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DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION.

Vol. 20. TORONTO, JUNE 5, 1891. No. 11.

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RECIPROCITY.

The reciprocity treaties recently made and now pending between the United States and several West Indies and South American countries, are meeting with very general approval and acceptance by the press and people of the United States. In singular contrast with this state of feeling there appears to be a very prevalent tone of indifference, if not of absolute hostility, to the adoption of a similar policy towards Canada, although all the commercial arguments which have been urged in favor of the former can be urged with even greater force in favor of the latter.

The official returns of the United States Bureau of Statistics, for the year ending June 30, 1890, conclusively establish the following facts:

1. That Canada purchased from the United States, during that year, merchandise to the value of \$20,000,000 in excess of the purchases of the latter country from Canada.
2. That in raw products of the farm, the forest, the mines, and the fisheries, the value interchanged was nearly equal, the excess in purchases by the United States being only about \$3,000,000.
3. That in manufactured goods, Canada's purchases from the United States were nearly \$23,000,000 in excess of the purchases of this class of goods by the United States from Canada. That the greater part of these manufactured goods was the product of American skill, in which the cost of labor largely exceeded the cost of material; most of them being of

the classes which were subject to high rates of duty under the American tariff, ranging from 30 per cent. to 50 per cent. and upwards.

5. That these manufactured goods were admitted into Canada at much lower rates of duty than similar goods would have been admitted into the United States, if imported from Canada.

6. That the value of the exports of manufactured goods to Canada, was over 15 per cent., or more than one-seventh part of the entire value of such goods exported to all foreign countries, which total value is shown by Washington statistics to have been, for the year referred to, \$151,131,297.

7. That a much larger proportion of the whole of the imports of merchandise is admitted into Canada, free of duty, than is admitted into the United States from Canada, on similar terms.

8. That the total exports of merchandise from the United States to Canada, exceeded the exports to all the West Indies by \$28,000,000; to Central America and Mexico, by \$42,000,000; to all South American countries, by more than \$22,000,000.

9. That the import and export trade, for the above year, between the United States and these countries compared with the trade between the United States and Canada, is as follows:

	Imports into the United States.	Exports from the United States.
West Indies.....	\$78,000,000	\$32,180,000
Mexico.....	22,690,000	12,670,000
Central America.....	8,240,000	5,450,000
South America.....	90,000,000	37,750,000
Total.....	\$198,930,000	\$88,050,000
Canada.....	39,042,000	60,449,000

The exports to Canada exceed the imports more than 50 per cent; the exports to the other countries are less than half of the imports.

Whether considered as to the extent of the trade, the general character of the merchandise sold, or the liberal terms of the Canadian tariff, the commerce with Canada has been far more profitable to the United States than that of any of the southern countries with which that country is negotiating reciprocity treaties. If a committee of experienced business men of the United States and Canada were appointed to discuss and settle upon a liberal and equitable policy under which the trade between the two countries could be promoted and extended, without involving any serious financial difficulties for either of them, or any extensive injury to existing interests, or disturbance of commercial relations with other foreign countries, they would very soon arrive at an arrangement which would prove of mutual advantage. Unfortunately the question is in the hands of politicians, few of whom have any practical acquaintance with commercial matters, or even correct information as to the present relative position of the trade between the two countries. They are more interested in the effect which such a policy would have upon the party to which they belong, and especially upon the constituency which they represent, than they are in its influence on the general prosperity. The disinclination prevailing in the United States to a liberal policy towards Canada, is largely attributable to the defective system under which their statistics of exports are collected, by means of which the exports to Canada for the last fiscal year were so much short-retained that they were made to appear fully twenty million dollars less than they really were. Public feeling there has been greatly misled by the pernicious action of a large portion of the press and a number of the leaders of the

opposition in Canada, who, during the last four years, have been persistently portraying the position of their country as that of absolute dependence upon United States markets not only for prosperity but for existence itself. Knowing that the feeling in favor of reciprocity is very general they have assumed the position of champions of this policy; and dreading the effect upon their party which the successful negotiation of a moderate and equitable treaty in this direction would have, if accomplished by the present Government, they have insidiously used every effort to render such success impossible. Rarely, if ever, do they refer to or admit any of the advantages which would accrue to the United States from the extension of this trade, but they constantly exaggerate the advantages which would result to Canada. Instead of insisting upon the larger purchases from the United States, now being made by Canada, than are now being made by the United States from Canada, as a solid argument in favor of liberal dealing on the part of the United States, they conceal this fact; instead of showing that Canada can curtail its purchases from that country to even a greater extent than the United States can curtail its purchases from Canada, they assert its impotency to do anything in the way of retaliation. If they were engaged as the paid advocates of the United States, they could hardly find an argument in favor of that country's interests which they have not already used. How much further could vile partyism go? In order to get free access to United States markets for our barley, which, every year, is becoming less needed in that country; for our heavy horses, for which the demand is rapidly decreasing, owing to changes in motive power on street railways; for our stock cattle and our young sheep which we ought to fatten at home; for our eggs for which we are opening up a market in England; for our hay, which ought to be fed on the farm, we are asked to admit Yankee flour, Indian corn, oats, fruits, etc., free. So far, the interchange is about equal. But what more? We are asked to exclude from our markets about forty million dollars worth of manufactured goods now purchased from European countries, and confine ourselves to the purchase of the dearer manufactures of the United States. The extra price paid for these goods alone would amount to several-fold more than all the additional prices obtained, under this unrestricted reciprocity, on our exports to that country. We are to imperil our political and commercial relations with Great Britain, abandon our growing commerce with other foreign countries, desert our young and flourishing manufacturing industries, and confine our sphere of labor to the production of raw material for Yankee mill-owners and iron-masters. This outrageous policy is nothing but a piece of cruel irony. Its advocates and promoters know that even were their party in power, they dare not submit such an impracticable and injurious proposition to the verdict of a loyal and intelligent people. Their design is, that sufficient for the present, they can prevent their opponents from effecting the rational and equitable policy of reciprocity which they have been offering to the United States for the last twelve or thirteen years, and which they are now willing to enter into.

Appeals *ad misericordiam* to United States politicians are thrown away. Appeal to self-interest may prevail. If the people of Canada, through the press and through their public

men, would exhibit a little more self-reliance and independence, and show to the Congress of the United States that if they persist in maintaining such prohibitory duties upon a great proportion of Canadian products as to exclude them from their markets, then Canada will feel compelled to adopt a like policy towards American products, especially its manufactures. They may be able to exclude something like ten million dollars worth of Canadian products for which theirs is the best market. We may not find it advisable, in our own interest, to exclude any large amount of American raw products, but we can absolutely exclude twenty million dollars worth of American manufactures and force their manufacturers to establish workshops in Canada. The commerce between the United States and Canada may not be of so much value to the former country as to the latter, from a per capita view, but in the aggregate it is from its nature, as above shown, of greater interest and to a greater number of people in the United States than it is in Canada.

For any equitable trade arrangement, whether by reciprocity or otherwise, Canada is and always has been willing. To coercion or injustice, she will not submit.

BARLEY AND MALT.

THE imports of barley into Canada from the United States last year amounted to 12,217 bushels, of which 8,585 bushels went into Manitoba, and 2,562 into British Columbia. The imports of malt from the United States during the same year amounted to 44,728 bushels, of which 4,401 bushels went into Manitoba, and 39,942 bushels into British Columbia. The Canadian duty upon barley is fifteen cents per bushel and the same upon malt, while the American duty is thirty cents per bushel upon barley and forty five cents upon malt. Ontario and Quebec are the only Provinces credited with exports of barley, and Ontario and British Columbia the only Provinces credited with exports of malt; the malt going from the latter Province amounting to only 279 bushels. It would seem from these facts that Manitoba has malting establishments and that they found it profitable to import 8,585 bushels of barley from the United States for use in them, and that the brewers there found it profitable to purchase 4,401 bushels of malt from that country. The importation of barley into British Columbia amounting to only 2,562 bushels does not indicate the presence of malting establishments there, but the importation of 39,942 bushels of malt indicates the extent of the brewery interest. The malting interest in Ontario is a large one, but it suffers from both the American and the Canadian tariffs. Under the McKinley Bill the duty of forty-five cents per bushel amounts to a virtual prohibition of exports to the United States, while under the Canadian duty of only fifteen cents per bushel American malt supplants the domestic article to a large extent both in Manitoba and British Columbia. The Canadian duty should be very much higher upon both barley and malt, particularly in view of the hostile legislation against these articles in the McKinley Bill. It should be the same as the American duty. If this were done, Canadian farmers would have exclusive control of the home market, now that they are driven out of the American market, and Canadian maltsters would fully supply Canadian brewers instead of sharing their

business with American maltsters as they now do. With these higher duties in Canada the Canadian farmer would supply all the barley required in Canada for malting purposes, and instead of so much dependence being placed on American maltsters for supplies of malt, our domestic malting industry would be enlarged so as to supply the entire demand. This would be particularly desirable in British Columbia where there are no malting houses; the dependence there being upon California. The 40,000 bushels of malt now imported into our Pacific Province from California indicates a valuable industry that should exist on Canadian soil.

A DISCRIMINATING TARIFF.

In a recent issue of this journal, discussing protection and reciprocity, we made the following statement:

A very large proportion of American goods imported into Canada are manufactured products, the output of American workshops and factories. The importation of these goods is made possible by the comparatively low duties imposed upon them, and the question arises: Why should these American products be allowed to come into Canada at low rates of duty while Canadian eggs are taxed five cents a dozen, and Canadian barley thirty cents a bushel on entering the United States?

Answer is made to this by the *Globe*, which says:

If these foreign articles are entering Canada it is because they are cheaper than similar articles of home make. Hence the Canadian farmer may well reply "How could I, who am losing on barley and eggs by the American duty, be benefited by Canadian taxes augmenting the cost of the things I myself require?"

The trouble with the *Globe* is that it thinks "cheapness" the *sine qua non* of all commercial transactions, and its argument is that the Canadian farmer, for the sake of reciprocity with the United States, whereby the American duty of five cents a dozen upon eggs and thirty cents a bushel upon barley will be overcome, would be glad to sacrifice and destroy his near-by home market wherein he sells his produce to those employed in manufacturing pursuits. It pictures the Canadian farmer as being represented by the dog crossing a bridge with a chunk of beef in his mouth, dropping and losing what he already had in an effort to obtain the shadow that he saw in the water beneath. This can be illustrated by the fact that the city of Toronto alone consumes more beef than all the exports of beef from the Dominion. We are accustomed to looking with pride upon our large and growing foreign trade in cattle, and this is indeed a valuable outlet for one of the products of the Canadian farmer; but it is easily perceived that if the city of Toronto consumes more Canadian beef than is exported, the entire Canadian market is of inestimable value to the Canadian farmer. Who are they in Canada who consume so much Canadian beef? The *Globe* knows, and the farmer knows that they are chiefly the employees in our workshops and factories and industrial establishments and their families and dependents. They also know that these establishments are kept in existence by and through the N.P., and that if this support were withdrawn from them they would soon close their doors, and the thousands of consumers of farm produce would cease to be consumers, and be forced into vigorous competition as producers of such products. It would be better, then, for the farmer, even from the pessimistic standpoint of the *Globe*, to

have to pay the American duty of five cents a dozen on his surplus eggs, than to lose his home market and have to sell all his eggs on the other side of the line.

The *Globe* tells us that the United States is ready to enter into reciprocity with Canada—reciprocity of the unrestricted variety only—and that we cannot hope for or expect any other sort: and it also tells us that the only commercial salvation of Canada lies there. Canada has never made any legislation hostile to the United States, looking to forcing that country into accepting such terms as regards reciprocity as we might be pleased to offer. For years we have had upon our statute books an offer to exchange certain products freely, but that offer has never been accepted; while on the other hand, under the inspiration of the *Globe* and the Grit party the United States has, in its McKinley tariff, laid duties that are almost absolutely prohibitive on many Canadian farm products, and exorbitantly high on all others. We print a table in which is shown in parallel columns the old and the new duty upon farm products, in which it is seen that not one article which can be raised in the United States in quantity sufficient to supply the home market failed to receive high protection in the McKinley Bill. The following list speaks for itself.

Articles.	Old duty.	New duty.
Barley.....	10 cts. bushel	30 cts. bushel.
Buckwheat.....	10 per cent.	15 cts. bushel.
Corn and oats.....	10 cts. bushel.	15 cts. bushel.
Wheat.....	20 cts. bushel	25 cts. bushel.
Hops.....	8 cts. lb.	15 cts. lb.
Butter.....	4 cts. lb.	6 cts. lb.
Cheese.....	4 cts. lb.	6 cts. lb.
Hay.....	\$2 ton.	\$4 ton.
Straw.....	Free	30 per cent.
Eggs.....	Free	5 cts. dozen.
Broom corn.....	Free	\$8 ton.
Peas and beans.....	10 per cent.	40 cts. bushel.
Nursery stock.....	Free	20 per cent.
Apples, fresh.....	Free	25 cts. bushel.
Apples, dry.....	Free	2 cts. lb.
Bacon and hams.....	2 cts. lb.	5 cts. lb.
Beef and pork.....	1 ct. lb.	2 cts. lb.
Mutton.....	10 per cent.	2 cts. lb.
Poultry, live.....	Free	3 cts. lb.
Poultry, dressed.....	10 per cent.	5 cts. lb.
Horses worth over \$150.....	20 per cent.	30 per cent.
Horses, others.....	20 per cent.	\$30 head.
Mules.....	20 per cent.	\$30 head.
Cattle, yearlings.....	20 per cent.	\$2 head.
Cattle, over a year.....	20 per cent.	\$10 head.
Hogs.....	20 per cent.	\$1.50 head.
Sheep, yearlings.....	20 per cent.	75 cents head.
Sheep, over a year.....	20 per cent.	\$1.50 head.
Milk.....	10 per cent.	5 cts. gallon.
Onions.....	10 per cent.	40 cts. bushel.
Potatoes.....	15 cts. bushel.	25 cts. bushel.
Other vegetables.....	10 per cent.	25 per cent.
Tobacco, not stemmed.....	75 cts. lb.	\$2 lb.
Tobacco, stemmed.....	\$1 lb.	\$2.75 lb.
Flax, hackled.....	\$40 ton.	\$67.20 ton.
Hemp, hackled.....	\$25 ton.	\$50 ton.
Wool, Class 1, Unwashed.....	10 and 12 cts. lb.	11 cts. lb.
" " Washed.....	20 and 24 cts. lb.	22 cts. lb.
" " Scoured.....	30 and 36 cts. lb.	33 cts. lb.
" Class 2, Unwashed.....	10 and 12 cts. lb.	12 cts. lb.
" " Scoured.....	30 and 36 cts. lb.	36 cts. lb.
" Class 3, Under 13 cts.....	2½ cts. lb.	32 per cent.
" " Over 13 cts.....	5 cts. lb.	50 per cent.

We commend the study of this schedule to those who are interested in the matter. There is not an article enumerated in the list that is not produced in Canada: and to show the animus of the Americans, and that these duties were levied directly against Canada, we state that there are few if any importations of such products, except tobacco, and wool into

the United States from any foreign country except Canada. This is friendliness at a great rate.

An influential American contemporary, *The Manufacturer*, of Philadelphia, speaking of this move for reciprocity, says that it is urged by the advocates of it that it is sure to be but a step towards the annexation of Canada to the United States; and that "when we shall give to Canadians, while they retain political connection with Great Britain, the very highest material advantage which would come to them from annexation to this country, we throw away the trump card in the game." That the Americans entertain no idea of entering into any sort of reciprocity with Canada except upon terms looking to annexation is obvious from the following expression taken from the journal here alluded to:

The very fact that the McKinley tariff has filled Canada with so much alarm at the consequent abridgment of its trade with us as to force the Tory Government to take up the reciprocity question, supplies proof enough that more rigid restriction upon the entry of Canadian products to this market will impel the people of that country to seek for relief by demanding the complete reciprocity which may be had through the instrumentality of union with us. The right to trade among ourselves, without restriction, is one of the most valuable privileges belonging to American citizenship, and it ought to be retained solely for American citizens.

Of course there is much foolish conceit in supposing that the operation of the McKinley tariff in restricting the entry of Canadian products into the American market will impel us to seek relief in annexation. We are not built that way: and for the information of our respected contemporary we inform it that although our exports to the United States may have fallen off since the McKinley tariff came into force, our exports to all countries have considerably increased.

