

THE CANADIAN MANUFACTURER

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THE MANUFACTURE OF CIRCULAR SAWS.

Not long since, in one of our exchanges, we came across the following little bit of history:—"In a lonely, secluded spot in the north-west corner of the cemetery, near the ever-beautiful little village of Richmond, Kalamazoo County, Mich., the reader can find, on a pure white marble slab, nearly concealed from view by a large cluster of lilac bushes, engraved the simple inscription—'Benjamin Cummings, born 1772, died A.D. 1843.' And who was Benjamin Cummings? He was the inventor of the *Circular Saws* now in use in this country and in Europe. Nearly sixty years ago, at Burtonville, New York, and Amsterdam, this man hammered out, at his own blacksmith's anvil, the first Circular known to mankind."

Thus it will be seen that it is more than half a century since the first circular saw was given to the world, but to-day the main principle of the invention remains the same, with such improvements as inserted teeth, &c., which have from time to time been introduced.

But what a revolution has it wrought in the manufacture of lumber? Just imagine for one moment the old-fashioned upright saw in a gate, jogging monotonously up and down, and cutting perhaps a thousand feet of lumber in a day, then turn to a modern circular saw-mill with steam feed, double edgers, shingle, butting, lath, and other accessory machines fitted with circulars, in the mill of to-day. What a vast difference the two pictures present. By the former method, with its clumsy mechanical appliances, the boards drop off the log slowly one by one, the sawyer sitting down leisurely between each cut—by the latter, however, there is no sitting down for the sawyer, but, on the contrary, every sense has to be on the alert; the saw goes whizzing through the log, and the instant the board drops, a touch on the lever is given, and the carriage operated by steam feed flies swiftly back, and before the onlooker has time to realize what is taking place, a second cut is half completed.

The *Northwestern Lumberman* aptly says: "The modern

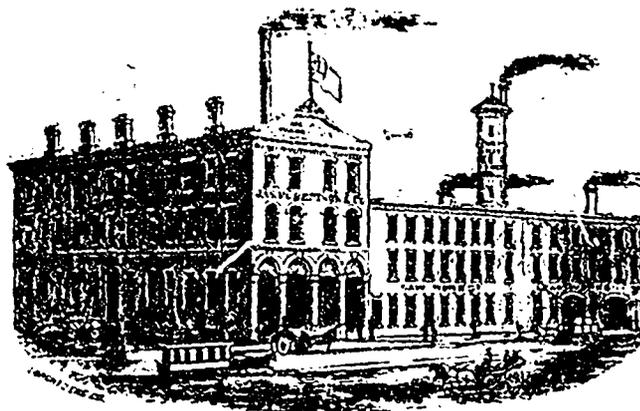
saw-mill is indeed full of improvements, down to the last device for sorting by machinery. The production in one day, by one saw, of more lumber than was accounted the work of a year in former times, is not only the result of the genius of invention such as marks the spirit of the age, but has rendered possible the remarkable development of the youngest in the sisterhood of nations, forming no unimportant factor in the influence of this country among the people of the earth. All hail to the modern saw-mill and the wise intelligence of nearly every man who is connected with it, either in the production of logs from the forest or the manufacture and sale of lumber, for each progressive step in the march of improvement has reduced

the cost of manufacturing lumber, keeping pace with the inevitable increase in the cost of timber, due to the gradual decadence of the forests."

But if the Circular has added so much to the economical production of lumber, the manufacture of the saw itself has undergone as complete a change, as that we have described as existing between the two mills. As we have said, the first made by the inventor was laboriously fashioned

on an anvil in a blacksmith shop, and must necessarily have been but imperfect. How different now. The most improved machinery is used in its manufacture, the teeth are lined and cut out with mathematical exactness, the greatest care is given to it whilst undergoing the important process of tempering, and the finished saw, after passing through a variety of processes and almost as many hands, is at last turned out perfect in every particular.

We lately had the pleasure of a visit to the large Saw Works of Messrs. JAS. ROBERTSON & Co., King-st., Toronto, and were kindly allowed to inspect the process of manufacturing in all its stages, and the sight was both entertaining and instructive. Messrs ROBERTSON & Co. have recently greatly increased their facilities, both with new machinery and by adding to their works, which is now, as will be seen from the engraving above, a handsome building, and it is completely fitted up in every way suitable for the industry in which



they are engaged. It has a frontage of 130 ft. on King-street by 115 ft. on Dorset-street, and is 3 stories in height. The Shot Tower seen in the background stands 110 ft. above the ground. This firm is the only one in Canada that manufactures the *Inserted Tooth Saw*, which has found such favor in the eyes of our mill men for the following reasons:—

The most perfect saw is that which will cut the easiest, the smoothest, and most in a given time, with the least expenditure of power. The *Inserted Teeth* are filed to an angle which the solid tooth does not permit, and are consequently presented to the timber, with just the right pitch on tops of the teeth, and cut the kerf out in "shavings" and not in fine dust, the difference being readily observable by those taking the trouble to examine the chips of both. It also takes less power to drive the inserted tooth.

Another specialty manufactured only by this firm (they holding the patent for Canada) is the *Planing Saw*. This is quite an innovation amongst machinery, but the samples of its work go to show that it is already in advance of the Planer for many purposes, and is certainly, as the manufacturers claim, a great saving in time, labor, power, machinery & lumber. These Saws are made hollow-ground, with a re-inforced centre, thus doing away with all setting and causing the saw to stand up to its work; this, combined with the Planing and Clearing-teeth

(also patented), causes the lumber to leave the saw "planed smooth," consequently requiring "no further planing."

In the majority of cases where lumber has to be re-cut, or in Shingle Mills, Sash and Door, Box and Furniture Factories, the saving will be more than will pay for the saws in each day's work. They have been in practical daily use in the United States for several years, and in one case, one of these saws was run in seasoned black walnut for six weeks without

filing, and we are told that those using them would not part with them at any price if they could not replace them. For shingles they are invaluable, the fine, smooth, and almost polished surface secured, placing them far ahead of those sawn in the ordinary way. Besides the above-mentioned specialties,

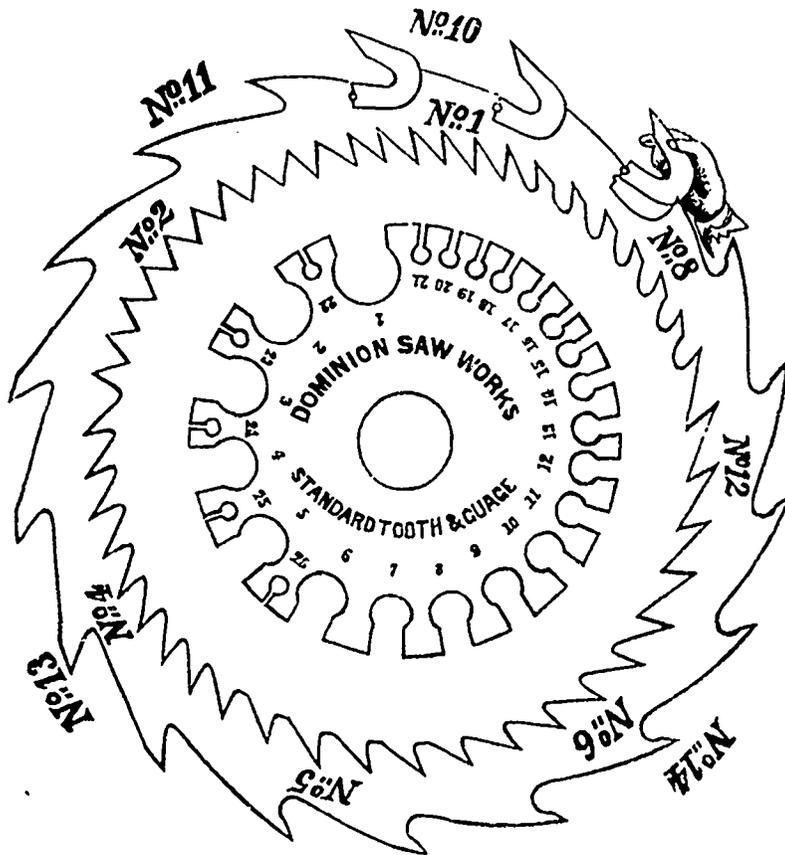
Messrs. ROBERTSON & Co. make a full line of every description of saws, which, amongst others, embrace the following:—
Solid Tooth Circulars: Mill, Gang, Butting, Drag, Buck, Band, Cross-cut, Felloe, Web, Mulay Mill, and several descriptions of smaller saws.

They also manufacture White Lead, Colors, Shot, Lead Pipe, Putty, and *Thurber's Patent Babbit Metal*, which produces less friction, but at the same time is harder and consequently more durable than the ordinary metal. They import Boiler Plates, Tubes, Foundry and *Tinsmith's Supplies*, and many other lines. Mill men and manufacturers in want of any articles that are kept by this firm would, we feel sure, be consulting their own interest by sending to MESSRS. ROBERTSON & Co. for their illustrated Catalogue.

During 1881 the mills on the line of the Flint & Pere Marquette railroad, in Michigan, exclusive of Saginaw river points, Manistee and Ludington, cut 145,168,137 feet of lumber and 161,916,000 shingles.

HOW TO MAKE POLISHERS' GLAZE— This is

not a varnish, but applied after the work has been bodied-in in the usual way, and which saves the time and trouble of splitting off—small work especially. It is often applied with a brush, though some prefer a rubber, in which case it would be simply wiped on, and not rubbed. It is made by dissolving gum benzoin in spirits. Fill a bottle about one-quarter up with the gum, broken small, and then fill up with spirits and let it stand a few hours. *American Manufacturer.*



NO CONNECTION.

Imitation, it is said, is the sincerest flattery, and we have just had a very weak imitation of the CANADIAN MANUFACTURER laid on our table. It is purported to be issued once a month by a company with a name very similar to ours but is, we understand, really published by a firm of manufacturers in this city, who have adopted this method of circulating an advertising sheet of their own. It is hardly necessary to notify our friends that it does not emanate from this office, but as the name, make up of the paper, and setting of one or two advertisements have been so closely copied from the CANADIAN MANUFACTURER, with the manifest intention of trading on our reputation, we are constrained to give these few words of warning. The new production is principally composed of reprints, gratuitous advertisements, and bad spelling.

FURTHER TARIFF CHANGES.

In the House of Commons, when closing the debate on the Budget, at the sitting of the 23rd inst., the Minister of Finance announced several further changes, in addition to those already noticed, which will be found stated below. Some of those already stated are repeated here for greater exactness.

Additions to the free list:

	Old Duty	New Duty.
Spelter, in blocks or pigs,.....	10 per cent.	Free.
Zinc, in pigs, blocks, and sheets,....	10 per cent.	Free.
Books; maps and charts, specially imported by, and for the use of any society incorporated or established for philosophical or literary purposes, or for the encouragement of the fine arts, or for the use or by order of our colleges, academy or seminary of learning, provided that no more than two copies of any one such book, map or chart shall be so imported by or for the use of any one society.....	Books 15, per cent. Maps and Charts 20 per cent.	Free
Vaccine and Ivory vaccine points.....	20 per cent.	Free.
Wood for fuel, when imported into Manitoba and the North-west Territory.....	—	Free.
Fillets of cotton and rubber, not exceeding 7 inches wide, when imported by, and for the use of manufacturers of card clothing.....	—	Free.
Rubber, hard crude, in sheets, plain or moulded.....	—	Free.
Steel, in ingots, bars, sheets and coils, railway bars or rails and fish plates, shall be free of duty, until the close of the session of Parliament next ensuing the passing of this Act, unless sooner repealed. (This clause extends the time from the former date of Jan. 1st, 1882.).....	—	Free.

