year's increased contemplated output.

The Record Foundry and Machine Co., of Moncton, N. B., is prospering greatly, and has been rushed with orders. About 25 hands are now employed, and more moulders are wanted. Recently a large quantity of mill work has been turned out, including an extensive order for Calhoun's Mills. One fly wheel cast in the establishment weighed thirty hundred weight (a ton and a half). Improved hoisting gear, from patterns brought from Ohio, has also been cast for A. Seamans & Co's stone quarry, at Minudie, Cumberland County. It weighed about five tons. The company contemplate extensive improvements and additions to the facilities of the establishment. A new brick building for pattern shop and offices will be erected and the old buildings improved. The indications are that another year will find a much larger number of men employed at this establishment.

The shirt factory of Messrs. Manchester, Robertson & Allison gives employment to about 30 hands in and out of doors. On the premises there are 14 shirt hands and 7 laundry maids. The works are under the direction of Mr. W. D. Crockett, formerly of Boston, who is introducing a new system of shirt cutting, dispensing with the use of patterns in custom work and draughting each garment to fit the customer. The first floor is occupied with the sewing machines and ironing department which is under the charge of Miss Amazine, an experienced Boston laundress. The upper rooms contain the steam machinery for washing, starching and blueing—and a patent centrifugal wringer which dries the goods by the simple rapidity of its revolution. The works are kept busily employed by the orders continually coming in.—Yet another industry is to be revived in the shape of spice mills shortly to be opened by Mr. A. Lordy. He has for the sake of hiring power from the Nut and Bolt Company, put his machinery in one end of the company's box factory and men are now fixing the belting and shafting in order to commence work in a few days.—Mr. S. F. McCready, who keeps a grocery and provision store near the nut and bolt works, is doing a good trade. He feels the benefit of the nearness of the factories.—*St. John, N. B., Sun.*

For some time past negotiations have been in progress looking to the transference of the large industrial establishment known as the Ontario Car Works, from the town of London east to either Belleville or Montreal, these municipalities having offered the company inducements to locate in their midst. Mr. Muir, the manager, has just returned from a tour in the east, and to a reporter this forenoon he imparted the information that the arrangements for the removal of the shops to Montreal had been concluded, and that unless a hitch arose in the valuation of the plant a move would be made to that city in a few months. Mr. Muir stated that the principal cause of removal was the refusal of the London East authorities to afford him the slightest protection from fire, and that should a fire break out in the yard there was absolutely nothing to save the stock, amounting to \$175,000, from total destruction. The Mayor of London East blames the city aldermen for their dilatoriness, but this is only a blind, for it is well known that the city authorities have no control whatever over the town finances, the two being distinct municipal organizations. From 200 to 250 men will thus be thrown out of work in this part of the country by the removal. It is also understood that Mr. E. B. Augus, of the Canada Pacific Railway, has secured considerable stock in the railway, and that a large quantity of the rolling stock of that line will in future be made at the works.—*Toronto Mail*.

Mr. J. H. Fox, of Newcastle, Ontario, has invented and patented a new iron post to be used with barbed wire in fencing round prairie and other soft lands. The post is the result of several years' experiments, and, in the opinion of competent judges, is a thoroughly good one. Among its many advantages are cheapness, durability and ornamental appearance. It consists of a hollow iron rod about one inch square and of any required length. The sample shown was about five feet long. One end of the post is armed with four flanges about six inches wide at the surface of the sod, and about a foot long, meeting in a point. The post is easily driven in by means of a few blows from a maul or hammer. When driven into soft ground the flanges grip the soil firmly, rendering stays unnecessary for a long stretch of wire. The best feature of the invention, however, is the method of fastening the wires. This is done by a simple device in such a way that the post supports its own wire. In the ordinary wooden post fence the whole weight of the wire depends on the small staple used to fasten it, and in many cases these drop out after a time from the weight of the wire, or are forced out with a very slight exertion of force. With Mr. Fox's method of fastening, which of course is only applicable to the iron post, and in fact forms a part of it, the loosening of the wire is an utter impossibility. A wire fence built with these posts is simply indestructible by fire or weather, and forms a perfectly impassible barrier to man or beast. The inventor calculates that one of these posts will serve when two wooden posts would be required, and—estimating the cost of each post at fifty cents, at which figure they can be laid down in Winnipeg—a fence built with them would be, in the long run, infinitely cheaper than the ordinary wooden post fence. Mr. Mackintosh, of Newcastle, was recently in town with a specimen post, which he submitted to the inspection of the Canadian Pacific Railway authorities. They considered that it was just the thing for Manitoba, and will probably use it in fencing along their lines if satisfactory arrangements can be made with the inventor.—*Witness*.

