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Vol. 21.

TORONTO, NOVEMBER 6, 1891.

No. 9.

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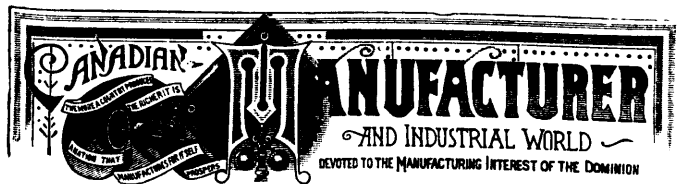
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THE TRADE OF THE UNITED STATES WITH CANADA COMPARED WITH THAT OF OTHER COUNTRIES.

THE Chief of the United States Bureau of Statistics has sent us a statement of the foreign commerce of that country for comparative periods under the old and new tariff, from which we learn some quite important facts regarding the trade with Canada. Thus in a table showing the total values of imports and exports of merchandise into and from the United States, from and to the principal foreign countries and geographical divisions, during the year 1891, the import trade with British North American possessions, meaning Canada and Newfoundland, is stated at \$39,430,000, and the export trade at \$37,380,000, the total trade being \$76,810,000. It is impossible in this statement to separate and distinguish between the facts as applied to Canada and to Newfoundland, but as the trade of the latter is comparatively small, and for the purpose of this article it will all be considered as Canadian. We will show how this American-Canadian trade compares with that of some other countries.

The imports into the United States from certain European countries in 1891 were as follows :

Austria-Hungary.....	\$11,590,000
Belgium.....	10,940,000
Spain.....	6,030,000
Russia.....	4,730,000
Sweden and Norway.....	3,720,000

\$37,010,000

This was \$2,420,000 less than the Canadian trade.

Other European countries :

Italy.....	\$21,680,000
Switzerland.....	14,120,000
	\$35,800,000

This is \$3,630,000 less than the Canadian trade.

France..... \$76,700,000

The trade with Canada is more than half that with France.

In trade with North American countries :

Spanish West Indies..... \$64,880,000

The import trade with Canada 60 per cent. of that with the Spanish West Indies.

British West Indies..... \$16,290,000

Other West Indies..... 5,290,000

\$21,580,000

The Canadian trade 182 per cent. greater than that of all the West Indies except the Spanish.

Mexico..... \$27,300,000

Central American States..... 9,800,000

British Honduras..... 220,000

All other North America..... 20,000

\$37,340,000

The Canadian import trade more than \$2,000,000 greater than with all the rest of North America.

South American trade compares as follows :

Brazil..... \$83,230,000

Canada..... 39,430,000

Difference in favor of Brazil..... \$43,800,000

The import trade of the United States from Brazil is greater than from any other country except Great Britain and Germany.

Venezuela..... \$12,080,000

Argentine Republic..... 5,980,000

Colombia..... 4,770,000

Guianas..... 5,650,000

Chili..... 3,450,000

Uruguay..... 2,350,000

Peru..... 390,000

All other South America, except Brazil.. 840,000

\$35,510,000

The trade of all South America except Brazil not worth as much as that of Canada by nearly \$4,000,000.

The way it stands with Asia and Oceania is this :

China..... \$19,320,000

Japan..... 19,310,000

\$38,630,000

The import trade of the United States from Canada worth \$800,000 more than the entire trade from China and Japan.

British East Indies..... \$23,360,000

Hawaiian Islands..... 13,890,000

\$37,250,000

Excess in value of Canadian trade \$2,180,000.

Phillipine Islands..... \$5,170,000

British Australian possessions..... 6,240,000

All others in Asia and Oceania..... 10,600,000

\$22,010,000

All countries in Africa..... 4,210,000

\$26,220,000

Showing that the American trade from these countries is \$13,210,000 less than the trade from Canada.

The grand aggregate import trade of the United States in 1891 amounted to \$844,910,000.

In the export trade of the United States Canada, receiving \$37,380,000, also makes a good showing.

To European nations we find the following :

Belgium.....	\$26,690,000
Portugal.....	4,990,000
Sweden and Norway.....	4,940,000
	<u>\$36 620,000</u>

To these countries \$760,000 less than to Canada.

Spain.....	\$14,610,000
Italy.....	15,931,000
Russia.....	7,760,000
	<u>\$38,300,000</u>

To these countries only \$920,000 more than to Canada.

Netherlands.....	\$23,820,000
Denmark.....	3,310,000
	<u>\$27,130,000</u>

To these countries \$10,250,000 less than to Canada.

Spanish West Indies.....	\$14,040,000
British West Indies.....	9,550,000
All other West Indies.....	9,830 000
	<u>\$33,420,000</u>

To Canada \$3,960,000 more than to all these islands.

To Mexico.....	\$14,200,000
Central American States.....	6,580,000
British Honduras.....	460,000
All other North America.....	390,000
	<u>\$21,630,000</u>

To Canada \$15,750,000 more than to all the rest of North America.

Brazil.....	\$14,050,000
Colombia.....	3,110,000
Argentine Republic.....	2,720,000
Venezuela.....	4,720,000
Chili.....	3,130,000
Guianas.....	2,160,000
Uruquay.....	1,030,000
All others in South America.....	2,300,000
	<u>\$33,220,000</u>

To Canada \$4,160,000 more than to all South America.

The total exports to Asia and Oceanica were as follows :

British possessions in Australia.....	\$12,890,000
China.....	8,700,000
British East Indies.....	4,400,000
Hawaiian Islands.....	4,940,000
Japan.....	4,800,000
Hong Kong.....	4,740,000
Dutch East Indies.....	2,100,000
All others in Asia and Oceania.....	1,240,000
	<u>\$43,810,000</u>

Only \$6,430,000 more than to Canada.

The grand aggregate value of the export trade of the United States in 1891 was \$872,270,000.

AS TO IRON.

WE are in receipt of the following letter :—

Editor CANADIAN MANUFACTURER :

DEAR SIR,—You are continually advocating increased protection for pig iron: Will you please give facts and figures showing why this is necessary? It is not an argument to say that because there are not more blast furnaces it should be so. Consider the cost of erecting a furnace in any section of the

country, and then figure out the cost of production and show that the bounty of \$2 per ton and the duty of \$4 per ton is not sufficient to produce a dividend that will tempt capitalists to go into the business. Evidently the Nova Scotia Steel and Forge Company think there is a margin. I believe in protection and in the N.P., and I agree with you on the sugar question, but am afraid you would place the ironmasters in just the same position as the sugar men, and make us who use pig iron pay the piper for no more reason.

Kindly state the actual import of pig iron into Canada from all sources.

Our correspondent is a large consumer of pig iron, whose works are in Ontario, and he is in error in supposing that the Dominion bounty upon the domestic production of the article is \$2 per ton—it is only \$1 per ton.

The importation of pig iron into Canada for the fiscal year ending June 30, 1890, including kentledge and cast scrap, amounted to 87,613 tons valued at \$1,148,078, upon which duties to the amount of \$350,453.97 were paid. Of these importations 64,107 tons came from Great Britain and 23,170 tons from the United States.

It is difficult if not impossible to state the weight of articles manufactured of cast and wrought iron and steel imported into Canada but we have the following facts, reference being had to the trade of 1890.

Imports into Canada of manufactures of iron—dutiable—in 1890—weights given :—

ARTICLES.	Weight, pounds.	Value.	Duty Paid.
Axles, blanks and forgings.. *	9,614,620	\$20,914	\$8,463 40
Bar iron, n.e.s..... †	20,371,456	309,889	118,242 13
Boiler plate..... †	6,029,184	100,036	34,987 17
Cast iron pipe..... †	8,894,368	104,423	49,902 31
Coais..... †	3,417,344	78,499	3,925 99
Spiegel, steel blooms and crop ends, etc..... †	1,392,000	18,895	1,391 20
Forgings of iron and steel, n.e.s..... *	454,104	20,569	8,157 37
Hoop, band and scroll iron.. †	9,145,808	154,109	46,318 54
Slabs, blooms, etc..... †	1,684,592	15,923	6,768 02
Iron bridges and structures.. *	2,914,442	86,183	38,241 61
Cast iron, cast scraps and kentledge..... †	175,226,000	1,148,078	350,453 97
Iron and steel rivets..... *	69,156	6,721	3,053 40
Malleable iron and steel castings..... *	1,769,264	60,830	19,678 26
Nails and spikes, composition †	61,981	5,661	1,131 20
Nails and spikes, wrought, etc. †	1,427,326	44,060	22,494 73
Nails and spikes, cut..... *	197,977	7,709	1,979 77
Plates of iron and steel, n.e.s. †	1,593,200	14,327	4,310 37
Plow plates, etc., cut to shape *	2,576	181	22 62
Tramway bars and rails..... †	2,980,000	47,845	8,941 83
Railway fish plates..... †	5,632,000	77,089	33,787 50
Channel bars and angles..... †	1,412,830	26,415	9,722 39
Beams, girders and shapes.. †	10,234,680	159,328	19,924 05
Bridge plates..... †	10,503,024	163,103	20,387 58
Wood screws..... *	7,146	2,046	533 58
Sheet iron, Canada plates, etc †	52,102,288	833,425	104,209 77
Swedish iron nail rods..... †	2,194,976	37,414	7,482 80
Wire fencing and fencing wire *	135,305	5,032	1,995 86
Wire, covered..... *	363,308	66,886	17,624 50
Wire, n.e.s..... †	8,258,432	164,513	41,448 25
Wire rope..... †	361,424	27,230	6,808 25
Wire spring steel..... †	241,248	6,712	1,342 40
Nuts, washers, rivets, bolt blanks, etc..... *	1,620,594	89,624	58,612 26
Scrap wrought iron and steel †	107,176,160	678,574	95,693 62
Steelingots, slabs, blooms, etc. †	22,002,512	528,961	126,161 88
Picks, mattocks, etc..... *	98,695	6,955	2,725 86
Total.....	469,590,019	\$5,118,158	\$1,257,024 44

Imports of manufactures of iron—dutiable—weights not given :—

ARTICLES.	Value.	Duty paid.
Agricultural impls, binding attachments..*	\$878	\$307 30
Grain drills.....*	4,021	1,407 35
Forks.....*	590	230 40
Harrows.....*	743	260 05
Harvesters.....*	7,574	2,650 90
Hoes.....*	370	175 65
Knives, hay.....*	207	74 57
Mowing machines.....*	8,781	3,072 60
Plows.....*	22,812	7,984 23
Rakes.....*	674	373 65
Scythes.....*	6,731	3,480 45
Spad.s and shovels and blanks.....*	10,317	4,379 51
All other n.e.s.....*	71,674	25,081 46
Bedsteads and iron furniture.....†	17,426	6,108 15
Cast iron vessels, stove plates, etc.....*	124,551	38,190 02
Cut tacks, brads, etc.....*	4,441	1,345 24
Locomotives—17.....*	131,677	39,756 10
Fire engines—7.....*	13,586	4,755 10
Engines and boilers n.e.s.....*	33,553	10,065 90
Forks, cast iron.....†	324	32 40
Iron hardware, builders', etc.....*	445,521	155,941 99
Hardware, house furnishings, n.e.s.....*	196,829	59,065 27
Locks.....*	61,923	21,672 35
Fanning mills, portable.....*	2,674	935 90
Steam engines, portable.....*	26,654	9,320 40
Saw and planing mills, portable.....*	2,708	947 80
Threshers.....*	17,150	6,002 48
Parts of machines and machinery.....*	10,062	3,521 89
Sewing machines.....*	104,510	34,788 94
Typewriters.....*	26,645	7,999 24
All other machinery, n.e.s.....*	1,551,535	465,535 90
Pumps, cistern and well.....*	25,600	8,919 65
Safes, and safe and vault doors.....*	3,361	1,176 35
Scales, balances and beams.....*	26,050	9,155 49
Skates.....*	2,412	1,566 20
Stoves.....*	23,855	7,156 80
Boiler tubes.....*	109,678	16,449 20
Wrought iron tubes and pipes.....*	374,330	125,383 51
Stamped ware.....*	40,660	14,180 28
Pocket knives, etc.....†	14,497	3,624 25
Cutlery, all other n.e.s.....†	295,822	73,970 55
Firearms.....*	140,691	28,138 90
Needles, all kinds.....†	35,384	10,616 67
Surgical instruments.....†	25,136	5,036 40
Axes, hatchets and hammers.....*	12,710	4,279 52
Saws.....*	74,439	22,815 90
Carpenters, etc., tools.....*	234,279	73,696 21
Edge tools, n.e.s.....*	18,278	5,703 55
Files and rasps.....*	80,392	28,365 37
Knife blades and blanks.....†	252	25 20
All other manufactures of iron or steel, n.e.s.*	1,003,523	301,144 50
Total.....	\$5,448,590	\$1,656,861 69

Imports of manufactures of iron—duty free—weights not given :—

ARTICLES.	Value.
Fish hooks.....†	\$9 310
Steel bowls for cream separators.....*	2,905
Iron and steel for construction of ships.....*	2,312
Mining machinery.....*	9,950
Umbrella mounts.....†	8,700
Total.....	\$33,177

The asterisks (*) indicate that the larger portion of the article was imported from the United States; the dagger (†) that the larger portion came from Great Britain.