The following are changes in rates of duty.

- Brass in strips for printers' rules, not finished, now 30 per cent., to be 15 per cent. *ad valorem*.
- Leather—Cordova leather, tanned from horse hide, and manufactures of, now twenty per cent. to be twenty-five per cent. *ad valorem*.

Silvered plate glass, now twenty-five per cent., to be thirty per cent. *ad valorem*.

Posters and advertising pictures or pictorial show-cards or bills, illustrated advertising periodicals and tailors' and mantle-makers' fashion plates, now thirty per cent. *ad valorem*, to be six cents per pound, and twenty per cent. *ad valorem*.

The following are alterations in, and additions to, descriptions of the articles undermentioned:

Under the heading, 'Books,' in the fifth item, after the word "cheques" and before the word "receipts" insert the words, "envelopes and miniature newspapers," and after the word "draws" strike out the word "posters" and also the words "advertising pictures or pictorial show-cards or bills."

Under the heading "Glass and manufactures of," in the first item, after the words "carboys and demijohns," strike out the words "pressed or moulded and cut glass, and after the words "glass balls," and before the word "thirty," insert the words "and cut, pressed, or moulded table ware." (This makes cut pressed or moulded table ware thirty per cent., instead of twenty, as before).

Under the heading "India Rubber," after the words "other manufactures of," and before the words "twenty-five," insert the words "not otherwise provided for."

After the heading "iron and manufactures of," and before the first item, insert the words "wire and iron to be measured by Stubbs standard gauge."

In the item "stoves and other castings," after the word "castings," and before the words "not elsewhere specified," insert the words "and forgings." (This makes forgings not elsewhere specified 25 per cent., instead of twenty as before).

After the items concerning "Wrought iron tubing," and before the item "bed-teads and other iron furniture," insert the heading "manufactures of iron or steel, or of iron and steel combined."

Under the heading "Oil-cloth," strike out the words "for floors, table covers, window blinds, and scenery," and after the words "painted or printed;" and before the word "thirty," insert the words "flocked or coated." (This includes "flocked or coated" along with painted or printed, at 30 per cent.)

Under the heading "Proprietary medicines," after the word "medicines," strike out all words before the words "fifty per cent." and substitute the following in lieu thereof, to wit:—"All tinctures, pills, powders, troches or lozenges, syrups, cordials, bitters, anodynes, tonics, plasters, liniments, salves, ointments, pastes, drops, waters, essences, oils or medicinal preparations or compositions recommended to the public under any general name or title as specifics for any diseases or affections whatsoever affecting the human or animal bodies not otherwise provided for. All liquids.

(Formerly, patent medicines in liquid form paid 50 per cent.; all other, 25 per cent. Now, all such medicines, in whatever form, pay a uniform duty of 50 per cent.)

After the heading "Salt," and before the words in brackets, commencing with the word "except," insert the word "coarse," and after the word "duty" and before the words "in bulk," insert the words, "and all fine salt."

(The effect is, that coarse salt for the fisheries may be imported free as before, but all fine salt, for whatever purpose, will pay duty. The duty is 8c. per 100 lbs. if in bulk, or 12c. per 100 lbs. if in bags, barrels, or other packages.)

THEORY OF BOILER EXPLOSIONS.

The *Manufacturers' Gazette* of 25th March returns to the subject of boiler explosions, and, replying to the article in our issue of the 3rd March, repeats the assertion that it is possible to have water in a perfectly quiescent condition inside of a steam boiler, and capable of being superheated.

Whether or not this is possible depends upon the meaning to be attached to the word "quiescent." Laboratory experiments show that it is possible to superheat water which

is perfectly pure and in an absolutely quiescent condition—complete, perfect purity; stillness, without any motion, have been proved to be essential conditions. Can these conditions be found in any steamboat boiler? Do the rivers of America flow with water "perfectly pure"? Do the steamboats glide so smoothly that the water in their boilers is absolutely still? If not, then the essential conditions are not fulfilled, and the *Gazette's* illustration of the steamboat boiler exploding is not to the point.

The writer goes on to argue that because the water level in a boiler, as shown by the test cocks, is higher when the engine is drawing steam than it is when the engine is standing, therefore ebullition has ceased and the water is being superheated.

If the phenomenon of higher water in the boiler with the engine in motion can be accounted for in some other way consistent with fact and observation, and not contradictory to any natural laws, then the *Gazette* writer has no right to claim it as supporting his theory.

When an engine takes steam from a boiler in the usual way, by means of a pipe connected to a single opening in the shell of the boiler, the rush of steam to that opening is so great that the water, disturbed and broken on the surface by ebullition, is lifted and has the appearance of being higher than it was when there was no current of steam flowing out of the boiler.

The mere fact of an apparent difference of level, as shown by the test cocks, is no proof that ebullition has entirely ceased, and that the water is being superheated. The *Gazette* further quotes from the *Chicago Industrial World*, and in doing so appears not to distinguish between two theories of boiler explosion, which, from looseness of language, are frequently held to be the same, but yet are very different.

The one is that advocated by the writer in the *Gazette*, viz: that water becomes superheated in the boiler, and when the engine is started the momentary change of pressure on the surface releases the stored-up heat, and the boiler explodes from a sudden increase of steam.

The other was first suggested by the well known English engineer, D. K. Clark, and, while it gives as complete an explanation of explosions occurring just as an engine is started, and also explains the experimental explosions referred to by the *Gazette*, does not require a belief in anything contrary to the observations of careful scientific experimentalists. Mr. Clark's own words, written to the editors of the *Mechanics' Magazine* twenty-two years ago, were:—"I beg leave to suggest that the sudden dispersion and projection of the water in the boiler against the bounding surfaces of the boiler is the great cause of the violence of the results, the dispersion being caused by the momentary generation of steam throughout the mass of water, and its efforts to escape. It carries the water before it, and the combined momentum of the water and the steam carries them like shot through and amongst the bounding surfaces, and deforms and shatters them in a manner not to be accounted for by simple over-pressure, or by simple momentum of steam."

This theory has been approved by many engineers, competent to observe and to judge, and, while not satisfactory as an explanation of all boiler explosions, seems to fully account for those occurring immediately subsequent to a sudden release of pressure in a boiler.

EXPORT DUTIES.

From the *London Free Press* we learn that at a large meeting of those interested in the coopeage trade of Western Ontario, held at Chatham lately, it was resolved to request the Dominion Government to place an export duty on elm, ash, basswood and red oak timber. These materials are extensively used in the manufacture of barrel staves, hoops, headings and linings. It was shown, according to estimates made, that there exists in the forests of Western Ontario about 2,721,950,000 feet board measure of these woods, worth in the raw state, ready for export, about \$8,000,000. Made into coopeage stuff, however, it is worth fully \$40,000,000 more, in way of labor and profit on capital invested. It is stated that the American manufacturers draw fully two-thirds of their raw material from Canada. But in order to prevent the Canadian manufacturers from competing with them, the duties on partly manufactured as well as on finished coopeage have been increased by the United States treasury from ten to twenty and thirty per cent., and further, the import value has been fixed at an advance of fifty per cent. over that of 1880.

The proposal of an export duty as a means of stopping the building up of American manufacturing interests at the sacrifice of our own is of course warmly attacked by the *Globe*, on the ground that it would be an injustice to the farmers. In reply it has to be said that with regard to the export of valuable Canadian raw material, which cannot be replaced, the free trade policy is emphatically penny wise and pound foolish. First, it is the policy of recklessly spending and using up to-day certain material sources of wealth, which if carefully husbanded, instead, would prove of immense benefit in the future—in brief, the sacrifice of the country's future interests to the reckless improvidence of to-day. Such a policy of improvidence would be most unwise, even did all the present benefit accrue to ourselves. But, in the second place, this valuable raw material of ours is sold to foreigners for a mere song, comparatively; we give away for one dollar what would be worth five dollars or more if manufactured at home, and out of our folly foreigners extract work, and wages, and large profits for themselves. Our supplies of barrel and furniture timber will run out soon enough without allowing foreigners to hurry up the process. There is a material difference between exporting the products of the field and the forest respectively. Under a proper system of agriculture, a farmer may sell a great deal in money's worth off a hundred acres every year, and still keep up the condition of the land, nay, even improve it. As yet this is not actually done in Canada, except by a comparative few, but we know that it can be done, and that there is actually present as well as future profit in the doing of it. Far otherwise is it with the produce of the forest, that we make no attempt whatever to renew as the forest is stripped. Whatever different views may be held as to the future supply of pine, there can be but one opinion as to the limited supply remaining of other valuable woods, both hard and soft. These woods, limited as our supply of them is, are disappearing very rapidly, and they will "peter out" quite soon enough without foreigners helping on the destructive process. In view of what is going on, we can call it nothing short of the very madness of folly to allow foreigners to drain away our limited supplies of valuable raw material; the want of which for ourselves we

must feel before long. We hold that the principle which has been adopted as the foundation of Canada's National Policy of protecting home manufactures, requires also the imposition of export duties on raw material in such cases as those of iron ore, hemlock bark and bark extract, and furniture and cooperage timber. And this N. P. of ours will be only partial and incomplete until we become enlightened enough to provide for the latter as well as for the former.

TRANSMISSION OF POWER BY BELTING.

III.

In transmitting the power of a steam-engine by means of belting, the main driving belt should be stronger and broader, in proportion to the amount of power, than is necessary for the smaller belts which drive the different machines.

One reason for this is, that as the engine belt is the most important one in the factory, and all the others derive their motive force from it, any slip or inequality in the motion of it affects the whole machinery. It is therefore bad policy to scrimp the main belt.

Another important point to be taken into consideration is that with a single engine the average H. P. is largely exceeded at certain parts of the stroke, and the belt should be calculated to be strong enough for at least $1\frac{1}{6}$ times the average H.P. For example, for an engine giving off an average of 40 H. P. the main driving belt should be calculated strong enough for 64 H. P. When two engines are coupled together on the same crank shaft with cranks at right angles, the variation is not so great, but the greatest power should be reckoned at least $1\frac{1}{6}$ more than the average, and the belt made strong enough for that amount.

A large woollen mill near Brussels, in Belgium, is driven by a Corliss engine giving off 650 H.P.; the driving pulley is 28 feet in diameter and 81 inches wide, the belt is a double one and is 75 inches broad.

The belt moves at about 4,400 feet per minute, and reckoning $1\frac{1}{6}$ more than 650, viz: 715 H. P. as the greatest power, the strain in the belt caused by the power passing through, is equal to about 72lb per inch.

A horizontal Corliss engine with cylinder 30 inches diameter and 5 feet stroke, making 52 revolutions per minute, and giving off 457 h. p. is fitted with three main driving belts, all double, one of 17 inches, one of $21\frac{1}{2}$ inches, and one of $26\frac{1}{2}$ inches. The belts move with a velocity of 3920 feet per minute, and the average strain per inch of width due to the average power is about 60 pounds, but as it is a single engine, this at times may be as high as 96 pounds.

In this latter example the driving pulley is 24 feet diameter, and the driven pulleys are 6 feet and 8 feet in diameter.