Canada has a remedy within easy reach for the correction of the evils of the McKinley tariff, which our neighborly American friends are using against us. Why should American products be allowed to come into Canada at low rates of duty? Last year we bought more than \$20,000,000 worth of merchandise from that country than what we sold to it, these figures representing the balance of trade against us. If the McKinley tariff is a good thing to protect American industries against Canadian competition, it should certainly be a good thing to measure the height of the Canadian tariff in protecting Canadian industries against American competition. By all means, then, let us adopt it. Not against Britain or the rest of the world, for our present tariff answers well enough in a general way for intercourse in those directions. But for whatever merchandise American producers find sale for in Canada, let them find a McKinley tariff on this side the line. If Canada does this we will find our so-called dependence upon the United States melt away like snow in August. If they want to keep us out of their market we can afford to stay out; and if they want to have access to our market they can afford to pay as much for the privilege as they themselves charge for access to their market. The arrangement would greatly accelerate trade with Britain and the rest of the world, and we would maintain our dignity.

TRADE RELATIONS.

ONE reason why any form of renewal of reciprocity arrangements is objected to by Americans, is that the conviction widely prevails that Canada will gain most of the profit from such an arrangement. The figures belonging to the subject appear to point plainly to such a conclusion. The former reciprocity treaty with Canada began in 1854 and ended with 1865. Before the treaty began we sold to Canada about three times as much as we bought from her. In the last year of the treaty the figures were so much changed that Canada sold to us six millions more than she bought from us. In 1867 exports and imports were equal; but in 1878 we again sold to Canada twice as much as we bought from her, and the balance of trade has been largely in our favor ever since. That it should be heavily against us would appear to be the inevitable result of free trade between a great population and a small one. It might even then be advantageous to us if Canadian products, like those of the West Indies, differed from our own. But there is difficulty in perceiving how we can be helped in any great degree by permitting Canada to find a market here for products which our own resources may supply.—*Philadelphia Manufacturer*.

There is equal difficulty in perceiving how Canada can be benefited to any great degree by permitting the United States to find a market here for products which our own resources can supply. The year 1855 was the first complete fiscal year after the old reciprocity treaty went into effect, and in that year the balance of trade was against Canada to the extent of \$19,243,899; and that condition prevailed without change until the termination of the treaty in 1865. From that year until 1873, with the exception of 1867, when the trade was about even, the situation was reversed, but from 1873 until the present time there has been a large balance against us on the transactions of each year.

Our American friends seem to measure the value of trade between their country and this by the balances of trade there may be in their favor from year to year; and they consider that any reciprocity of trade that may be proposed between the two countries must show these balances in their favor or they will not agree to any such reciprocity. During the time the old reciprocity treaty was in force Canada bought from the United States nearly \$86,000,000 more than she sold; and during that period the United States also enjoyed the free use of the Canadian fisheries, which, according to the Halifax award, was worth over \$5,000,000. As soon, however, as the balance of trade turned in favor of Canada, the United States was quick to give notice of the termination of the treaty. In 1863 the imports of Canadian merchandise into the United States were valued at \$17,191,217; in 1864 it was \$29,608,736; in 1865 it was \$33,264,403; and in 1866 it reached a maximum of \$48,528,628, the excess of imports over exports being in 1865 \$5,995,245, and in 1866 \$20,622,644. But the operations of the treaty had nothing whatever to do with this remarkable change in trade between the two countries. The United States was then engaged in suppressing the rebellion, and a fierce and expensive war raged throughout the land. More than a third of the population of the country embraced in the South were in open resistance to the Federal Government; and first and last nearly 3,000,000 able-bodied men were called for to defend the Union; and it was this drain upon the productive capacity of the country that necessitated the exceedingly large importations from Canada. In the last

year of the war Canada sold to the United States 27,800 horses, 141,600 cattle, 36,600 swine, 168,000 sheep and 600,000 barrels of flour. What the effect of a lack of these large supplies of munitions of war would have had upon the success of the Northern army at that time our American friends may imagine.

The termination of the reciprocity treaty did not, however, diminish imports into the United States from Canada. During the twelve years the treaty was in force our sales to that country aggregated \$286,982,174, or an annual average of \$23,915,181, while during the succeeding twelve years, when American duties were levied and collected, our sales aggregated \$364,685,594, or an annual average of \$30,390,449; and for eleven years after that the annual average of sales was \$39,161,088, showing that the volume of exports to the United States was not influenced by the American tariff. In seventeen years, from 1872 to 1889, Canada bought of the United States to the amount of \$885,764,449, and the United States bought of Canada to the amount of \$609,751,941, leaving a balance of trade against us of \$276,006,508, being an annual average of \$16,235,677. If this feature of our commercial intercourse with the United States is gratifying to our neighbors it certainly is not to us.

One noticeable feature of trade during the reciprocity period was that about all the wheat Canada had to export went to the United States. The latter country was then, as now, an exporter of wheat; and whatever of the article it bought of us it made money on. If it was converted into flour the grinding was done in American mills, and when it was exported, either as wheat or flour, it was through American ports and by American shippers. When, however, the treaty was repealed, the grinding was done in Canadian mills, the transportation was done in Canadian vessels and over Canadian roads, and the ocean voyage was from Canadian ports.

Perhaps our American friends think that by shutting certain Canadian products out of their market they are stimulating what would otherwise be an unsatisfactory state of affairs at home. The Canadian barley which they seem to dread is of a character entirely different from what they produce, and if they prohibit the importation of barley from this country they cannot produce anything to take the place of it. Therefore, while Canadian farmers may feel that they have to pay the American duty, American consumers are very pronounced in declaring that the duty is paid out of their pockets. The difference in the price of barley in Toronto and Buffalo indicates the higher price the American consumers have to pay for the article because of the McKinley tariff rather than the lower price the Canadian producers have to take.

So, too, as to horses. Canada produces breeds of horses superior for certain purposes to what can be produced in the United States; and when our American friends find that they have to have our horses, they not only pay full value for them in Canada, but they also pay the American duty upon them. Some Canadian stock-raisers who think the McKinley tariff injures their business are turning their attention to raising horses for the British market; and it is a fact that such horses as are suitable for cavalry service in the British army command from \$70 to \$80 more than what could be realized from sales to American purchasers.

The British Trade Report shows that the American export trade of cattle and sheep to the United Kingdom is decreasing rapidly. The following table shows the falling off in five years:

	Horned Cattle.	Sheep and Lambs.
1883.....	154,987	89,983
1884.....	139,213	30,317
1885.....	137,319	11,829
1886.....	113,756	5,551
1887.....	94,642	1,927

A falling off in five years of 60,000 cattle and 87,000 sheep.

In a recent open letter from Senator Wark, of New Brunswick, to Hon. Benjamin Butterworth, of Ohio, after an exhaustive analysis of the trade relations between Canada and the United States, he sums up as follows:

I have endeavored to show from your figures (1) that although your people were constantly complaining that the advantages of the reciprocity treaty were all on our side, yet during the first nine years the balance of trade was largely in your favor; (2) that the termination of the treaty did not, as was intended, reduce the amount of your purchases from us, but that they expanded more rapidly under your tariff than under the treaty; (3) that for the last seventeen years the balance of trade has been continually in your favor to a very large annual average of \$16,335,677; (4) that the termination of the treaty by giving the trade of Canada a new direction gave a vast impetus to many of our flagging industries and resulted greatly to our advantage.

It cannot fail to cause surprise to anyone looking into these questions of trade, that while the British Empire takes two-thirds of all your exports, and you have to search all the rest of the world for a market for the other third, yet you purchase from us only about one third of your imports, and your legislation appears to be intended to contract even your limited purchases from us. I think the history of trade fails to furnish an example of any civilized country continually buying from another that refused to reciprocate. It may be thought that necessity compels Britain to come to you for large quantities of food, and that cotton can be had nowhere else, but the permanency of this is far from certain.

The colonies in the near future may furnish all the food England requires, and as to cotton, there is a lesson to be learned from China and her tea. The Chinese appear to have thought at one time that for all time to come they would be the only producers of tea, and they would only part with it on their own terms, which were very stringent. England tired of this state of things; she saw that in India she possessed everything necessary for the cultivation of tea; good soil, a good climate and cheap labor, and the cultivation was commenced, and has been carried on most successfully, and last year, instead of going to China for her whole supply, she purchased there only 98,000,000 pounds, while she obtained from her own eastern possessions 118,500,000 pounds, and she need not have gone to China for so much but that she purchases to sell to countries that have no direct trade with China, and it is worthy of note that while China at one time required specie payments, she last year took British goods to the value of \$31,696,510 and sold to Britain \$32,288,365.

Now as to cotton, Sir Samuel Baker, who, from his thorough acquaintance with the interior of Africa, may be considered a very high authority, has stated that there is no finer country in the world for cultivating cotton. Two wealthy English companies have now undertaken to civilize and develop the resources of two extensive districts of that continent, and there can be little doubt that the cultivation of cotton will be among the first of these undertakings. As I am now in my eighty eighth year I do not expect to see the result, but I have a strong conviction that at no very distant day large quantities of cotton will be produced in that country, every bale of

which will be paid for in British goods. Many of our people are urgent for reciprocity with you, not only to the extent of the former treaty, but to a much greater. If they ever obtain this, I believe it will lead to great disappointment. From your great diversity of climate and variety of productions, the larger the volume of trade the greater will be the discrepancy between what you sell and what you buy from us, and it is difficult to see how this could increase our prosperity. I believe our true policy should be to cultivate closer commercial relations with the United Kingdom and all the rest of the colonies. It would be injudicious to attempt any hasty or sweeping changes. If accomplished at all, it must be brought about gradually; but the policy arrived at ought to be free trade throughout the whole empire, and if you, with your great diversity of climate, soil, extent of territory and large population, have been so prosperous, what might be expected of this empire, with a still greater variety of climate and productions and really larger territory, and a population of over 300,000,000 all freely exchanging the productions of their industry throughout the whole empire?

PROTECTION IN NEW SOUTH WALES.

THE distinguishing feature heretofore existing in the political economy of New South Wales was that of free trade; and this it was hoped by free traders in Great Britain and elsewhere would prove to be the leaven which would eventually influence the fiscal policies of all the other Australasian colonies, and perhaps extend to other countries.

But a change seems to be overspreading the free trade sky of that far-off country, and, although it may not be much larger than a man's hand, it is fraught with promises of a bright future for the manufacturing industries of the colony. Mr. Bruce Smith, Secretary for Public Works, has advertised for contracts to supply 175,000 tons of steel rails for use in railway building in New South Wales, and it is stipulated that these rails must be manufactured in the colony from iron ore and other necessary minerals, and with coal, coke or other fuel produced there. The delivery of these rails must begin in January, 1893, and continue during five years. In other words, New South Wales is promoting an extensive railway system, and does not propose to be dependent upon Great Britain for the materials for completing it. It is probable that, when the rail mills are built and in operation, the Government will call for contracts for equipments such as bridges, locomotives, passenger and freight cars, etc., all to be built there.

This political tergiversation on the part of New South Wales is remarkable, for heretofore that colony has adhered to the policy of Great Britain, obtaining most of its revenue from customs duties upon tobacco and spirits, stamps and excise duties, licenses and lease and sale of public lands. Although the oldest of the Australasian colonies, and possessing natural advantages equal in all respects and superior in many to those of the other colonies, the material prosperity of New South Wales has not been equal with that of Victoria, which has been and is distinguished for its decided predilection for protection. The first settlement of Australia was made by the English in January 1788, on the shores of Port Jackson Bay at what is now called Sydney: and here it was that the vice-regal Government was established for the whole continent and the adjacent islands; and as the mother colony it still maintains a certain

prestige, although the disintegration of it has resulted in the establishment of six equally independent colonies: and this territorial severance has reduced the area of New South Wales to 309,175 square miles.

What is now Victoria was first settled in November 1835, on the shores of Port Philip Bay, and it was not until November 1850, that the Act of Separation was passed which erected the Port Philip settlement into the colony of Victoria, with a Government of its own, with a population of 76,000 souls, and an area of 87,884 square miles. The population remaining to New South Wales being over 265,000. The latest available statistics give the population of New South Wales to be 1,122,000, and of Victoria, 1 118,000.

The following table is a compilation of the principal productions of the two colonies, as far as the records are completed, by H. H. Hayter, Esq., the eminent and enthusiastic statist of the Victoria Government:

TOTAL PRODUCTION TO DATE.				
NEW SOUTH WALES.			VICTORIA.	
Value.	Amount.	Articles.	Amount.	Value.
£37,614,847	£10,092,356	Gold, oz...	£56,250,798	£225,003,198
4,919,952	21,377,291	Silver, oz...	420,286	83,788
3,278,621		Copper		191,107
5,362,643		Tin		670,183
21,917,764	45,335,012	Coal, tons..	43,361	39,755
265,465		Iron		12,549
	79,887,659	Wheat, bus.	210,989,741	
	72,142,746	Maize a...	2,493,019	
	756,583	Potatoes, tons	4,023,684	
151,502,390	2,920,943,821	Wool b lbs.	2,640,651,064	157,119,502

a.—1873 to 1890.

b.—Quantity and Value exported. The Victorian exports were largely imports from New South Wales.

The foot notes show the records of wool production, and the total of exports, and owing to lines of communication and geographical location, a large amount of the wool product of New South Wales find its way to market through the ports of Victoria, and is credited to that colony. The production of silver in New South Wales, which has but just begun, bids fair to equal in value the production of gold in Victoria--thus it appears, New South Wales possesses as many and as much in the way of natural resources, for the increase of wealth and population, as the neighboring smaller colony of Victoria.

Mr. Hayter makes an estimate of the average per capita wealth of the two colonies in the following manner:

During the five years ended with 1888 the sworn value of property of deceased persons, the total number of deaths, and the average wealth left by each was as follows:

	Total Number of deaths.	Value of property left.	Average amount left by each.
Victoria.....	75,113	£26,171,991	£348
New South Wales...71,945		22,621,703	314

By which it appears that Victoria, with a tariff for protection, with but little more than one-fourth the area and but half the years of existence as a colony as compared with New South Wales, which has always had free trade, already far surpasses it in material and developed wealth, and equals it in population.

A very instructive comparison is also to be found in the following table of manufactories, works, etc., in the two colonies for the years 1889 and 1890:

Colony.	Year.	No. of establishments.	No. of hands employed.	Value of plant.
Victoria	1890.	3,308	59,181	£5,939,970
	1889.	3,154	56,271	5,565,325
	Increase.	154	2,910	£374,645
New South Wales....	1889.	3,170	46,714	£5,805,894
	1890.	2,999	45,906	5,463,581
	Decrease.	171.	808	£342,313

In the one colony there is a protective tariff and production thrives, although the essential, coal, is brought from its free trade neighbor's territory, where production is decreasing and population at a standstill.

The importation of woollens and wearing apparel into New South Wales in 1888 amounted to an average of £5 per head, notwithstanding the fact that millions of pounds of wool were exported. Wages for mechanics average about one shilling per day higher in Victoria, and for day laborers about the same as in New South Wales. Rents, fuel, clothing and food do not average two per cent. higher in Victoria than in New South Wales.

New South Wales is evidently awakening to the fact that it has been enjoying a Rip Van Winkle free trade sleep ever since it came into existence, while its sister colony has been progressing by leaps and bounds under protection. Under the scheme by which the Australian colonies are to become a confederated Dominion, there will be the free trade between the colonies, and a protective tariff as against the rest of the world: and this call for a steel rail plant in Sydney is an evidence that New South Wales heartily accepts and endorses the situation.

EDITORIAL NOTES.

At the time of writing this Sir John A. Macdonald, Canada's great Premier, is dying at Ottawa. He was stricken with paralysis last week, and the country is expecting every hour to learn that his valuable life has ended.

THE Dominion Government should offer a bounty of, say, two cents per pound upon all sugar manufactured in Canada.

THE present Dominion Government cannot achieve the glory of successful statesmanship they desire, unless they make sugar as cheap in Canada as it is in the United States. The people should have cheap sugar.

A TELEGRAM from Ottawa, a few days ago, stated that it was understood there that the Government had decided to grant a rebate on all sugar manufactured in Canada for export, and that Canadian refiners are pressing for a rebate on sugar manufactured for domestic purposes. There is a short way to settle this sugar question, and that is by putting raw sugar on the free list, and reducing the duty to a nominal amount on refined sugars. Let the people have cheap sugar.

JUST to think of it. There are about 2,000,000 tons of rails in use on the railways in Canada, not one pound of which was made in Canada. A system that tolerates such a state of affairs is not a mistake but an industrial crime. New South

Wales wants rails to equip less than 200 miles of roadway and she stipulates that steel rail works shall be erected there to manufacture them: while Canada has already consumed more than eight times as many rails, and yet there is no prospect of there being any steel rails mills built here.

THE American Screw Company, of Providence, R.I., are about to build a factory in Leeds, England, to cover one and a half acres of ground, in which will be placed part of the machinery now in the plant in Providence. This company is doing a large export business, and they believe that their foreign trade can be more satisfactorily supplied from their works in England. This is the concern of which Hon. Joseph Chamberlain stated in a public speech to the effect that his firm—Nettleford & Chamberlain—had compelled the American Screw Company to pay them tribute for years to keep out of the American market.