TO CLEANSE A SOILED CHAMOIS LEATHER.—Many workshops contain a dirty wash leather, which is thrown aside and wasted for the want of knowing how to clean it. Make a solution of weak soda and warm water, rub plenty of soft soap into the leather and allow it to remain in soak for two hours, then rub it well until it is quite clean. Afterwards rinse it well in a weak solution composed of warm water, soda, and yellow soap. It must not be rinsed in water only, for then it would be so hard, when dry, as to be unfit for use. It is the small quantity of soap left in the leather that allows the finer particles of the leather to separate and become soft like silk. After rinsing ring it well in a rough towel and dry quickly, then pull it about and brush it well, and it will become softer and better than most new leathers. In using a rough leather to touch up highly-polished surfaces it is frequently observed to scratch the work; this is caused by particles of dust, and even hard rouge, that are left in the leather, and if removed by a clean rough brush it will then give the brightest and best finish, which all good workmen like to see on their work.—*Age of Steel*.

Last year (1881) there were in the English Patent Office 337 applications for inventions connected with electricity. Of this total 135 were British applicants, 52 American, and 50 Continental foreigners.

The Iron Trade.

PITTSBURGH.

THE STRIKE OF ROLLING-MILL MEN—AND OF COAL MINERS
—GLASS BOBBINS FOR SPINNING AND WEAVING FAC-
TORIES—GLASS SHINGLES FOR BUILDINGS—GLASS CLOTH
—SLACK DEMAND FOR IRON AND NAILS—“CUTTING”
PRICES OF NAILS.—QUOTATIONS.

(From Our Own Correspondent.)

PITTSBURGH, May 8, 1882.

The wages question at issue between the rolling-mill proprietors and their employees is not yet settled. A second conference was to have been held on the 1st inst., but for some cause the working men had it postponed till the 22nd. This movement was somewhat of a surprise, not only to the manufacturers, but to the community generally, and is variously interpreted. Some think it indicates a weakening on the part of the workers, others that internal dissensions exist which need to be healed, and still others that an advance of wages was not really expected, and that the demand was made to forestall any attempt at reductions by the manufacturers. But more will likely be known about the meaning of the postponement after the next conference.

The strike of the colliers employed at mines along the railways, against a reduction from 4 cents per bushel to 3½ cents, which began on the 1st of April, continues, and there is some talk of bringing colored miners from Virginia to take the place of the strikers. If this is done there will likely be trouble, as miners generally resent such interference with their “rights” by methods not altogether lawful, and with considerable vigor. The river operators still pay their miners 4 cents.

Among the novelties made of glass in this city are bobbins and shingles. The former, which are used in textile manufactories, are said to be more durable than wooden bobbins, as well as superior in other respects. The shingles are of various colors, and make a handsome durable, and fire-proof roof. A glass making firm here has also made glass textile fabrics within the last twelve or eighteen months. A rod of glass several feet long and half an inch in diameter, and heated to the proper degree, is attached at one end to a large, rapidly-revolving wooden drum, and thereby drawn out to a fine thread. This process is repeated till enough glass has been spun, when it is wound on bobbins and woven like cotton, flax or silk. The fabrics thus produced are very beautiful and pliable. The glass they are made of is made very soft by the addition of lead.

There has been no improvement in the iron and nail trades since my last letter. The rolling mills are all running, but new orders do not come forward with any more freedom, and, as a consequence, card prices are not always adhered to by those mill owners whose order-books are becoming somewhat bare. The demand for nails is probably even less than for iron. At any rate card prices are being “cut” to a greater extent, and your correspondent has heard of sales as low as 30 cents per keg under card figures. The dullness may be largely attributed to the tremendous demand all winter for iron and nails. It is expected that business will be better before long, if the crop prospects continue favorable. As to pig iron, commission merchants are doing scarcely anything. The trade has been unusually quiet ever since February, but this condition has been intensified recently by the hitch between the mill owners and their employees. Prices, however, are pretty well maintained. We quote the various kinds of iron, steel, &c., as follows:—

Pig Iron.—Neutral mill, from native ore, \$24.50 to \$25; cinder-mixed red-short, \$25 to \$25.50; all-ore red-short (mill), \$28 to \$27. Bessemer, \$28; No. 1 foundry, \$27; No. 2 do., \$26.50 (all four months). *Manufactured Iron*.—Card prices, which are sometimes “cut,” remain as follows:—Bar, 2.50c.; No. 24 sheet, 4.30c.; tank, 3.30c.; C. H. No. 1 boiler plate, 5½c.; homogenous steel do., 6½c.; hoop iron, for common barrel hoops, 3.10c. to 3.30c.; lighter sizes, 3.20c. to 5.10c. All 60 days or 2 per cent. off for cash. *Nails*.—May be quoted at \$3.15 to \$5.20, 60 days, or 2 per cent. off for cash. *Wrought Iron Pipes and Tubes*.—The discount on gas and steam pipe is unchanged at 65 per cent.; on