One of the cotton mills in Canada has an engine with cylinder 30 in. diam. and 5 feet stroke, the driving pulley is 25 feet diam. and makes 55 revolutions per minute, the belt is a double one and is about 40 inches wide, and the engine gives off about 400 H.P. The strain on this belt, from the average power, would be 75 pounds per inch of width, but as it is a single engine this may at times be increased to about 120 pounds.

It must be borne in mind, however, that the total strain on the belt cannot be thus determined, but only the difference between the tensions on the tight and slack side of the belt, as that is all that is available for driving purposes.

It will not be far from the truth in most cases to assume that the tension on the slack side is equal to the amount required for driving, then the tension on the tight side will be double that amount.

Applying this to the examples given, the 75 inch belt is successfully working under a strain of 144lbs per inch width. In the second example the belts are working under a strain of 120 to 192lbs per inch of width; and in the last one, from 150 to 240lbs per inch of width.

The actual strength of the belt depends upon the thickness and quality of the leather, but the weakest part is at the lacing, and 240 pounds per inch of width is about the heaviest strain that should be put upon a double belt, and to work successfully under that load it would require to be well made and of good material.

(To be continued.)

FUEL FOR IRON-MAKING.

There are four kinds of fuel used in making iron from the ore, bituminous coal, coke, anthracite coal, and wood charcoal. We may say that there are now five, the fifth being petroleum, the use of which by what is called the Duryea process, has already begun in the States, and will shortly be tried in Canada, by a Montreal company. As coke is itself made from bituminous coal, we may put these two together, thus reducing the number to four. Regarding the use of anthracite coal, bituminous coal, and charcoal respectively, in iron-making, some interesting information is to be found in the valuable report of pig-iron production in the United States, the figures of which we printed in our last issue. This report is prepared by Mr. James Swank, Secretary of the American Iron and Steel Association, and is published in the *Bulletin*. It is of much practical interest here, as well as in the States, especially to those amongst ourselves who contemplate iron-making in Canada as an investment. To one part of the report we would invite particular attention at present, that, namely, which shows the quantities of iron produced during each one of three consecutive years, from each of the three kinds of fuel respectively. The following are the figures, the tons being net tons of 2,000 lbs:—

	1879	1880	1881
Anthracite.....	1,273,024	1,807,651	1,734,462
Bituminous.....	1,438,978	1,950,205	2,268,264
Charcoal.....	358,873	537,558	638,838
Totals.....	3,070,875	4,295,414	4,641,564

In two years, between 1879 and 1881, the per centage of increase in production of iron from each kind of fuel was as under:—

Anthracite.....	36.25
Bituminous.....	57.63
Charcoal.....	78.00

What we would particularly draw attention to is the large increase in the use of bituminous coal and coke—57.63 per cent.; and the still larger increase of 78.00 in the use of charcoal; compared with the smaller increase of 36.25 per cent. in the use of anthracite. In natural facilities for making iron,

with charcoal for fuel, Canada is positively unrivalled in the wide world. There are extensive districts where the ore lies below the surface, with the material for making charcoal on the spot or very near to it; and both in quantities practically inexhaustible. Anthracite coal we have none, on this side the Rocky Mountains, at all events, but of bituminous coal we have enough and to spare. Whether Nova Scotia coal and western ores can be profitably brought together remains to be seen; but it may be that improved railway and shipping facilities will before long help us greatly towards a solution of the problem. As for the problem of making charcoal-iron in Canada, that nature has solved for us already, and nothing hinders but our own slowness in taking the steps necessary for using the treasures which nature has bestowed upon us. The rapidly increasing use of charcoal iron, for machinery and structural purposes, and for railway purposes generally, is a feature of the subject possessing a strong practical interest. In connection with the expected early development of iron production, as an important step forward in Canadian progress, the figures above quoted are worthy of attention.

ELECTRIC LIGHT LEGISLATION.

On Monday week the bill incorporating the Edison Electric Light Company of Canada was read a third time and passed in the House of Commons. There was quite a lively and lengthy debate on the occasion, and, strange to tell, it was not so much the scientific and practical merits of the scheme itself, as the political aspect of the bill for allowing it to go on, that formed the subject of discussion. Mr. Mills objected that the granting of charters such as this one belonged to the Provincial Legislatures, and not to the Dominion Parliament, and Mr. Blake sustained the objection. Sir John Macdonald and other speakers showed that many other bills bearing the same relation as this one to Dominion and Provincial powers respectively had already been passed at Ottawa. Mr. Blake expressed his belief that scores of acts in excess of its powers had been passed by the Dominion Parliament, still contending, however, that such errors in legislation should not be made precedents. The question as to the limits of Dominion and Provincial powers respectively, in its political aspect, is not one for discussion in these pages: but we may be permitted to remark that, as the solution of the electric light problem is intimately connected with and is in fact mainly dependent upon the use of numerous patents for inventions, legislation concerning which is a matter belonging to the Dominion, the chartering of electric light companies should be a Dominion affair too. This view of the matter we hold to be at once simple and incontrovertible, and we feel sure that this conclusion must be reached by any reasonable man, who will trouble himself about it so far as to look down to the bottom facts which have to be dealt with.

What discussion there was on the merits of the present scheme had to do chiefly with the enforcement of proper precautions against danger to life and property. It has to be borne in mind that, while the electric current on a telegraph wire is so weak that it does not harm small birds, the current on a wire conveying a lighting power equal to that of several thousand candles is strong enough to kill a man as lightning

does. It is also capable, under certain circumstances, of instantly developing intense heat at this or the other point; and precautions of the most efficient kind for preventing such accidents must be taken. Of course Parliament has power to compel such precautions to be taken; and they appear to be embraced in the bill now passed, as far as our present knowledge of the new invention and its working extends. Should experience and discovery yet to come dictate still further precautions, they will doubtless be made compulsory at the earliest possible opportunity. *Salus populi lex suprema*—the safety of the people is above the law; and we doubt not that the Dominion Government, without waiting for the action of Parliament, could any day by Order in Council enforce the instant observance of fresh precautions, were those in the bill to be found insufficient. This, however, should not lead to slackness in the matter of making the present bill as perfect as possible in this respect ere its final passage. And it may still be desirable, therefore, that when it comes before the Senate the provisions against danger to life and property should be carefully considered over again. According to present indications, the importance of the electric light discovery, as one of our most valuable modern improvements, can hardly be over-estimated. The consideration that it is now almost certain to come into use on a large scale and for most important purposes, is in fact a main reason why such precautions as those referred to are the more necessary. Were it likely to turn out a mere scientific curiosity, without practical value to the world of work and business, all this would deserve the less attention. But the probabilities now look very much the other way; we may expect that not only the electric light, but also the conveyance of mechanical power in the form of electricity to considerable distances, will ere long go upon the historical record as real, practical discoveries, of immense use and benefit to mankind. And the probable, or now rather the certain practical importance of these discoveries may properly be taken as a measure of the public interest in all measures for bringing either or both of them into extensive and every-day use amongst us.

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

100 GREY HUN STRE 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 LINE,

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 THE—

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

—AT THE—

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.

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THE
Canadian Manufacturer
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FREDERIC NICHOLLS,

Managing Editor

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St. John, N.B.	Mr. J. S. Knowles.
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Editorial Notes.

The City Commissioner is now inspecting the factories in Toronto, in order to see what sanitary arrangements are provided for the employees. This is of course quite within municipal powers to do; and between the Dominion Government and the municipalities something is likely to be done in the matter before long.

The Halifax *Chronicle* says that the steamship *Tancarville*, of the new Brazilian line, having been detained for repairs, was announced to sail on Thursday, the 23rd inst., on arrival of the western mails. In consequence, the sailing of the *Comte d'Eu*, Captain Laperdrix, will be postponed until Saturday, the 15th April. A third steamer, with passenger accommodation, will leave Rio de Janeiro in April, for Halifax and Montreal.

It may be asked upon what ground can we, who have established protection in Canada, complain of Spain's discrimination against foreign vessels visiting Porto Rico. The answer is, that the productions of that tropical island are so unlike those of this northern country that there is really no competition between the two; they are natural customers to each other. But it is competition in the carrying trade that is in question, it appears. In such a case the fair thing would be reciprocity as to shipping laws, the same on both sides.

A bill to make the New York State canals free has passed the House at Albany, and it is expected will pass the State Senate too by a considerable majority. After that it has still to be ratified by the direct vote of the people, at the next State election; and it will in all probability be carried, if Vanderbilt be not powerful enough to prevent. The policy of free canals in the State has been defeated several times already, or nipped in the bud, by the Vanderbilt influence at Albany; but this time, it is thought, the railway king will not be able wholly to control the action of a legislature representing more than five millions of people.

Canada's experience of bankrupt law has been so unsatisfactory that any member proposing in the House of Commons to revive the thing again might almost expect to be mobbed. Our American neighbours, however, after some years doing without any national bankrupt law, only those made by particular states and confined to their respective limits being in force, are now reconsidering the subject, and the Senate Judiciary Committee has reported a measure which it is said puts the matter largely in the hands of the United States Courts. The compensation of officials as far as possible by salaries instead of fees is a feature of the bill, and the enlargement of discretionary power with the judges is another, with ample facilities allowed for compromise between debtors and creditors, when they find it possible to agree amongst themselves.

The movement for the establishment of "The Planters' Bank of Canada," to facilitate and develop trade between Jamaica and the Dominion, is an important one, and we are glad to learn that it is likely to lead to substantial results, too. Mr. Richard Truax, from Jamaica, has been in Canada the last two months working the thing up, and has received the co-operation of business men in Toronto, Montreal, St. John, Halifax, Ottawa, and other places. The capital of the bank has been placed at \$2,500,000, and the act incorporating it is already passed by the House. This is a move in the right direction. We cannot have too much "free trade" with Jamaica and other tropical countries, whose products are so greatly different from our own. Canada and Jamaica are naturally customers to each other, and not competitors. This distinction is fundamental; it lies at the very bottom of the true theory and practice of international trade.

The *United States Economist* says that the growth of the manufacture of pig iron in the Southern iron and coal regions, within the past five years, has been much greater than casual observers can be aware of. The popular idea naturally associates the development of this industry and the increase of furnace production with the erection of new plant, in a measure an erroneous method of reasoning. In the first place, about half the modern stacks in the South went out of blast in the hard times from 1874 to 1878. These heretofore idle plants are all now not merely active, but so remodelled in many instances, and so managed, as to about double their former capacity. Several new stacks have been built in the meantime, and more are projected. The furnace prospects look fairly bright for the future, the best judges predicting an exceptionally heavy demand, when advanced spring shall make track-laying and renewing feasible, thus stimulating demand for forge iron.

The Prince Edward county enterprise of a railway back to the iron mines in Madoc and surrounding district, in connection with furnaces at the lake front, is being pushed forward. The *Kingston News* says that Mr. Ritchie, an American, who is largely interested in the steel rail business, has made a proposal on behalf of Pittsburg and Cleveland capitalists to erect a steel rail mill at Weller's Bay, which can be supplied with ore from these mines, of a kind exactly suited for making Bessemer steel, the supply of ore being unlimited. This seems

by far the most important movement ever taken in that part of the country, and if a Bessemer steel rail mill is put up, involving as it will the expenditure of not less than a million and a half of dollars, Prince Edward county will be revolutionized in an industrial way. Three of the mines will be at once opened out, and two or three thousand tons per week taken from each, pending the completion of the road, which will be built from Trenton to the townships of Suden and Wallestown, a distance of about eighty miles.