NEW SOUTH WALES, after having tried free trade for many long years, during which younger and smaller sister Australian colonies, under protection, have outstripped her in material wealth and importance, is awakening to the fact that if she desires to hold her own she must adopt the policy that will enable her to continue in the race. She is inaugurating a system of railways by which easy and cheap access may be had to all parts of the country, and she intends having the steel rails for these railways made within the colony, of materials found there. Under the confederation now being perfected, by which there will be protection against all the rest of the world, she will soon be as famous for her manufactures as she now is for her wealth in wool and mineral products.

A DEPUTATION of newspaper proprietors interviewed the Ministers of Customs and Finance a few days ago to urge a reduction of the duty on stereotype plates for newspapers. The deputation contended the old rate was amply sufficient protection to the Canada boiler plate industry, and it would give an opportunity to those newspaper proprietors who so desired to avail themselves of the greater variety offered by United States manufacturers. It should be borne in mind that these men are of a class who want to run newspapers without printers. These stereotype plates are made in numbers sufficient to supply the printerless papers, all that is necessary to make up a form being a lot of this stuff and a hand-saw to cut it off to suitable lengths. When one sees one of these patent insides papers he knows just what every other patent insides paper has. There does not seem to be much if any use for the existence of such papers. Real live newspapers employ writing editors to produce some original matter, scissors editors with muscular arms to mutilate other papers, and printers to set the type.

IF Canadians have a genuine desire to benefit the manufacturers of Great Britain they can do it in a very simple and easy way, and without wasting their eloquence in efforts to persuade the British people to array themselves in the cast-off garments of protection. They have simply to reduce their own tariff. To suppose that Great Britain, while we impose upon her manufactures heavy import duties, will actually discriminate in favor of our products and so imperil her trade with the

whole world beside, is an idea too absurd to be considered.—*Toronto Globe.*

Wrong again. There is a simpler and easier way than that. Our present tariff is all right, and Canada is doing a satisfactory trade with Great Britain under it. But that trade can be stimulated very much, not, as the *Globe* suggests by reducing the tariff against British goods, but by raising it against American goods. The extent of that raise might be measured by the McKinley tariff. The Americans think it a good thing in its operation against Canadian and British goods, and they surely should not object to have Canada impose it against their goods. Let's try it.

THE Buffalo papers are complaining that the McKinley Bill fails to protect infant industries, as regards, at all events, the manufacture of tin plate. The McKinley tariff, it seems, is driving this branch of business from Buffalo, the manufacturers finding it cheaper to make their wares in Canada and pay import duty than to pay the United States tax on the raw material. One of the largest firms engaged in the tin plate business is now building a factory in Canada. A Buffalo paper explains the situation as follows: "The raw material under the McKinley Bill has a duty of 20 and 25 per cent." Tin plate is delivered in Canada for \$3.62 per box, and in Buffalo it costs just \$6. Mr. Ehle states that there has been no increase in wages to the workmen under the new arrangement. He can in the future manufacture pails in Canada and import them here with a duty of 50 per cent. on the manufactured article, and save 15 per cent. He further states that many of the American canners are ready to move their works to Canada, but they are in hopes the duty of 2 2-10 per cent will be taken off this year."—*Toronto Mail.*

The *Mail* doesn't seem to know what it talks about. Tin plate was never manufactured in Buffalo, and all of the article that was ever used there was made in Wales. The manufacture of tin plate into tin goods of different descriptions is a very different matter. Canada will gladly welcome all the dissatisfied American manufacturers whom the McKinley tariff are driving out of the country. Come on, boys, Canada is the place for you.

AN evidence of the exceeding friendliness of the United States, under the McKinley tariff, for Canada, is in the trade in unmanufactured tobacco. Last year Canada imported from the United States 11,226,944 pounds of leaf tobacco, valued at \$1,316,718, upon which no tariff duty was levied. It came in free. Canada is not an extensive producer of tobacco, but Ontario and Quebec raise some very fine tobacco, which is much sought after in the United States for wrappers for cigars. According to the American returns, Canada sold to that country last year about \$450,000 worth of tobacco upon which duty was paid. According to the Dominion Trade and Navigation Returns, our exports of leaf tobacco to the United States amounted to only 104,333 pounds, valued at \$49,842; but this indicates that only about one-ninth of all the Canadian tobacco exported was ever reported to the customs officers. Under the old American tariff, the duty upon tobacco not stemmed was 75 cents per pound; and upon stemmed \$1 per pound; but under the McKinley tariff this Canadian product is taxed \$2 per pound for not stemmed, and \$2.75 for stemmed. The less than \$50,000 worth of Canadian tobacco going into the United States paid more than \$200,000 duty, while the \$1,316,000

worth of American tobacco coming into Canada paid no duty whatever. Truly Mr. McKinley puts the screws to Canada with a vengeance. Canada should impose a duty of at least \$2 per pound upon American tobacco.

SPECIAL ADVERTISEMENTS.

Advertisements will be accepted for this location at the rate of two cents a word for the first insertion, and one cent for each subsequent insertion. Subscription \$1.

"TRIUMPH OF THE AGE." Attention is called to the advertisement of The Eno Steam Generator Company, Limited, on page 380 of this issue. This Generator is being adopted by the leading manufacturers in Canada and the United States. Every steam user should investigate its merits.

AGENTS wanted to sell and handle on commission in Quebec City and vicinity, all sorts of new and second-hand machinery, engines, boilers, pumps, agricultural implements, belting, hose, safes, saws, files, bolts, machines and tools for shoe factories, etc. Address with references, J. L. O. VIDAL & SON, City of Quebec.

THE HEESON IMPROVED FURNACE GRATE has no equal for shaking all kinds of furnaces, round or square, boilers, heating furnaces, ovens and stoves. It is the only grate that will clean fires without opening fire doors. It is the strongest bar known, having the most air space, thus securing better combustion. These bars are saving more fuel and generating more steam and will last longer than any other bars on the market. Ten per cent. saving in fuel guaranteed or no sale. References on application. HEESON GRATE BAR CO., 38 King St. East, Toronto.

FOR SALE, in Kent County, Michigan. The Buchanan Mill property consisting of a first class lumbering mill the extensive water power in connection with it, including the entire power furnished by the river, with real estate on both sides of sixteen acres, situate one mile from Main Street of Lowell, a rich farming country surrounding an excellent location for paper mill, furniture factory, woolen mill and the many uses that require power. Also a splendid home and farm of 87½ acres with buildings, fruit, evergreens, etc. For further information call at the premises of JAS. R. BUCHANAN, Lowell, Michigan.

FOR SALE, A VALUABLE CANADIAN PATENT.—The Trenholm Improved Perpetual Hay Press, patented 1882, has been manufactured in New Brunswick for nine years, and stands without a rival in the Maritime Provinces. As it has not been introduced in the Upper Provinces, the purchaser can, if he manufactures there, get practically a complete control of the business in Canada, as this machine is cheaper, stronger, earlier running and more durable than any other Press of its class, and is well protected by patent. Full investigation invited. Terms easy. Write for particulars to A. J. TRENHOLM, Sussex, N.B.

A RISING TOWN.—The Town of West Toronto Junction possesses exceptional residential and business advantages, and promises to speedily become the chief manufacturing centre of

the Dominion. This town has the following railways, viz: Grand Trunk Main line (Carlton West Station); Northern Division of the Grand Trunk (Davenport Station); The Toronto, Grey and Bruce, and Credit Valley, and Ontario and Quebec Divisions of C.P.R., and Belt Line Railway (now in progress). The town offers to large manufacturers free sites, water at cost and exemption from taxation. Any information regarding the same will be given upon application to ROBT. J. LEIGH, Town Clerk, or D. W. CLENDENAN, Mayor.

WEST TORONTO JUNCTION ENTERPRISES.—The ten large factories which have located at West Toronto Junction during the past three years are all doing large trades. The "Barnum Iron and Wire Works," the "Toronto Rolling Mills and Forging Company," and others about to locate will swell the paying industries of the town and augment its population. A large number of fine residences and business blocks have added to its appearance and to its facilities for supplying the peoples' wants. A perfect fire alarm system (the "Gaynor"), and an efficient system of water-works, both now in operation, with sewers, electric lights and improved streets now contemplated, will add to the protection and the comfort of the people and their houses. Free sites, free water and exemption from taxes are inducements offered to first-class manufacturers, and it is now acknowledged by all that Toronto's western suburb, with its great continental railway connections, is destined to be among the most prosperous cities of Canada. Dr. Carleton is Chairman of the Factory Committee.

Good Housekeeping requires but a glance to show how rich and varied its scope. The June number has no less than eight series of articles in progress, relating to different phases and interests of the home life, and this in addition to all the departments peculiar to the magazine, and to the multitude of completed articles which fill its large pages with a wealth of reading matter that must attract every member of the family to whom it comes. There is no better gift to the young housekeeper than a subscription to this valuable journal. Clark W. Bryan & Co., Springfield, Mass.

The publishers of that splendid Canadian weekly journal, the *Dominion Illustrated*, announce that the response to their offer of prizes to the value of over \$3,000 in competition, open to subscribers only, has been most gratifying. The nature of the competition renders it a valuable one, whether the competitor wins a prize or not. The period covered by the competition does not expire until June 30th, and persons subscribing now may compete as readily as any and on even terms. For full particulars of the competition and a sample copy of the journal itself, send twelve cents in stamps to the publishers, The Sabiston Lithographing and Publishing Company, Montreal.

About twenty-five women, says Mr. Charles J. Dumar, in *The Ladies' Home Journal*, now have pleasant, lucrative employment on daily newspapers in New York, as "distributors"—that is, they are employed during the day, at the same rate paid for night work, to distribute type for compositors who thus prefer to reduce their working hours. The "lady distributor" is comparatively a recent innovation, but all think that she is a most agreeable one. Her earnings depend upon the amount of work she receives, but will average about fifty cents for every hour employed. I have known some women to thus earn twenty dollars per week, from about 10 a.m. until 5 p.m. These positions, however, are in the main greatly prized and eagerly sought after by women. While there is no reason why men should not perform this work under the same circumstances, it has by tacit consent become the undisputed privilege of women.

The Toronto Lithographing Company have sent us a book of lithographic specimens of work done by them, that demonstrates the fact that they are fully abreast with the times in producing such work, and that it is quite equal with the best work produced anywhere else in the world. The covers are printed in colors, that on the

front showing a beautiful woman, representing Canada, placing a laurel wreath upon the brow of Senefelder, the inventor of lithography, while on the back is seen a perspective view of the *Globe* building, in which the Company have their offices and works, heretofore described in these pages, and a lithographic printing press with many of the accessories incident thereto. The chief object of the book seems to be to demonstrate the style and manner in which factories and workshops, engines and machinery, manufactured products, farm implements, etc., can be pictured with the greatest accuracy and truthfulness, thereby giving to the beholder an absolutely correct idea of the thing or plan represented. These pictures are reproduced either from photographs or from pencil sketches.

THE Paris Salon is the chief subject in *The Illustrated American* for the week ending May 30th, and so many of the principal pictures of the great Art exhibition are reproduced with fidelity and brilliancy, that an examination of this news magazine is the next best thing to a visit to the Salon itself. Accompanying the pictures is text, descriptive and critical. An excellent portrait is given of the race-horse *Tenny*, on whom so many hopes were placed in the race for the Brooklyn Handicap. The pursuit of the *Itata* is illustrated with pictures of the fleeing Chilian vessel, the *Charleston* and the *Esmeralda*. In the gallery of possible Presidents appears the face of William C. Whitney, and there is given a short account of his public career, and the element which makes him available as a candidate for the high office. Light reading for warm weather is provided in the shape of a short story which relates the exciting adventures of an American engineer with a mad balloonist. The interesting series of articles on "Napoleon's Marshalls" have been concluded; a story is begun of Napoleon himself, as seen in the light of the latest historical developments.

A NEVER failing charm of *The Ladies' Home Journal* is that it is always abreast of the season; somehow it presents just the things one wants most to see at the particular time it comes out; this seems especially true of the June number, with its dainty pages for the Brides of June, Florence Howe Hall's "In Church, or at Home?" Mrs. Mallon's suggestions for brides and their maids, and Ella Wheeler Wilcox's clever comparisons between women and flowers. Quite as timely, also, are the portrait sketch of Lady Agnes Macdonald, the wife of Canada's premier; Sister Rose Gertrude's description of "Life Among the Lepers at Molokai;" Charles J. Dumar's article on "Women as Type-setters," and William H. Rideing's "Hints on House Building." Those whose thoughts are turning toward summer outings, will find helpful suggestions in "Horseback Riding for Women," by Carl A. Nyegaard, of New York Riding Club, and Miss Le Garde's "How to Dress for Bicycle Riding;" Helen Jay and Kate Upson Clark have treated very acceptably the two sides of the farmer vs. summer-boarder controversy, and the same breezy out-door spirit pervades also the usual department pages. Mrs. Whitney's "A Golden Gossip," and "A Soul from Pudge's Corners," Jessie F. O'Donnell's strong serial, are both continued, and "Buck" Ewing, of the New York Base-Ball Club, contributes an article which will delight the boys. The *Journal* promises also some particularly delightful things for each of the coming summer numbers. Issued at \$1 a year, or ten cents a copy, by the Curtis Publishing Company, 435 Arch Street, Philadelphia, Pa.

Outing for June is one of the finest numbers ever printed of that popular magazine. Every department is strong and the illustrations are beautiful and numerous, the frontispiece in colors, being an artistic gem. Additional chapters of John Seymour Wood's great story, "Harry's Career at Yale," show that the author is warming up his subject as only a brilliant writer can. "How Jack Lindsay Bested the Captain," by Francis Trevelyan, is a capital racing story, and the beautifully illustrated chapter on "The Massachusetts Volunteer Militia," by Captain Daniel Morgan Taylor, U.S.A., will appeal at once to citizen and soldier alike. Malcolm W. Ford contributes a valuable paper, entitled "Distance Running," with portraits of noted performers, and Cornelia Dorothy Chandler writes most entertainingly on "Riding in Japan." Other finely illustrated articles treat of tennis, rowing, fishing and travel; and canoeing, cricket, photography, etc., are well handled by noted writers. The editorial and record departments are better and more complete than ever before, and the publishers should feel satisfied with their latest production. Canadian readers will find no cause for complaint that their sports are neglected. The second part of Capt. Thomas Blackwell's "Rowing Clubs of Canada" is finely illustrated, and completes a valuable article. "Canoe and Rod on the Thames," by Ed. W. Sandys, tells of paddling, and playing game black bass on a stream in Western Ontario, and in "Virgin Streams and Lakes for Sport," Ernest Ingersoll devotes considerable space to the Canadian side of Lake Superior.

Wide Awake for May is full of the reading children like best—good stories, in good variety. Miss Plympton, author of "Dear Daughter Dorothy," has a unique story, "The Black Dog," which she has illustrated herself; Susan Coolidge contributes a story, also unique and quite out of her usual line, entitled "A Good Bad Horse;" Katharine B. Foote's "Uncle Sam's Two Stories," has a bright historical interest—Garrett's pictures are particularly taking; "Old Sandy's Launch," illustrated by Brennan, is artistic and pathetic; "Daddies" is amusing. Each instalment of Margaret Sydney's Peppers serial seems to be complete in its interest as to be as readable as a short story. "Cab and Caboose," Kirk Munroe's railroad serial, is finished in this number. "Marietta's Good Times" continues the delicious idyl of Italian child-life not written by a travelling observer but by an Italian woman. The articles of the number are enjoyably readable: "Mother Goose's Pets," a folk-lore paper, by Agnes Repplier; "A Visit to Anne Hathaway's Cottage," by Francis A. Humphrey; "Our Government," by Hon. John D. Long; the "Margaret-Patty Letter," by Mrs. William Claffin; "What is Camphor?" by Margaret Lake, and "Seven Men to Make a Pin," by Amanda R. Harris. The two prize series are entertaining: "Problems in Horology," by E. H. Hawley, of the Smithsonian Institution, and "Drawings of the Child-Figure," by Caroline Hunt Rimmer. "Men and Things" comprise four pages of enjoyable original anecdote and reminiscence; these and several illustrated poems complete the number. *Wide Awake* is \$2.40 a year; 20 cents a number. A specimen (back number) will be sent on receipt of 5 cents. Lothrop Company, publishers. Boston.