boiler tubes 42½ to 45; on oil-well casing 67½c. net, and tubing do., 20c. net. *Steel*.—There are no changes to report; best quality refined cast steel, 12c. per pound; machinery steel, 8c. for crucible and 5c. for Bessemer or open-hearth. *Steel Rails*.—Manufacturers still quote at \$53 to \$55, on cars, but these are doubtless outside figures. *Railway Track Supplies*.—No changes in quotations; Spikes, 3.15c. per lb. 30 days; splice bars, 2½c. cash; track bolts, 3½c. to 3¾c. cash for square nut, and 4c. for hexagon. *Old Rails*.—Prices are substantially the same as they were a fortnight ago; the following figures represent transactions. Ties, \$29 to \$30; double-heads, \$31 to \$31.50. *Scrap Iron*.—Transactions light; No. 1 wrought has changed hands within the week at \$28 per net ton; car axles are worth about \$35 per net ton; cast borings have sold at \$16 per gross ton; there is nothing doing in old car wheels—they may be quoted nominally at \$27 to \$28 per gross ton. *Copper*.—Ingot unchanged, at 19c. to 20c. per pound. *Lead*.—Pig, 5½c. per pound; bar, 6½c., and 4 per cent. off; pipe, 6½c., with a discount of 10 per cent.; sheets, 6¾c., discount 10 per cent. *White lead*.—Demand continues enormous, but prices are unchanged; 7c. to 7½c. per pound, by the keg, in oil or dry. *Window Glass*.—A convention of Western manufacturers of window glass and green bottles and vials was held in Chicago last week, but no changes were made; discount on double strength window glass, 60 and 20 per cent.; on single strength, 60 and 10 per cent. *Linseed oil*.—No change in prices; Raw, 59c. per gallon by the barrel; boiled, 62c. *Connellsville Coke*.—Unchanged at \$1.65 to \$1.90 per net ton on cars at ovens.

PHILADELPHIA.

UNCERTAINTIES IN THE IRON TRADE—CROP PROSPECTS ON IRON PROSPECTS—THE RUSH OF IMMIGRATION—THE LABOR SITUATION—THE RAILROADS—IRON QUOTATIONS—FREE TRADERS IN CONGRESS—CHEAPER COAL COMING.

(From Our Own Correspondent.)

PHILADELPHIA, May 10, 1882.

The consumers of iron and steel take advantage of any uncertainty or doubt on a falling market to postpone buying anything beyond enough to provide for immediate wants. The latest stumbling block to justify inaction is the situation at Pittsburgh, concerning which you will be fully advised. Eastern manufacturers do not anticipate serious results, because serious results cannot be indulged in. If American manufacturers carried two or three hundred thousand tons of finished iron and a million tons of pig iron, the situation would be very different, but as long as iron is made so that it is hot when it reaches the consumers' hands, manufacturers are at the mercy of any passing wind. Want of surplus stocks creates more fluctuations and losses than it would cost to carry sufficient stocks to prevent them. The iron trade is quieter than usual at this season, a result growing out of the rapid increase in capacity on one hand, and a falling off in railroad requirements on the other. Both sides await favorable conditions. Everybody in trade either has plenty of money or its equivalent, credit. The entire nation is waiting on the wheat and corn crop to grow. Even Wall Street is watching the crop reports like a farmer reads his almanac. Daily reports from the west and south are telegraphed; and weekly condensations are re-telegraphed over the country. So far the crop prospects are good. Cotton prospects might be better, but there is a larger area planted this year than last. Agriculture is presenting unusual and multiplied attractions. The high prices are stimulating an increased acreage everywhere.

The enormous rush of immigration continues. Last week's arrivals were 18,000. This week will probably not fall much short. All countries are represented, and all trades and occupations. The new-comers seek homes in nearly all the thirty-eight states of the Union. They bring the same tale of low wages and scarce work. Demand is in excess of supply thus far. But how long this will be so is a question. Railroads and cheap travel on one hand, and hard times and poverty on the other, are bringing about a dispersion of society, the want of which, for the past one hundred years or more, has led to a multitude of political and social evils, which sought to correct themselves by revolutionary

violence in some cases. The lack of ownership of the soil and freedom from onerous taxation, and lack of cheap facilities for freely exchanging the products of labor, have been the causes of much distress during the century. We look upon the great ravages going on, of which this immigration movement is one, only in their commercial aspect, not in their sociological and political aspects. Artificial conditions abroad have suppressed the expansive nature of humanity for ages. These conditions are being removed, and the innate force of the mind is beginning to exert and assert itself.

The labor situation is interesting. The upward tendency continues. A dozen new strikes are announced daily in the papers, and they do not get one in ten. The increase accorded does not seem to do harm. Building operations are increasing. The money paid out in wages to-day, goes the rounds very rapidly. The increase leaves the worker no better off, because of the higher prices paid for nearly all articles of consumption.