A despatch dated New York, March 24th, says that the Quebec Steamship Company has been obliged to withdraw their line of steamers between Porto Rico and this port. Outerbridge & Co., the New York agents of the line, say that the Spanish Government discriminates so strongly in favor of vessels sailing under its own flag that foreign vessels are unable to compete with them. No duties are charged on goods imported there by Spanish vessels, while there is a high tariff on articles landed from English and other foreign vessels. This unjust discrimination is only of recent date, and should the present tariff laws in force at Porto Rico be annulled the Quebec Company will again resume their trade between that island and New York. They have been sending steamers on this route about once a fortnight for the past three years. To all which we will add that, if Spain persists in this hostile policy, there will be the more need that we should do our best to extend Canadian trade with the British West Indies, Brazil, and other countries where we will be welcomed instead of being repulsed.

We are glad to learn that the enterprising citizens of Belleville are likely to succeed after all in their efforts to get large iron and steel works established in their town. On Wednesday, March 22, an important conference was held between Mr. E. L. Blanchard, representing the New York and Ontario Furnace Company and a citizens' committee, with reference to the establishment of a smelting furnace, iron rolling mill and steel works. The Company's offer provides for the erection and operation of blast furnaces, rolling mills, steel works, &c., at a total cost of \$1,500,000, the furnaces to be completed within 15 months, and the whole within three years. The Company to receive 15 acres of land for a site, exemption from taxation for ten years, and \$100,000 city debentures, and in return to grant the city \$100,000 of first mortgage bonds as security, the debentures to be paid when \$400,000 have been expended by the Company, that is, for every \$4 expended by the Company the city is to contribute \$1 in debentures. The capital of the Company is to be \$1,200,000, in shares of \$100 each. The general tenor of the proposition was approved of, and a sub-committee was appointed to draft and settle details, and incorporate the same in a by-law for carrying out the agreement.

Notwithstanding the wonderful progress of railways the civilized world over, it may be too soon yet to conclude that canals are "played out." The success of the Suez Canal is one of the great commercial events of our time: it has in fact revolutionized the trade between Europe and the East, and it is now very generally believed that there is something in the Panama Canal project after all; and that a short cut

between the two great oceans will have been completed ere many years have passed. While not neglecting railways, France has determined upon the expenditure of a vast sum in the construction of canals throughout the country, for the promotion of cheap transportation between all sections. And French engineers are looking all the way to the Isthmus of Malacca for the next great inter-oceanic canal. It will be seen by looking at the map that the Malay Peninsula juts far down to the south, dividing the Indian and Pacific oceans, forming a commercial barrier for ships between the Bay of Bengal and the China Sea, and lengthening their voyage by four or five days. Three routes have been examined for the proposed canal. The first connects the rivers Pakchau and Tseompeon, a distance of about thirty miles; the second is from Chai-Ta to Ponga; the third from Talung to Traug. The length of the last two is about equal, but as yet not much is known of their geological conditions, or the facilities they offer for the undertaking. The *United States Economist* says that the annual tonnage of the English and French merchant marine which has to make the detour of Malacca is 464,000 tons, that of the United States 173,000 tons, and, if we take into consideration vessels of other countries, the total will not fall far short of one million tons. An example of the benefit to be derived from the canal will be found if we take the Peninsular and Oriental steamships and the Messageries Maritimes. They make 104 trips a year, and it is estimated that the saving to them in coal would be \$180,000. The saving in assurance, in freight, in seamen's wages and the lessening of risk would also amount to a large sum.

X ELECTRICITY NEEDING TO BE TAUGHT.

The recent advances in the application of electricity to daily life have created a clear demand for an institution where electrical engineers can be properly taught the theory and practice of this profession. At present there is no such training school worthy of the name; and so long as the electric telegraph was the only field for electrical engineers there was little need of one, for electricians were a very small body, and such as were required to go abroad on cable-laying expeditions, or to the foreign stations of submarine telegraph companies, could all be drafted without much trouble from the physical laboratories of our universities and the testing-rooms of our cable manufacturers. The natural philosophy class of Sir William Thompson, the distinguished Glasgow electrician, has supplied many young men to the electrical ranks in this way, and some of his pupils are not the least eminent in their profession. Indeed, they are among the most promising of the younger electricians, for the inspiration of their old master's example has abided with them. Times have changed now, however, and the introduction of the telephone, the electric light, and the transmission of motive power by electricity, not to mention a thousand miscellaneous adaptations of the current, has rendered it necessary to have an efficient training college for electricians. The interests of the electric light have already suffered by the incompetency of the persons to whom it has been intrusted, and serious accidents to life and property have resulted from the ignorance of those in charge. Electricity, above all other physical forces, is a thing which ought not to be dealt with by the unskilled, for it is instantaneous and powerful in its effects. The proposition of Lieut.-Col. Webster, Royal Engineers, President of the Society of Telegraph Engineers, to the effect that the society should take steps to found a college for the teaching of electrical science, is one to be welcomed, and we trust it will be realized ere long. — *London Globe*.

Manufacturing Notes.

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

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

The Dominion Bolt Co's works at Toronto are running day and night.

The North Shore Railway workshops at Quebec are being supplied with the electric light.

Brantford has passed the \$5,000 bonus by-law, in the interests of the Wiley-Slater wincy mill.

Mr. R. T. Wilson, of Dundas, intends building extensive additions to his Axe Factory during the coming summer.

The manager of the Kingston knitting mill has returned from the States where he purchased machinery for a four-set mill.

Messrs. McKechnie & Bertram, of Dundas, have received a large order for machinery for the South-eastern Railway Company.

A. J. Somerville received a permit the other day to erect a \$1,400 addition to his factory on Richmond-street, Toronto.

Work has been commenced on the foundation for Messrs. Leadley & Barber's new woollen factory on the south side of Front-street, Toronto.

The final call on the shareholders of the Kingston Cotton Company has just been made. The full amount of \$200,000 has nearly all been paid in.

Mr. C. B. Snow, Manager of the Ontario cotton mills, Hamilton, has gone to Lowell, Mass., to purchase additional machinery for the new mills.

The large storehouse south of the G. T. station at Oshawa is being connected with a knitting factory and will be ready in about a month. Fifty hands will be employed.

Work is about being resumed in Messrs. Taylor Bros' new paper mill at Todmorden, adjacent to Toronto. The capacity of the factory has been doubled since the fire last summer.

Nearly \$100,000 has been subscribed by gentlemen in and around New Glasgow, N. S., for the manufacture of steel, the works to be at Smelt Brook. The subscribed capital for this enterprise is \$150,000.

Smale & Hazleton, St. Thomas, are manufacturing two thousand iron harrows at their forge works on Flora-street. They have recently shipped a car load of harrows to Manitoba, and also a consignment to Dakota.

The Gurney Manufacturing Company of Dundas have received an order for some agricultural machines from 150 Mile House, Cariboo, B. C., and will likely find a market in that region for a large number more during the season.

The Aurora Agricultural Works have lately increased their capacity for turning out implements. Besides building a new blacksmith shop and enlarging their plow shop, they have placed in their works a new engine and boiler.

New life is to be put into an agricultural and machine shop in Bowmanville, Mr. Sylvester, of Cobourg, having purchased the plant and buildings belonging to Mr. McClung. This industry, it is hoped, will meet a want long felt there.

The Cameron Lake Foundry is in full blast—so busy, in fact, that orders are coming in a good deal faster than they can be executed, and more men will be set to work as soon as they can be obtained.—*Peterborough Review*.

The manufacture of railway cars is one of the most flourishing industries under the N. P. The Kingston Car Works Company has received an offer from a Canadian railway to take all the cars they can turn out during the next two years.

Chas. H. Eaton, Esq., has recently sold a piece of property to Mr. Brown, of the Cotton Mill, for \$1,400. Last year he offered to dispose of it for \$700. Truly, there is a boom in real estate in Milltown.—*St. Stephen (N.B.) Courier*.

The Franco-American Mining & Manufacturing Co. are applying for an act of incorporation. The capital stock is \$500,000, and the purpose for which incorporation is sought is to buy, lease, work and sell mining properties of all kinds, etc.

Business is booming with the Virginia Tobacco Co. of Toronto. Last week they added twenty hands to their pay roll, and are now running to their full capacity. They have fifty-six hogsheads of raw material at the depot and a hundred more on the way.

Mr. Geo. Wilkinson, Aurora Plow Works, has built four additional buildings, and is now turning out 40 plows per day. He has received an order from the Canada Pacific Railway for 2,500 prairie plows, besides a large number of solid steel body wheel scrapers.

Our Beet Sugar Factory has about closed operations for this season. We are to have another factory this summer, Messrs. Trenholme & Nunns having bought the mill property from Mr. J. J. Parker, and intend converting it into a Tweed Mill. Success to them.—*Coaticook Examiner*.

A convention of the foundrymen of the Maritime Provinces was held at Amherst, Thursday, and proceeded with the formation of an association. Mr. Joshua Peters, manager of the Record Foundry and Machine Company, was a delegate from Moncton.—Another meeting will be held shortly.

A number of residents of New Glasgow, N. S. are promoting the establishment of works for the manufacture of steel, to be located on the outskirts of the town. It is understood the subscribed capital will be one hundred and fifty thousand dollars, more than half of which has already been taken up.

We learn that there is a probability that large smelting works for silver lead ore, will be put up in this or some neighbouring town, to smelt silver-bearing lead ores from Lake Superior and other mines. The promoters are now negotiating for a site for the works and other facilities.—*Peterborough Review*.

The Cossitt Agricultural Works, Brockville, are making active preparations to supply the demand for the coming season. They build this year 1,500 mowers, 3,000 horse rakes, and 600 reapers. They build a mower requiring but one horse to draw it, which meets with much favor in the Lower Provinces.

The Dominion Organ and Piano Company, Bowmanville, are building an addition of 58 feet frontage to their already extensive buildings, which will necessitate the employment of 40 additional hands. They are already behind with their orders, their instruments finding a ready sale in every part of the Dominion, England, and Australia.

A company has been organized with a capital of \$2,000,000 to establish large grain elevators and wharves at Longueuil. The provisional directors are Messrs. Genereaux, Beaudry, Wm. Farquhar, Wm. Norris, J. D. Lormer, D. Z. Bessette, B. Globensky and A. J. Roberge. An application has been made to the Local Legislature for an act of incorporation.

Mr. Hudon's new opposition cotton mill in Hochelaga is, it is said, to be one of the largest in the country. A large wholesale firm has embarked heavily in the concern, and it is intended to have it in working order not later than September next. The building will be 200 feet long, 78 feet wide and five stories high. The capital of the company is \$400,000.

The Belleville axe-factory has resumed operations. Mr. J. W. Champion has bought the factory, together with all the stock on the premises, and will henceforth manage the business. He has secured the services of a competent foreman—Mr. A. Rawley, formerly a workman in the factory, but lately employed as foreman in a factory in Little Falls, N. Y.

The Moncton refinery people appear to be doing all they can to promote trade with Southern latitudes. They have already taken advantage of the new Brazilian line and have made a large importation by the *Tancarville*, which reached Halifax Sunday night. Before many years Moncton will be as well known for its trade with foreign countries as it now is for its manufacturing enterprise.