The aggregate weight of all the dutiable articles of iron and steel, where the weights are given, is 469 590,019 pounds, valued at \$5,118,158; and the value of dutiable articles, where the weights are not given, is \$5,448,590, which latter value is \$330,432 greater than the former; but, for the purpose of approximating to the weight of these articles, we will suppose that it is about the same as the recorded weight. This, then, would show that the weight of all dutiable articles of iron and steel imported into Canada in 1890 aggregated 469,590 tons, valued at \$10,566,748, the duties paid upon which were \$2,913,886. The aggregate of such merchandise imported free of duty was 264,438,981 pounds, or 132,220 tons, valued at \$3,882,630; the grand total weight of imports, dutiable and free, being 601,810 tons, valued at \$14,449,378.

These imports of manufactures of iron amounted in value to 12.8 per cent. of the value of all merchandise imported into the Dominion.

According to the Statistical Year Book, the domestic production of pig iron in 1890 amounted to 25,921 tons, which, with the importation of 87,613 tons, indicates that the domestic consumption of the article that year amounted to 113,534 tons. It is not probable that any of this iron was puddled, or used for any other purpose than the manufacture of castings. The only wrought iron manufactured in Canada is made from wrought scrap, a very large proportion of which is brought from Great Britain. Of course domestic, railroad and machine-shop, etc., scrap is also available for this purpose. Wrought iron, made of scrap, is not as desirable for many purposes as that made from puddled pig iron; and there as on why no puddled iron is made is because the duty upon pig is \$4 per ton while upon wroughtscrap it is only \$2 per ton. Reference to the tables shows that millions of pounds of the simpler forms of wrought iron consumed in Canada are imported: and there is no satisfactory reason why this iron should not be made here. It undoubtedly would be, or a very large portion of it, if the raw material from which it is made—pig iron—was produced at home in sufficiently large quantities. But it is not probable that this will ever be under our existing tariff. The bonus upon the domestic production of pig iron has been higher than it is now, and there is a promise that it will be again increased, but, as an incentive to the large production of iron, the bonusing policy has proved a dismal failure. On the other hand, the duty upon imported pig iron has never been high enough to induce the investment of sufficient capital through which our wants might be satisfied: and the duties which are now derived from that source are for revenue only. We think we are within the mark in saying that, of the 600,000 tons of manufactures of iron annually imported into Canada, at least one half—300,000 tons—would be manufactured here if our pig iron industry

Imports of manufactures of iron—duty free—weights given :—

ARTICLES.	Weight, pounds.	Value.
Anchors.....†	660,352	\$17,333
Tubular rivet iron.....†	6,384	560
Umbrella wire.....†	21,164,528	320,849
Wrecked iron scrap.....*	35,056	161
Steel file blanks.....*	388,640	16,580
Ship's knees, beams, plates, angles, etc.....†	3,805,424	71,805
Car wheel tires.....†	1,812,496	49,394
Shipbuilding materials.....*	258,944	2,312
Steel rails.....†	199,575,264	2,204,085
Steel for manufacture of skates.....*	201,376	5,219
Steel saw plates.....*	842,800	65,899
Steel for mower and reaper knives.....†	595,504	21,970
Buckthorn steel strips (all from Belgium).....†	44,800	876
Steel rods for lock makers.....†	1,535,526	25,465
Cor et steel, clock springs, etc.....†	386,400	13,962
Steel for shovels and spades.....†	166,208	5,393
Steel for buckle clasps and ice creepers.....†	19,152	696
Tagging metal for corset laces.....*	384,272	1,212
Tin plates.....†	29,975,008	908,565
Wire for mattresses, wire cloth, pianos, boots and shoes, etc.....*	1,731,669	88,298
Wire rigging for ships.....†	849,184	28,819
Total.....	264,438,981	\$3,849,453

were in the healthy condition it should be in, and would be in if the duty upon pig iron was sufficiently high. It might be that for a while, under considerably increased duties, the prices of iron goods would be slightly advanced, but only slightly, and this only until the effect of the increased duty would become worked out in the establishment of blast furnaces, with sufficient capacity to supply our requirements. As soon as this was accomplished prices would recede, and, no doubt, not only pig iron, but all the other commoner forms of iron, would be as cheap in Canada as in the United States.

In another page will be found an article from the *Canadian Mining Review* regarding the prospects of the possible extension of the charcoal pig iron industry, in which it is quite clearly demonstrated that the manufacture of charcoal iron for subsequent conversion into steel is perfectly feasible, and would be very profitable. And the same may be said of coke iron. We know that the iron made in Canada is of very superior quality: and what is now being done on a small scale could be done on a much larger one. There are immense deposits of iron ore lying between Lake Ontario, Georgian Bay and the Ottawa river, and also north of that river in Quebec, which can be mined very cheaply, and contiguous to all these ore beds charcoal can be had in abundance. This region embraces a very large proportion of the iron consuming manufacturing industries of Canada, and, of course, iron made in this region could be delivered to these consumers with much greater facility than from any point in the United States. Sault Ste. Marie and Port Arthur, on Lake Superior, are as favorably situated for the manufacture of pig iron as corresponding points in Michigan, Wisconsin or Minnesota. The ores in that portion of Ontario are of identically the same character, and in equal abundance; charcoal fuel is also quite as available, and if coke is required, the facilities of transportation for it are quite equal to those on the American side. If furnaces were erected in Toronto, it would be found that the distance from the most available ore beds is not half as great as that between Chicago and her ore sources; and the distance from the Connellsville coke ovens to Toronto is not as great as to Chicago: and Chicago has one of the very largest and most successful steel plants in the world.

As to the desirability of Canada increasing the duty upon pig iron. In 1860 the United States had not adopted a protective policy, and the production of pig iron there in that year amounted to only 919,770 tons. But as soon as a high duty was imposed upon the article the industry began to flourish, and in 1873 the production was 2,868,278 tons—an increase of more than 200 per cent.; and in 1882 the production was increased to 5,178,122 tons. This was a wonderful advance, but the increase in output from 1882 to 1890 was phenomenal, the output in the latter year being 10,260 000 tons. High tariff did it. Canada is reaping some of the benefits of this large production of pig iron in the United States in that about forty per cent. of all her imports of manufactures of iron are brought from that country. Free trade Great Britain scarcely sells us as much. Under high duties in the United States the production of iron has increased to a point where that country stands ahead of even Great Britain: while the per capita consumption there, as compared with that of Canada, is 134 times as much. Under a low tariff in Canada but one pound of iron

is consumed to 134 pounds in the United States under a high tariff.

It has been estimated that, excluding all the iron and steel entering into such products as cutlery, surgical instruments, fine edge tools and similar articles, the requirements of Canada implies the consumption of a million tons of iron ore and 3,000 000 tons of fuel; and this would be the equivalent of the output of probably thirty blast furnaces. Consider what this means—the large number of men employed in mining ore, in burning charcoal, in making coke, in quarrying limestone, in transporting these materials to the furnaces, and in carrying the products away: of the millions of money invested in these furnaces, and of the other millions invested in steel plants, foundries and other iron-working establishments, and of the thousands of men to whom employment would be thus given.

It is evident that if Canada is ever to become the producer of the iron and steel which she consumes, it can only be done by such means as have placed the United States on the proud eminence of being the greatest iron manufacturing nation on earth. As it is, the system of bestowing a bonus upon the production of iron is a delusion, which has failed utterly to do what was expected of it. As it is, the duty imposed upon imported iron is for revenue only—it is not a protective duty. The only hope for the successful establishment of the pig iron industry in Canada is in increasing the duty.

DEPARTMENT OF MANUFACTURES.

It has frequently been shown in these pages that an imperative necessity existed for the establishment of a Department of Manufacturers as an active element of the Government of Canada. We doubt the ability of any officer of the Government or of any one else to advance even an approximate idea of the capital invested in Canadian manufacturing industries, or the number of persons who find employment in them; and by the same signs it is impossible to give an intelligent guess at the value of the output of these industries. We find the statistical bureau giving us from time to time what it calls the value of the "manufactures" exported from the country, but we know that the absurdities of these statements would be laughable if it were not that they place the manufacturing industries of the country in a most ludicrous light. According to these so-called "statistics" our exports of manufactures amount to only about six per cent. of the whole, but as we have shown, this amount should be very largely increased. Why does this absurd condition prevail? Our statistician evidently considers that his whole duty is done when he tells us that certain exports have been made, and to save himself some trouble and work he classifies them just as other statisticians have done ever since the establishment of his bureau. For instance, he classifies refined copper and salt as the product of the mine; canned salmon and cod oil as the product of the fisheries; potash and pearlash, shingles and garden paling as the product of the forest, and butter, cheese and canned fruits and vegetables as the product of the farm, while all these and a hundred similar articles should be denominated as manufactures, and are such quite as much so as steam engines or pig iron. If it were the deliberate intention of the Government to propagate the idea that Canada is anything but a manufacturing country, that

our manufacturing industries are of small importance compared with our mining, our fishing, our timber cutting and our farming operations—it could not do so more effectually than by pursuing the system now in vogue in the statistical bureau. The fisheries industries are looked after by a Minister of Marine and Fisheries who does not object to seeing as many manufacturing industries credited to his department as possible; and the Minister of Agriculture also feels a laudable desire to magnify the importance of his Department at the expense of the manufacturing industries, while it is left to anybody or nobody to gather, collate and publish statistics regarding what is undoubtedly one of the most important branches of industry of the country. It is true that provision is made for the establishment of a Department of Trade and Commerce, and it might be imagined that this Department might be charged with the conservation of the interests of manufacturers: but it has never been organized, and therefore the manufacturing industries of the country are not and cannot be benefited thereby. But if this Department of Trade and Commerce were fully organized and in operation there is no guarantee that it would pay any more attention to the interests of the manufacturers than is now paid by the Departments of Customs and Inland Revenue, which was intended it should succeed, and it is difficult to see how this vast interest—the manufacturing interest of Canada—can or is likely to receive the attention it should at the hands of the Government, except it be by and through a Department of Manufactures. The necessity of this Department is emphasized by what seems to be the lack of grasp of the subject displayed by the bureau charged with compiling the census statistics. The information doled out to us from time to time from the bureau consists largely in guessing and surmising as to why the population is not larger than it is, and why the cities and towns grow more rapidly than the country; but we are kept in the dark as to the volume of capital invested in any manufacturing industry, the number of hands employed therein, and the value of the output therefrom. Nothing would tend more to the aggrandisement of Canada than to be able to show these facts, and to compare them with the facts relating to the importation into the country of similar products manufactured abroad. Our statistician can tell us to a yard the quantity of textile fabrics imported, and if he could tell us with equal exactness the quantity manufactured in Canada we could easily and correctly estimate the importance of our textile industries, and whether there was a reasonable prospect or not for their extension. Why not have this information? We could have it if we had a department of the Government whose duty it was to obtain and publish it.

The fact is the work of gathering and compiling statistics regarding our manufacturing industries should be brought within the control of a permanent department of the Government, where a properly organized system would be pursued in making investigations and preparing and publishing results. Under such a system, trustworthy and uniform in its operations, the work of gathering and compiling statistics would not be pursued at haphazard by branches of other departments acting upon divergent plans, but would be brought within the control of an intelligent and responsible head, affording the information so much to be hoped for.