Railroad material is dull. Steel rails are unchanged at \$50 to \$54, according to size of order and date of delivery. Even at these exceptional figures very little in the way of new business is being done, not because rails are not cheap enough, but because the future of trade and industrial activity is somewhat beclouded. Mills are full of orders, and rushing through with their high-priced contracts. No further concessions have been heard of. Imports on old orders come in occasionally. New orders cost \$60. Iron rails \$43. Old rails have declined to \$26.50 at New York, and even lower. Buyers do not rush in as was expected, when prices should reach that figure. Stocks are light, and so is demand. Doubles can be had at \$28 at N. Y., \$28.50 here. Bessemer pig has fallen to \$23.50 at N. Y., \$24 here for deferred delivery, and \$24.50 to \$25 for what is called prompt delivery. Scrap has declined a little more. Some good R. R. Scrap, which always commands the highest prices, was bought at \$31 on cars. Same kind sold at \$35 in January, when shipments were difficult.

Merchant iron has weakened within a few days to 2 6-10c. per lb. in large orders; small orders, 2 7-10c. The card is nominally 2 8-10c. Pittsburgh quotes 2.5c. and sells at 2.4c., and ships stuff here at prices which Eastern manufacturers could not or would not touch. Consumers are buying the very least possible, and prices are running down, partly, because of the pending differences. Consumption has not declined materially. Everything is running to full capacity. Laborers are not discharged, except here and there. The settlement of the wages question in Western Penn. on the 20th inst., will likely open up a strong demand for iron, and if so, at better than 2.4c. and 2.6c. prices.

The building of bridges is being pushed. Several large contracts have recently been placed, and the Eastern structural iron makers report increased activity and firmness in quotations. Shapes are the firmest on the list.

Plate and tank is moderately active at 2.9c. to 3c. for tank. Wrought pipes are down to 62, 65 off list, and tubes 42½, 45 off.

Sheet iron is less active than a week or two ago, and concessions are now the rule. The card is nominally unchanged, but sheet, light and heavy, and galvanized, can be had on more favorable terms than for a year. Galvanized runs 35 to 45 off list.

The Tariff Commission Bill passed the House last week. The heavy guns on both sides were brought into action, but the grand old champion of Protection, Hon. W. D. Kelly, of Pennsylvania, surpassed them all. Surpassed himself, made the crowning effort, gained the crowning glory of his life. He made the closing speech on behalf of the bill, and in it met the arguments of the free traders with such cogency and force that they fled from before him. He ridiculed their ignorance which he pointed out to the House and the country, so that they themselves had to laugh and blush to the roots of their hair, at the same time Free Trade was laughed to scorn in Congress. Its effects in Great Britain, where 14½ million people live on \$2.63 a week, were shown clearly.

The Tariff Commission will soon be created. The Senate will no doubt give its consent to the bill in order that the needed work may be performed immediately.

Representatives of manufacturing interests have been before Secretary of the Treasury, Folger, in reference to the rate of duty on car, axle and hoop iron. The disposition of treasury officials is to decide against manufacturing interests, but they are followed up closely, and have at last to climb a tree to get out of the way of protectionist logic.

Evidences are accumulating that coal will be permanently cheaper in

a few months. The fact on which this belief is based is that a great many new properties are being developed, and railroad facilities are being extended to them. Even at present the half-time out-put in the anthracite coal field does not prevent competition. The Cumberland region is idle, yet prices do not harden. The capacity to produce coal is increasing, and will assume very large proportions. Sharp competition is inevitable.

MONTREAL.

DECLINE IN PIG IRON ON THE SPOT—FREIGHTS FROM GREAT BRITAIN—SALES OF BAR IRON TO ARRIVE AT A DECLINE—TIN CONTROLLED BY A "CLIQUE" IN LONDON—QUOTATIONS.
(From Our Own Correspondent.)

MONTREAL, May 9th, 1882.