We understand that a number of wealthy Montreal merchants are preparing to erect a cotton factory in this city at once if the city will give them \$25,000 of a bonus, and we suppose exemption from taxation for a number of years. The factory to have 20 to 30,000 spindles, and to employ 400 or more hands. A petition is being circulated for signature and is being generally signed by owners of real estate.—*Coaticook Examiner*.

This year Messrs. J. W. Mann & Co., Brockville, are building 2,000 machines, composing broad-cast seeders, seeding attachment to horse rakes, and drills. In addition to these they are building 100 plaster sowers and 300 electric-spring agitating harrows. Their goods are finding their way into all parts of the Dominion. Owing to the demand for these machines in the United States, they last year started a factory in Ogdensburg.

From a report laid on the table of the House of Commons on Tuesday it appears that in six of the Dundas factories, namely, Grinrod & Co.'s, McKechnie & Bertram's, John McKay's, the Cotton Mills, Lennard & Sons', and the Screw Factory, the number of hands were 903 in 1881 as compared with 575 in 1879, an increase of 328 hands. A comparison between 1879 and 1882 would show a much larger increase—almost, if not quite, double.—*Standard*.

A gentleman interested in iron mining was here this week looking for a suitable site on which to erect iron smelting works. He expressed himself satisfied with the site of the late Meat Co. He contemplates the manufacture of steel rails by a French process, and said they would employ some 200 hands. A charter has been applied for, and we hear several Sherbrooke gentlemen are named therein as provisional directors of the company.—*Sherbrooke Gazette*.

At a meeting of the Port Hope millers on Wednesday afternoon, 22nd inst., the matter of mixing arneta or goose wheat with other grades was under consideration. The street buyers were instructed not to pay more than arneta prices for any wheat containing a mixture of arneta, as a discount of one dollar per bbl. was made on flour from such wheat, in wholesale markets. This suggestion of the millers will be readily appreciated by the public. So says the *Port Hope Times*.

Messrs. H. R. Ives & Co., Montreal, have recently purchased the foundry property lately belonging to Jodoin & Co., Longueuil. It is the firm's intention to remove the stove and general hardware manufacturing branch of the business to that place, and continue the general foundry and barb wire branch at the old establishment. The shipping facilities at Longueuil are excellent. The St. Lawrence runs past the doors, and the South-eastern and Montreal and Sorel Railroads connect with all the Trunk roads.

The Montreal Cotton Company are about to construct an extensive addition to their mills at Valleyfield. The contracts for the buildings and machinery will be given out this week. Work on the buildings will immediately be proceeded with. They comprise a main building 252 x 100 feet and five stories high, containing about 35,000 spindles, and a wing 130 x 80 feet, three stories high, for a picker house. The new mill will involve an outlay of about \$300,000, and the Company expect to have it running in November next.

The old warehouse at the station is at last going to be turned to some account. A company has been organized for the purpose of manufacturing socks, stockings, etc., and about twelve machines will be put in at once. As the business advances there will be about 150 girls employed in the different branches of the business. Mr. H. Gibbs is manager of the company, and we wish it all prosperity. The building is suited to this kind of work, and it being so near to the station will help it very much.—*Oshawa Vindicator*.

When in Montreal recently, we were shown samples of the Dominion window blind, and window fastener. These goods are manufactured by the inventor, Mr. D. Campbell, of Montebello, Que., and appear to be most admirably adapted to the purpose for which they are to be used. One large blind was of specially ingenious construction, folding itself in loops whilst being drawn up. We understand Mr. Campbell is selling large quantities, and although this is at present a comparatively small industry, it is likely to develop into a much larger one.

The *Moncton Times* says that a large part of the freight traffic of the Intercolonial Railway lately has consisted of sugar and coal freights. Large shipments of coal continue to go forward to points North, among Saturday night's arrivals at Moncton being 60 tons of steam coal from the Vale Colliery in Pictou, for R. S. Adams & Co., Montreal.—Raw sugar is moving forward from Halifax to St. John. About two train loads for the Canada refinery, Montreal, and several cars for the Moncton refinery, were at this station yesterday. This increased freight business means increase of home manufactures as well.

It is understood Mr. S. C. Wilbur, late of Moncton, is in St. John, and is meeting with success in his efforts to form a company for the manufacture and sale of knitting machines and the operation of knitting factories in connection therewith. It is believed a factory for making knitted goods will be located in Moncton when a sufficient number of the machines has been manufactured. It is also expected there will be a demand for the machines by farmers throughout the country, and that they will in future come into general use, being quite as necessary as the sewing machine. It is to be hoped the St. John enterprise will succeed.

A large gang of men have been at work during the past week excavating for the foundations of the new cotton factory at Hochelaga. The site is just opposite the C. P. R. station, and for manufacturing purposes one of the best in the vicinity of Montreal. The collective name of the Company will be "La Compagnie de Filature Sainte-Anne, Hochelaga." The capital will be three hundred thousand dollars, divided into three thousand shares. The following gentlemen will constitute the first board of directors, viz.: Messrs. Victor Hudon, trader; David F. Beattie, trader; Louis Joseph Forget, *courtier*; Hubert Prevost and Felix Boismenu.

We learn that a company of capitalists in Montreal have signified their readiness to enter into bonds with the city to erect a cotton factory with facilities for running 20,000 spindles, and at a cost of from two hundred thousand to two hundred and fifty thousand dollars, provided the city will exempt them from taxation for twenty years and provide the necessary site. The site desirable to obtain is the property now occupied by the mills of the Canada Paper Company, extending as far as the track of the Grand Trunk Railway, and the price asked by the B. A. L. Co. is \$25,000. A petition is now being circulated requesting the Council to pass a by-law granting the sum of \$20,000 for a factory of 20,000 spindles, or \$25,000 for a factory of 30,000 spindles, as well as exemption from taxation for the necessary period.—*Gazette, Sherbrooke*.

A *Post* representative lately met one of the gentlemen who has purchased land on the river side near the Longueuil Ferry, and was informed that he had bought three lots of land having a frontage of 32 feet each by almost 180 for prices varying from 68 to 78 cents a square foot, this being almost exactly the price obtained seven or eight years ago at the time of the great real estate boom. When asked what was his purpose in buying this property the gentleman assumed a guarded style of expression, notwithstanding which it became evident that the gentleman had been purchasing for some other person. The various schemes lately spoken of in connection with that property were referred to in this conversation, the elevator scheme, the Pacific syndicate freight yard, the Hudson Cotton factory, and others of a like nature. From the remarks made it would appear that the property is purchased for a cotton factory. In any event the purchasing cannot be but of advantage to the city, as it renders available property which for some years has been idle.—*Montreal Post*.

A very large meeting was held in the Exchange rooms, yesterday morning at 11 o'clock, for the purpose of organizing the St. John Cotton Company (Limited). J. H. Parks, Esq., was called to the chair. It was reported that 1,703 shares were already sold, on 1,462 of which the first call had been paid in. Two thousand tons of stone had been purchased and the contract let for laying the same and building the foundation walls. The engine, of about 500 horse power, was also purchased, and the contracts for the other machinery would be given out next week. It is intended to push on the whole of the necessary work vigorously. The plans for the building are in active preparation in the office of Mr. J. T. C. McKean, architect to the company, and will shortly be completed, when the erection of the building will proceed without delay. A good feeling of unanimity pervaded the meeting, and full confidence was felt and expressed as to the success of the enterprise. The following Board of Directors was elected: J. H. Parks, Esq., R. P. Starr, Esq., Alexander Shives, Esq., Thos. McAvity Jr., Esq., V. S. White, Esq. Mr. Parks was subsequently chosen President and Mr. E. B. Ketchum, Secretary.—*St. John Sun*.

An extensive retail dealer in furniture, from Winnipeg, was in town yesterday, his object being the purchase of certain lines of furniture from Ald. G. S. Tickell. The result of his visit was that a car-load of furniture was purchased by him, and will be shipped to Winnipeg in a few days. The most gratifying fact about the transaction is that all the furniture to be shipped was manufactured at Ald. Tickell's factory here. Four years ago, such a sale could not be effected, because the class of goods which were purchased are manufactured in Boston in immense quantities, and the Boston manufacturers could then rush them into the Canadian market at rates much less than they could be manufactured for here; but times have changed, and now the 35 per cent. duty enables Ald. Tickell to successfully compete with the American manufacturers, and to furnish goods at as low prices as are paid for the American goods. Ald. Tickell is selling this same line of goods from Halifax to Sarnia, and now this shipment to the North-West is the foundation of a trade which is unlimited in its prospects. Ald. Tickell frankly acknowledges that this vast improvement in the condition of the furniture manufacturing business is solely owing to the N. P.—*Belleville Intelligencer*.

REMEDY FOR STIFF LATHE.—This usually occurs from dust getting in and the oil gumming. Remedy: Thoroughly clean the journals and bearings with petroleum, and then again clean out and thoroughly oil with a good lubricant, such as almond oil. If everything is all right and perfect, it should then run as well as before. A flywheel would not make it run easy in the face of gummed up bearings.

The Iron Trade.

PITTSBURGH.

VISIT OF MR. BLAINE TO PITTSBURGH—THE CONNELLSVILLE COKE DISTRICT—NINE THOUSAND COKE OVENS IN OPERATION—TRADE GENERALLY QUIET—QUOTATIONS.

(From Our Own Correspondent.)

PITTSBURGH, March 27, 1882.

The Hon. James G. Blaine, late Secretary of State, was in this city some days ago. He was the guest of Mr. Thomas M. Carnegie, of the great iron and steel firm of Carnegie Bros. & Co., who conducted him to a number of the more important metallurgical works. Before returning home he boarded a steamer, in company with several prominent citizens, and ascended the Monongahela river to Elizabeth, a distance of about 20 miles, in which vicinity he owns a body of coal land embracing a thousand acres. Mr. Blaine is a native of Pennsylvania, having been born and raised in West Brownsville, on the Monongahela, and some 60 miles above Pittsburgh; but in early life he became acquainted with a "Yankee school marm" in the State of Kentucky, whom he married and followed to her native State of Maine, and has been a citizen of that State ever since.

The coal vein on each side of the Monongahela is about seven (7) feet thick, and from Pittsburgh to Brownsville, a distance of 60 miles, there is a succession of works. Coal is also mined above the last-named town, but it is consumed in the vicinity. Most of the coal consumed in the City is mined along the various railroads centering here, while nearly all the coal mined along the river is marketed in the cities along the Ohio and Mississippi rivers. Much of it goes to New Orleans, a distance of 2,000 miles. The Monongahela is dammed for a distance of 84 miles, so that coal can be shipped out of it at all seasons except when frozen over.

The celebrated Connellsville coke is made from coal taken from what is called the "Pittsburgh seam," but the coal is different from that mined along the river, the vein being nine feet thick, and so soft that it is mined altogether with the pick. The "Connellsville coke region" lies from twelve (12) to twenty (20) miles east of the river and at the foot of "Chestnut Ridge," a ridge of the Alleghany Mountains. There are now 9,000 ovens in the district, and it is estimated that by the close of the present year the number will be increased to 10,000. Ten or twelve years ago the coke business of the region was very trifling. Within the last two years nearly the whole body of this unique coking coal has been bought up by capitalists. This celebrated coke is used all through the East, and goes west as far as Utah Territory, where it is used for smelting the precious metals. It is probable, however, that within a few years Colorado coke will prove a formidable competitor in the Far West.