A proper performance of the work here suggested would require all the aid and experience that only a well-organized

system could give—aid and experience in sifting, classifying and collating the material that could only be obtained in the manner here indicated. Under the existing system there is a needless waste of energy which it is not wisdom to continue. What is needed to avoid this is the keeping enough trained men in continuous service to keep the machinery of this Department always in working order.

By all means let us have a Department of Manufactures.

MR. CARLING'S SPEECH.

HON. JOHN CARLING, Minister of Agriculture, made a speech at the West York Agricultural Fair at Woodbridge, a few days ago, in which he said that reciprocity with the United States in natural products would be a good thing for the Canadian farmer, but that our proposition for such reciprocity had not been fairly met by that country. The *Toronto Globe* challenges this assertion, and in inquiring what Mr. Carling meant by "not being fairly met," points to the fact that in 1890 our imports from the United States amounted to \$52,300,000, of which no less than \$21,700,000, or 40 per cent. of the whole, were admitted duty free. On the other hand something less than 22 per cent. of all our exports to the United States are let in free—that the Americans can do without the natural products of Canada better than we can do without their natural products.

In the discussion of this subject much depends upon what is considered "natural products." A very large portion of the Canadian products going free into the United States consists of saw logs, and lately of nickel ore and matte; and a very large portion of the American products coming free into Canada consists of raw cotton. We cheerfully agree with the *Globe* that we cannot very well do without American raw cotton, and in this respect we are in the same boat with Britain, and many other countries; but we deny that the United States can do without Canadian saw logs, and we know that our nickel is indispensable to them. But there are many other natural products that are common to both countries, and in these the United States is quite able to supply herself from her own resources, and to enable her own producers to do so she levies high duties upon similar articles imported from Canada. In this latter class may be enumerated horses, sheep, barley and eggs; and in these articles that country is quite able to supply its domestic demand, even though not a dollar's worth of them were ever exported from Canada. This being the case, the United States claims to be acting entirely in the interest of her home producers in imposing the McKinley tariff against Canadian importations; and if that country is not disposed to reciprocate with us in natural products, we can but accept the situation and help ourselves as best we can. Mr. Carling does not tell us how we are to compass this reciprocity; the best encouragement that he can offer to us is to hope for its accomplishment, trusting that some sort of softening influences, which he does not describe, may induce our Yankee neighbors to be a little more neighborly towards us, and that in the meantime we must cultivate our trade with Great Britain. This latter suggestion is good and should be acted on; but we have many natural products that we cannot sell to advantage to Britain, and we must sell our surplus to the United States or not at all. It is folly not

to realize this fact. But how are we to induce the United States to accept these products upon terms upon which we can afford to sell? The *Globe's* plan is to sacrifice the manufacturing industries of the country upon that altar. It tells us that "the larger manufacturers are not afraid of unrestricted reciprocity, but there is a small and comparatively unimportant class, who undoubtedly would be injured through being subjected to American competition;" and it enquires "Why should the interest of these few stand in the way?" And it strengthens its argument by vulgarly calling these manufacturers "small fry" who "fleece" the public. The monotony of the *Globe's* constant iteration and reiteration about a "reptile fund," squeezed from the manufacturers for corrupt purposes, and a "Red Parlor," composed of manufacturers who desire the perpetuation of the N.P., indicates a paucity of ideas, quite lamentable to be observed in a great newspaper, but we suppose it is about the best it can do. We are not told who the large manufacturers are who are not afraid of unrestricted reciprocity. If it includes the sugar refiners we would remind it that although these gentlemen say they can refine quite as cheaply as the Americans, yet they have some 60 per cent. more protection than American refiners, and therefore they cannot be expected to favor the fad; and most of those whom the *Globe* gave considerable free advertising to last February, as inclining in that direction, we showed at the time to be not accurate representatives of Canadian manufacturing industries. Indeed there are comparatively few Canadian manufacturers but who are vigorously opposed to any change of policy of the Government which would subject them to the unfair competition of American manufacturers. The Canadian Manufacturers' Association, which voices the sentiments of the manufacturers generally, has frequently and vigorously protested against unrestricted reciprocity; and it is safe to say that any Government who might contemplate the sacrifice of our manufacturing industries in favor of the fad, would find itself most uncompromisingly antagonized by Canadian manufacturers. Therefore, if the natural products of Canada are to gain admittance to the United States, it cannot possibly be by the *Globe's* plan.

Why not try Mr. Blaine's plan? For many long and weary years the United States, in endeavoring to gain access to certain foreign markets for certain of its natural products, had to whistle against the wind, just as Canada is doing at this time. Germany and France excluded American hog products, and Cuba and Brazil excluded American flour. But these countries found in the United States their best market for some of their most important products. Germany sold her raw beet sugar there, and France her wines; and the American market was indispensable to Cuba for sugar, molasses and tobacco, and to Brazil for hides, coffee and sugar. Mr. McKinley made it possible for Mr. Blaine to say to these countries—to say to Germany, France, Cuba and Brazil: "We propose to make certain tariff concessions to you, provided you will reciprocate and make certain tariff concessions to the United States." The result is that Germany and France have concluded that Yankee hog meat is not a bad thing—in fact it is good enough for them—and Cuba and Brazil have quickly changed front in excluding American flour. If that plan has proved so successful in

American diplomacy, why would it not prove successful if tried by Canada? The United States wants and must have our nickel and saw logs, and American manufacturers sell more of their products to Canada than to all the South American markets they are now so anxiously struggling for. Our neighbors are enamored of their McKinley tariff, and of the way it operates in their favor and against others—surely they would not object to taking some of their own medicine—and whether they liked it or not would be a matter of indifference to Canada, provided it had the desired effect. The McKinley tariff threatens that if we impose an export duty upon saw logs, the duty upon Canadian lumber imported into the United States shall be increased. Instead of ignominiously backing down as the Dominion Government did in this matter, they should have answered this menace by raising the export duty to correspond with the American import duty upon lumber. Our backdown at the demand of this Yankee bluster resulted in closing nine-tenths of the saw mills in Canada, and the transfer of the lumber cutting industry to the American side of Lake Huron. The McKinley Bill was in process of incubation just at the time when it was demonstrated that nickel was indispensable in the manufacture of armor plates for war vessels. Previous to that time the American duty upon nickel was fifteen cents per pound, whether refined in the matte, or contained in the ore, and so it was in the McKinley bill, but a change was made placing the ore and matte upon the free list, a heavy duty still being retained upon the refined metal. This was to force and encourage the importation of the crude material, so that the refining of it would give employment for American capital and American labor. If our neighbors were not entirely dependent upon Canada for their supplies of nickel, it would be quite as well, perhaps, not to interfere with the free export of the ore and matte, but surely, as according to Mr. McKinley and Mr. Blaine, we could well afford to impose a heavy export duty upon nickel ore and matte, giving us the opportunity of removing the same—for a consideration. In another editorial, in discussing the iron question, it is pointed out that of the more than fifteen millions of dollars of Canadian imports of manufactures of iron a very large proportion are admitted free, and that the average duty imposed upon these goods, which were dutiable, amounted to only 20 per cent. Under this low rate of duty American manufacturers are able to sell us millions of dollars' worth of their products, while at the same time the McKinley tariff upon similar products is three times as high. Canada is well satisfied to enforce a 20 per cent. duty against such goods, and will continue to do so as regards all other countries, but the McKinley tariff should be our standard as regards the United States; to be void nevertheless, and the 20 per cent. rate restored, in consideration of decent tariff treatment by that country. Canada could not suffer in doing this, for if American manufacturers were barred out, British manufacturers would profit thereby, and Canadian manufacturers also; and if our Yankee friends desired to regain their market, they would have to revise their tariff items which were intended to discriminate against Canada.

Mr. Carling, in his Woodbridge speech, did not seem to catch onto this idea. He did not seem to comprehend that sauce for the Canadian goose would be equally good for the American gander—that there is no necessity whatever, in

endeavoring to obtain reciprocity in natural products with the United States, to sacrifice Canadian manufacturers—that it is not necessary for Canada to sacrifice an iota of her independence and self respect. The fact is the American Government are determined not to consider any proposition from Canada at this time, except it be one of abject surrender; and the sooner the Government of Canada, and the people of Canada recognize this fact and attend to more important business the better it will be for all concerned.

THE STORY OF THE COTTON MILLS.

“THE Story of the Cotton Mills,” as narrated by the London *Advertiser*, is pathetic enough to bring tears to the eye of an oyster. It tells us how the wicked high tariff encouraged men to rush into the manufacturing of cotton goods as a means of earning a living, after which came bankruptcy, with idleness for the employes, and, as a sequel, combinations to shut up mills and force the consumers to pay as high prices as the high tax policy would permit. The *Advertiser* is ridiculous in weeping for two different evils at the same time, but this comes of being cross eyed and afflicted with obliquity of vision. It weeps for capitalists who invested their money in cotton mills, which, because of over competition, became unproductive, some of the mills becoming shut down; and it weeps for the employes who are thus thrown out of work. Of course all the blame is thrown upon the N.P. Upon all other occasions in alluding to the tariff, the manufacturers are spoken of in the meanest and most disrespectful language, and to them and their influence is attributed all the evils which beset the country. But on this occasion the *Advertiser* becomes lacrymose in their behalf, and bewails a condition in which the manufacturers are represented as suffering from the effects of the tariff; and no doubt now that this sincere and disinterested friend has diagnosed their case, and explained to them the real source of all their trouble, these misguided men with thick skulls and obtuse intellect will straightway hasten to reject protection and clamor for free trade. Of course the *Advertiser* is willing, nay, anxious to have this free trade with the United States only, and abandoning the lower tariff on cotton goods which we now impose upon the fruit of British looms, adopt the higher tariff provided by Mr. McKinley. That is, we should shut out British goods entirely, and confine our consumption to such as we can obtain from American mills. If the *Advertiser* reads the papers, it should know that the manufacturers of the United States are in much worse plight than those of Canada, and that the incubus of overproduction even in that wonderful market of sixty million consumers, is causing the closing of American mills, and the precipitation into idleness of thousands of American operatives. Of course the broad philanthropy of the *Advertiser*, dear, good patriot that it is, would like to see these American mills started up again, and these American operatives again called to labor. It would be so nice, you know, to do our neighbors a good turn just by way of keeping them in good humor, and perpetuating the kindly feelings they now have for us, even if all our Canadian mills were thereby closed down, and all the rest of our Canadian operatives thrown into idleness. The eventuation of the *Advertiser's* hopes would go far to usher in

the free trade millenium, and therefore why should the interests of Canadian mill owners, or of Canadian mill operatives stand in the way of the ushering in? Why should the welfare of these Canadians be regarded while the success of a great theory is at stake? The *Advertiser* usually blazons the fact, or what it calls a fact, that one important cause of the non-success of Canadian manufacturing enterprises, when such occur, is that they are handicapped by duties upon raw materials. But however that may be in other instances, it is not so as regards the manufacture of cotton, for if there is any difference in the cost of raw cotton between Fall River, Massachusetts and Kingston, or Cornwall, Ontario, it is a difference in freight only, for there is no duty upon the article. Raw cotton is as free to Canadian mills as to American mills; and the increased value of the finished goods over the raw material results from the employment of labor. In Canada it is Canadian labor, be it much or little, and this labor is protected from the competition of American labor by the tariff. The tariff does not increase the cost of Canadian made cottons above the cost of the American article, for such goods are quite as cheap in Canada as in the United States. The *Advertiser* wants this tariff removed; but the result of removing it would be to make Canada a slaughter market for the overproduction of American mills. Of course this would result in the closing of every Canadian mill, and the discharge from employment of every Canadian operative; and while American cottons might, for a short while, be a trifle cheaper here than what Canadian mills could afford to produce at, this would last only until our mills were shut down and the operatives dispersed. When this was accomplished—when the Canadian industry was entirely demolished—then the combine of American mills would recoup themselves for what they had previously sacrificed by an advance in prices, from which Canadian consumers would be unable to protect themselves. This is what the *Advertiser* means by its “Story of the Cotton Mills.”