Since our last review spot pig iron has declined \$1.00 to \$2.00 per ton, sales having been made of Summerlee and Gartaherrie at \$24.00 per ton, and of Eglinton at \$21.00. To arrive, sales aggregating fully 2,000 tons have been made, *ex ship*, at the following prices:—Summerlee, Gartaherrie and Coltness \$22.00 to \$22.50, and Eglinton at \$20.00. The quantity to arrive, however, outside these sales, is said to be very limited, and barely sufficient to cover the large wants of western dealers, every one of whom is completely bare of supplies. Although it has been reported that easier terms have been secured in freight rates from Glasgow to this port, some of our dealers here assert that they have endeavored to get lower rates and have been refused. It now seems that little, if any, concessions will be made before the fall, when the movement of the new grain crops may induce a larger tonnage to leave the other side than will be required for the movement of dead freight to the Atlantic seaboard. In bar iron there has been quite a decline since our last review, sales to arrive of Staffordshire Crown, Scotch, and equal brands having transpired at \$2.10 to \$2.15 per 100 lbs., while it is stated by one of our leading importing firms here that even lower figures have been accepted. There have been several round lots of Canada plates selling during the past week at \$3.15 per 100 lbs. for Pennsylvania, Clifton, and equal brands. Tin plates have found fair sale during the week at \$5.25 for charcoal, and at \$4.75 for cokes. Ingot tin is quiet at 25c. to 26c., and ingot copper at 18½c. for Canadian and 18c. for English. The English market for tin is still unsettled, the fluctuations having been very violent, owing to the manipulations of a clique in London. We quote prices as follows: On spot, Coltness, \$24.00 to \$24.50; Siemens', \$24.50 to \$25.00; Summerlee, \$24.00; Langloan, \$24.00; Eglinton, \$21.00 to \$21.50; Calder, \$21.00 to \$21.50; Carnbroe, \$21.00 to \$21.50; Hematite, \$27.50 to \$28. Bar, per 100 lbs.—Siemens, \$2.25; Scotch and Staffordshire, \$2.10 to \$2.15; Best Staffordshire, \$2.30; Swedes, \$4.00 to \$4.50; Norway, \$5.00; 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; Nentgwynn, \$3.15 to \$3.20; Hatton, \$3.15; Thistle & Clifton, \$3.15. Tin Plates, per box—Charcoal, I. C., \$5.35 to \$5.75; Charcoal, I. X., \$7.25 to \$7.50; Charcoal, D. C., \$5.25; Charcoal, D. X., \$7.25; Coke, I. C., \$4.40 to \$4.75; Tinned Sheets, No. 26, Charcoal, 10c. to 11c. Cookly K. or Bradley, 10c. to 11c.; do, Coke, 10c. to 10½c.; Galvanized Sheets, 26 best, 7c. to 7½c.; Hoops and Bands, per 100lbs., \$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 19c.; Zinc sheet, per 100 lbs., \$6.00 to \$6.50; Spelter, \$6.00 to \$6.00; Horse Shoes, per 100 lbs., \$4.25 to \$4.50; Proved Coil Chain, 3 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 2½ in., \$3.20; 1½ in. to 1¾ in., American, \$3.45; 1½ in., \$4.20; 1½ in. to 1¾ in. cold cut Canadian, \$3.20; 1½ 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.

PHILADELPHIA.

REDUCED STOCKS—THE MARKET A SHADE FIRMER—COUNTRY BUYERS OPENING THE SEASON WITH PRICES ABOVE PARITY WITH EASTERN MARKETS.

(From Our Own Correspondent.)

PHILADELPHIA, May 8, 1882.

Trade in this connection has developed a slight improvement during the past fortnight. With reduced stocks, holders have been more inclined to resist the downward tendency of values, and, finding less pressure to sell, and smaller assortments to select from, manufacturers have been operating with more freedom. Current wants have been the basis of purchases in most cases, but asking prices have been realized with less trouble, and for desirable wools the market is a shade firmer all around. Dealers are loth to admit this for fear of the effect of the statement on the ideas of growers, and then there is a general disposition to talk the market dull and depressed, but the situation is undeniably better than at last report. Country holders, meantime, are not waiting a reaction in the East, but have already fixed their ideas of value above a parity with the seaboard. In some instances sales have been reported as high as 25c. in Missouri and Kentucky for unwashed wools, but no general business of importance has yet transpired. Foreign advices are unchanged. Boston, New York, and Philadelphia quotations are about the same as previously reported, but on best lots, as above stated, are maintained with more confidence.

MONTREAL.

THE USUAL DECLINE BEFORE THE NEW CLIP COMES IN—(CAN BUYERS KEEP DOWN FARMERS' PRICES—QUOTATIONS.

(From Our Own Correspondent.)

MONTREAL, May 9th, 1882.

The chief feature in the wool market since our last report has been the decline in the price of Canadian wools to the extent of 1c. to 2c., per lb. This is invariably the case just prior to the marketing the new crop, although operators have not been so successful as at present for several years past in knocking down values. Whether the farmers, however, will accept the situation and market their new clip at the lower rates ruling, has to be proved. Canada pulled, A super., is quoted easy at 31c. to 33c., and B super. at 29c. to 30c.; unassorted Canada pulled being down to 26c. to 27c. In foreign wools there is a quiet feeling, some dealers contending that prices are steady, while others admit they have accepted lower prices, and we quote 'greasy Cape at 18½c. to 20½c. and Australian at 23c. up to 30c. as to shrinkage.

Cotton.

PHILADELPHIA.

A QUIET MARKET—DIMINISHED RECEIPTS, AND DIMINISHED VISIBLE SUPPLY—ACTUAL COTTON MOSTLY IN STRONG HANDS—QUOTATIONS.

(From Our Own Correspondent.)

PHILADELPHIA, May 8, 1882.