As previously reported, the pig iron trade of this city has been very quiet for a long time—now for some eight or nine weeks. It is still quiet, and within the last fortnight there has been less activity in the other branches of the iron trade. About the only exception is steel, there being a lively demand for tool, machinery, agricultural and other kinds of crucible and open-hearth steel. The Bessemer rail works are busy, and there are orders enough booked to keep them busy for about four months, but new orders are scarce, and prices have declined.

Pig iron.—Trade still quiet, but no decline in prices since last report; neutral mill, from native ore, \$25 to \$25.50; cinder-mixed red-short (mill), \$26; Bessemer, \$29; No. 1 foundry, \$27.50 to \$28; No. 2 do., \$26.50 to \$27.50 (all four months). **Muck Bar** has declined still further, and is in good supply; may be quoted \$43.50 to \$44.50. **Scrap iron.**—Trade quiet and prices weak; dealers give following figures per gross ton, but it is doubtful if they could be realized; No. 1 wrought, \$35 to \$36 per gross ton. Wrought turnings, \$25 to \$24. Cast borings, \$16. Car wheels, \$31. Car axles, \$44 to \$45. Leaf springs, American, \$44; foreign, \$42 to \$43. **Old iron rails.**—No transactions have been reported for some days, but a large buyer here quotes ties \$30 to \$31, and double-heads \$33.50 per gross ton. **Manufactured iron.**—New orders scarce, but mills all busy, on orders already booked; bar, \$2.50; No. 24 sheet,

\$4.30; tank, \$3.30; C. H. No. 1 boiler plate, 5½c.; homogenous steel do., 6½c.; hoop iron, for common barrel hoops, \$3.10 to \$3.30; lighter sizes, \$3.20 to \$5.10. All 60 days or 2 per cent. off for cash. **Nails.**—Demand only fair, and prices without change; 10d. to 60d., \$3.40, 60 days or 2 per cent. off for cash, with an abatement of 10 cents per keg on lots of 250 kegs. **Pipes and tubes.**—Trade quiet, which is nothing unusual at this season of the year, and prices slightly lower; gas and steam pipe, 6½c. per cent. on small and 65 per cent. on large lots; discounts on boiler tubes, 40 to 40 and 5 per cent.; oil-well casing, 70c. net, and tubing 22c. net. **Street rails.**—Are now quoted at \$56 to \$58, f. o. b. cars at works, which is a decline. **Railway track supplies.**—Demand very slack, and splice bars and track bolts lower; spikes, 3.15c. per lb. 30 days; splice bars 2½c. per lb.; track bolts, 3½c. to 3¾c. for square nut and 4c. for hexagon, cash f. o. b. Pittsburgh. **Lead.**—Bar, 6½c., with 4 per cent. off; pipe, 6½c., 10 per cent. off; sheets, 6½c., 10 per cent. off; drop shot, 7c., 1 to 4 per cent. off; buckshot, 8c., 1 to 4 per cent. off. **White lead.**—7c. to 7½c. per pound. **Linseed oil.**—63c. per gallon by the barrel; boiled, 66c. **Connellsville coke.**—\$1.75 @ \$2.00 per ton of 2,000 pounds, f. o. b. cars at the works.

PHILADELPHIA.

IRON AND STEEL MARKET IN FAVOR OF BUYERS—HOME PRODUCTION RAPIDLY INCREASING, WITH DEMAND HOLDING OFF—CONTINGENCIES AND PROSPECTS CONSIDERED—SPECULATIVE RAILWAY PROJECTS—SHORT COAL AND OIL ROADS IN PENNSYLVANIA.

(From Our Own Correspondent.)

PHILADELPHIA, March 29, 1882.

The market leans more in favor of buyers of iron and steel, though the decline in prices has been scarcely perceptible. The general expectation is that we are on the eve of a drop all around. This belief finds acceptance at the time when the general advance was to have been expected according to the views expressed and recorded three months ago. The cause was given in your last Philadelphia letter, viz., a heavy expansion of production and productive capacity. Even at this time there are a dozen or more rolling mills springing into existence. The pig iron output is quietly increasing. There are no three-quarter million tons here this year to enable buyers to hammer down prices as was the case a year ago. For all that, prices seem on the down grade to-day. Consumers are running on low stocks. Within two or three days ordinary grades of pig have weakened 50c. per ton, and may go still lower. A sharp demand may arise any day and send prices bounding in the other direction. Three months ago it was confidently declared No. 3 foundry would reach \$30, and best Gray Forge \$26 to \$27, but here they are hugging \$26 and \$22 respectively; and buyers in no way concerned about purchasing more than enough to run along with. Very little is being done in English or Scotch iron. The handful in bond and in store is held at prices which make consumers prefer the American article. Bessemer pig is imported and can be had in small spot lots at \$25 or \$24 for summer shipment. Still lower prices are expected, and hence transactions are not large. There is no diminution in consumption, and for this reason the hope is clung to that an improved demand is not far distant.

The rolling mills East are, of course, all well provided with work. Each manufacturer is anxious to have as much business as possible when prices reach their highest limit, so that by buying pig iron on a falling market his profits will be better. But buyers are generally as far-seeing, and for this reason during the last two months they have been buying very cautiously, anticipating a decline in the price of finished iron. Last week it was not easy to get orders accepted except at 28-10c. This week business was readily accepted at 27c. The cause of the change is the increased production and the holding back of buyers, who understand the situation. There is talk that iron may drop to 26c. and ultimately to 25c., which would call for a drop to 2½c. at Pittsburgh, but this is scarcely possible, seeing that consumption is so heavy and imports practically impossible. The probability is that when prices have touched 27c. or 26c. buyers will rush in and harden prices again. Ultimately, of course, prices will be lower.

The condition of the railway demand is not particularly encouraging. Several things have happened. First and foremost, a dozen or so "paper" roads, have temporarily, perhaps permanently, collapsed. The projectors projected themselves into an inkstand, a pen, and plenty of cheek. Some of these concerns made contracts for rails and have since had to countermand their order. To what extent Bessemer companies have been imposed upon by these wild cat enterprises is not, and cannot be known. Another cause is, that Gould decreed a restriction of outlay in the southwest. Other magnates did the same. A good many orders for rail-cars and other equipments were cancelled. This, however, may be only temporary. Cars are scarce, so are locomotives. Better crops and an improving export trade, with improving dividends, may turn the tide the other way. For the present, however, there is more or less uncertainty as to rails, old and new, and everything that goes into railroad construction. Steel rails sold here this week at \$53. Current quotations are \$55 to \$58. Railroad builders are very cautious just now for several reasons. They want to know just how solid is the railroad prosperity. If there is to be much backing down there will be a further decline in prices. Bridge iron is selling at 3½c.; tank, 3c.; refined iron, 3½c. to 3¾c.; shell, 3¾c. to 4c.; flange, 4¾c. to 5c.; angles, 3c. to 3-2c.; beams, 4c.; and channels and ties, 4-2c., subject to moderate concessions. Enormous deliveries are being made east and west. Prices will not go higher for the present. The chances are that they may drop, but not very much, as the demand in waiting is strong enough to absorb the entire production.

This is the iron and steel situation. Coal is firm for two reasons first, restriction of product; second, actual and threatened strikes. The anthracite coal field will be idle six days this month in order to maintain prices above the competitive or normal level. Consumption has been heavy for industrial purposes. Coke shipments are increasing as the railroad companies provide more cars. Several new companies have been organized. Coal land is being rapidly taken up in the western part of the State. The output will be very largely increased this year, but with advancing wages and demand prices will not be much below present limits.

A number of short railroad lines are being constructed from one to fifty miles in length through this State, chiefly to develop coal and oil properties. The N. Y. and Erie road will run anthracite coal to the Lake and have ten large vessels to run it to Chicago. The projected mileage in this State of such roads is between 800 and 1,000 miles in all, but there is no assurance that they will all be built this year or next.

Business is in good condition, but not quite so active and booming as was expected by over-zealous people. Foreign iron markets are firm and active. Very little iron or steel is coming this way on new orders, but large shipments on old orders.

MONTREAL.

BUYERS HOLDING OFF—ATLANTIC FREIGHTS—VERY LITTLE PIG IRON ON HAND IN MONTREAL AT PRESENT—SALES AND QUOTATIONS.

(From Our Own Correspondent.)

MONTREAL, March 28th, 1882.

The easier feeling noticed in our last review of pig iron, as regards future delivery, has become more marked, and buyers refuse to negotiate for their spring and summer supplies at present prices, basing their action upon the expectation that freights will shortly be reduced. It is doubted, however, by many in the trade whether there will be any declension in rates for some time. We understand the first steamers of the Allan and Donaldson lines from Glasgow have all their tonnage taken at full prices. One freight engagement has been made for pig iron from Glasgow to Montreal at 17s. 6d., but we quote 16s. @ 17s. 6d., as we know of one or two instances lately in which Montreal freight has been offered in Glasgow at the inside figure. Cable advices report a decline of 6d. @ 1s. in the price of Glengarnock, Summerlee and Eglinton, and an advance of 1s. in Middlesboro' pig. On spot there is very little pig iron of any kind, and those who are fortunate enough to have it are supplying their regular customers only in small lots to tide them over until they order on their summer supplies. Sales in our lots are reported of Summerlee and Gartbarrie at \$26.00, and several lots of Siemens have

changed hands at \$25.00 @ \$26.00. In makers' iron there is no change prices remaining firm under a fair enquiry at steady prices. We have to report sales of 230 tons of Siemens' bar at \$2.35, and of 200 tons of Staffordshire bars at \$2.25. In tin plates there has been a little better demand, and sales are reported of 2,000 boxes of I.C. at \$5.50, and cokes are quoted firm at \$4.50 @ \$4.75. Ingot tin is quiet but steady at 28c. @ 29c. Ingot copper is in limited demand at 18½c. for English and 19c. for Canadian. Travellers are sending in fair lines of general hardware, especially shelf goods. We quote prices as follows:—Coltness, \$25.00 to \$26.00; Siemens', \$25.00 to \$26.00; Summerlee, \$24.50 to \$25.50; Langloan, \$24.50 to \$25.50; Eglinton, \$24.00 to \$24.50; Calder, \$24.00 to \$24.50; Carnbroe, \$24.00 to \$24.50; Hematite, \$27.50 to \$28.00. Bar, per 100 lbs.—Siemens, \$2.25 to \$2.35; Scotch and Staffordshire, \$2.25; Best Staffordshire, \$2.50; Swedes, \$4.00 to \$4.50; Norway, \$5.00; Lowmoor and Bowling \$6.25 to \$6.50. Canada Plates, per box—Glamorgan & Budd, \$3.25 to \$3.50; Penn, \$3.25 to \$3.50; Nentgwynn, \$3.25 to \$3.50; Hatton, \$3.25; Thistle & Clifton, \$3.50. Tin Plates, per box—Charcoal, I. C., \$5.50 to \$5.75; Charcoal, I. X., \$7.25 to \$7.50; Charcoal, D. C., \$5.25; Charcoal, D. X., \$7.25; Coke, I. C., \$4.50 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, 28 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, 27½c. to 29c.; Bar Tin, 30c. to 32c.; Ingot Copper, 18c. to 19c.; Zinc sheet, per 100 lbs., \$6.00 to \$6.50; Spelter, \$60.00 to \$6.00; Horse Shoes, per 100 lbs., \$4.25 to \$4.50; Proved Coil Chain, 3 in., \$5.50 to \$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:—Hot Out 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 out Canadian, \$3.20; 1½ in. ditto, \$3.70.

Window glass is firm at the advance, 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.