In lamenting the existence of the N.P., which makes it possible for Canada to manufacture cotton goods at cheap rates, the *Advertiser* tells us that “millions of dollars that might have been used in the natural industries of the country, have been locked up in unproductive Canadian cotton factories.” Why weep about it? If these factories have become “unproductive,” it is because of too much competition; and the people of Canada who wear cotton fabrics need not be told that this “competition” means cheap goods. Does the *Advertiser* object to the people of Canada wearing cheap cotton goods? These consumers whom the *Advertiser* desires to place at the mercy of Yankee manufacturers, need feel no unhappiness because of the unproductiveness of Canadian cotton mills, as long as they can buy cheap Canadian made cottons, and as long as the cotton manufacturers themselves do not complain of the tariff. The *Advertiser* poses as the champion and friend of these manufacturers, but its sympathy is misplaced; and it is evident that it desires to sacrifice the Canadian industry, including the thousands of operatives employed in the factories, to its friends the American manufacturers, and the easiest way it perceives of doing this is to go for what it calls unrestricted reciprocity, by which Canadian mills must die, so that American mills may prosper.

It would be difficult for the *Advertiser* to say just what it

means by "the natural industries of the country." It tells us that the capital which has been invested in manufacturing enterprises should have been invested in the natural industries of the country. We have frequently endeavored to induce the *Advertiser* to tell what it really means by this expression, but it has never done so. Is there a sensible meaning to it, or is it only a catch-word intended to mislead and deceive? And if the manufacture of cotton goods is not a natural industry of Canada, is it of the United States? If so, why? What makes it there or any where else and not in Canada? Shovelling snow from the sidewalk in the winter might be considered a natural industry in Canada, but the manufacture of snow-shovels or cotton goods certainly is not; but it would be a poor and precarious dependence for a living for Canadians to wait till the snow falls to earn their bread, instead of working at looms in Canadian cotton factories, even if some of them are occasionally shut down and the operatives discharged. A lucid explanation of this phrase would be acceptable, though we doubt the ability of the *Advertiser* to give it.

EDITORIAL NOTES.

WALT WHITMAN, the poet, has expressed himself regarding the tariff. He says: "All that goes to boost up, and wall up, and wall out, and protect out, is wrong." It is quite evident the good gray poet knows more about writing poetry than about political economy. If he didn't he wouldn't know much.

THE value of all manufactures of iron imported into Canada in 1890 amounted to \$14,449,378. Of this \$10,566,748 was dutiable, the amount of duty collected thereon being \$2,913,886, or 27.5 per cent., \$3,882,630 coming in duty free. The duties collected amounted to 20.1 per cent. upon the total importation.

THE Australian colonies of New South Wales, Victoria, Queensland, South Australia and West Australia, and Tasmania and New Zealand have entered the Postal union, and the postage from Canada to all these colonies has been reduced to five cents per one-half ounce for letters, with other rates to correspond.

THE net public debt of Canada in 1880 was \$152,451,588, and in 1890, \$237,533,212, an increase of \$85,081,624. During that decade the following expenditures were made: Railways, \$67,069,152; canals, \$15,507,380; public buildings, \$8,047,481; other public works, \$13,898,132—a total of \$104,522,145, or \$19,440,521 more than the increase of the public debt.

A SCIENTIST in Vancouver has made an electrical discovery. He says that the tides are due to the action of electricity, and demonstrated it by electrifying a rubber comb by rubbing it on his hair and drawing it over the top of a glass filled with water, the result being that a tidal wave followed the comb. The water rose right up out of the glass towards the comb, like the lips of an amorous maid towards those of her lover.

MR. FRANCIS WAYLAND GLEN, of Brooklyn, and Mr. Erastus Wiman, of New York, are working a nice little annexation

racket. Mr. Glen goes in for annexation, straight and simple, and is willing to adopt any method of getting there, preferably by unrestricted reciprocity first, while Mr. Wiman, a little more wary, hopes to catch the other fellows by saying that the unrestricted reciprocity road leads the other way. The scheme is entirely too attenuated and gauze like. It is too thin. Too thin.

THE agricultural implement manufacturers should be reaping a good harvest this year as well as the farmers. Although large numbers of threshers have been sent into Manitoba and the North-West this season, the harvest has been so bountiful that there is not machinery enough there to thresh out the crop, and a cry is going out for the railroads to make special rates so that additional machinery may be sent there. It is said that at least five hundred more machines than what are already there could be profitably employed all winter long. Canada is a great country.

THE first payments of bounty under the law giving a bounty of two cents a pound on sugar produced in the United States, have been made at the Treasury Department. There are two claims, and they were both in favor of the Chino Valley Sugar Company, in San Bernardino County, Cal. The production was 340,000 pounds of beet sugar, and the bounty amounted to \$6,800. Canadian farmers might be realizing the benefit of a similar bounty upon the growing of sugar beets, if our Government had viewed their interests in a different light from what they have. There should be a bounty system adopted.

THE weight of all the manufactures of iron imported into Canada in 1890 amounted to over 600,000 tons, valued at \$14,500,000. With a properly protected iron industry at least one half of these goods would have been made at home. Think of it—300,000 tons of manufactures of iron costing \$7,000,000, made in Canada. Think of the employment this would give to the miners taking out ore and coal, to quarrymen taking out limestone, to charcoal burners making fuel, to railroads and transportation companies hauling materials, to foundrymen and machinists converting the raw into finished products. Wouldn't Canada hum. And this is just what we would have if the duty upon pig iron was only a little higher than it now is.

THE *London Globe*, in an article on the popularity of Scotland's national dress, both in and out of that country, mentions the fact that a Scotch volunteer regiment in the Dominion—the Toronto kilted regiment—has just ordered a large supply of tartan from a celebrated Inverness kiltmaker. The *Globe* adds that so determined is the Toronto regiment to get the genuine article that it is going to the capital of the Highlands for it. But why? The "genuine article" can be produced in Canada as well as in Scotland, and it is a shame that a regiment of Toronto young men should feel so little pride in their country as to go abroad for clothing which can be produced at home. We suppose that when the goods arrive in Canada, having to pass the door of a Canadian factory which is all ready and prepared to turn out such an article, this specimen Toronto regiment will ask the Government to remit the duties thereon. In this case the duties should be doubled.

THE French-Canadians of New England will entertain Hon. Wilfred Laurier at a banquet in Boston on Nov. 17th.—*London Advertiser*.

It was at a Boston banquet held a few months ago, that Sir Richard Cartwright was nominated a United States Senator for the State of Ontario, and we suppose that Sir Wilfred—or is it only Hon. Wilfred—jealous of the honor bestowed upon his Grit compatriot, is hastening to Boston to obtain the nomination of United States Senator for the State of Quebec. We regret to observe that Count Mercier's chances of a senatorial nomination are growing small very rapidly. Despairing of participating in the Government of Canada, these quasi-Canadians are seeking unobtainable honors in a foreign country.

AN English contemporary *The Oil and Colorman's Journal* of a recent date contains a communication in which attention is called to the fact that the United Alkali Company, an English manufacturing concern who are endeavoring to sell their products in Canada and in the United States, have given the sole agency for the sale of their goods in both countries to a New York house. If the United Alkali Company desire to sell their goods in Canada they should establish an agency in Canada for that purpose. Certainly they should not expect Canadians to travel to New York to become purchasers. There are plenty similar concerns who have Canadian agencies, and it is to be hoped that these will be patronized in preference to the Yankee agency. Canadian consumers of English chemicals are not disposed to go to New York to make their purchases.

MESSRS. J. G. Revner, of Wellesley, and John R. Eden, of Berlin, who formed a deputation representing the shareholders in the Bonanza, have just returned to Toronto. Both gentlemen are enthusiastic relative to the future of the Bonanza. They found a vast body of ore which Prof. Heys' assay shows carries 4.10 per cent. of nickel, 12.5 per cent. of copper, besides gold to the value of \$12.50 and platinum to the value of \$36.75 per ton. It is gratifying to learn upon such excellent authority that in the near future the product of this mine will be placed upon the market in the form of matte. With a few such mines being worked, Toronto can confidently expect the establishment of reduction works.—*Toronto World*.

If a thousand such mines were discovered in Sudbury, Toronto nor any other part of Canada could ever hope to have nickel refining works unless an export duty were levied upon nickel ore and matte. Canadian nickel mines now exist for the benefit of American refining works. Impose the duty.

THE steamer *Admiral*, about which so much has been said in connection with the boodling transaction of the Hon. Thomas McGreevy, is an old and well-known boat. She was formerly a United States revenue cutter on the lakes, and named the *Chase*. She was sold to an Ogdensburg man who took her to Cuba, changed her name to the *Admiral* and ran her on a mail route. When General Grant went to Hayti, and San Domingo to negotiate a treaty with those Islanders and possibly pave the way for their peaceful annexation, the *Admiral* was fitted up as a yacht for the general and his staff. She was bought by Thomas McGreevy in 1883, and is now running on Bay of Chaleurs route from Dalhousie, N.B., to Gaspé Basin, Que., making two trips a week under contract with the Dominion Government to carry the mails. The con-

tract was entered into in the name of J. Chabot, manager of the Richelieu & Ontario Navigation Company, of which Mr. McGreevy is president.

THE president of a large manufacturing company in a neighboring city calls our attention to the fact that as the law now stands in Ontario, where real estate is assessed to a joint stock company as the owner thereof no officer or stockholder of the company may vote at any election on a qualification of ownership of any such stock. The gentleman referred to is a large stockholder in his company, and the company have invested many thousands of dollars in real estate and plant for the purposes of their business, and yet in elections where real estate ownership is a requisite qualification to vote, this entire property is unrepresented, while each employe of the company who may own ever so small a piece of land and cottage has the privilege of voting. This does not seem just to the stockholders. It can readily be understood that some restriction must be placed on granting a franchise on such property, otherwise a large number of men might jointly own a very small piece of land of inconsequential value, merely for the purpose of qualifying as voters, but it seems to us that some modification of the law might be made whereby the managing officers of a company, or some of them, might be allowed to vote on this qualification.

PRESIDENT HARRISON has again postponed the proposed conference between the Canadian Government and that of his own country, alleging as a reason that he does not want to do anything in the matter until Secretary Blaine is able to take part in the discussion. Last spring it was Mr. Blaine who postponed it, on account of President Harrison's inability to be present. Some of the American papers seem to think that Canada's need of a reciprocity treaty is so great that every day the conference is postponed will enable the United States to get better terms for themselves in the deal. There never was a greater mistake. Every day of McKinley tariff is forcing Canadian enterprise to hunt up other outlets for trade, and if they only wait long enough they will find they have defeated the object they had in view by making us commercially independent of them. Trade, like water, always flows in the direction of the least resistance, and it will not take many years for our commerce to cut channels so deep to Europe and the Orient that the United States will be left high and dry on the bank so far as this country is concerned. As we have often said, time is on our side, and the longer the conference is postponed the better for Canada when it does come. Canada proposes to have a fair reciprocity treaty or stay just as we are at present, so far as the United States is concerned.—*The Trader*.

MR. ERASTUS WIMAN has sent us a brochure entitled, "Impossibility of Canadian Annexation" which is supposed to give his views upon this subject. The day has passed when Mr. Wiman's views upon this question possessed any more weight with Canadians than those of any yokel in the back townships; and what he says now is valuable only in showing how words can be used to conceal meaning. As a head-line he quotes from Horace: "The short space of life forbids the laying of plans requiring a long time for their accomplishment,"

and forthwith, to shorten the time required for the accomplishment of his plans, he pretends to show that unrestricted reciprocity between Canada and the United States is just the thing to prevent and stave off annexation. He tells the annexationists that if they desire to succeed they must oppose unrestricted reciprocity; and to the favorers of unrestricted reciprocity, he whispers softly that talk of annexation will defeat their object. Sly man. He reminds us of the Irishman driving a pig to market. A friend asked him where he was going with the pig. "To the pasture," said Pat. "But that is not the direction of the pasture—it is the road to the market town." "Whist," said Pat, "don't spake so loud, the pig will hear ye. If he hears what you say he won't go that way." Mr. Wiman hopes to beguile Canada by saying that the way of unrestricted reciprocity is not the road to annexation, while he knows that it is, and that it is the market he wants to get to. Sly Mr. Wiman.