A new subject is taken up in the article on the "Development of American Industries since Columbus," in the June number of *The Popular Science Monthly*. This is "The Manufacture of Wool," which is handled by the author, Mr. S. N. Dexter North, in a notably attractive manner. The present paper describes early forms of the industry, and, like the rest of the series, is appropriately illustrated. Dr. Andrew D. White concludes his chapter on "Miracles and Medicine" in this number, dealing with theological intolerance of Jewish and other physicians, inoculation and anaesthetics, changes of vogue in regard to saintly relics, the royal touch, etc. Under the odd title, "Our Grandfathers Died Too Young," Mrs. H. M. Plunkett sketches the progress in sanitation which has doubled the average length of human life within a few hundred years. Lieutenant-Colonel A. B. Ellis contributes an essay on "Survivals from Marriage by Capture," describing a great number of curious customs. Some "Questions Concerning the Minor Planets" are reviewed by F. F. Tisserand. "The Natchez Indians," an ancient Mexican people that occupied the lower Mississippi country when America was discovered, are described by Howard A. Giddings. There is a copiously illustrated article on "The Characteristics of Insects," by Louis Montillot. A number of quaint medical prescriptions from an old book entitled *The Pearl of Practice*, are embodied in a paper by Miss Elizabeth Robinson. If "our grandfathers died too young," as another contributor claims, very likely their reliance on such messes hurried them off. Mons. A. de L'Apparent discourses on "The Future of the Dry Land." There is a paper on "The Music of the Birds," including hens, by the late S. P. Cheney, with music. The life of the great astronomer, Copernicus, is sketched, with a portrait. The departments are well filled, as usual. New York: D. Appleton & Company. Fifty cents a number, \$5 a year.

Geo. P. Rowell & Co., of New York, publishers of the American Newspaper Directory and of *Printers' Ink*, a journal for advertisers—the oldest and best known of all the advertising agencies—conduct their business in such a way as to make it a material benefit to both advertiser and newspaper publisher. They furnish plans for an advertiser and prepare his advertisement. For their services—designing his advertisement and preparing his estimate—they make a sufficient charge to pay for the required service of persons competent to do the work well. They tell the advertiser what papers he should use and what the price will be. If the advertiser wishes them to place the advertisement in the papers, they do as he directs, and for that service the newspapers pay them. If the advertiser wishes to place his advertising through some other advertising agency, or to contract with the publishers, he is at liberty to do so, and the estimate furnished by Messrs. Rowell & Co. serves as a guide. It tells him where he is securing a bargain and where he is paying more than he ought. Every one who is in need of information on the subject of advertising, will do well to obtain a copy of Geo. P. Rowell & Co's "Book for Advertisers," 368 pages, price one dollar. It is mailed, postage paid, on receipt of price, and contains a careful compilation from the American Newspaper Directory of all the best papers in the United States and Canada. It gives the circulation rating of every one, and a good deal of

information about rates and other matters pertaining to the business of advertising. Whoever has made himself acquainted with what may be learned from this book, will admit that from its pages one may gather pretty much all the information that is needed to perfect an intelligent plan of advertising. It is not a complete newspaper directory. It is much better; for although it names barely one-third of the newspapers published, it does enumerate every one of the best, and all that a general advertiser is likely to have occasion to use. Among the papers named in it the CANADIAN MANUFACTURER occupies the position to which its merits entitle it.

Printers' Ink, published weekly, at \$2 a year, by George P. Rowell & Co., New York. This little magazine is an educator; it teaches the science of advertising. From an editorial standpoint it is able. Its contributors are, in the main, the most successful advertisers and advertising experts. Its advertisers are very largely the ablest advertising agencies and the liveliest and most valuable advertising mediums. Its proprietor, the strong, leading advertising agency, of whom that progressive, thoughtful student and teacher of the science of advertising, Mr. George P. Rowell, is the head. The reader is constantly brought in contact with many of the brightest and ablest minds who are interested in advertising. Such interchange of thought means constant progress. It is an exchange for the promotion of the science of advertising through bringing together, in free discussion, the ablest minds. As a publication calculated to successfully educate and develop the advertiser, it stands entirely unequalled and unrivalled in this or any other country. Issued weekly, its teaching and influence are continuous on the reader; thus are men guided and developed almost without realizing it. This continuous education means continuous progress for the great field of advertisers. Do not understand me, says a correspondent, as saying that all wisdom in the art is to be found in this magazine, but I do say that more is to be found there than in any other single channel in the world. The chart is a little thing, but on it much of the safety of the mariner depends. *Printers' Ink* is the chart or guide to whom many advertisers already owe much of their safety and success. For twenty years I have constantly advertised. Successful at the start, through the value of an original, popular idea, I was weak enough to fancy that I knew something about advertising. The loss of over one hundred thousand dollars in 1872 made a profound impression on me, to the effect that I knew nothing about it. I went to work to try to learn the art, and, by constant endeavor and study, I have been able to hold a place in the ranks of success. Could I have had at that time such a magazine, such an exchange of thought, such a teacher and educator as *Printers' Ink*, I think I should have saved over one hundred thousand dollars in 1872. I also believe I should have made more money, and with less worry and care, as the years rolled by. The reader doubtless infers that I would pay a very high price for *Printers' Ink* if necessary. I would pay one thousand dollars a year for it, if it could not be secured for less, simply because I believe it to be worth more than that sum to me in my business.

THE CHIGNECTO SHIP RAILWAY.

As previously stated, the financial situation of the Chignecto ship railway is in no precarious state whatever, and large forces of men are at work to-day, and additional men are being employed as fast as the condition of the ground, owing to the frost, will permit. The work at the Amherst terminus for the season has already begun. Three weeks ago the stone cutting was resumed, and on the 24th ult. the laying of masonry was begun for the season on the lifting dock. This structure is already two-fifths completed, and in the course of a few months will be ready to receive the hydraulic machinery that will be employed in lifting the vessels from the water to the level of the track and afterwards replacing them in the water. The boilers, engines, pumps, accumulators, etc., are already in place in the new engine house, and they will be all ready just as soon as the rams are in position in the lifting dock to furnish the power necessary to operate the lifting machine. By reason of this early completion of that important and novel portion of the ship railway, it would be possible to apply every test needed to fully ascertain that the machinery works faultlessly, or to make any necessary change that experience may show to be desirable.

The Amherst basin, of which this lifting dock is a part, has a storage capacity between the lifting dock and the entrance gate of 500 feet in length and 300 in width. The excavation of this basin is all completed except some little trimmings, which will be attended to when the masonry is finished. The entrance gate to this basin, which will consist of two massive walls, facing each other, and 100 feet in length, the space between being occupied by the masonry of

heavy inverts and sills, and having four great retaining walls from their corners, the structure being over sixty feet in height, will be one of the finest specimens of this class of hydraulic engineering in the world. The wooden gates, which are used to retain all but the upper fifteen feet of the spring tide, will themselves be among the largest lock gates, designed to stand the highest pressure, that were ever constructed. This is not due to the fact that they are the largest gates, but to the fact that they will retain the largest head of water of all tidal gates in the world. At no other point where gates are used to retain the higher level of the tide in basins is there a movement of the tides greater than fifteen feet. Here the tide has an extreme oscillation of practically fifty feet, and this gate will be bare of water from top to bottom on one side, while the water will be lapping over the top of the other at low water, necessitating enormous strength in its proportion, and calling for the employment of every protection against leakage under or around the walls. The excavations for the masonry of this great gate are completed. Some of the masonry is already laid, and the stone is rapidly being quarried and cut for its construction, much of it being already on the ground. The channel leading from this gate to the La Planch river requires the dredging of a large amount of earth. For that purpose a dredge is on the stocks at Fort Lawrence and will be shortly launched, the machinery for which has been manufactured by M. Beatty & Sons, of Welland, Ont., and will shortly be delivered. Hopper screws for receiving this dredged material and transporting it out into the Cumberland basin and dumping it through their bottoms, are also being built at the same point, one of them being now ready for launching. They are unique in design, and are the result of the experience of Dawson, Symes & Usser, of many years use of such vessels. It might also be said that the dredge now being used at Tidnish, and this one building for the Amherst terminus, are also largely their design, they having for years prosecuted such work on a large scale both in the Welland canal and in the great lakes. It may be stated that this firm enjoys resources and credit which would make easy for them the completion and equipment of the ship railway, they having already successfully financed, as well as constructed, much larger undertakings. — Halifax, N.S., *Herald*.

SOME INTERESTING DISTANCE STATISTICS.

THE remark is very trite that raw materials of manufacture are hauled enormous distances in this country. Everybody is familiar with this statement. In some of the most prominent manufacturing districts the item of freight in assembling raw materials is the most important element to deal with. Other costs are worked down by prudent management and systematic methods to a level with those obtaining in other sections, but in the matter of freights a set of circumstances comes into play which cannot be governed by those most interested in or affected by them. It is rare, however, to meet with a table of distances for any particular locality which will show its exact situation with reference to its supply of raw materials. Having recently had occasion to make some inquiry into the conditions affecting the trade of Chicago, some facts were obtained on this point which may be of interest to our readers, all of whom are aware of the rapidity with which manufacturing enterprises are growing in the vicinity of that city.

The longest all-rail haul of Lake Superior iron ore to Chicago blast furnaces is from the Vermilion range mines in Minnesota. The distance is 690 miles. Only a limited quantity of ore has taken that route, but the practicability of winter haulage has been demonstrated. The distance by lake and rail combined from the Minnesota mines to Chicago is about 1,020 miles, of which 70 miles comprises the rail haul to Two Harbors, and the remaining distance covers the lake haul across Lake Superior, through the Sault Ste. Marie and the Straits of Mackinac, and up Lake Michigan to Chicago. The Gogebic mines, in Northern Wisconsin and Michigan, whose shipping point is Ashland, on Lake Superior, are 939 miles from Chicago by rail and lake, but by all rail they are much nearer, say 400 miles in round numbers. The mines of the Marquette range, in Northern Michigan, whose shipping port is Marquette, are about 635 miles from Chicago by lake and rail, the rail haul to the port of Marquette running about 25 miles. The all-rail route to Chicago would only be about 400 miles, or the same distance as nearer to Chicago than the mines of the other Lake Superior districts being only about 375 miles by rail and lake. Of this distance 75 miles covers the rail haul from the mines to Escanaba, on Lake Michigan. By the all-rail route the distance to Chicago would be about 360 miles. All these figures seem formidable, but lake freight rates are remarkably low for the distance covered, and rail rates

are also very reasonable, on account of water competition, as well as competition between several lines of railroad traversing this section.

Coming next to coke, another set of long distance figures is encountered. Coke is hauled to Chicago entirely by rail. It is drawn from several sources of supply — namely, the Connellsville and Reynoldsville regions in Pennsylvania, and northern and southern districts of West Virginia. The shortest haul is from the Connellsville region, say 525 miles. The Reynoldsville, or Rochester and Pittsburgh, coke district is easily 625 miles from Chicago. The northern coke region of West Virginia is about 535 miles, and the southern district about 600 miles. A new coke region is being opened up in Southwestern Kentucky, about 525 miles from Chicago, or practically as close as the Connellsville region.

Anthracite coal from Pennsylvania is consumed in considerable quantities in Chicago, but not for manufacturing purposes. The usual route it takes is by rail from the mines to Buffalo, say 325 miles, and by lake thence to Chicago, say 900 miles. The bituminous coal used by manufacturers is obtained to a slight extent from Western Pennsylvania, to a greater extent from Ohio and Indiana, but principally from the coal fields of Illinois. When drawn from Western Pennsylvania it is hauled by rail at least 500 miles; when obtained from Ohio it is transported from 300 to 375 miles, and from Indiana about 175 miles. The coal fields of Illinois are only 50 to 75 miles from Chicago. Crude oil is now an important raw material to numerous Chicago manufacturers, who use it for fuel. The principal source of supply is the Lima district, in Ohio, whence a pipe line 200 miles long runs to the southern part of the city.

These figures are not given as absolute distances, but are approximately correct, inasmuch as the various districts tapped are themselves of large extent. They serve to show, however, that the manufacturers of Chicago have had to conquer formidable disadvantages in establishing their various enterprises. How well they have succeeded is known to the world. Notwithstanding their remoteness from essential raw materials, they have had countervailing advantages which have enabled them to build up enormous plants, with possibilities of great future growth. — *Iron Age*.

WHAT ARE RAW MATERIALS?

OF late years a great outcry has been raised against the tariff on raw materials, as they are delusively called; for, in the literal sense of the term, nothing is entitled to be considered a raw material to which any exchangeable value has been imparted by the hand of labor. Coal imbedded in the mine, living wood in the forest tree, and iron ore in its native deposit, are truly raw materials; but, so soon as the coal is quarried and reduced to assorted sizes, the tree is chopped down and converted into saw-logs, the iron ore is dug out and brought to the surface, each becomes an article of commerce and ceases to be a raw material. To then apply that designation to either is to create an artificial and unwarranted meaning which leads inevitably to a confusion of ideas. Indeed, the whole controversy has grown out of an exaggerated application of terms.

Henry C. Carey, in his great work, "Principles of Social Science," says on this subject what follows:—"All the products of the earth are, in their turn, finished commodity and raw material. Coal and ore are the finished commodity of the miner, and yet they are only the raw material of which pig iron is made. The latter is the finished commodity of the smelter, and yet it is but the raw material of the puddler, and of him who rolls the bar. The bar, again, is the raw material of sheet iron, and that, in turn, becomes the raw material of the nail and the spike. These, in time, become the raw material of the house, in the diminished cost of which are found concentrated all the changes that have been observed in the various stages of passage from the rude ore—lying useless in the earth—to the rail and the spike, the hammer and the saw, required for the completion of a modern dwelling."

Within the purview of these considerations, the only raw materials, in the absolute sense, are those furnished gratuitously by nature. In the strained or illegitimate sense, cloth, although the finished product of its manufacturer, is the raw material of the tailor. By the same rule, steel rails become the raw material of the railroad company, carpets the raw material of the housekeeper, and books the raw material of the pedagogue. If the pig-iron maker can properly and justly demand the free admission of foreign iron ore because it is his raw material, then it is quite as just and proper and logical for the bar-iron maker to demand the free admission of pig-iron because it is his raw material; and for the crucible steel-maker to demand the free admission of bar iron because it is his raw material; and for the cutlery-maker to demand the free

admission of crucible steel because it is *his* raw material; and so on, until the free list becomes the rule, and the dutied article the exception. The corollary from the premises laid down by the advocates of free raw materials thus appears to be the substitution of free trade for protection.

The general principle which pervades the various schedules of duties to the United States tariff is, that the higher the grade of manufacture the higher the cost of entry, because every advance from a lower to a higher form of product involves an increased amount of human labor. For this reason, pig-iron is dutied higher than iron ore, tool steel higher than bar iron, and wire rope higher than tool steel, according as each rises in the scale of reproduction. This principle applies equally to other metals in their various forms, to woollens, to cottons, to pottery, to silks, to leather goods, and to many other classes of articles. The doctrine of so-called raw material, carried to its logical results, would nullify this general principle of our tariff, and lead to the most absurd and baneful conclusions and practices. In the stage of demand which it already has reached, it is equivalent to saying that the laborers employed in our ore and coal mines are not entitled to the protection of our tariff laws, but that full protection should be extended to the laborers in those industries to which ore and coal are raw materials. Let this demand be satisfied as regards coal and ore, then the next step may be a demand for the free admission of pig iron, of scrap iron, of scrap steel; then of steel blooms and billets; then of bar iron; then of sheet iron and sheet steel, until precedent, not principle, becomes the presiding genius of the movement, and the selfish greed of corporations and individuals is fed fat by the ruin of our tariff system and at the expense of the general welfare. We strongly believe that, if the manufacturers who advocate free raw materials will faithfully grope in the abysmal depths of their inner consciousness, they will discover sitting there, selfishly alone, a perfect willingness to serve the separate interests of their own particular business, by abandoning a large class of American industries to the prostrating assaults of foreign aggression, especially if this can be done deceptively under the subterfuge of cheapening production, benefiting consumers, and gaining transatlantic markets. In fact, those newspapers which have been most conspicuous, energetic and persistent in urging upon Congress the policy (whose other name is impolicy) of free raw materials, are popularly suspected of being in the pay of a distinguished, greedy, self-aggrandizing, alien rival named John Bull, who, in matters of trade, was never yet known to exhibit any of the traits of disinterestedness or of cosmopolitan generosity.—*Chicago Industrial World*.

CANADIAN CANOES.

THE Ontario Canoe Company, of Peterboro', Ont., the pioneer in the building on a large scale of a fine class of canoes, skiffs, etc., have their shops full of work and have been very busy for months past filling special orders. Since January the company have shipped canoes to all parts of the world, to England, France, various parts of the United States, to South America and to Australia. At the present time there are canoes in a state of completion, in a stage of manufacture or on the order book which are going to England, Southern California, Venezuela, British Columbia, United States and different parts of Canada. One order is for a number of canoes for India, to which for-off land the Ontario canoes have already been sent.