TRADE SLOW—WAITING THE NEW CLIP AND A POSSIBLE TURN OF THE MARKET—THE GOODS MARKET SATISFACTORY—QUOTATIONS.

(From Our Own Correspondent.)

PHILADELPHIA, March 27, 1882.

Seaboard wool markets have been somewhat irregular and unsettled during the past fortnight. The conservative policy of manufacturers has been steadily adhered to, and the slow trade has had a depressing effect upon values. Increased anxiety to realize has been manifested in some quarters, and in a good many instances concessions of 1c. and 1½c. per pound have been made to sell. The pressure has been most urgent on consigned wools which commission houses have thrown over under orders from interior owners who have become impatient of slow returns in the face of the approaching clip. This is a usual feature of the spring trade in wool. It occurred last year and in 1880, and manufacturers have been paving the way for its recurrence this season by their cautious movements since January. Last year prices steadily receded from a basis of 47c @ 48c in January to 38c @ 39c early in May for fine Ohio fleeces, and then on a late developed scarcity, suddenly reacted to 44c @ 45c on the eve of the new clip. The decline at that time was precipitated by unusually heavy stocks of both domestic and foreign, and the strong contrast in the statistical position this year has all along encouraged the hope that a bear movement would

be unsuccessful during the present season. It looks now, however, as if the experience of past seasons would be repeated, although there is reason to believe that the pressure to sell will not be sufficient to carry prices as low as last year, and that the reaction will take place earlier than it did then. Stocks are certainly lighter and better concentrated, and at the decline already noted manufacturers are beginning to operate with more freedom. The goods market is in satisfactory condition, and leading products are well sold ahead. Closing quotations are 42c @ 44c for Ohio, Pennsylvania and West Virginia fine washed fleeces, and 39c @ 41c for Michigan and Wisconsin. Canada combing sells slowly at 41c. Ohio and Pennsylvania combing and delaine rat 46c @ 46½c for fine, up to 50c @ 51c. for medium.

MONTREAL.

SALES OF IMPORTED WOOLS AT FULL QUOTATIONS—IN DOMESTIC WOOLS NO CHANGE—AN ENCOURAGING OUTLOOK FOLLOWING THE LONDON WOOL SALES.

(From Our Own Correspondent.)

MONTREAL, March 28, 1882.

A number of sample lots of fine foreign wools have been placed during the past week at full quotations, Cape having been taken at 19½c. to 20½c.; Australian at 24½c. to 25c., and several lots of Chilian at 15c.. In all about 150 bales have been sold in small parcels to manufacturers during the past few days. In domestic wools there is not the slightest change, prices being quoted as follows:—Canada pulled, A super, 33c. to 35c., B super, 30c. to 32c., and unsorted pulled at 27c. to 28c. Stocks here are by no means heavy and prices have a steady tone all round. Foreign advices remain steady, and the general outlook of trade is encouraging. The London wool sales are going off much better than the most sanguine dealers in the trade expected, even the poorer classes of wools in which a decline was looked for, are meeting with fair inquiry at good prices.

Cotton.

PHILADELPHIA.

UPS AND DOWNS IN THE MARKET—A DOWNWARD TENDENCY AT PRESENT—RECEIPTS AND QUOTATIONS.

(From Our Own Correspondent.)

PHILADELPHIA, March 27, 1882.

During the week succeeding last report the improved feeling then noted in the cotton trade was attested by a further advance of 1-16c. in spot middling uplands in Liverpool and ½c. @ ¼c. in most domestic markets, and business, as a general thing, was fairly active. Speculation in futures in New York was well sustained, and developed an advance for the week of about twenty points. This, however, has been lost during the past week, and the tone of the market at all points has been easier, with more cautious trading both in spots and futures. The bulls are making a strong fight against the downward tendency of the market, but even manipulation makes slow progress against the natural disadvantage of the position. There is less demand for export, and foreign advices are discouraging. Home spinners exhibit greater caution, and the general situation at the close is unsatisfactory. As the floods at the South are subsiding, there is less talk of injury to the next planting. Receipts at the ports have increased from 57,280 bales for the week ending March 18th, to 81,882 bales for the past week. The total port receipts to date are 4,207,305 bales against 4,970,744 bales for the same time last year. Interior receipts last week were 17,183 bales against

15,692 bales for the previous week. Stocks at interior towns are 224,835 bales against 276,176 bales last year. Nearly all markets close dull on the basis of quotations, which compare with last report as follows:

	Middlings. March 11th.	Low Middlings.	Middlings. March 25th.	Low Middlings.
New York	12 1-16	11½	12 3-16	12 7-16
New Orleans	11½	11½	12	11½
Mobile	11½	11½	11½	11½
Charleston	11½ @ 11½	11½ @ 11	11-16	12
Savannah	11½	11½	11½	11½
Galveston	11½	11½	12	11½
Wilmington	11½	11 1-16	11½	11 3-16
Norfolk	11½	—	11½	—
Augusta	11½	10½	11½	11 @ 11½
Memphis	11½	11½	11½	11½
St. Louis	11½	11½	11½	11½
Cincinnati	11½	10½	11½	11½
Baltimore	11½	11½	12½	11½
Philadelphia	12½	11½	12½	11½
Boston	12½	11½	12½	11½
Liverpool	6½d	—	6 11-16d	—

Dry Goods.

NEW YORK.

VOLUME OF TRADE RATHER BELOW THE AVERAGE FOR THE SEASON—GOOD DEMAND FROM THE WEST—EXPORTS COMPARATIVELY SMALL FOR JANUARY AND FEBRUARY, BUT INCREASING FOR MARCH—DEMAND FOR WOOLLENS FAIR—THE IMPORT TRADE.

(From Our Own Correspondent.)

NEW YORK, March 27, 1882.

Our dry goods market is not in an entirely satisfactory condition. The past fortnight has witnessed some improvement in the several departments, but this was below what is usually experienced at this season of the year, and insufficient to afford real encouragement. Transactions, while aggregating a fair amount, have generally been small in detail, owing to the exceptional caution and timidity of buyers. From the West, however, we are receiving more favorable accounts, and our large local jobbing houses are kept busy; so that the outlook is considerably better than at last advices. Cotton goods have recovered somewhat from the depression of the last few weeks, and are steadier in price. Woollens are also firm, in fact there is little weakness in any desirable textiles, notwithstanding the present sluggishness; for the present cost of production, including wages, raw material, etc., is so high as to leave but a small margin of profit to manufacturers, and to hold in check any further tendency towards a decline until these conditions have adjusted themselves. There are already signs of evident discontent among the operative classes, both at Fall River and elsewhere. The Pacific Mills affair is rather an exception to the general run of labor troubles, and the action of this immense corporation—which pays an average dividend of over 20 per cent.—has been the subject of considerable unfavorable criticism. Their case, briefly stated, is simply that the fabrics chiefly made by them (worsted goods) have gone out of fashion, compelling the corporation to go to large expense for refitting with new machinery, which the managers claim cannot be accomplished without the reduction in wages which they are now trying to enforce.

Plain cottons have been in rather better request, and prices of a few leading makes, which were lowered to reduce accumulations, are again being marked up, while supplies of such are small. The demand for export has been active, and several large orders have been placed for China and other markets. During January and February the exports from this port were comparatively small, amounting to 12,806,254 yards against 14,535,527 yards the same time last year. The figures for March,

however, will make a decided change. Colored cottons are generally steady in price, but business is confined to small parcels. In print cloths there has been considerable speculative trading, and values are firm at 3½c. for 64 x 64s. Stocks are increasing, the quantity held outside of printers being 1,127,000 pieces. Prints have been dull, with the exception of a few novelties, such as tennis suitings and polka-dot effects. For gingham the present inquiry is limited, and dress goods continue to move irregularly, owing to the backward and unfavorable condition of the weather.

Woolen goods show a moderate degree of activity. The mills are well employed on heavy clothing woollens, and considerable machinery is still running on spring fabrics for ladies' wear. The better demand, however, has been for finer grades of fancy cassimeres, suitings, worsteds, trowserings, chevots, and overcoatings. Union and cotton warp cassimeres are not moving so freely, but the best productions are well sold up, as in fact are all desirable clothing woollens. Cloakings were distributed fairly on back orders, but are otherwise quiet. Kentucky jeans and satinets continue dull and unsatisfactory, and a lessened production, for at least a portion of the future, is more than probable. White flannels are doing fairly, and dress and suiting flannels are well sold up, business in these, as before said in these letters, being in very satisfactory shape. Carpets are active and in good condition.

The movement in foreign goods is beginning to show real improvement. Importers have effected a considerable distribution of silks and specialties in dress goods, while there was a noticeably good demand for sateens. Linen goods, white goods, laces, and embroideries are in fair and strong request at former prices, and other descriptions of foreign goods are in ordinary request. Values of silks and dress goods are steady, owing to the firmness in most of the European markets. The stocks on this market, however, are heavy, and the imports, though lessening somewhat in volume, are yet liberal, and much in excess of last year.

Leather.

MONTREAL.

SALES AND DEMAND—SOME SPECULATIVE PURCHASES—ADVANCE IN GREEN CALFSKINS—QUOTATIONS.

(From Our Own Correspondent.)

MONTREAL, March 28, 1882

There is still a good inquiry for No. 1 B1. plump sole as last mentioned, which finds ready sale at 25c. to 25½c. and sometimes 26c. In slaughter sole there is also a fair demand, and sales have transpired at 28½c. to 29c. for best descriptions. The common kinds, however, are very dull, and values rule in buyer's favour. There has been some speculative trading in waxed upper since our previous review, several thousand sides having changed hands at 32c. to 34c. for heavy, and at 34c. to 36c. for light. There has also been a good volume of business doing in splits, about 25 tons having changed hands at 20c. which is a very low figure. Another lot was disposed of at 22c. In buff there have been some dealings at 14c. to 14½c. one lot selling as low as 13½c. We note an advance of fully ½c. in the price of Western hides, the sale being reported of a carload of No. 1 buff at 9½c., dealers now holding for 9½c. Native hides show no change, green butchers' selling at \$8, \$7, and \$6, per 100 lbs. for No. 1, 2, and 3, respectively, cured hides being dealt in at \$1 per 100 lbs. advance on the above quoted rates. In green calf skins there is quite a war going on between dealers. Prices have been run up from 12c. per lb. to 14c. and yesterday a prominent dealer notified the trade that he would pay 15c., which of course is now the established price. Whether his opponents will go one better or not remains to be seen. We quote prices 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), 34c. to 38c.; Scotch Grained Upper, 37c. to 40c.; Buff, 14c. to 16c.; Pebbled Cow, 12c. to 15c.; Splits, calf, per lb., 30c. to 35c.; Splits, medium, Crimping, 27c. to 30c.; Splits, Juniors, \$0.18 to \$0.25; Calfskin (light), \$0.60 to \$0.75; Calfskin (heavy) \$0.75 to \$0.85; French Calfskin, \$1.05 to \$1.35; French Kid, \$15.75 to \$16.50; English Kid, \$0.60 to \$0.70; Busses Kid, \$15.50 to \$16.50; Patent Cow, \$0.15 to \$0.16; Enamelled Cow, \$0.16 to \$0.18; Green Hides, inspected, \$9.00; Calfskins, per lb., \$0.14 to \$0.15; Sheepskins \$1.25 to \$1.40; Lambskins (spring), \$0.20 to \$0.25; 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.