A STATEMENT of United States trade under the McKinley tariff, just published by the Bureau of Statistics at Washington, gives the following particulars with regard to the export trade to Canada, during the first seven months of the two years mentioned:

	1890.	1891.
Agricultural implements.....	\$47,063	\$119,014
Wheat	727,181	1,563,908
Wheat flour.....	1,037,550	1,039,537
Carriages and cars	64,240	79,984
Coal	2,408,700	3,138,893
Raw cotton	1,594,096	1,738,010
Cotton cloths.....	40,772	49,967
Other cotton manufactures.....	189,813	332,211
Steam engines.....	445,482	583,753
Hams	106,473	286,662
Lard	158,562	218,329
Oleomargarine	32,823	74,966
Butter	96,799	244,572
Cheese	384,118	406,393
Tobacco	525,574	813,819
Boards and planks.....	282,734	333,314
	\$8,141,980	\$11,019,332

With the exception of raw cotton, Canada can and does produce all of these articles. Think of it—\$11,000,000 worth of imports of fifteen articles in seven months. And still we are told that we can have no reciprocal trade with the United States unless we are willing to sacrifice our home industries by the free admission of American manufactures.

A CORRESPONDENT expresses the fear that if the duty upon pig iron were raised to a height sufficient to induce capitalists to erect furnaces and engage in the production of pig iron in Canada, it would put these iron masters in just the same position the sugar refiners are in, forcing the consumers of pig iron to pay extortionate prices therefor. There is no good ground for the apprehension. As regards the sugar refiners and their industry, the Government have it in their power, and it is clearly their duty, to stand between the producer and the consumer, and see to it that while the industry is properly protected by the tariff, the consumer is also protected from the rapacity of the producer. If every sugar refinery in Canada were closed it would mean the throwing out of employment of less than a thousand men; while our correspondent knows that if we manufactured only one half of the iron and iron products now being imported it would mean the employ-

ment of thousands and thousands of workmen. It looks as though the sugar refiners had formed a pool or trust to control prices, but such a thing would be practically impossible with pig iron producers, unless the Government should do for them as they are doing for the refiners, and that is not at all likely. Under the stimulus of a high tariff a great many men would engage in the production of pig iron, and this fact, and the competition in selling which would immediately spring up, would reduce prices to what they should be. The ethics of protection requires that the duty should not be materially higher than the difference in the cost of production in this and any other country; but it also requires that it should certainly be that high. In the case of sugar the protection is higher—in the case of pig-iron it is lower. It is the duty of the Government to equalize the tariff in both these articles by this standard.

A FEW days ago the following press telegram from Buffalo, N. Y., was flashed over the country:

Collector Morgan received word yesterday that James Thurling had come from Hamilton, Ont., only a little while ago, and was employed at the Buffalo Forge Works in violation of the alien contract labor law. Inspector De Barry learned that about six weeks ago Thurling had come from Hamilton to work at the forge works, bringing with him his wife and some household goods, with the apparent purpose of taking up permanent residence in this country. It seemed probable, however, that the Canadian in reality had no such intention. Inspector De Barry learned that he had on former occasions moved hither from Canada during dull times, bringing his wife and a small quantity of luggage, and afterwards, when trade became brisk again in Canada, returning thither. It was also learned that he owns property across the border, and, in short, that he is a full-fledged Canadian citizen. As soon as these facts were laid before the Buffalo Forge Company Thurling was discharged from their employment and Inspector De Barry returned him to Canada.

It is to be hoped that our magnanimous and noble hearted friends across the border will keep this up. It gives Canadians an idea of what sort of people they are. It shows how the American Government are under the control of their labor agitators and walking delegates, remembering the influence they have with voters. It also shows the sincerity of these agitators and walking delegates, who always entertain so much love for the brothers, no matter who they may be or where they may come from. We have been told time and again that this Yankee exclusion law was intended to keep out pauper immigration, but here is the case of a man who is not a pauper. He owns property in Canada—probably a house and lot, but he could not take this property with him to Buffalo, but he did the next best thing—he took his wife and household effects and his skill and ability as a competent workman. But he was found out to be a Canadian and so they bounced him. Verily this meanness is as bad as that of the fellow who stole the pennies from the eyes of a dead pauper.

IN his brochure "Annexation Unnecessary" Mr. Erastus Wiman says:

The United States are making boots and shoes for one hundred millions of people, with less than sixty-five millions to wear them. Failures are frequent in the shoe business because of the overproduction. Collars and cuffs for one hundred and fifty millions of people are made at Troy alone, and we (the

United States) have less than one half that number to be collared and cuffed. There is not an interest in the land but needs room for expansion. The corners and combinations in almost every department of human activity indicate that production has already exceeded consumption, and that wider areas are absolutely necessary for commercial progress.

Mr. Wiman did not say this for Canadian ears to hear. He said it for the benefit of the annexation sentiment he is working up, or trying to work up in the United States, publicity being given to his views in the Brooklyn *Eagle*. He was showing to his friends the Yankee manufactures what a fine market they are to acquire when they capture Canada. He draws a woeful picture of their congested industries, one alone of which, in one city, produces more than double the quantity of goods necessary for the demands of both that country and this. Mr. Wiman knows that the result of reciprocity in manufactured products would close thousands and thousands of factories and workshops in Canada, throwing tens of thousands of Canadian operatives into hopeless idleness, suffering and distress. But he is willing that this should be so long as he can compass the annexation of Canada. He warily calls it unrestricted reciprocity, but he means annexation. He tells his Yankee friends that "a commercial union such as unrestricted reciprocity would afford, is all that is needed to open up a market (to them) continental in extent for the manufactures of the United States,"—that, "it equally opens up supplies of raw materials more productive of prosperity in the United States than anything else just now needed." This is what commercial union, or unrestricted reciprocity, or annexation—for they are convertible terms meaning the same thing, is expected to accomplish. Canada is to be a slaughter market for the excess of production of Yankee factories and workshops, and the source of supply of raw material for them, "more than anything else just now needed." As the bee upon the flower, so hangs the annexationist upon the honey of Mr. Wiman's eloquent tongue. Canada, however, begs to be excused.

LET the future take care of itself. Here are two people who ought to be friends and fellow traders. On neither side of the line should men wait for annexation. They ought to live peaceably and happily side by side, trading together, making the best use of each other's facilities, ignoring as far as possible all points of difference, suppressing as far as it can be done, all dividing questions. No doubt this is the true philosophy. The Tory journals in Canada have nurtured hate of the United States by representing that people as all anxious to seize our fish, to gobble up our land, to make a purely one sided trade. Prejudices and hostility have been excited unnecessarily. The true policy unquestionably is to do that which is best for the improvement of all relations, to exchange trade as freely between Canada and the United States as it is now exchanged between two states of the American union, to have one set of coasting laws, to have one set of material interests, leaving to the future to settle all the political issues.

This beautiful specimen of annexation twaddle is from the St. John N.B., *Globe*, and is an editorial comment anent Mr. Wiman's letter in the Brooklyn New York *Eagle*, in reply to something Mr. F. W. Glen had said in favor of unrestricted reciprocity. The *Globe*, in its desire for annexation, is willing to swallow it in any form, and to "let the future take care of itself" in the matter. No need to wait long for annexation, sure enough, if the preliminary step of unrestricted reciprocity be first taken—the waiting would not have to be long. Let

brotherly love prevail, exclaims the *Globe*. Ignore all points of difference—if you are a Canadian, ignore the fact and become a Yankee. If you entertain patriotic emotions, suppress them. If you have hopes and aspirations for Canadian nationality, this is a dividing question which should also be suppressed. This is the *Globe's* "true philosophy." The awful Tory journals nurture hate of the United States when they tell of how that country legislates against Canadian interests. This is not humility, and humility is a good thing—a Christian virtue. Of course we should thankfully accept what our neighbors propose for us, for if we do not we are prejudiced towards them, likewise hostile. The *Globe's* millenium contemplates the obliteration of Ottawa, and of the international boundary. Let the American seaboard tariff extend to the North Pole. Let us adopt Mr. McKinley's sixty or seventy per cent tariff, seeing it is so much better than our poor little tariff of twenty or twenty-five per cent. And then Canada would be saved all the trouble and annoyance of making laws and enforcing them; Washington could do all that for us. All that is necessary to usher in this happy, joyous time is to down with the National Policy and the Old Flag, and up with Mr. McKinley's tariff and the Stars and Stripes. Unrestricted reciprocity is the first step to be taken. This will give us "one set of material interests, and we could safely leave it to the future to settle all outstanding political issues," as the *Globe* suggests. Then the Canadian lamb would quietly lie down with the American lion—the lamb being inside the lion.

THE books of the United States treasury department contain the names of 3,510 vessels, measuring 1,063,063.90 tons, employed in the lake trade. In classification of this fleet the lakes have more steamboats of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the United States. The classification is as follows:

Class.	Number.	Tonnage.
Steam vessels	1,527	652,922.25
Sailing vessels	1,272	328,655.96
Canal boats	657	67,574.90
Barges	54	13,910.09
Total	3,510	1,063,063.90

According to the report of the United States commissioner of navigation, 46 per cent. of the new tonnage of that country was built on the lakes during 1889. This is a percentage greater than the work of the Atlantic coast and western rivers combined, and almost equal to the whole work on the Atlantic and Pacific coasts. In 1890 the tonnage built on the lakes was but very little less than that built on the Atlantic and Gulf coasts. Tonnage built on the lakes during the past five years was as follows:

	No. of Boats.	Net Tonnage.
1886	85	20,400.54
1887	152	56,488.32
1888	222	101,102.87
1889	225	107,080.30
1890	218	108,515.00
Total	902	393,597.03

Annual tonnage entries and clearances of the great seaports of the world, for 1889: New York, 11,051,236 tons; all seaports in the United States, 26,983,315 tons; Liverpool, 14,175,200 tons; London, 19,245,417 tons.

Tonnage passing through Detroit river during 234 days of

navigation in 1889, amounted to 36,203,606 tons. Ten million tons more than the entries and clearances of all the seaports in the United States, and three million tons more than the combined foreign and coastwise shipping of Liverpool and London.

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 291 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.

J. L. O. VIDAL & SON, City of Quebec, are agents to sell and handle on commission 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. Consignments solicited. Best references given.

THE HEESON IMPROVED SHAKING FURNACE GRATE has no equal for 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, 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, easier 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.

THE *Ladies' Bazar*, is a journal of fashionable instruction and domestic economy, published monthly in Toronto, at the subscription price of sixty cents per annum. Of course it is devoted to telling all about those things in which women are chiefly interested—styles, fashions, what to wear, how to wear them, etc. Every sensible woman desires to be well dressed and to make a good appearance, and the *Bazar* is intended to convey that information.

No more welcome exchange comes to our editorial table, no more instructive visitor could enter any home where children are than the *Youth's Companion*, an illustrated eight page paper, published in Boston, Mass. There is never a line or word in it that should not be there, and every sentence and article in it conveys a lesson that it is desirable youths should learn. The price—\$1.75 per year—places it within the reach of all. Parents can do a substantial kindness to their children by providing this paper for them.

Farm Machinery, published by the Midland Publishing Company, St. Louis, is perhaps the largest and best patronized monthly trade journal in the United States, devoted to the interests of farm implement manufacturers and dealers. The publishers have recently struck out on a new and unusual line in issuing the *Weekly Farm Machinery*, seeing that it does not carry any advertising business, but rather confining itself to giving such reading matter as will most probably interest those who are alive upon the earth at this time.

"M'SIEU SMEET" is the title of the humorous contribution to the four superb supplements to be given away with the Christmas number of the *Dominion Illustrated*, now in preparation. It relates the adventures of an Englishman who came to Canada for a hunting trip and they are portrayed in the most laughable style. When we state that this contribution is written specially for the *Dominion Illustrated* by the author of the celebrated "Lac St. Pierre" we have said all that is necessary to commend it to the Canadian public.

MRS. BURTON HARRISON, author of "The Anglomaniacs," has written for *The Ladies' Home Journal* two lengthy and what are said to be the most thorough articles on "Social Life in New York" ever written. Mrs. Frances E. Lanigan, the wife of George T. Lanigan, the brilliant newspaper writer, will hereafter be Mr. Bok's chief associate in the editorial management of *The Ladies' Home Journal*. Mrs. Lanigan has been for years successfully connected with newspaper work, and she is said to be one of the cleverest women journalists in the country.