A few days ago the company shipped a fine vertical ribbed cedar canoe which has been manufactured for the American Government and goes to the Assistant Geologist in Wisconsin to be used in the Government Geological Survey. It is a beautiful craft, 18½ feet long, with a 41 inch beam and a depth of 17 inches. It is the largest cedar ribbed canoe that the company has ever turned out and will carry a burden of one and a half tons.

Then just receiving its finishing touches is another handsome basswood canoe, built for Governor Shultz, of Manitoba. This craft is nineteen feet long and will be fitted with row locks. This canoe will be the outside of a nest of seven canoes which are each a half foot smaller and will fit inside one another in shipping. They all go to Winnipeg.

Then lying in the warerooms completed is an elegant canoe sixteen feet in length made for shipment to Yorkshire, Eng. Near this, also ready for shipment, is a craft made on a special order for the Government to be used in the Canadian Geological Survey at Lake St. John. This craft is of cedar, is eighteen feet in length, and yet weighs only eighty-eight pounds. It can be carried by one man with ease, thus permitting portaging.

In the course of construction is a pretty longitudinal ribbed canoe of cedar and butternut alternate, which is to be shipped to

Dubuque, Iowa. The manufacture of the cedar ribbed craft is warranted to give a canoe which will stand any climate, no matter how hot. After being formed and clamped, the canoe is placed in the drying room where it is left in an intense heat and well seasoned and soaked in oil before being finished. This class of canoe is well adapted to such a country as India. Besides these canoes mentioned there are many others awaiting shipment to England and other points. In fact there will be found canoes of "all shapes and sizes, great and small," bound for various waters in many different lands.

But there is the giant of them all, the mammoth war canoe which is being turned out for the Ottawa Canoe Club. This craft is thirty feet in length, with a fifty inch beam and a depth of twenty inches. It is a big boat, has eight thwarts and will take a crew of sixteen paddles. The Ontario Canoe Company made the first of these giant crafts that was turned out, and since that time they have made many, each of which gave good satisfaction. The present one was manufactured in short order, a large number of men being put on the canoe to rush the big boat out of the way so that it would not occupy much needed room.

The manufacture of skiffs was also a part of the company's industry and orders for several of these boats have been received from Victoria. Speaking of these works, the *Peterboro Review* says:—"To visit the factory and go through the show rooms a person will see about every description of canoe that is manufactured, from the narrow, slim racing canoe down to the wide tub canoe, which are made for orders from down near the sea. With the machinery and experience the Ontario Canoe Company is in a position to turn out the best of work, and their crafts are known the world over, having established a reputation which ensures a trade from year to year.

THE SCISEOPHONE.

LONDON *Iron*, noting that the importance, both in mechanical and civil engineering construction, of having metal free from internal flaws has always been recognized, and the difficulty of detecting them as well, records an approach to a solution of this difficulty by means of sciseophone, which is the invention of Captain de Place, of Paris. "This apparatus consists of a small pneumatic tapper worked by the hand, and with which the piece of steel or iron to be tested is tapped all over. Connected with the tapper is a telephone with a microphone interposed in the circuit. Two operators are required, one to apply the tapper and the other to listen through the telephone to the sounds produced. These operators, who are in electrical communication, are in separate apartments, so that the direct sounds of the taps may not disturb the listener, whose province is to detect flaws. In applying the system one operator places the telephone to his ear, and so long as the sounds produced by the taps are normal, he does nothing. Directly a false sound—which is very distinct from the normal sound—is heard, he instantly signals for the spot to be marked. By this means he is able not only to detect a flaw, but to localize it."

NANAIMO.

NANAIMO, on Vancouver Island, B.C., is a place of great resources and prospects. This is what the *Victoria, B.C., Commercial Journal* says of it:

The eyes of the Eastern capitalists are gradually being turned toward Nanaimo and its immense resources. Nanaimo is situated in the Gulf of Georgia, about eighty miles from Victoria. It is the coaling port for all mail steamers from San Francisco to Alaska.

It possesses the finest harbor on the Pacific coast, a harbor into which vessels of all sizes can sail at any stage of the tide without any danger of getting into shallow water. It has splendid anchorage, and is perfectly protected from all winds.

The New Vancouver Company load vessels of 4,000 tons burden at their wharf close to the shore, and this company will spend about \$20,000 during the coming summer in building new wharves as the increase in the coal trade has become so extensive that it has necessitated the company making more improvements in order to meet the growing demands.

G. W. Dawson, in his geological report of British Columbia, states:

Since the initiation of coal mining in the Nanaimo district, this industry has shown a steady and satisfactory increase, and it has now attained large proportions, as evinced by the subjoined table of outputs. Both the exports and the local consumption are

constantly increasing, the latter being returned at 489,201 in 1888. In 1889 the output had increased to the figures of 690,688.

The area of the Nanaimo coal field is estimated at about 200 square miles, beside the fact that new fields are constantly being discovered. Nanaimo abounds on all sides by immense deposits of copper, silver, iron, lead, zinc, granite, marble, lime and salt springs.

The corporation spent over \$50,000 within the past twelve months in improving and opening up new streets, while the New Vancouver Coal Company may be said to have spent a like sum.

This year the city council intend to borrow \$124,000 for city improvements, so that property promises to bring double the present value in six months hence. The streets are to be lighted by electricity, and for this purpose the city council intend to purchase an electric light plant to light up the city with the "arc" system. Application has been made to the Legislature for a charter to grant the right of way for an electric tramway, to run throughout the city and district. All the capital for this project has already been subscribed and the work of building the road is to be shortly commenced. The new buildings and industries to be started this summer are numerous.

PROTECTION IS A NECESSITY.

HISTORY shows that whenever the tariff on foreign products has been materially reduced, the industries engaged in making corresponding products here have languished; that when the repeal of inimical laws were long delayed, disaster has ensued, and, in some instances, the affected industries have been abandoned altogether. In view of such facts, it is important that voters should not lose sight of those results of protection without which a diversity of industries would be impossible, except through reduction in wages to the level of other countries. The free trader admits this by his contention that protection encourages, by enhanced prices, the building up of industries that otherwise would find no footing in this country. Among the benefits derived from protection is a largely increased demand for labor, by which it is possible for every man to get work of some kind if he really wants it. This comes from the diversity of employments afforded. We have now some sixty-six millions of people in the United States, about one-fifth of them heads of families. All these cannot be farmers and earn enough to buy the necessaries of life. They could raise enough to eat, and a large surplus in addition, but there is not in all the world a demand for farm products sufficient to pay for their other household necessities—such as clothing, furniture, cooking utensils, carpets, etc.—if these were made in foreign countries. Outside of farming, there is absolutely no employment at which the majority of those who are compelled to work for a living could engage, and earn enough to keep themselves and families from want. Hence it is that diversification of industries, which can be secured only through the policy of protection, is a necessity to individual comfort and family maintenance as well as to national growth and independence. — *American Economist*.

LADY MACDONALD.

THE part that Lady Macdonald plays in her husband's life is not to be set forth in a few words, says *The Ladies' Home Journal*. All that Lady Beaconsfield was to the Conservative Premier of England, Lady Macdonald has been, and is, to the Conservative Premier of Canada. If any one on earth knows his mind, it is she. Their understanding of each other is complete, and their matrimonial felicity unruffled. How much Canada owes to Lady Macdonald for the help she has given her greatest statesman, only the Premier himself can fitly estimate.

The wife of the Premier is a frequent attendant at the sittings of Parliament, the best seat in the Speaker's gallery being always reserved for her, and no important debate takes place that she does not follow it to the final vote, though the daylight may be dimming the electric lights.

Lady Macdonald is tall and tawny, with warm tints glowing in her cheeks. Her abundant hair a few years ago became white as snow, and now makes a wonderfully becoming aureole about her high, broad forehead. Energy and determination are unmistakably stamped upon a countenance whose habitual expression is somewhat grave. Yet when moved to laughter, the whole face lights up until every trace of care and anxious thought vanishes from it. In the art of conversation she has nothing to learn. She is an omnivorous reader, and not only reads, but digests and assimilates her

reading, while a retentive memory keeps at command all that she acquires. She forms her own opinions about the subjects of the day, and never hesitates to express them in clear, concise terms. To the full extent of her time and ability she co-operates in all religious and philanthropic enterprises and associations that commend themselves to her approval. Neither does she hold aloof from balls, dinners, receptions and other fatiguing features of social life at the Canadian capital, nor disdain to take a lively personal interest in the fascinating subject of dress.

When Parliament is in session her drawing-room on Saturdays is filled with an everchanging flow of visitors from three o'clock until dinner time. Yet no one of them fails to receive a warm clasp of the hand, a bright, appropriate greeting, and the impression that the hostess is quite as glad to see them as if they were the only callers. With a dozen in the room at once, the most of them utter strangers to each other, Lady Macdonald will contrive to keep the ball of talk rolling so merrily that all feel they have a share in the conversation.

SWEDEN STEPS INTO THE PROTECTION RANKS.

"THAT a wave of Protectionist feeling is overspreading the governments of leading continental countries is unmistakable," frankly admits the *London Iron and Coal Trades Review*. "Unfortunately," adds our contemporary, "this is so much the worse for our own (English) trade." "France," it goes on to say, "is exhibiting more clearly her hostility to Free Trade doctrines; Italy has done what she could to exclude British iron; Spain needs more money and favours increased import duties to raise it; and we need not say that German authorities take sides against the Free Traders." And now Sweden steps into the ranks of Protection countries.

The work of revising the duties was entrusted to the Tariff Commission, which has just reported to Parliament, recommending the imposition of higher import duties all round. The following are the principal changes proposed, as far as regards the iron and allied trades:

	PRESENT DUTY.	PROPOSED DUTY.
Pig iron.....	free	\$4.98 per ton.
Rails.....	"	5.47 "
Tin plates.....	"	16.20 "
Cast iron tubes (including tubes for machinery).....	"	4.05 "
Rolled tubes.....	"	10.81 "
Metal wire 1½ mm thick and above.....	\$10.94	21.87 "
Copper plates, bolts, etc.....	free	.01 per lb.
Copper tubes and pipes.....	"	.02 "
Machinery, implements, tools.....	"	10% ad val.

Cutlery imports are rather heavily taxed already, but the duties are to be further raised, as are the duties on all kinds of cast iron goods, in accordance with the resolutions of the Parliament of 1888.

It is estimated that the new duties will effect an increase of \$777,600 in the revenue, and it is difficult to see how the Swedish Parliament, with the examples of other Protectionist nations before them, can resist the logic of events sufficiently to defeat the proposed tariff. Of course the first and chief sufferers will be English manufacturers. — *Cleveland Iron Trade Review*.

SOME splendid machinery was on the C.P.R. wharf to-day consigned to the New Vancouver Coal Company. These are the engines and other apparatus for their new shafts. The machinery is all excellent in design, material and workmanship, the engines being models of compactness and strength. The whole is from the William Hamilton Manufacturing Company, of Peterborough, Ont., whose Pacific coast office is 408 Cordova street. — *Vancouver, B.C., Telegram*.

THE recent accidents in the Pennsylvania mines have drawn attention to the general way in which mine laws are disregarded, and emphasized the value of electricity as a lighting power. There is a certain class of men, who, disregarding all injunctions to the contrary, will go into dangerous places with a naked light, risking not only their own safety but imperilling the lives of others. This could be avoided by the use of electricity as a lighting power in mines. The Mammoth mine disaster has served to call attention to this question, and also to another one of equal moment and equal importance. That is, that the changes in the barometer, indicative of a storm, have a considerable effect upon the accumulation of gases in a mine. The barometric depression is peculiarly productive of this condition of affairs in England, and the belief exists that the

same influences affect the Pennsylvania mines. If this should be the case, the necessity for the use of electric lighting in mines would be of greatest value. Electricity is rapidly being accepted as an absolute necessity for clean, quick and cheap mining, and the day is undoubtedly rapidly approaching when all the motive force used in coal mining will be drawn from electricity. It is the experience of those who have placed electric plants upon their property, not only that the productive capacity of the mines has been increased, but that the character of the ore mined is of a higher order. With electric lights in mines, not only would the safety of the miners be rendered almost certain, but the property itself would be more secure, and ruinous accidents might be averted. *Black Diamond.*

AMERICAN mining companies and iron manufacturers will naturally be interested in the movement on the part of the Spanish Government to increase the export duty on iron ore. The present duty is 1 per cent.; if the proposed change takes place, the duty will be increased to 5 per cent. *ad valorem.* The total exports from Bilbao river last year were about 4,000,000 tons. The duty of 5 per cent. would roughly be about 10 cents per ton, or \$400,000 in the annual export—quite a tempting sum in the eyes of the Spanish authorities. This, as a correspondent of the *Iron and Steel Trades Journal* (London) says, would mostly be paid by English manufacturers. Naturally, the English importers are very indignant at this new invasion of their "rights," and the correspondent in question calls it an "economical error." But this does not appear to us so grave an error after all. The mines are mainly operated by foreigners, who would have to pay the duty. The iron deposits are rapidly being worked out, and all that the Spanish people have to show for it all is the money incidentally expended by the English operators in wages, supplies, etc. The raw material has gone into the building up of the iron and steel industries of other countries, and they, not Spain, have received the benefit. Identically the same question is presented in Canada, where the rich nickel deposits are principally in the hands of Americans. Whatever be said of the inconvenience that an export duty might work to the American investors, there is a show of justice, as well as of sound economic reasoning, that would give Canada, rather than any other country, the benefit of the rich gifts which Nature has bestowed upon her. Logically, Spain and Canada are both wise and consistent in this matter.—*Iron Trade Review.*

The beliefs of boyhood—where are they? Richard the Third's crooked back has been put straight, worms are proved to be friends to farmers, the noble Indian does not fear a very good character, and has been bluntly described as "pizon," mists do not rise, salt is not salt at all, nor whalebone bone, Saint George would have stood a very good chance of being prosecuted in our day, William Tell's reputation as a marksman is in jeopardy, and honest doubt steps in everywhere. So it seems that we have been doing our old friend, the upas tree, a very serious injustice. The botanists have found out that it should be classed with good fruits like the mulberry and fig, and with estimable commercial substances like hemp and india-rubber. The idea that its branches were injurious to all living things which came near them was proved to be an empty delusion long ago, and the justifying fact that the juice of the tree is a deadly poison is now neutralized by the discovery that its seeds are very beneficial in cases of fever and dysentery. What fact is safe after this? But in defence of the upas tree, which has been nothing else but deadly for so many generations, more remains behind. We learn that its bark is useful, promising to furnish paper, capable of being made into ropes, or, when taken from an inner layer, of being formed into natural sacks in which to pack rice. At this point it would be preferable to stop and consider the reputation of the upas tree to be decidedly restored, but it is said, besides, that "the felt-like bark, removed entire, forms splendid seamless suits—the trunk furnishing bodies, the branches sleeves or legs, as the case may be. If really fine raiment is desired, the material is rolled and dyed, when it is fit for any 'masher.' Costumes of this natural cloth have attracted much attention at recent exhibitions." So much is stated on the authority of *The Tropical Agriculturist*, but in the popular phrase of a well-known comedian, this is "too much." While it is admitted willingly that the bark of some trees of this species is pulped and beaten into a rough natural cloth, of which, as in Samoa, some use is made by uncivilized man and woman-kind, whole suits of it, dyed and pressed, cannot be accepted anyhow.—*Textile Mercury.*

"THERE is now in the C.P.R freight sheds," says the *Vancouver World* "awaiting shipment to Cariboo, a powerful piece of machinery to be used in separating the gold from the gravels of one of the mining claims in that famous gold-producing country. It is none other than a hydraulic giant, from the Joshua Heudy Machine Works, of San Francisco, of the largest size turned out by

those famous works. In fact, only one other of the same size has been made, and that for the noted Benjamin claims, in Trinity County, Cal., owned by D. V. Hays, of Boston. The machine has been purchased by the South Forks Hydraulic Mining Company, for their claim on the South Fork of the Quesnelle River. Some idea of the power of the hydraulic giant may be got from a few details of its construction. The discharge pipe is fifteen feet long, on the smaller end of which a deflector is placed to control the direction in which the stream is to be thrown. With the head of water which the company will have at their command, the seven inch nozzle will discharge about 1,800 miner's inches of water, and as fifty miner's inches is equal to one cubic foot per second, this means thirty-six cubic feet per second. Should circumstances demand it, smaller nozzles may be used down to five inches in diameter. The water is brought from the tank or pressure box, 300 feet vertical height above the machine, by a pipe of steel plates eighteen inches in diameter. It consequently passes through the machine into the discharge pipe, under a pressure of about 130 pounds to the square inch, and comes from the nozzle with a velocity of about the same number of feet per second. The discharge pipe fits upon the machine with a ball and socket joint, which gives it a deflection of almost ninety degrees in a vertical direction. The upper part of the machine, and to which the discharge pipe is attached, turns horizontally on the lower or bed part so that all these parts combining give the operators complete control of the direction of the stream. The company owns a claim which consists of a bank of gold-bearing gravel, with a face about 200 feet in height. Against this bank the powerful current thrown by the machine impinges, washing the earth and gravel into the sluice box four feet wide at the bottom. The gold being the heavier falls to the bottom and is caught in spaces left between the blocks with which the flume is paved. The work of such a giant apparatus is quick and effective, saving a great deal of labor and accomplishing what would be almost impossible in any other way."