The speculative dealing in this staple have been light and unimportant during the past fortnight, and the position has developed little change. Outsiders have taken little interest in the market, and the

"regular" operators have exhibited a good deal of indifference, as if awaiting the development of some new stimulus, either to higher or lower prices. The movement of spot stock has also been light. There has been a fair export demand and a moderate hand-to-mouth inquiry from spinners, but nothing like activity in any quarter. Port receipts since Sept. 1, show a decrease of 923,920 bales as compared with the same time in 1880-81. The visible supply is 2,784,638 bales against 2,957,891 bales at this date last year.

The feeling at the close is firm, owing to the gradual diminution of supplies in the face of continued small receipts, and the fact that actual cotton is mostly controlled by strong hands. Closing quotations were as follows on the dates named —

	Middlings, April 2nd.	Low Middlings, April 2nd.	Middlings, May 6th.	Low Middlings, May 6th.
New York	12½	11 13-16	12½	11 13-16
New Orleans	12	11½	12	11½
Mobilo	11½	11½	11½	11½
Charleston	11½	11½@11½	12 1-16	11½@½
Savannah	11½	11½	11½	11½
Galveston	11½	11½	12	11½
Wilmington	11½	11 5-16	11½	11 5-16
Norfolk	11½	—	11½	—
Augusta	11½	11@11½	11½	11@11½
Memphis	12	11½	12	11½
St. Louis	11½	11½	11½	11½
Cincinnati	11½	11½	11½	11½
Baltimore	12½@12½	11½	12 3-16	11½
Philadelphia	12½	11½	12½	11½
Boston	12½	12	12½	12
Liverpool	6 11-16d	—	6½d	—

Leather.

MONTREAL.

BLACK LEATHER IN LARGE SUPPLY — SALES OF SPLITS AT LOW FIGURES — QUOTATIONS IN FULL.

(From Our Own Correspondent.)

MONTREAL, MAY 9th, 1882.

The leather market, although evincing signs of improvement in the best grades of spanish and slaughter sole, does not make any great headway on the whole, as the surplus stocks of black leather are sufficiently large to impart a generally easy tone to the market. A few sales of slaughter sole to arrive have been made at full quotations, and a lot of 500 sides of No 1 B.A. Sole has changed hands at 25½c. Waxed upper has met with some inquiry, but at easier rates, the sale being mentioned of a lot of heavy at 32½c, and a lot at 31c., while several moderate-sized lots of light have sold at 37c. In splits there is a very dull and easy feeling, owing to heavy stocks, which, instead of being reduced, have recently shown increased volume, and we hear of business at ridiculously low figures. Some holders, however, refuse to force the market, maintaining that as soon as weak holders have unloaded, the market will react. There has been some inquiry for buff at 12½c. to 14c., but prices range between 13c. to 16c. Pebbled grain has also been in demand at prices which we quote as follows: — No. 1 Hemlock Spanish Sole, 25c. to 26c.; No. 2 ditto, 22c. to 23½c.; Buffalo sole, No. 1, 21½c. to 23c.; No. 2 ditto, 20c. to 21½c.; Hemlock Slaughter, 27c. to 29c.; Harness, 28c. to 32c.; Waxed Upper (light), 34c. to 38c.; Waxed Upper, medium and heavy, 30c. to 34c.; Grained Upper (long), 31c. to 38c.; Scotch Grained Upper, 37c. to 40c.; Buff, 13c. to 16c.; Pebbled Cow, 11½c. 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, \$0.16 to \$0.18; Green Hides, inspected, \$9.00; Calfskins, per lb., \$0.14 to \$0.15; Sheepskins, \$1.45 to \$1.75; Lambskins (spring), \$0.25 to \$0.30; 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.

HOW INTEREST IS COMPUTED.

In reply to a correspondent, the San Francisco *Grocer and Country Merchant* gives the following explanation: —

The custom with bankers is to compute interest, at the rate mentioned in the note, from the date it is given to date of first payment, and from the sum of principal and interest the payment is deducted, the remainder forming a new principal. This is repeated in subsequent payments until the whole is paid.

With merchants the custom generally is, to compute interest on the note from the date it is given to date of full settlement, and to compute interest on all payments from the time of each indorsement to date of settlement. The remainder, after subtracting payments and interest thereon from the full amount named in note with interest, is the balance due. To illustrate—Take note \$1000, for 90 days at 1 per cent per month, with two indorsements, viz., February and March 1st, each \$200.

BANKER'S METHOD.

January 1st, Note	..	..	..	..	..	\$1000 00
Interest to February 1st	..	..	..	..	..	10 00
						<hr/> \$1010 00
Payment February 1st	..	..	..	..	..	200 00
						<hr/> \$810 00
Interest to March 1st	..	..	..	..	..	5 10
						<hr/> \$815 10
Payment March 1st	..	..	..	..	..	200 00
						<hr/> \$615 10
Interest to April 1st	..	..	..	..	..	6 15
						<hr/> \$621 25
Amount due April 1st	..	..	..	..	..	<hr/>\$621 25

MERCHANT'S METHOD.