Good Housekeeping for November is a Thanksgiving number, and appears sufficiently in advance of that festival to give housewives the benefit of its various special features. The frontispiece is an illustrated poem on "The Pumpkin," which is an indispensable adjunct to the day. Following this is a very complete "New England Thanksgiving Dinner," which, starting with a bill of fare, gives explicit instructions for the preparation of each dish named in the menu. Then follow the story of "Jack the Boy Who Fed the Turkey"; "Home Furnishings for Winter"; "A Turkey; More Ways than One to Cook It"; "Celery Raising"; "Ten Tongues"; "Thanksgiving Dinner"; "Luncheon"; "Some Ways with Apples," etc. There is the usual variety of home topics, verse, selections and departments. Clark W. Bryan & Co., Springfield Mass.

An excellent portrait of the late Charles Stewart Parnell is published in *The Illustrated American* of October 20th., together with other pictures relating to his life and the struggle for Home Rule in Ireland during the last ten years. The series of "Beauties of Bygone Days" is continued with an interesting account of the trials and triumphs of the celebrated Sarah Siddons, and an excellent likeness of a beauty of the present day—Mrs Cleveland—is accompanied by some pretty verses written by poets on a subject of much interest nowadays—babies. Other timely articles describe the plans of the new United States Naval War College at Coaster's Harbor Island, R. I.; the strange rise of the three Americans who, for a time, controlled the court of the late King of Wurtemberg; the celebration of mass by the Pope at St. Peter's; and other events of the day. An account is given of some famous Abbeys of Great Britain, and "Nancy's Secret" is the title of a complete story.

THE forthcoming World's Columbian Exhibition, at Chicago, is attracting a great deal of attention, and this interest is constantly and rapidly increasing. No doubt it will be the grandest affair of the sort ever seen in any country at any time, and as the time approaches for its opening, and the vastness of its proportions become made known, the whole world is on the *qui vive* regarding it. It is true many of the features of it are discussed in the daily papers, but these cannot convey any adequate conception of the preparations of which they speak, and it is left to the pictorial journals to elaborate and show in detail the buildings and surroundings of what will be the greatest and most costly aggregation of exhibition buildings ever erected, and later the more interesting of their contents, and the circumstances attending their display. *The Illustrated World's Fair* is a pictorial journal published in Chicago, whose mission upon earth is to enlighten the inhabitants thereof regarding this great exhibition; and whether one intends to visit Chicago when the event is in progress or not—of course everybody hopes to be able to visit there at that time—it is desirable to keep posted, and this beautiful pictorial paper is just the thing from which to obtain the information. Those who are fortunate enough to obtain all the issues will, when the exhibition is ended, possess a complete illustrated history of it, including the men and women, machinery and appliances, and detailed representation of the buildings, etc., which will be invaluable. Mr. J. N. Halligan is the general manager of this beautiful publication.

THE November number of *Outing* is a remarkable one, both for number and beauty of illustrations and variety of interesting reading matter. This excellent magazine has improved so rapidly of late that it is difficult to understand how the publishers manage to secure the astonishing variety of high class contributions. The current issue is proof positive that *Outing* is in able hands. The contents are: "With the Humboldt Tappers," by Charles Howard Shinn; "Field Trial Winners of 1890," (concluded) by E. H. Morris; "Harry's Career at Yale," (continued) by John Seymour Wood; "A Cohutta Valley Shooting Match," by Will N. Harben; "Reminiscences of Irish Sport," by T. Murphy; "Fox Shooting in the Hudson Highlands," by W. B. Page; "Orthochromatic Films and Plates," by Ellerslie Wallace; "Florida Razorbacks," by J. M. Murphy; "The Wild Goose in Nebraska," by "C. A. J.," "My First Teal," by C. B. Bradford; "The Running Broad Jump," (concluded) by Malcolm W. Ford; "The National Guard of California," by Lieut. W. R. Hamilton, U. S. A.; "How I Lost My Thanksgiving Turkey," by Ed. W. Sandys; "A Plea for Style in Boxing," by A. Austen; "Saddle and Sentiment," (continued) by Wenona Gilman; "Football of 1891," by Walter Camp; "Horseback Sketches," by Jessie F. O'Donnell; "Canoeing on the Flathead," by Jas. Ollason; "A Mighty Hunter Before the Lord," by Virginus Dabney; "Told in the Twilight," by Alfred C. Stokes; and the usual editorials, poems and records by the standard writers on sport, etc.

"NOLAN," a wonderfully fine ballad by a daughter of Mrs. Julia Ward Howe, opens the November *Wide Awake*; it is the tragic story of the bearer of Raglan's dispatch which Lord Lucan of the Light Brigade misunderstood, when he ordered the famous "charge"; "Nolan" is suited to become a favourite with boys for Declamation Day. Another noteworthy feature is the richly illustrated article by Mrs. Richard Manning of Salem upon "The Boyhood of Hawthorne"; the first portrait ever painted of Hawthorne is reproduced for this article. Still another notable feature is the closing chapters of the famous Peppers serial—in a great sun-burst of happiness. "Marietta's Good Times," and "Miss Matilda Archangeau Van Dorn," also are ended, and next month, for Christmas gift, the new serials begin. Margaret Spencer has a capital Hallowe'en story, "Gladys McLean's Hallowe'en Party," Mrs. Kate Upson Clark has a Thanksgiving tale, "Mistress Esteem Elliott's Molasses Cake," and Emilie Poulsson, a poem for the occasion, "Mima's Thanksgiving." Another good story is by a Southern writer, Elizabeth Bellamy, and entitled "A Lesson for Life." "Old Adams, the Bear-Tamer" is a bit of Western biography by Charles Howard Shinn, William Zachary Gladwin has a good story of a plucky boy, called "Johnny O'Dowd's Chance." "Men and Things" is rich in anecdote, and readable poems and articles are contributed by Mrs. S. M. B. Piatt, Amanda B. Harris, "M. E. B." Mrs. William Clafin, Clara Doty Bates, Caroline Hunt Rimmer, Mary Felicia Butts, J. L. Harbour, Nena Thomas Medairy, A. S. W. Selfridge and L. J. Bridgman. *Wide Awake* is \$2.40 a year. D. Lothrop Company, Boston.

MENTAL SUGGESTION: By Dr. J. Ochorowicz, sometime Professor Extraordinarius of Psychology and Natural Philosophy in the University of Lemberg. Four double numbers of the Humboldt Library. Price \$1.20. The Humboldt Publishing Co., 19 Astor Place, New York. Much is now-a-days said and written about Hypnotism: the more ancient term Animal Magnetism is not often mentioned. It is the common belief that whatever of truth there was in the doctrines of Mesmer, Puysegur, and the rest of the "animal magnetizers" is comprised under the scientific term "hypnotism," and that the modern school at Charcot, and the school of "suggestionists" at Nancy, France, represent the highest attainment in the science and art once studied and practiced by Mesmer and Puysegur, and later investigated by Braid of Manchester. But here is an author who maintains that hypnotism and animal magnetism, though they have certain superficial resemblances, are radically different from each other in their phenomena and in the modes of their production, and that the facts of magnetism are incomparably the more wonderful and the more worthy of scientific study. The title of the work, "Mental Suggestion," well marks the difference between hypnotism and magnetism: in hypnotism mental suggestion is not to be thought of, but that it exists in animal magnetism is the task of this author to prove. The author is in every way competent to treat the subject: he is a learned physiologist and physicist, as well as a psychologist—and he has studied the matter experimentally for years. He has mastered all the literature, of hypnotism and animal magnetism: his book contains an enormous amount of information nowhere else accessible outside of the greatest libraries. Just because Ochorowicz first explored the ground thoroughly on his own account and then sifted the bibliography of

magnetism, he is able to estimate the true value of the work of prior experimenters and prior students and theorizers. It is simple truth to say that no student of human psychology can afford to neglect this most able and brilliant treatise—a work original in its method as in its points of view, and possessing moreover all the charms of a consummate literary style—in other words consummate simplicity and clearness of expression. It is unquestionably the completest work on magnetism and hypnotism ever written: no author so well equipped for the discussion of the question ever attempted it before.

UNIVERSITY EXTENSION, which is undoubtedly the foremost educational topic of the day, has the first place in the November *Popular Science Monthly*. The article is by Prof. C. Hanford Henderson, and embodies the methods and plans of the American Society organized in behalf of the movement. Mr. W. F. Durfee, in concluding his account of the "Manufacture of Steel," takes the reader among glowing furnaces and the giant arms of powerful machines, and embellishes his impressive description with many striking pictures. An essay on "Ornament" among savage tribes, with many illustrations, is contributed by Prof. Frederick Starr. The pertinent question, "Do we Teach Geology?" is asked by Robert T. Hill, who is inclined to think that much of our science-teaching is still unscientific. In "Possibilities of Economic Botany," Prof. G. L. Goodale describes some of the plants that might be cultivated for food if any of our present food-plants should be lost. Mr. Carroll D. Wright, in the second of his "Lessons from the Census," points out some serious defects in our mode of enumerating the people, and proposes definite measures for its improvement. The making of "Reef-knot Nets" is described, with figures, by William Churchill. There is an account by W. G. Benton of "The Ethics of Confucius," often mis-called a religion. M. Lazar Popoff ascribes the "Origin of Painting" to a belief of primitive man that he could put spells upon animals through pictures of them. There is an interesting sketch of the doings of mountain butterflies, under the title "High Life." An account of the career of James Curtis Booth is given, with a full-page portrait. In the Editor's Table, University Extension and the recent Group of Scientific Meetings at Washington are discussed. New York: D. Appleton & Company. Fifty cents a number, \$5 a year.

THE PROSPECTS OF A POSSIBLE EXTENSION OF THE CHARCOAL IRON INDUSTRY IN CANADA.

SINCE 1887 the Dominion trade reports have not distinguished, as formerly, the importation of charcoal pig, from other pig iron, nor have they shown the importation of scrap separately from pig, nor is the exportation of charcoal from the Province of Ontario to be found in their pages. The price of the pig imported from the United States figures in the returns at \$18 a ton, that from Great Britain at \$11.50 a ton. It has been estimated that the yearly charcoal pig importation from the United States is 10,000 tons, and so far the combined influence of the tariff and the bounty does not appear to have diminished our dependence upon the United States or Great Britain for either charcoal or other pig iron. The following figures leave no room for doubt that the demand for pig iron increases in greater ratio than the home manufacture:—

Year ending June 30th.	Charcoal Pig Tons.	Other Pig and Scrap Tons.	Imported from.	Bounty on Home Manufacture.	Tons Home Manufacture.
1884..	1,995	9,517	United States.	.....	.....
	203	65,900	Great Britain.	.....	.....
1885..	1,112	7,389	United States.	.....	.....
		33,594	Great Britain.	.....	.....
1886..	3,185	6,871	United States.	.....	.....
		34,180	Great Britain.	.....	.....
1887..	3,919	5,902	United States.	.....	.....
	.....	38,728	Great Britain.	\$59,576	39,717
1888..	.....	12,980	United States.	.....	.....
	.....	36,440	Great Britain.	43,314	22,209
1889..	.....	13,682	United States.	.....	.....
	.....	60,162	Great Britain.	37,233	24,822
1890..	.....	23,443	United States.	.....	.....
	.....	62,697	Great Britain.	25,697	25,697

The bounty from July 1, 1883, to June 30, 1889, was \$1.50 a ton on all pig iron made in Canada from Canadian ore, from July

1, 1889, to June 30, 1892, the bounty is fixed at \$1 a ton, and from July 1, 1892, to June 30, 1897, at \$2 a ton. No doubt the bounty is computed on the short ton which makes it considerably more on the basis of the long ton, by which the iron is sold for consumption. The importations of cast iron pipe amount to 4,000 tons yearly, and for car wheels this country has to give occasional foreign orders. Other castings figure in the imports. Altogether it is safe to say that the country requires at least 100,000 tons a year of pig iron, of which about one-fourth is supplied by the home manufacturer. The estimate is largely within parliamentary statements of course, but that it is respectable at least, appears from the fact that the quantity demanded is ten-thirteenths of the production of Great Britain at the beginning of the century.