THERE are some twenty places in Ontario where pork is packed, and the total put up in the season 1890-91 is estimated by the *Cincinnati Price Current* at 155,000 hogs, as compared with 126,000 in the previous twelve months. The principal places are Toronto, Hamilton, and Ingersoll, but St. Thomas, Peterboro', Woodstock and Brantford, are on the increase. We append a list:

ONTARIO.	1890-91.	1889-90.
Aylmer.....	2,500	2,500
Barrie.....	1,400	1,350
Brantford.....	3,000	1,200
Chatham.....	2,300	2,000
Collingwood.....	4,000	3,810
Guelph.....	3,000	4,000
Hamilton.....	20,600	22,000
Hensall.....	1,250	1,015
Ingersoll.....	13,320	12,928
Lindsay.....	1,850	1,800
London.....	4,800	4,500
Mitchell.....	2,000
Mount Forest.....	1,000
Newmarket.....	2,000	1,239
Orillia.....	1,000
Owen Sound.....	1,200	1,200
Peterboro'.....	6,000	5,000
Port Hope.....	500	400
St. Catharines.....	3,000	3,000
St. Thomas.....	7,450	5,251
Toronto.....	61,400	46,380
Woodstock.....	3,700	1,300
Other places.....	7,000	5,000
Total.....	155,200	126,000

RECENT statistics, according to Bradstreet's Commercial Directory, show that in all lines of industrial life more than four-fifths, or over eighty-two per cent. of all who failed in business in the United States last year were brought to that condition primarily because of lack of equipment, either natural or acquired, mental or financial, or through lack of special education in their respective lines of trade. It is clear and plainly evident that poor and superficial preparation for business life is the one great weakness of our present industrial training—the broadest of all avenues leading to failure. It is this lack of proper equipment which causes certain advertisers to fail, while others gradually work their way to eminent success and great wealth. The great study with the advertiser, therefore, should be how to start right, how to go on right, how to constantly keep fully equipped.

Manufacturing.

This department of the "Canadian Manufacturer" is considered of special value to our readers because of the information contained therein. With a view to sustaining its interesting features, friends are invited to contribute any items of information coming to their knowledge regarding any Canadian manufacturing enterprises. Be concise and explicit. State facts clearly, giving correct name and address of person or firm alluded to, and nature of business. Subscription \$1.

A 50x40 foot addition is being made to the Clyde Woollen Mills at Lanark, Ont.

MR. R. J. McLAUGHLIN and others will establish a glass factory at Wallaceburg, Ont.

MR. WM. HORNE, of Sydney, C.B., will establish a factory at Victoria, B.C., for the manufacture of woollen goods.

THE Hamilton Powder Company, Montreal, will erect extensive works at Nanaimo, B.C., for the manufacture of explosives.

MESSRS. CARRICK BROS. shingle mill at Fawkham, Ont., near Orillia, was destroyed by fire May 19th, loss about \$12,000.

MESSRS. JACKSON BROS., Galt, Ont., are building a new biscuit factory. The building will be 55 x 25 feet, of brick, three stories high.

MESSRS. E. BROAD & SON, the well-known manufacturers of edge tools at St. Stephen, N.B., will merge their business into a stock company.

THE Nanaimo Foundry Company, Nanaimo, B.C., are doubling the capacity of their works and introducing considerable new machinery.

THE Gutta Percha and Rubber Manufacturing Company, Toronto, are supplying the fire department of London, Ont., with 1,500 feet of fire hose.

THE Royal Bridge and Iron Company, Montreal, has been incorporated, with a capital stock of \$30,000, to manufacture steel and iron bridges, etc.

THE Cobourg Carpet & Matting Company, Cobourg, Ont., have recently made a very large mat the woven sections of which are twenty feet wide.

THE Consumers Cordage Company, of Montreal, have acquired Brown's ropework at Hedleyville, Que., and will put it in operation, employing about 100 hands.

THE Drummond-McCall Pipe Foundry Company, Montreal, has been incorporated, with a capital stock of \$50,000, for the manufacture of water and gas pipe, etc.

MESSRS. F. H. WILSON & CO., Yarmouth, N.S., have demolished their old foundry building and are erecting new and enlarged works for the manufacture of stoves, etc.

THE Automatic Knife Company has been incorporated, with a capital stock of \$25,000, and will erect a factory at Gananoque, Ont., for the manufacture of a patent automatic pocket knife.

THE William Hamilton Manufacturing Company, Peterboro', Ont., are supplying the machinery for the new lumber mill, being built at New Westminster, B.C., by the Pacific Lumber Company.

EFFORTS are being made to have the Doherty Organ Company, of Clinton, Ont., transfer their plant to Lindsay, Ont. If the scheme eventuates the Lindsay works would give employment to 150 hands.

THE Guelph Woollen Mills Company, Guelph, Ont., has been organized, with a capital stock of \$100,000, to take over the plant and business of Messrs. McCrea & Co., woollen manufacturers of that place.

MESSRS. I. MATHESON & CO., New Glasgow, N.S., are building a 150x75 feet addition to their works, to be used in the construction of steam boilers. This concern are large manufacturers of mining machinery.

THE Hamilton Lumber Company, Hamilton, Ont., of which Mr. John Bradley is general manager, have secured suitable property and are going extensively into the manufacture of dressed lumber, sash, doors, blinds, etc.

THE Brooks Manufacturing Company, Peterboro, Ont., who are large manufacturers of electric light carbons, have enlarged their

works, and will also manufacture porcelain insulators used in connection with electric appliances.

THE E. B. Eddy Manufacturing Company, Hull, Que., are introducing machinery into their works for the manufacture of cardboard from spruce, hemlock and other woods, with capacity to turn out about three tons of cardboard per day.

THE Bowmanville Agricultural and Carriage Works, Bowmanville, Ont., were destroyed by fire May 15th, loss about \$10,000. A large number of reapers, mowers, rakes, tedders, carriages, etc., contained in the building were also destroyed.

MESSRS. GEO. F. HAWORTH & CO., Toronto, have been working overtime manufacturing leather belting to fill orders chiefly for some of the large lumber mills in British Columbia. The excellence of the belting made by this concern is well known throughout Canada.

MESSRS. TAYLOR BROS., Toronto, who own large paper mills on the Don river, near this city, and who have for a number of years been manufacturers in large quantities of both red and white common brick, have gone extensively into the manufacture of fine pressed brick.

MR. A. B. SAYLOR'S steam mills at Bloomfield, Ont., was destroyed by fire May 13th, loss about \$4,000. It contained two run of stones, large circular saws for lumber, a shingle machine, planer, machinery for the manufacture of barrel hoops, evaporator and cider mill.

THE Strathroy Manufacturing Company, Strathroy, Ont., recently, within a week, shipped to various points 28,000 rakes, 16,000 snaths, 5,000 horse pokes, 2,000 curtain poles, 15,000 fork and other handles, besides upwards of 1,000,000 chisel and other handles, and still the orders are coming in.

A LARGE "Monarch" boiler for the factory of the Forest Milk Condensing and Canning Co., Kingston Station, went through on Saturday last. Messrs. A. Robb & Son, Amherst, were the manufacturers. We understand that work in the factory will be booming in a short time.—*Kentville New Star*.

MR. F. G. O. EHLE, of Buffalo, N.Y., will establish extensive works at Fort Erie, Ont., for the manufacture of tin goods. Natural gas is one inducement to locate at Fort Erie, and Mr. Ehle thinks he can, with free tin plates in Canada, afford to sell in the American market, notwithstanding the McKinley tariff.

THE Canadian Locomotive and Engine Works, Kingston Ont., have contracted to build four locomotives for the Chignecto Marine Transport Company, to be used in drawing vessels over the Chignecto marine railway now nearing completion. These engines will weigh ninety tons each, and will be the largest of the kind in the world.

THE Royal City Planing Mills Company, Westminster, B.C., have erected a wharf at Port Kells, and are about to construct a road between Port Kells and their timber limits on Mud Bay, along which their logs will be hauled to the Fraser River, where they will be tied up into booms and towed to their mills in Vancouver and Westminster.

M. LANGER, a practical and experienced steel worker of Austria, is in New Glasgow, N.S., in connection with the steel works. He has erected a new smelting furnace and is to manufacture a new and finer grade of steel for the company. Mr. Davis, of Philadelphia, is also there and is making tests of the different kinds of steel. He is a practical chemist and has charge of that department of the works.

MR. A. HASLAM, proprietor of extensive lumber mills at Nanaimo, B.C., is building a powerful steam tug 83 feet long and 16 feet beam for the purposes of his business. The John Doty Engine Company, Toronto, are supplying the motive power, the boiler being 11x8 feet and will carry 125 pounds of steam, and the cylinders of the compound engine will be 14 and 26 inches diameter and 18 inches stroke.

MR. O. P. ST. JOHN, manager of agencies for the John Doty Engine Company, of Toronto, is in the city arranging for the establishment of an agency for the company in this city. The company is one of the best known and most reliable in the East, and manufactures steam and gas engines, boilers and castings. There is considerable market for the articles they handle in this district.—*Vancouver, B.C., Telegram*.

THE Toronto Canoe and Boat Company, Toronto, have recently built a canoe thirty feet long, fifty-two inches wide, and twenty-four inches deep, to be worked by sixteen paddles, for the Argonaut Rowing Club of this city. They are now building a canoe of the

same size for the Wanderers' Canoe Club, of Montreal; one of the same size for the Leander Rowing Club, of Hamilton, and a steam launch, thirty feet long, six feet beam and three feet deep.

The British Columbia Organizing and Dyking Company is an English concern who have contracted to dyke and drain a marsh on Pitt River, B.C., near Vancouver. There are about 30,000 acres to be reclaimed. The company have just completed the construction of a dredge at Morse's Mills, which is 80 feet long and 28 feet wide, capable of moving 1,500 cubic yards of earth per day, the scoop having capacity to lift $2\frac{1}{2}$ cubic yards at a time. The cost of this dredge is about \$30,000.

A CORE saw, intended for boring out barrels from solid logs, was recently completed at Taunton, Mass., for a company at Lacrosse, La. The saw is made of wrought iron, cylindrical in shape, and steel cutter teeth are distributed about its edge. It was expected that the saw would cut a barrel per minute, and during a trial of the first machine a core $10\frac{1}{4}$ inches in diameter and $21\frac{1}{2}$ inches long was bored out in thirty seconds. A mill for the manufacture of barrels by these machines is to be built in Louisiana.

MESSRS. BUTTERFIELD & CO., Rock Island, Que., manufacturers of blacksmith and other tools, are erecting another new building in addition to the two they already have at Rock Island and Derby Line, Vt. The new building will be fire-proof, two stories high and 153 feet long. The company's business is fast increasing and they now employ between forty and fifty hands the year round. Their trade connections include every city and town in the United States and Canada and they are now making arrangements to ship to foreign lands.

THE Newcastle quarry is now running full blast, a great quantity of stone being shipped to Vancouver and Victoria. It is probable that if the demand continues the present force of fourteen men will have to be increased. The Newcastle rock finds great favor in Victoria on account of its beauty and durability, but it is said that many of the workmen prefer a less useful but more easily cut article. This will probably not affect the sale of the stone as its weather resisting qualities have obtained for it a more than local celebrity.

Nanaimo, B.C., *Free Press*.

THE development on the Belmont Bessemer Ore Co's. property, near Peterboro', Ont., has so far been very satisfactory. No. 1 diamond drill hole has been put down 100 feet, and shows at least 60 to 70 feet of good ore—perhaps 75 feet. The cores seen show no sulphur, which had been feared; at 90 feet fine pure ore is shown with a little lime, which will help to flux it. The showing so far is fully equal if not superior in quality to some of the best Port Henry mines, and the quality is first-class Bessemer. The New York owners are much pleased, and intend to put on a large force of men at once.

THE Jenckes Machine Co. at Sherbrooke, Que., have just completed a very large colliery winding engine, sixty tons in weight, ordered by the Intercolonial Mining Co., for work at their Drummond colliery, Westmill, Nova Scotia. The engine is a double one with cylinders 28x60 inches, fitted with Cornish valve gear, and is 500 horse power. The drums are ten feet in diameter, and will wind over 5,000 feet of rope each, and it is intended to hoist seventeen boxes of coal at each lift from the slope of the mines, which are at present close upon 4,000 feet in depth.

MR. E. SJOSTEDT is mining a good deposit of iron ore on East River, Pictou Co., N.S., and shipping it to Londonderry. He is organizing a company, partly Canadian and partly American, and the proprietors of the Katahdin Iron Works, Maine, of which Mr. Sjostedt was formerly manager, contemplate removing the whole of their smelting plant from Maine to Pictou County, as they are also interested in the property. It is proposed to build a furnace for charcoal pig with a production of some forty tons per day. A car-wheel factory is also being considered.

MESSRS. D. H. CAMERON & CO., of Ottawa, have secured a site at Liverpool, and will shortly commence the erection of a large saw mill to supply both the local and foreign demand. No particulars as to the extent and capacity of the mill are yet obtainable, but it is learned that no time will be lost in getting the enterprise under way. Messrs. Cameron & Co. have lately secured some large and valuable limits, the timber from which will fully supply the mill for some years at least. Mr. Cameron is experienced in lumbering and milling, and is well known on the Ottawa, where he lumbered for many years. He is backed by Ottawa capital in the enterprise.—Vancouver, B.C., *Telegram*.

THE Dodge Wood Split Pulley Company, of Toronto, in their very attractive business cards, call attention to the patent split pulleys manufactured by them. These pulleys are spoken of as being

the lightest, cheapest and strongest pulley made; that they have the best shaft fastening, best belt surface, and are the best looking pulley made, and that 20,000 of them are now in use in Canada. Regarding the transmission of power by the Dodge American System, this company manufactures special grooved pulleys and apparatus for the transmission of power by rope from one to 500 horsepower at any distance and at any angle. They invite correspondence for further information.

THE Dominion Wire Manufacturing Company, Montreal, manufacturers of all kinds of steel and iron wire, barb wire, brass wire, hay bale ties, steel and brass wood screws, etc., whose extensive plant is at Lachine, near that city, have introduced machinery for the manufacture of copper wire, working the material from the ingots. To do this they have erected a building 150 x 60 feet, the new plant costing over \$35,000, with capacity to manufacture ten tons of copper wire per day. The consumption of copper wire in Canada for electrical purposes is very large and rapidly increasing, and this new copper wire mill is erected to meet this demand, it being the only concern of the sort in the country.

THE B. Greening Wire Company, Hamilton, Ont., inform us that they are now manufacturing seven sizes of the Brown patent steel wire chain and are making up a full line of cow ties, dog chains, halter chains, trace chains, etc. The company have met with good success with the Brown chain since they began the manufacture of it, but were more or less handicapped for want of smaller sizes, which latter they are now making in sufficient quantities to meet all the demands of the trade. In addition to their list issued in January, they are now making No. 2 coil halter and dog chains at the following list prices: Coil, \$4.65 per 100 feet; $4\frac{1}{2}$ -foot halter, \$3 per dozen; 6-foot dog, \$4; also 9-foot dog chains, No. 000, \$8.50; No. 00, \$7.20; No. 0, \$6.20; No. 1, \$5.70; No. 2, \$5.10 per dozen. The discount is the same as on the other sizes.

IN Welland county, Ont., the Provincial Natural Gas and Fuel Company have finished their series of wells to the number of fourteen, all of which are situated in the townships of Bertie and Humberstone, in the vicinity of Sherks Station on the Grand Trunk railway. Other operators have been busy throughout the county, notably Messrs. Conniller & White, who drilled for and obtained gas in the town of Port Colborne. John Rube struck gas a few miles west of that town; this gas is being utilized in the firing of lime-kilns owned and operated by Mr. Rube. Another lime producer, Mr. Carroll, drilled in the south-west part of Bertie township, and in the northern part of Port Colborne, Mr. Edward Wear struck a well from which a daily flow of gas of over 400,000 cubic feet is recorded.

FOR the first time in the history of Canadian mining, electricity is about to be used as a motive power. The company introducing it is the New Vancouver Coal Company, at Nanaimo, B.C., who have ordered a plant, costing considerably over \$50,000, for use in their mines. It will include an underground tramway with power sufficient to maintain a uniform speed of eight or nine miles an hour, with 150 loaded cars continually moving. The mines will be lighted by six hundred incandescent lights, and the drills and cutters will be operated by the same current. The necessary materials will be in place in a few weeks and will at once be put in operation. Electricity for lighting purposes is also used at the mines of the Dominion Mineral Company at Sudbury, and will shortly be introduced in the phosphate district by one of our operators.—*Canadian Mining Review*.