January 1st, Note	..	..	..	..	..	\$1000 00
Interest 3 months at 1 per cent	..	..	..	..	..	30 00
						<hr/> \$1030 00
February 1, by cash	..	..	..	..	..	\$200 00
Interest to April 1st	..	..	..	..	..	4 00
						<hr/> \$204 00
March 1, by cash	..	..	..	..	..	\$200 00
Interest to April 1st	..	..	..	..	..	2 00
						<hr/> \$202 00
						<hr/> \$406 00
Balance due	..	..	..	..	..	<hr/>\$624 00

SAVING WORKINGMEN.

Every man in a workshop ought to constitute himself the guardian of his employer's property, and not only should he avoid waste himself, but as far as practicable he should discourage it in others. If this were done, millions of dollars would be saved to the country, a much larger percentage of profits would go into the pockets of his employer, manufacturers would be enriched, and in the end the workmen would be proportionately benefited. Strange these simple facts should have so simple weight, but so it is. Waste by another is cruel to the man who has to pay: it does not, cannot benefit the person guilty of it, and it is a dead loss to the nation; and every scrap of material so destroyed makes the product more costly, and consequently dearer. In the interest of workmen it is important that these facts should be borne in

mind. Wages bear a relative proportion to cost of raw materials and both combined determine the price of commodities: the cheapness of the latter augments their sale, increases their production, enhances the demand for labor, and tends to keep up wages; the reverse is wholly true. If, therefore, an obvious duty is neglected or carelessly performed, the men mainly responsible ultimately suffer, and that suffering will be an exact ratio to that which produced it.

One great remedy for the losses incurred by waste is a closer supervision of every detail of the undertaking, whatever it may be. This, however, involves extra expense. If he men can contribute to a saving in this respect they will indirectly reap the advantage. To overlook this fact shows

a lamentable ignorance of the internal economy of a workshop, and of the forces and influences always at work for the purpose of bringing about a given result. The men who complain of strict supervision are just those who need it most, and who, without it, would render large contracts next to impossible, for the ample reason that they would not pay, and therefore could not be executed. Many a builder and contractor has been ruined by the wastefulness of his employees and negligence of his foreman. A careful man is a jewel in a workshop. - *Builder and Wood Worker.*

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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 and Dining-Rooms at convenient distances.

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<p>GOING EAST.</p> <p>Leave Toronto 7.35 a.m. " Montreal 10.00 p.m. " Quebec 8.10 a.m. next day. Arrive St. John, N.B., 7.30 a.m., day after. " Halifax 12.40 p.m., day after.</p>	<p>GOING WEST.</p> <p>Leave Halifax 2.45 p.m. " St. John, N.B., 7.25 p.m. Arrive Quebec 8.20 p.m. next day. " Montreal, 6.00 a.m., day after. " Toronto 11.15 p.m., day after.</p>
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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 20 York St., Toronto
- R. B. MOODIE,
Western Freight and Passenger Agent,
77 Yonge Street, Toronto.
- GEORGE TAYLOR,
General Freight Agent, Moncton, N.B.
- A. S. HESBY,
General Passenger and Ticket Agent, Moncton, N.B.
- D. POTTINGER,
Chief Superintendent, Moncton, N.B.

Railway Office, Moncton, N.B.

JOHN WARDLAW,

Galt, Ont.