How far charcoal pig will meet the requirements of the founders' trade the Ontario Mining Commission report may tell us. Mr. Copp, a large foundryman says: "If we used one-third charcoal we could use English and low grade Scotch iron, and turn out a strong, nice plate. It seems to me strange that some person has not started the manufacture of charcoal iron in Ontario. If our machine men used more charcoal iron in their castings they would be of a better class and it would be better for the country. As soon as it is established that charcoal iron makes better work we will all be willing to pay more for it." Mr. Adam Laidlaw, another extensive iron-founder, says: "I think we could use charcoal iron mixed with the Scotch; it would strengthen and improve the castings." H. A. Massey, of the great agricultural implement concern—who by the way, have now agencies in Great Britain, and have there entered the lists against the British manufacturer—says: "I think that at Oshawa they use from 2,000 to 3,000 tons of charcoal iron for malleable castings. If Canadian charcoal iron could be produced for a little more than Scotch or Londonderry (the prices of which he had given at \$18 to \$22), no doubt we could use it for every kind of iron we want to make. For machinery castings we want the best iron, and the expense is what has kept us from using charcoal iron. I would take charcoal iron at \$24 a ton, rather than imported iron at \$22. I would consider it to be \$4 a ton more valuable. The manufacturers of agricultural implements would use it; and if one used it and made better castings, competition would compel the others to do likewise." Mr. Massey went so far as to recommend a bonus of \$2 a ton, "in addition to the present bonus and duty," provided it could be shown that at present prices, makers do not get a profit of \$6 a ton. Thus the three leading founders in Ontario concur in the view that charcoal pig is a necessity if high class manufacture is required as well for stoves as for malleable castings.

The going charcoal iron concerns, if they have not been invariably financially successful, have at least earned the credit, as one witness stated it, of "making a magnificent quality of car-wheel iron." The demands of this branch of the trade have not been overtaken by Canadian makers within several thousands of tons yearly, variously estimated, from 5,000 to 10,000 tons. Though the adept smelter can make a mixture that will turn out a well-chilled car-wheel from the furnace, thus getting by a direct process, a product worth \$40 a ton compared with pig iron at \$22, the manufacture of car wheels is generally a special foundry business, in which the character of the work turned out depends in chief upon the mixture of various irons and skill in casting. The demand grows with the requirements of the carrying trade and bids fair to assume such proportions that it should become a fixed industry, keeping in activity an additional thirty ton furnace. If to this demand is added the requirements of the stove and implement trade, it will be easy to dispose of an additional output of twenty tons daily, thus accounting for the sale of 18,000 tons yearly. But as no furnace, however well managed, gives a uniform product, but rather grades its production into three or more varieties of iron, such as grey, mottled, and white iron, each good of its kind, but having special qualities for the founder or the refiner, so it becomes requisite to consider the possibility of establishing as an adjunct to charcoal iron manufacture either puddling or open-hearth steel furnaces. If phosphorus and sulphur be mentioned as possible difficulties, it may be answered that where the steel-works adjoins the furnace the pig can be sent hot to a cupola carrying a large burden of lime, where, with the addition of low phosphorus pig and scrap, a dephosphorized iron can be obtained for transfer to the gas-furnace. The operation of the Siemens' re-generative furnaces at Bethlehem and Steelton, Penn., with Lima oil and super-heated steam, is now conducted with so much ease in firing and economy of fuel, that gas generating for the steel boiler is an almost automatic process, the stoker being entirely dispensed with. Said the superintendent of the Bethlehem Iron Company's steel furnaces to the writer a few weeks ago, "we now do with two men at our fires the work which required twenty-five men, and get better work

done, gaining working space and comfort every way." Mr. Massey, in his evidence before the Ontario Mining Commission, stated that it "is most important something should be done to encourage the manufacture of steel. We import some from England and some from Johnstown, Penn. They supply at Johnstown an article quite as cheap as in England, but of better quality. We have been trying to get the Government to take the duty off cold steel, or to get someone to manufacture it. I think the business in Canada would pay. It would take a very large establishment to supply the requirements of the country in that line of goods. If there is anything that should be encouraged it is the manufacture of steel. Charcoal iron is in the right direction but steel is the most important." Mr. Massey does not in the least over-rate the importance of encouraging steel manufacture, but in view of the fact that the average duty on manufactured steel is thirty-eight per cent., there surely is no need for further inducement to enter upon the manufacture. If a good home market and a high tariff with a certainty that steel making has a firm hold of the requirements of the people, and that the processes now so successfully carried on make the production of soft steel or ingot iron cheaper and more easily managed than the craft of the puddler; if these do not give sufficient encouragement to the enterprise, it is difficult to see what form the encouragement should take.

The plant of a fifteen ton Siemens' furnace, including cost of building, was estimated for certain parties in Ontario by competent engineers at \$25,000. This estimate contemplated an output of forty-five tons of steel blooms and billets per day, manufactured from imported pig and worn-out Bessemer rails. Steel scrap is free of duty. This source, as well as that from the yearly turn-out of old rails from roads west of Montreal would afford a sufficient supply. Instead of importing pig, the better plan would be to erect a fifty ton charcoal furnace, taking from it about twenty tons a day of forge iron for the steel furnace. For the blooms and billets there is an existing demand of about 10,000 tons a year from the wire-rope makers and rolling mills. Structural specifications demand sufficient to justify the erection of a rolling mill for turning out 8,000 tons yearly. Bar iron is being displaced in every direction by good ignot iron or Siemens' steel. Should this branch of work be entered upon, the demand would absorb 16,000 tons a year. A \$25,000 Siemens' furnace, driven to its utmost capacity, would turn out 13,500 tons a year, or forty per cent. of the demand. If the manufacture of crucible cast steel, as suggested by Mr. Massey, should be entered upon, a small additional plant for operating with a Darby or some other carbonizing process—even a cementation furnace or two—would probably be a profitable experiment, conducing to wider enterprise.

Any extension of the charcoal iron industry must reckon with American competition. In fact if the importation from the United States, equal to thirty-five tons a day, could be cut off by the home manufacturer, it would be an augury of new undertakings. The cost of assembling materials at northern coke furnaces, from certain instances quoted in a return by the United States Commissioner of Labor, ranges from \$4.04 to \$5.92 per ton of iron made, the factors being in the:

	1ST CASE.	2ND CASE.
Ore, freight, 812 miles.	\$2.174	1,000m. \$4.287
Coal, " 105 " . . . . .	.067	
Coke, " 132 "	1.578	140 " 1.474
Limestone, freight, 27 miles. . . . .	.223	25 " .162
	\$4.042	\$5.923
Total cost of iron	12.568	14.858

The large ratio of freight to cost of production is a feature which should have its significance, when it is considered that Ottawa, Kingston or Toronto are in the neighborhood of supplies of ore, fuel and flux, the charges for bringing which to the furnace should not, at the utmost, exceed one-half of the cost in the first above instance quoted.—*Canadian Mining Review.*

At a recent inquest on the body of a man who had committed suicide from overwork at the railway clearing house at Euston, the jurors asked a good many awkward questions, which elicited the information that the overtime work was compulsory and was not paid for. The matter has drawn forth a good many spicy little paragraphs which might be applicable to some cases in Toronto. It is neither fair, nor right, nor decent, to deprive men of their evenings and huddle them into a closed-up office after a long day's confinement; and though "going back to work" may sometimes mean carelessness or an excuse for getting down town, still when it is honestly given the institution which is honest will be ready to meet the overwork with over pay—perhaps.—*Toronto Saturday Night.*

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.

MESSRS. WEIR & WEIR, St. Mary's, Ont., are enlarging their flax mill.

MESSRS. DINES & CLEVELAND will erect a grain elevator at Nesbitt, Man.

MESSRS. ANNING, WORDEN & CARSON are starting a canning factory at Belleville, Ont.

MR. J. W. GRECE, Dresden, Ont., is meeting with fine success with his sorghum factory.

MESSRS. LA CROIX BROS. are starting a carriage factory at Prince Albert, Saskatchewan, N.W.T.

THE haine factory of Messrs. Skinner & Co., Gananoque, was destroyed by fire October 14th.

CHEW'S saw-mill at Gravenhurst, Ont., was destroyed by fire October 12th. Loss about \$12,000.

THE capital stock of the Consumers' Cordage Company has been increased from \$1,000,000 to \$3,000,000.

THE Treherne Farmers' Elevator Company has been organized at Treherne, Man., to build a grain elevator at that place.

DEBLAQUIERE'S sawmill at Leg Lake, near Gravenhurst, Ont., was destroyed by fire October 12th. Loss about \$6,000.

THE paper mill of the Richelieu Paper Company, at Richelieu, Que., was destroyed by fire October 15th. Loss about \$20,000.

THE works of the Canada Lumber Cutting Machine Company, at Trenton, Ont., were destroyed by fire October 19th. Loss about \$4,000.

THE woodworking factory of Messrs. Foster and Allen, at Amherst, N.S., was destroyed by fire October 20th. Loss about \$6,000.

THE W. F. Palimenter Company, an American concern, have started a branch of their works at Windsor, Ont., to manufacture saw swages.

THE James Stewart Manufacturing Company have begun the construction of their extensive foundry and stove works at Woodstock, Ont.

THE saw and planing mill and sash and door factory of Mr. L. C. Dicks, at Fordwich, Ont., was destroyed by fire Nov. 3rd, loss about \$3,500.

THE Globe Furniture Company, Walkerville, Ont., are manufacturing the pews and other furniture for a Methodist church at Oil Springs, Ont.

THE Hamilton Facing and Mineral Wool Company has been organized at Hamilton, Ont., to manufacture foundry facings, moulding sand, etc.

THE planing mill and wood-working establishment of Messrs. James Dempster & Co., Halifax, N.S., were destroyed by fire Oct. 27th, loss \$20,000.

THE Victoria Lithograph Company has been incorporated at Victoria, B.C., with a capital stock of \$25,000, for the purposes indicated by the name.

THE Melita Milling Company, Melita, Man., has been incorporated with a capital stock of \$40,000, and will build a roller-process flour mill at that place.

THE Canadian Pacific Railway Company have determined to replace all the wooden bridges on their road in British Columbia with substantial steel structures, at a cost of about \$2,000,000.

MESSRS. DUNLOP, COOKE & Co., Amherst, N.S., manufacturers of clothing, have commenced the manufacture of fur garments. Their factory is 66 x 25 feet, and they give employment to fifty hands.

MR. R. MANN has taken over the Dickson woolen mill at Peterborough, Ont., and is putting the same in operation with a full force of operatives. His products will include tweeds, blankets, flannels, yarns and custom work.

THE Windsor Cleat Company has been organized at Windsor, Ont., to manufacture electric wire cleats, to be under the management of Mr. John Gray.

THE large box factory at Waubaushe, Ont., owned by the Dodge & Bliss Box Company, of Jersey City, N.J., was destroyed by fire October 21st. Loss about \$25,000.

THE Waterloo Knitting Company, Waterloo, Que., who were recently bonused to the extent of \$10,000 by that town to assist in establishing the enterprise, have got their factory in operation, giving employment to thirty-five hands.

MR. TERRASSON DE RENARDINE will build a hosiery factory at Roxton Falls, Que. He will give employment to 100 hands the first year, and to 150 hands thereafter. The town has voted him a bonus of \$25,000 to assist him in the enterprise.

THE anthracite mine near Banff, B.C., operated by the Coast Commercial Commercial Company, is now producing about 150 tons of coal per day. Hitherto the production has only been sufficient to supply the demand along the Canadian Pacific road.

MR. EUGENE O'KEEFE, proprietor of one of the largest and best known breweries in Canada, has merged his business into the O'Keefe Brewing Company, of Toronto, with large capital. The works are to be considerably enlarged and the output doubled.

THE G. H. Grims Manufacturing Company, of Rutland, Vt., are removing their works to Sherbrooke, Que. They are manufacturers of tinware, sap evaporators, etc., have \$50,000 capital, and will give employment to a large number of hands. Score another for the N.P.