COST OF ELECTRIC LIGHT MACHINERY.

A correspondent asks: "Do you know of any electric light machine that is gotten up in a small way, say for two or three lights, and cost of same?"

In reply we could say that the question is, in some respects, vague, our inquirer not stating what intensity of light he requires. We will assume that he needs arc lights, of the kind ordinarily estimated at two thousand candle-power, this power being estimated by the French method of taking the most favorable results that can be obtained without concentrating the light by means of a reflector. In most cases, the light is most intense in a direction of about 45° below the horizontal plane. A dynamo machine, to produce two or three lights, would weigh 275 pounds, and take up a floor space of two feet four inches by 13 inches. It would be driven by a three-inch single leather belt on a seven-inch pulley, speeded at 1,250 revolutions for two lights, or 1,500 revolutions for three lights, such as are above mentioned. The maximum power required would be about four-horse for two lights, and six-horse for three. With a greater number of lights and a larger machine, the power required would be brought down to about 7-10ths horse-power per light. The lamps would cost \$60 each; that is, \$120 for two lights, or \$180 for three. The cost of 300 feet of wire and insulators and making connections would be about \$75.

Incandescent lamps give a mild and pleasant light, at very great cost for power, each horse-power yielding only about five lights of 25 candle-power each, the price of the lamps being \$2.50 each to start with, and 50 cents apiece for renewing. It will be seen that as one horse-power yields only 125 candle-power with the incandescent light, the arc light is eight times as cheap in the matter of fuel consumption. Estimating each horse-power as costing for fuel five pounds of coal per hour, we find that in the case of 2,000 candle power by the arc light, the expense for fuel will be 10 pounds of coal per hour, worth, at \$5 per net ton, two and a half cents per hour. To get the same amount of light by the incandescent system there would be required 16 horse-power instead of two; and the fuel bill would be 80 pounds per hour, costing 20 cents, instead of 10 pounds costing two and a half cents.—*Metal Worker.*

THE MANUFACTURE OF ANILINE DYES.

A local paper calls the attention of American capitalists to the fact that the profuse abundance of the raw materials required for the manufacture of aniline dyes affords opportunity to introduce into the United States a new industry, which we might and should produce for ourselves. By chemical decomposition of coal tar is obtained benzola, anthracine, and naphthalene, which are the chief elementary substances in making aniline colors. It is pointed out that this branch of manufacture is yet

in its infancy, is being constantly enriched by new discoveries, and is capable of wide expansion. The indigo substitute is the last of these discoveries, the importance of which is apparent when it is stated that the vegetable dye costs at wholesale in Europe \$2.20 per pound, while this aniline substitute for it, which yields a scale of perfectly solid, permanent colors, can be produced synthetically in exhaustless quantities, and sold at a profit for 14 cents per pound. Besides this cheapness, the colors obtained from the substitute are preferred to those obtained from the agricultural growth. Here is a field for the unrivalled aptitude of our citizens for invention and for the improvement of processes in manufactures. Consul Mason, of Basle, Switzerland, has supplied our State Department at Washington with a full line of samples of beautifully dyed fabrics, embracing 120 colors and shades of colors. We cast these hints before the eyes of capitalists, hoping that they will become food for reflection, and mature into practical results.

-Western Dry Goods Trade.

TECHNICAL EDUCATION.

(To the Editor of the Montreal Witness.)

SIR,—Now that manufacturing is looking up and brightening it may not be amiss to make a few remarks on Technology as applied to manufactures, if you will allow me space in your valuable paper.

The American papers lay great stress on this and complain that they have not as many technical schools as are needed, while they have some in New York, Lowell, Boston, and in most of the cities of New England. In a small place like Brasher Falls, they have a technical school where drafting, designing, and weaving in all its branches are taught, and where a paper is printed monthly, wholly devoted to weaving, designing, and drafting.

The city of Rochester (population 90,000) supports its industrial school, while we have in the whole of Canada not one school of Technology. Could there not be one at least in the city of Montreal? In the McGill we have one of the best colleges in America, and with all the other academies and schools there is, perhaps, not another city in America that can boast of as good educational privileges.

In the city of Chemnitz, Saxony (90,000), compulsory education at the age of 14 is the rule, as it is throughout Germany. The curriculum of most of the schools embraces more of an industrial than a classical course. It is this more than anything else that makes Chemnitz the manufacturing centre it is.

In a work published in London, England, by Mr. Feldin, a native of Nottingham, but who has been manufacturing hosiery at Chemnitz for the last twenty years, he reminds the manufacturers of Nottingham that Chemnitz has taken away their trade in gloves and is undermining their trade in hosiery. He asks why the Germans, whom he regards as inferior to the English "in physical strength, in energy, and in natural ability," have been able "to take the bread out of the mouths" of the latter? and he tells them that the reason will be found largely in the educational advantages which the inhabitants of Chemnitz have enjoyed in common with the people of other towns in Germany.

The English have made great strides of late years in the establishment of art schools. If England bewails the great want of industrial education, if an English manufacturer in Germany (a veritable Anglo-Saxon) of such experience as Mr. Feldin can address his own people in a similar strain, and point out the difference between the good effects of the educational system in the one country and the bad effects in the other, what must Canadians say?

What use is it though we have a high protective duty if we have not the industrial ability and knowledge upon which so many of our population must necessarily depend to compete with foreign and more experienced countries?

The educational system of Canada seems to run wholly in the one groove, thus leaving our manufacturers for the most part dependent on immigrants, and allowing our own population to grow up in laziness and crime, or cross the border to find common work. How many a young man, after having gone through school, looks with disdain upon a factory hand, a labourer or a farmer, although he himself cannot do more than stand behind a counter from six or seven in the morning till nine or ten at night. Now, I ask, is this right?

MANUFACTURER.

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SOLE AGENT FOR THE DOMINION.

HOW SCREWS ARE MADE.—The process of making screws is very interesting. The rough, large wire in big coils is, by drawing through a hole smaller than itself, made the size needed. Then it is put into sawdust and "rattled," and thus brightened. Then the head is shaped down smoothly to the proper size, and the nick put in at the same time. After "rattling" again in sawdust, the thread is cut by another machine, and after another "rattling" and thorough drying, the screws are assorted by hand (the fingers of those who do this move almost literally like lightning), grossed by weight and packed for shipping. That which renders it possible for machines to do all this is a little thing that looks like and opens and shuts like a goose's bill, which picks up a single screw at a time, carries it where needed, holds it till grasped by something else and returns for another. This is about the most wonderful piece of automatic skill and usefulness to be seen, and it has done distinctive work at the rate of thirty one screws a minute, although this rate is only experimental as yet; ninety-three gross per day, however, has been the regular work of the machine.

PROSPECTUS

Of a proposed Manufacturing Company, to be located in Chatham, Ontario, to be called

THE CHATHAM MANUFACTURING COMPANY (LIMITED.)

Capital, \$100,000. In Shares of \$1,000 Each

The undersigned invite subscriptions for the Stock of the above proposed Company upon the following grounds:—It is intended to make Waggon's a leading article of manufacture, for which an abundance of the choicest material is to be found here: it is known beyond a doubt that the demand for Waggon's, both local and in our Great North-west, is almost unlimited, and that, if the Company confined itself to the manufacturing of Waggon's alone, large profit would be certain: but we propose to turn over to the Company the North Chatham Saw Mills, and the extensive, but necessary, premises thereto belonging, of which we are the Proprietors, and take stock in the Company to the extent of the full value of these, to be ascertained by disinterested experts indifferently chosen. The net profits of the business of these mills last year amounted to over \$23,000.

Additional capital is required to start a Waggon Works in connection with these Mills, that will, at first, turn out TEN WAGGONS PER DAY, and add Machinery to the Mills for the manufacture of other articles of wood, or wood and iron, and for the profitable conversion of otherwise waste material.

With these ends in view, Capitalists are respectfully invited to subscribe for this Stock, upon our assurance that, in doing so, they will make an exceptionally sure and very profitable investment.

So soon as a sufficient number of reliable parties shall have intimated to us, in writing, their willingness to become shareholders, we will call a meeting of those to whom Stock may be allotted, to sign Stock Book, appoint Directors, adopt steps to obtain the Charter, and settle other necessary matters of detail.

D. R. VAN ALLEN & CO.

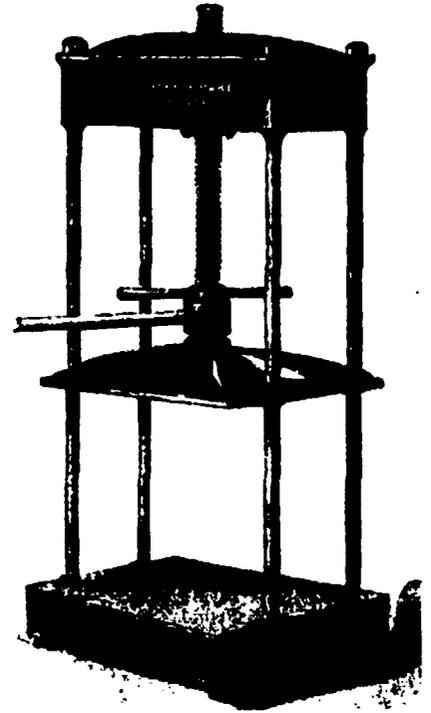
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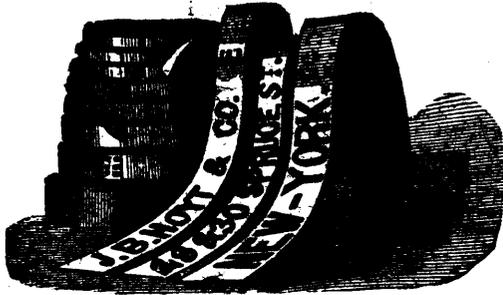
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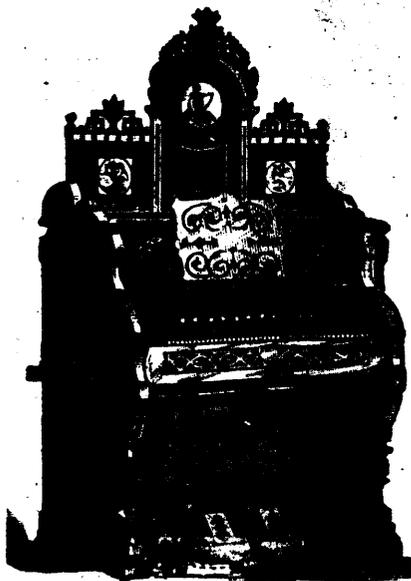
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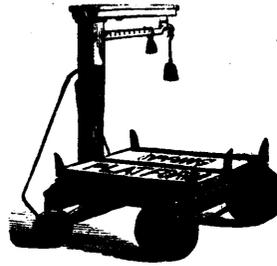
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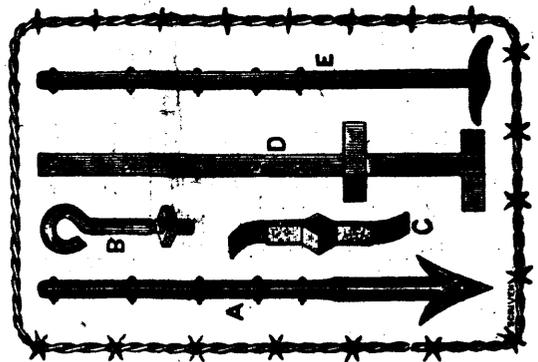
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