EVERYTHING is progressing in an entirely satisfactory manner in connection with Vancouver's projected dry-dock and arsenal works. Latest advices from the projectors of the scheme indicate that they are meeting with the most encouraging success in connection with the enterprise. It is now generally understood that the Dominion Government looks with favor on the project of constructing a dry dock at this point, and in all likelihood a substantial annual subsidy as well as a free site, will be voted by Parliament. The intention now is to make the Vancouver dry dock the largest on the Pacific coast, in order to meet any emergency which may arise in future in connection with the largest classes of ocean-going vessels. This is most encouraging news for this port, as the construction of such a work as we refer to will at once place Vancouver in the front position as against all her rivals. It is now well understood that active operations on the work will be begun at an early date.—Victoria, B.C., *Commerce*.

THE Penberthy Automatic Injector, although known in Canada but a few years, has gained an unequalled reputation for the short time it has been on the market. The manufacturers, the Penberthy Injector Co., established a factory at Windsor in the spring of 1887, and by making a simple and reliable injector, and one that in price

was much less than others before used, have placed about 8,000 in the Canadian market, and in the same length of time over 40,000 in the United States, an output unprecedented in the history of injectors. They report the spring trade, thus far, more than double that of 1890, and they are at present supplying some of the largest manufacturers of portable and traction engines in the Dominion, as will be seen by reference to their advertisement in this issue. Their factory which they supposed would accommodate their trade, is now found to be totally inadequate for the output, and they are about to enlarge the same to double its present size. The office of this company is at Detroit, Mich., where all communications should be addressed.

An engineer to lay off the grounds and locate the position of the new blast furnace and the various buildings in connection therewith at Picton, N.S., is expected at Eureka in the course of three or four weeks. The *Journal* says the erection of the furnace will not be given out to contract, but will be built by the company's own employees. Only one blast furnace will be proceeded with meantime, but the laying out of the grounds will look to a duplicate furnace and duplicate adjuncts. The first furnace built will not be a very large one. The size will be some sixty-five feet high by fourteen feet. It is estimated the yearly output of pig iron from the one furnace will be 20,000 tons. This will represent a consumption of some 40,000 tons of coal, it being estimated that it takes two tons of coal to produce a ton of pig. In connection with the works the Company will build from fifteen to twenty coke ovens, or a sufficient number to produce thirty tons of coke per week. These ovens are called, if we mistake not, the "Copic," and are of a design not at present in use in this Province. One of the features of the new style of oven is that the coke is not drawn out by hand in pieces, but is driven out en bloc by a ram. It is said that it only takes five minutes to discharge an oven and recharge it. It is also claimed for it that any sort of coal, almost, can be made to produce a good quality of coke. The fire-proof bricks for the furnace will be imported from Scotland, and the bricks for the oven from Germany. The erection of the furnace will be proceeded with as rapidly as possible, yet, owing to the large amount of labor involved in its construction, it is not expected smelting operations will begin till the last of the year or the beginning of next.

CANADIAN CUTLERY.

Among the new industries recently established in Halifax is that of the Parkins Cutlery Company. It was not inaugurated with any flourish of trumpets or newspaper notoriety; nevertheless, having the Canadian field practically all to itself, it ought to have a successful future. Nearly all the raw material entering into the manufacture of cutlery is produced in Nova Scotia; the principal article imported is high grade steel for the finest blades. The protection afforded by the tariff averages 25 per cent., so that all that is needed is the establishment of the industry by practical men, aided by sufficient capital to supply the home market. A year ago, R. S. Parkins, who had been engaged in the business in Sheffield, came to Halifax, and started the manufacture of knives in a building at the head of the Arm, near Fenerty's Shovel Works. Then he brought out several experienced workmen from Sheffield, and began to introduce his goods in the local market. His enterprise was favorably regarded by Halifax wholesale men, and he received orders from all the leading houses. The business has since extended to New Brunswick, P. E. Island, Quebec and even as far west as Ontario. The demand grows so steadily that Mr. Parkins finds it necessary to remove to larger quarters, and will establish himself in the city, and run his machinery by steam instead of water power. At present, operations have been confined to the manufacture of the cheaper kind of pocket knives. A 25 cent jack knife is a simple contrivance, but its manufacture gives employment to several specialists. One man forges the blade; another man grinds and polishes it; a third saws the handle; a fourth cuts and drills the scales, fixes the spring and puts the various pieces together. Then the handle is ground and polished, the blade sharpened, etc. Most of this work is done by machinery; but each is a business in itself; the man who forges the blades knows nothing about grinding or polishing, nor does the grinder know how to hammer out the blade. Mr. Parkins, however, has a practical knowledge of all the branches. While on this point it may be mentioned that among the machinery is a small improved boring machine, the invention and manufacture of Harry Hill, of the electrical department of the Halifax Gas Company. This machine does faster and better work than the one hitherto used, and is also an economiser of labor. The commoner kinds of blades are stamped, but the better qualities are forged. Of the latter, one

man can forge about eighteen dozen a day. The handles are made of bone, ash, rosewood, ebony, etc., and the output of knives is about one gross per day. Mr. Parkins sought outside capital, and the factory is now in the hands of a company with an authorized capital of \$20,000. With the aid of new capital, the company will branch out into the manufacture of table knives and forks, carvers, butchers' knives, razors, etc. They are now filling a large order from St. John for pocket knives. With the cheap raw materials to be obtained in Nova Scotia, the protection afforded by the tariff, a market of 5,000,000 people to supply, with the necessary capital and intelligent management, this factory, from its small beginning, ought to grow into one of our most successful industries.—Halifax, N.S., *Herald*.

ANOTHER NEW INDUSTRY.

WORKMEN are now engaged making extensive additions to the works of the Brooks Manufacturing Company, or the carbon factory. These additions are being erected to furnish accommodation for an entirely new manufacture which the company intends to introduce. It is the manufacture of porcelain electrical appliances and hardware trimmings, a line of goods which are not made in Canada to-day but are imported in large quantities from the States. In fact the Lock Manufacturing Company here imports the hardware trimmings, such as door knobs, fancy knobs, etc., to the extent of some \$10,000 worth each year. With the new manufactory at the carbon works, the company will be supplied at home, while all the Canadian trade can purchase an equally good article for less money than they can at present by importing from the United States, and make up the hardware goods on this side of the line.

The additions, which have been commenced, will be two storeys in height. On the east side of the works the excavations for the foundations are now being taken out, while two large kilns have also been dug and are now being filled in with stone mason work to give a good fireproof bottom. The eastern addition will comprise a kiln room 60 x 44 feet, and another manufacturing room 58 x 43 feet. The walls of the kiln room will enclose the two kilns which have already been excavated. These kilns are sixteen feet in diameter, eighteen feet in length and will furnish a capacity for turning out over 90,000 pieces a week, taking door knobs as the basis of calculation.

On the western side of the works will be two additions, one 30 x 30 and the other 25 x 16 feet. The first one of these will be the pug mill and the other the sagger mill where the porcelain will be prepared for baking in the kilns.

Mr. C. H. Kimble, of New Jersey, a gentleman who has had years of experience in the manufacture of the ware, is here superintending the building operations and will have charge of the new addition when it is in operation.

The manufacture of porcelain goods, such as are used in hardware trimmings, has been successfully carried on by Mr. Kimble and his brother in New Jersey, and there is no doubt that with the additional demand for the electrical appliances, and with the Dominion as a market, the venture here will also prove a success. The electrical appliances which will be made are porcelain switches and cut-offs. These are now required by the Underwriters' Association to be placed in buildings and stores lighted by electricity and the demand for them has therefore greatly multiplied.

Mr. Taylor has already a large order for goods, while he will, of course, as already stated, have the local trade of the lock works.

The clay for the manufacture of the porcelain goods will have to be brought from the other side. The principal clay is procured in Maryland, while some English clay is also used. The plant for the manufacture comprises considerable machinery, which will all be purchased and brought from Trenton, N.J.

It will probably take about three months to complete the buildings and get the plant in position ready for beginning operations, as the works will be pushed ahead with all possible speed.

Mr. Kimble, who, by his experience in the States, knows the demands of the Canadian market, is confident that the company will have plenty of work in supplying the trade in the Dominion, as they will be able to compete with their American competitors by reason of the protective tariff.

The new industry at the start will probably employ some thirty or thirty-five hands, but this will be increased as the trade is secured.

Incidentally it might be remarked here that a further addition will have to be made, before the end of the year, to the carbon works. The company are now manufacturing a good carbon and are supplying about two-thirds of the Canadian trade.—Peterboro', Ont., *Review*.

W. LINCOLN ADAMS says in *Outing*: "The International Committee which has in hand the making of a photographic chart of the heavens has recently held a meeting and arranged for commencing the work. It is expected that in three years the photographic chart of the entire celestial vault will be completed, the photographic instruments being now on their way to the different sections of the world for use. It is proposed to photograph something like forty millions of stars, which gives one an idea of the extent of this enterprise. It promises to be the greatest achievement of photography. Orthochromatic plates will probably be used, and a new method for accurately determining the time at which a particular star crosses the meridian will be employed.



TENDERS.

SEALD TENDERS marked "For Mounted Police Provisions and Light Supplies," and addressed to the Honourable the Minister of Railways and Canals, Ottawa, will be received up to noon on Friday, June 19th, 1891.

Printed forms of tender, containing full information as to the articles and approximate quantities required, may be had on application at any of the Mounted Police Posts in the North-West, or at the office of the undersigned.

No tender will be received unless made on such printed forms.

The lowest or any tender not necessarily accepted.

Each tender must be accompanied by an accepted Canadian bank cheque for an amount equal to ten per cent. of the total value of the articles tendered for, which will be forfeited if the party declines to enter into a contract when called upon to do so, or if he fails to complete the service contracted for. If the tender be not accepted the cheque will be returned.

No payment will be made to newspapers inserting this advertisement without authority having been first obtained.

FRED WHITE,
Comptroller, N. W. M. Police.

OTTAWA, May 15th, 1891.

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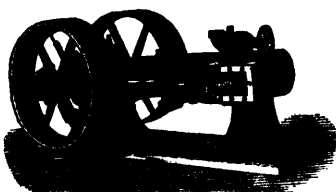
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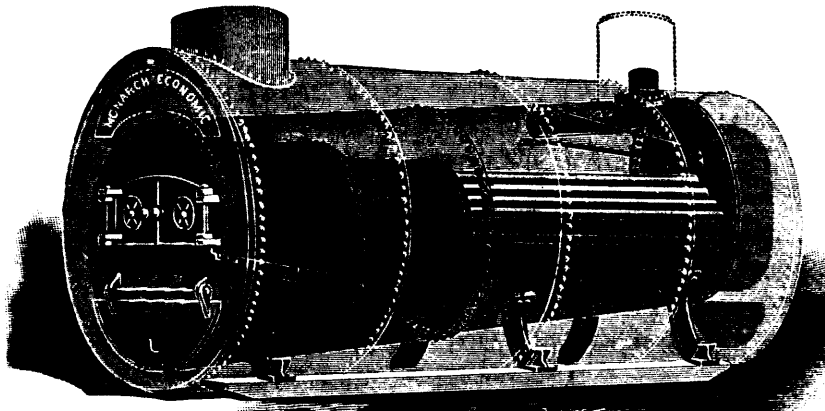
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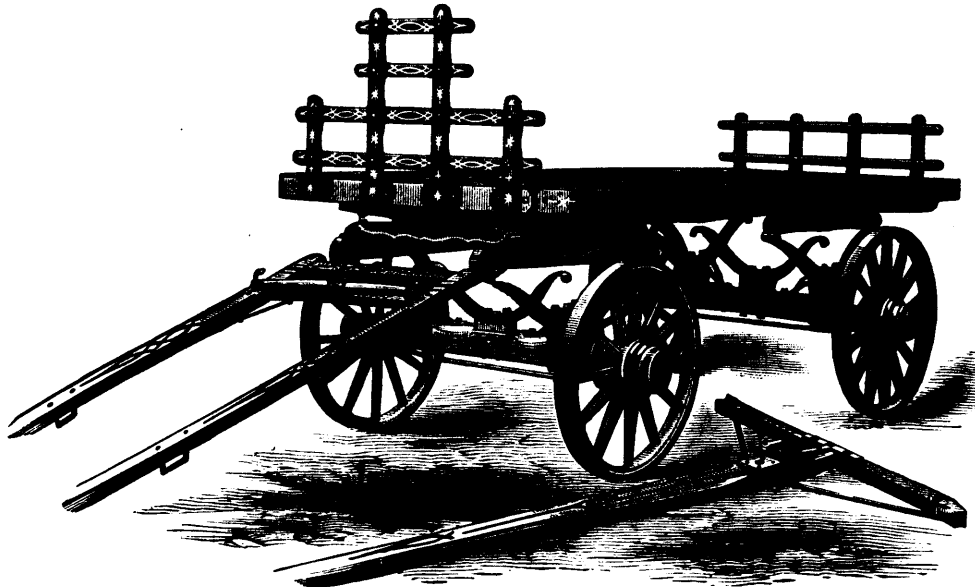
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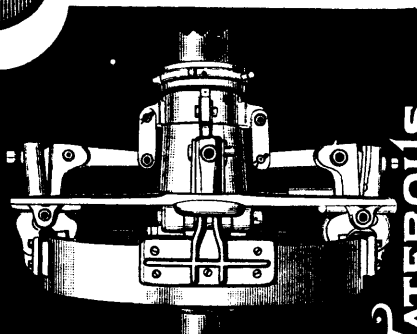
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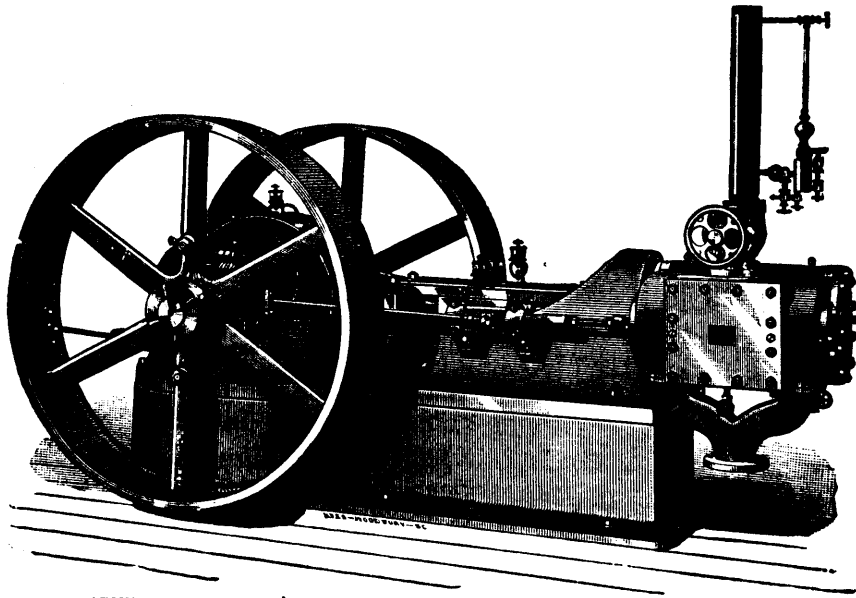
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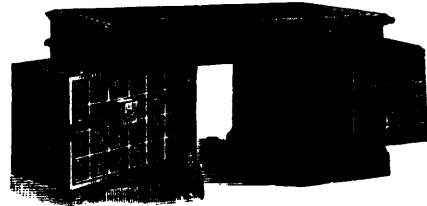
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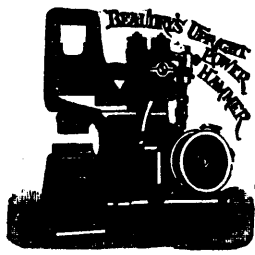
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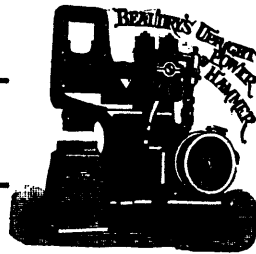
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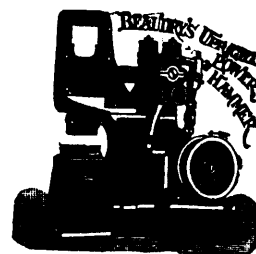
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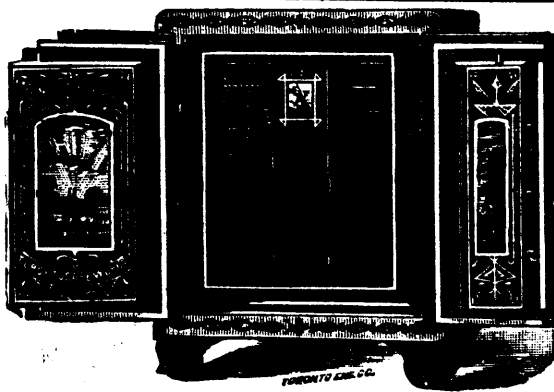