MANUFACTURER OF

SCOTCH FINGERING,

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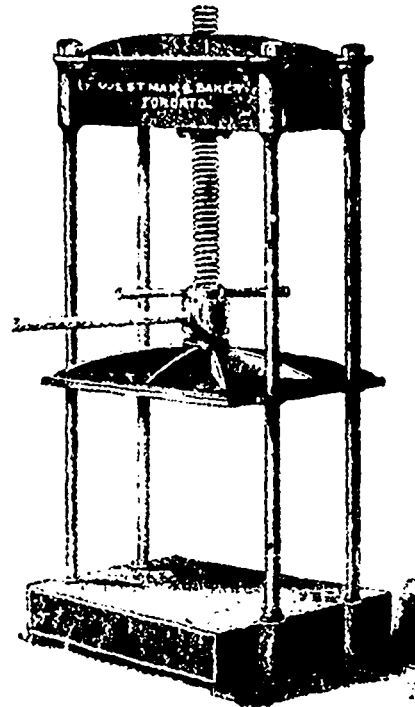
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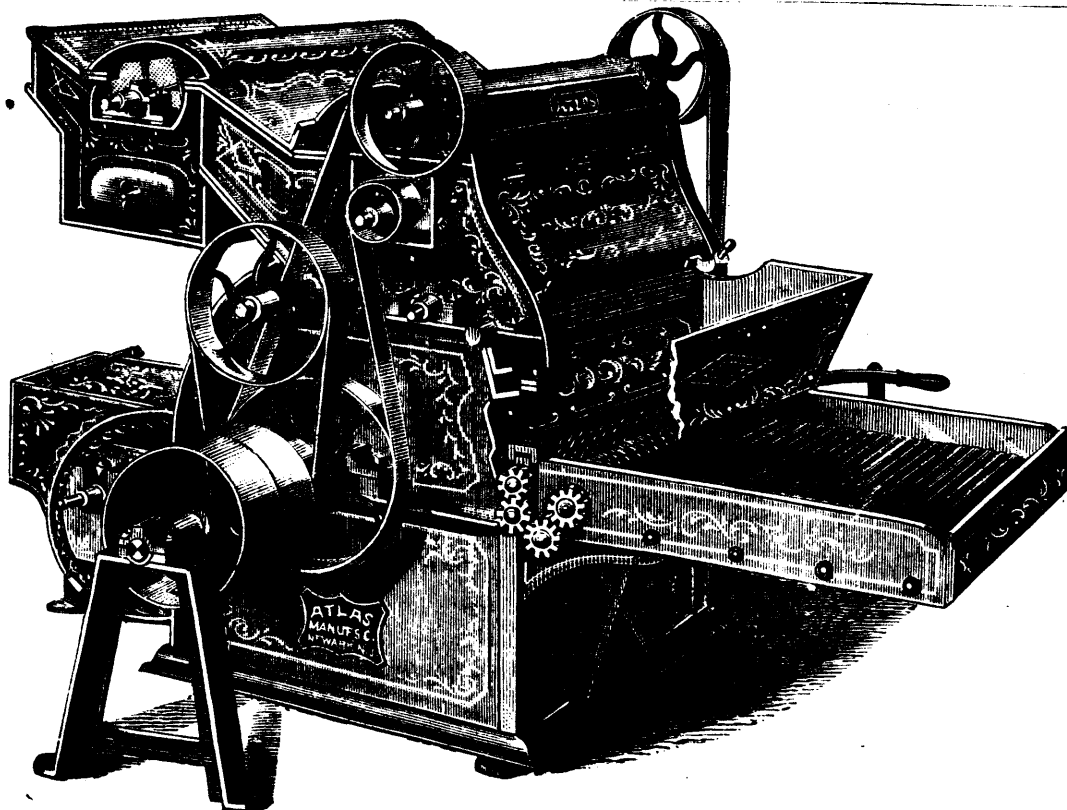
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BEARDER.

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The conditions to be that a line of telegraph communication is to be kept up between Winnipeg, Humboldt, Battleford and Edmonton, and that Government messages be transmitted free of charge.

The parties tendering must name, in addition to the lump sum they are prepared to give for the telegraph line, the maximum rate of charge for the transmission of messages to the public.

F. BRAUN,
Secretary.

Dept. of Railways and Canals, }
Ottawa, 18th April, 1882.

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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.

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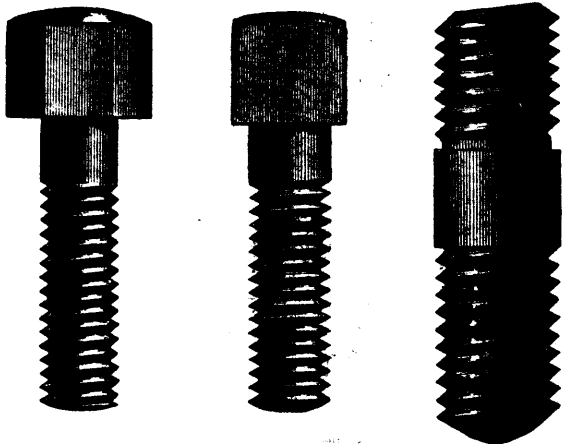
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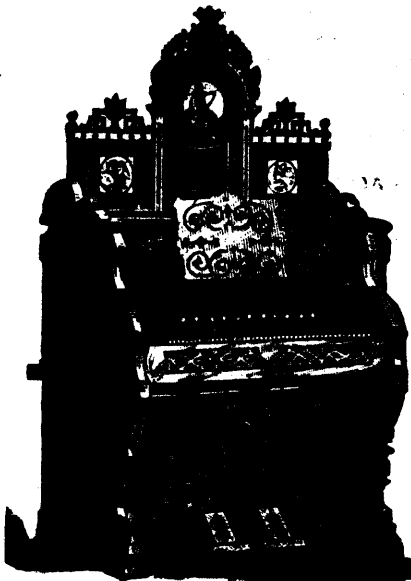
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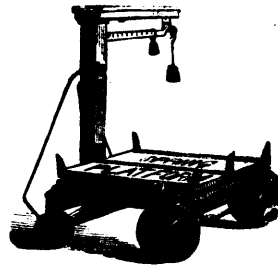
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