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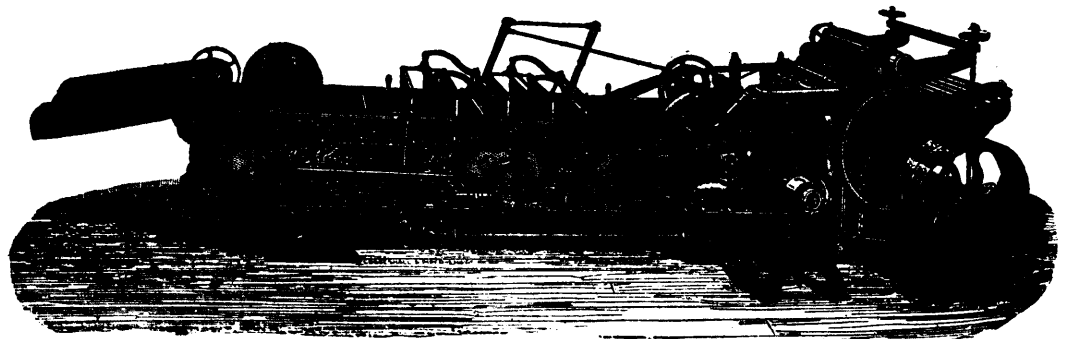
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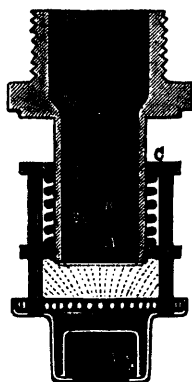
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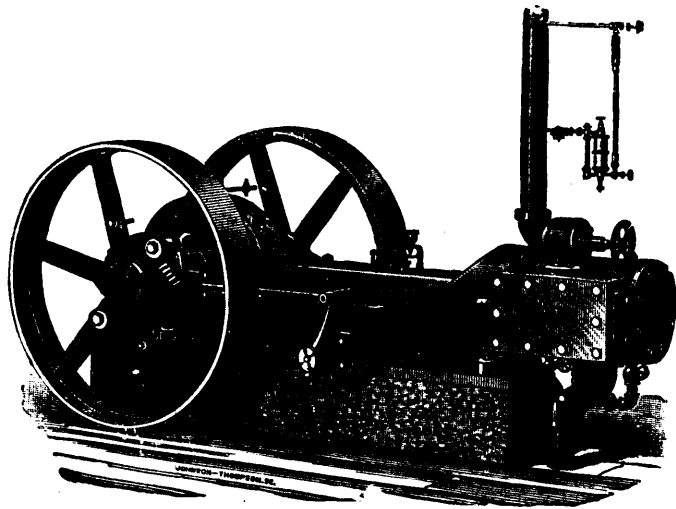
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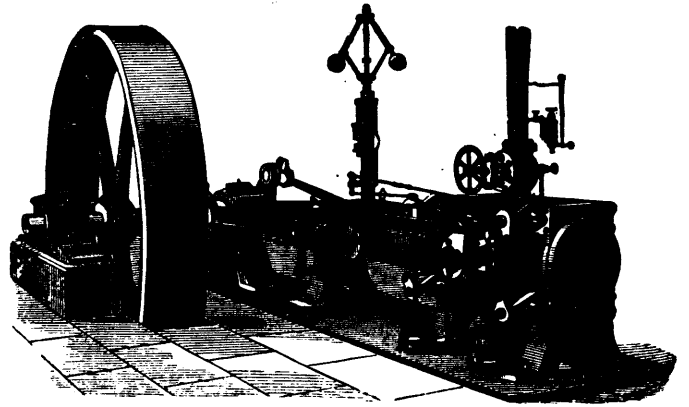
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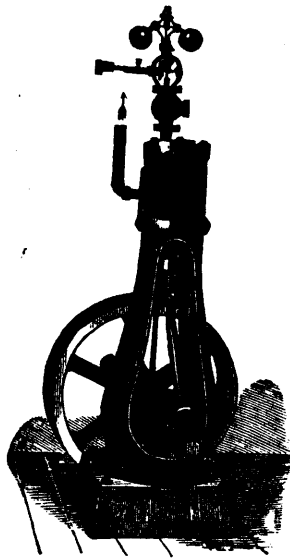
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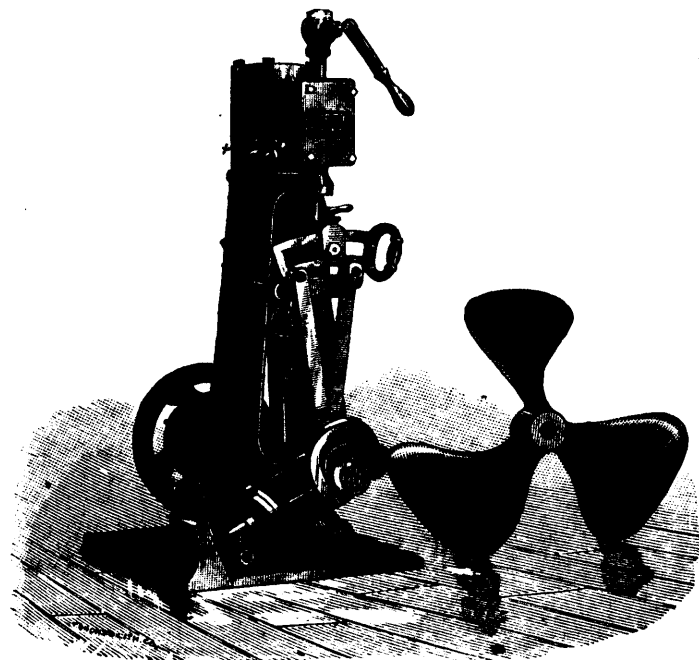
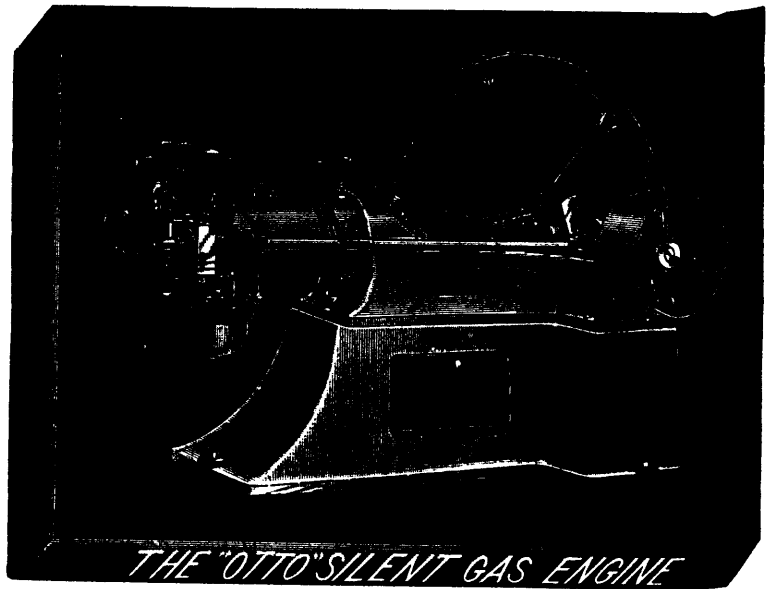
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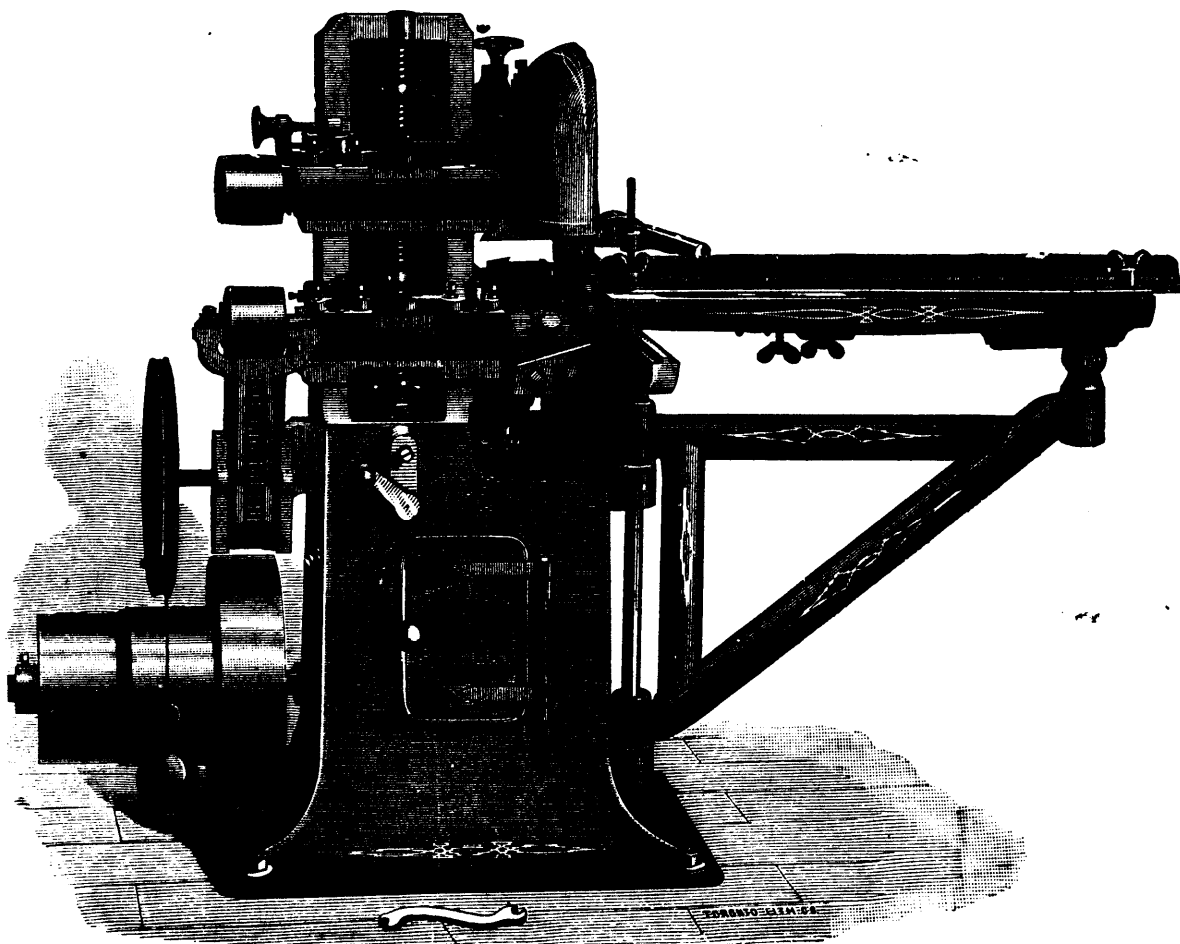
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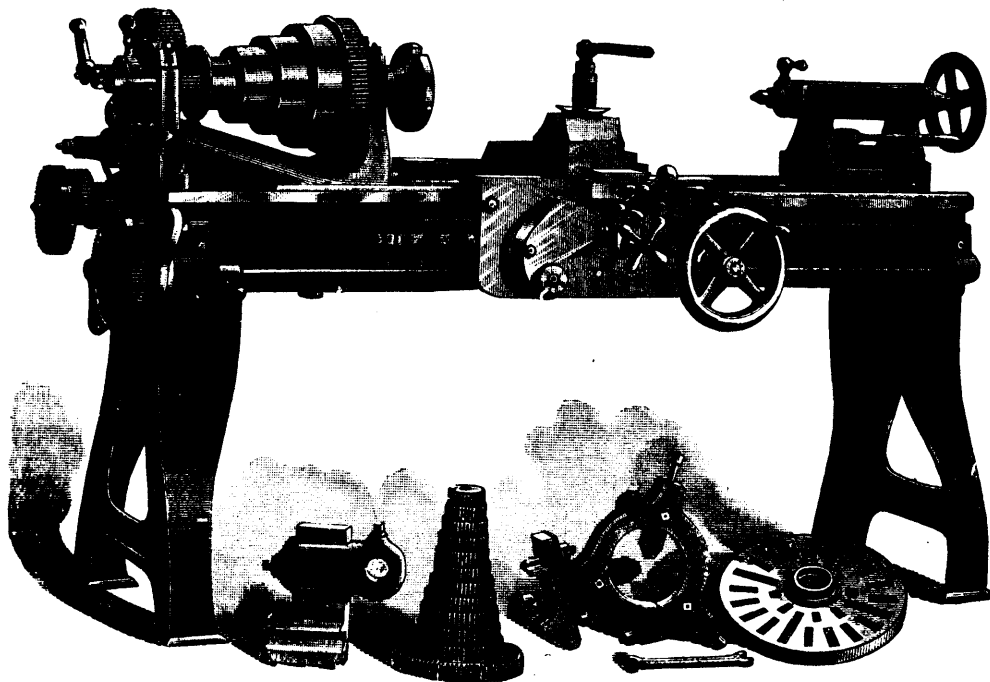
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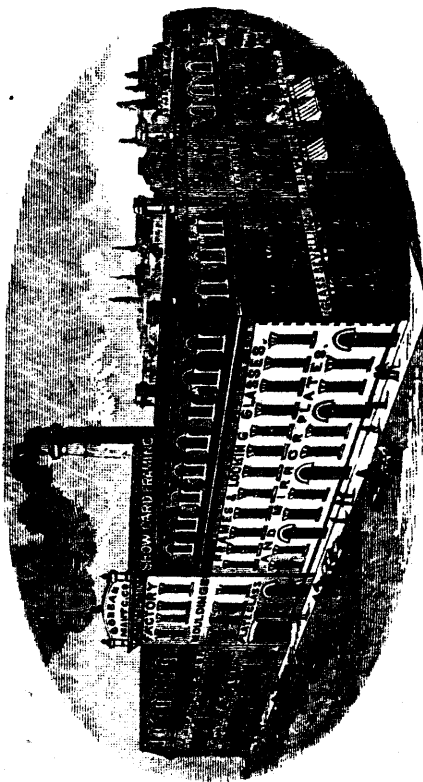
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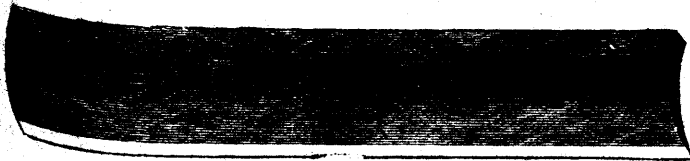
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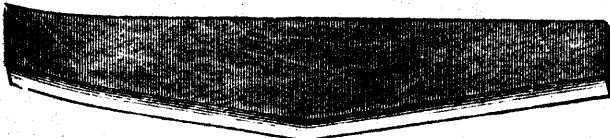
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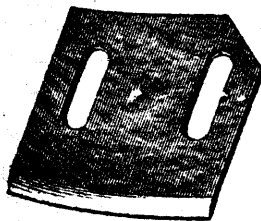
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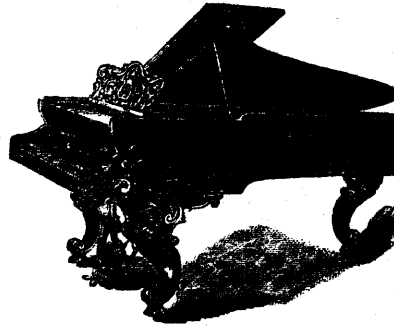
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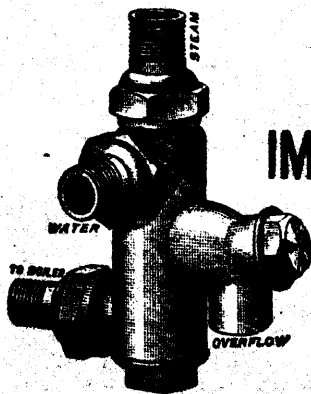
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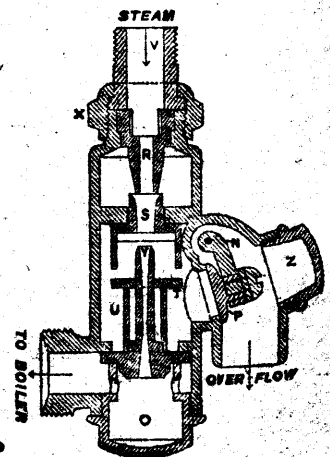


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Feeds the Boiler with Water at
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