MESSRS. TAYLOR BROS., Toronto, who own paper mills and pressed brick works on the Don river, near this city, have discovered extensive deposits of fire clay on their property, and will immediately erect works for manufacturing the article into fire brick, sewer pipe, etc.

ORDERS have been given for the completion of the Canadian Pacific elevator annex at Fort William. The foundation has already been finished and work on the superstructure will be commenced at once and pushed forward with all possible speed. The annex will have a capacity of 1,300,000 bushels.

THE Calgary Water Power Company are asking the authorities of Calgary, N.W.T., to give them a bonus of \$4,000 and exemption from taxation for twenty years in consideration of their building a 100-barrel roller mill and suitable grain elevator there, also an oatmeal mill. The favor will probably be granted.

MESSRS. NEWLANDS & Co., Galt, Ont., are said to have the only mill in this country exclusively engaged in making glove and rubber linings, Saskatchewan robes and overcoats. They have a very complete mill, heated with steam, lit by gas, and protected by the sprinkler system. They run six circular machines and two flat frames.

CAPT. J. B. FAIRGRIEVE, of Hamilton, Ont., will, during the coming winter, build in that city a 1,200-ton steel steamer for the trade between Montreal and Lake Superior ports. The ship will be 180 feet long, and the Hamilton Bridge & Tool Company will do the metal work, the steel plates, etc., being manufactured in Scotland.

MESSRS. J. G. & A. HAY, of Woodstock, Ont., will build a chair factory at Owen Sound, Ont., if the municipality will favor them financially and give them free water and exemption from taxation for ten years. They propose to erect a three-story brick factory 150x45 feet, with brick annex 50x45 feet, and to employ not less than forty hands.

If all goes well the first of the Union Steamship Company's steel vessels, the *Comox*, will be launched to-morrow, at thirteen o'clock. This is the first steel vessel ever built north of San Francisco, and its launching marks an era in our history which is of the greatest importance. It is also the showing of another feature wherein we are becoming the rival of San Francisco, and the envy of all the other cities on the Pacific coast. So mote it be.—Vancouver, B.C., Telegram.

WESTMORELAND County, New Brunswick, which borders on the Atlantic ocean and on the Bay of Fundy, has this year fifty-eight lobster factories in operation, where last year there were only thirty-five. These have put up in 1891 no less than 20,183 cases of forty-eight pounds each, equal to 968,784 pounds in all. Last year the pack was only 682,704 pounds. The Portland Packing Company, which has four factories, put up 5,150 cases; F. F. Kimball, 1,350 cases; Job Trenholm, 800 cases; three other Trenholms, 1,150; J. L. Black, 510; Philip Bogue, Amos Burke, Samuel Robinson, Welsh & Dobson, 500 each, and forty others from fifty to 400 cases each.

THE chewing gum manufactured in Toronto by Mr. C. T. Heisel, under the management of Mr. S. T. Britten, is composed chiefly of gum chicle, imported from Mexico, no objectionable materials whatever being used. The gum is imported in a crude condition and refined in the Toronto factory, the other ingredients being pure sugar, liquorice and flavoring extracts.

MR. ROBERT CAMPBELL, Hamilton, Ont., has invented an appliance for the burning of fuel gas. It consists of a perforated fire-clay back to the grate. Through the perforations in the back the gas is forced as required, and a supply of atmospheric air secures perfect combustion. On the perforated back or base are piled irregular pieces of fire clay, which become red hot, and diffuse their heat throughout the department.

THE Dodge Wood Split Pulley Co., of Toronto, inform us that they have lately completed arrangements for the handling of two leading standard Friction Clutches, which they are introducing in connection with their popular split pulleys. They say a strictly reliable and first-class friction clutch pulley is becoming a necessity in modern establishments, and to meet the demand they have placed themselves in a position to be able to supply a standard article at a reasonable price. They invite correspondence from those interested.

A NUMBER of gentlemen in New Brunswick and Nova Scotia have decided to form a company to build a charcoal iron blast furnace on Grant farm about twelve miles from New Glasgow. A very large deposit of high grade iron ore, with belts of limestone running through it, has already been opened up, and large forests of splendid hardwood in the vicinity have been secured, from which the charcoal will be made. Application is to be made at once to the Government for letters patent. Mr. Earnest A. Sjostedt, a man of much experience in this business, is to be manager of the company.

MESSRS. S. R. FOSTER & SON, St. John, N.B., at the recent industrial exhibition in that city, showed a nail-making machine in full operation, illustrating in a practical way the manufacture of nails. In the firm's factory thirteen machines are running full blast all the time turning out immense quantities of nails of all sizes. Besides these there are forty-two other nail and tack machines and a spike machine weighing about eight tons, and these turn out cut and clinch nails, tacks and spikes, ranging from the smallest tacks to the largest spikes. Nine polishing machines brighten up the products of the factory. About sixty hands are employed.

OUTSIDE Mr. John Meston's blacksmith shop, on Broad street, stands a new-fashioned cart. This cart is the same as all others in many ways, the only difference being in the axle and wheels. Each wheel has a very small wooden axle of its own, and, as fast as the wheel revolves, the axle turns with it. The axles are placed one above the other, which necessarily leaves one wheel several inches smaller than the other, the axle of one being higher off the ground than the other. The cart, which is the first of its kind ever built in British Columbia, was tried, on Monday, by a milkman, who pronounced it very easy to draw, comfortable to ride in and much easier on the wheels, owing to the spring in each wheel's axle.—Victoria, B.C., *Colonist*.

THE new building for the manufacture of worsted goods being erected on the Paton mill grounds, is progressing favorably. D. G. Loomis & Sons have the contract for the masonry and brick work, and have one wing of 104 feet up; they expect the warp room will be occupied in the course of two or three weeks, when the present warp room building will be torn down and the other wing of the main building put up, which will make it 208 feet in length by four storeys high. The contractor, Mr. G. G. Bryant, is putting on the roof of the wing now up and getting the floors ready to lay (the upper ones to be of birth), and the painters are at work on their part, so the whole thing is being hurried along satisfactorily. It will be a fine building when completed.—Sherbrooke, Que., *Gazette*.

THE Inlaid Silver Company, Toronto, have acquired the right to manufacture in Canada, under the Warner patents, silver spoons, forks, etc. These goods are made of the usual white metal, and are inlaid with pure silver at the points usually brought most in contact with other articles when in use. It is to be observed that plated forks and spoons, after having been in use a while, usually disclose the composition metal of which they are made on the bottom of the bowl and handle, the silver plating wearing through at these points. In the goods made under the Warner patents plates of sterling silver are inserted, thus ensuring a permanency of color always indicating the presence of pure silver. These goods are meeting with great favor in the trade, and the factory of the company is being run to its full capacity. This is an evidence of the benefit of the N.P. to Canada.

THE right for the United States of the automatic hosiery knitter, belonging to Messrs. Feodor Boas & Co., of St. Hyacinthe, Que., was sold in Boston a short time ago to an American syndicate for \$300,000. This is probably the largest sum ever paid to any Canadian for a single patent and speaks well for the mechanical ability of the joint inventors, Mr. R. W. King and Mr. Moritz Boas. Mr. King has been making knitting machines in Georgetown, Ont., and lately moved to Montreal, with a larger building with increased facilities for turning out machinery. Mr. Boas has been for some years manager of the Granite Mills in St. Hyacinthe. The machine is said by those who have seen it to be a marvel in its way, and requires only to be supplied with yarn to turn out hosiery.

MR. S. J. RITCHIE, of Akron, O., who has already applied to the Government of Ontario and the Dominion for subsidies to aid in the development of the nickel and copper mines of Sudbury, Ont., has made the Board of Trade of Trenton, Ont., a proposition. He asks for a bonus of \$75,000 with exemption from taxation. Mr. Ritchie says that the company will at once put the Edison method of reducing the iron ore into operation. The crushers are being built at Chicago and the plans being made for their erection at Coe Hill, where the ore will be pulverized and shipped at Weiler's Bay docks. Twenty-one crushers, capable of crushing 1,500 tons per day, will be built, requiring 1,000 men in the mines and about 500 men attending the machinery, producing 1,000 tons of prepared ore daily.

A QUESTION that has aroused some interest in Manitoba is that looking to the development of the iron deposits west of Fort William and the establishment of smelters in the vicinity of that town. It is known that there is some movement in that direction, and that the C.P.R. authorities are co-operating in the enterprise. Negotiations are in progress with European capitalists for the opening up of the mines and utilization of the ore, Messrs. Fresez and Macquet, two Belgian experts, have been inspecting the district for the past two or three weeks, and arrived in the city yesterday, proceeding to the Pacific Province a few hours after. In a general conversation it was inferred that the gentlemen were very well satisfied with their investigation, and that their report will be favorable. They stated that the surface showing of the ore was exceptionally good and the quality of the highest.—*Winnipeg Tribune*.

THE manufacture of carpets, so called, is traced back in the records of French monastic orders as far as the 10th or 11th centuries, but in all likelihood they were merely embroidered and not woven fabrics. The actual manufacture of carpets in Europe is assigned to the reign of Henry IV. of France, and is said to have been introduced there direct from Persia. But an earlier attempt had been made by an Englishman who earnestly promoted new discoveries and improvements. This was Richard Hakluyt, who directed Morgan Hubblethorn, a dyer, to proceed in 1579 to Persia to learn the arts of dyeing and making carpets. An artisan who had quitted France established the industry in England about 1750. The well-known Brussels carpet was first made in Wilton, where the manufacture was introduced from Tournai, in Belgium. Carpets may be described as migratory manufacture. In almost every instance the industries, after being successfully established in a town, have been taken elsewhere, though still retaining the names denoting the place where they were first made.

YESTERDAY afternoon H.M.S. *Warspite*, all spick and span, painted and polished to perfection, and looking as if she had just been built, floated out of the Esquimalt dry dock like a sea bird. As early as eight o'clock orders were given to open the sluices, and the water began to rise gradually until the big ship, weighing nothing short of 15,000 tons, was lifted gently off the basin, and after a period of three months found herself once more afloat. She was hauled out of the dock by hand, and the tug *Lorne* took her in tow across the harbor to No. 1 moorings, where she was securely anchored. Admiral Hotham expressed his pleasure at the manner in which the *Warspite* was taken out, and said it demonstrated beyond doubt that the dry dock was capable of accommodating vessels of the largest size, and that it would be able to answer all demands made upon it for years to come. Captain Devereux, too, is naturally pleased at the manner in which the *Warspite* has been put through. He told a *Colonist* representative that nothing could possibly have worked more satisfactorily. There was one and a half feet to spare on each side of the vessel when she floated out, and, though the strain on the basin, owing to the great weight on it for so long a time, must have taxed the strength of the dock to the utmost, he is confident that no damage whatever has been done.—Victoria, B.C., *Colonist*.

A SAMPLE of iron ore, from the property of Messrs. Henry Law & Co., near the Blyth River (Tasmania), weighing about four cwt., was forwarded to Messrs. Park & Lacy Co., of Sydney, and they took this raw ore and, employing an ordinary blast furnace, produced first-class castings. The experiment was conducted at Halliday's engine works, 20 Erskine Street, Sydney, by Mr. W. Brazenall, who holds a certificate of merit from the Commissioners of the London Exhibition, 1889. Mr. Brazenall informs us that he charged an ordinary foundry furnace with three-fourths of a cwt. of the Tasmanian ore and about fourteen lbs. of limestone, and ran the iron smelted into pigs. He afterwards made castings of various descriptions from the pigs thus produced, and had a cast mandril put into the lathe to show that the iron was not too hard for machining. The iron proved of the very highest quality, of exceedingly fine and close grain, and very tough. In addition to the cast iron, a small quantity of puddle bar iron was secured, owing to the furnace not being entirely adapted for producing cast-iron, and wrought iron has been worked up with the most satisfactory results. —*Australian Mining Standard.*

A FEW weeks ago the fact was noticed in these pages that Mr. C. T. Heisel, of Cleveland, Ohio, had established a branch of his chewing gum works in Toronto, and suggested at the time that this new Canadian industry was a direct result of the National Policy. Since that time the success of the new enterprise has been so pronounced that the quarters first occupied in Adelaide street were found to be too small for the business, and the concern has now removed to 32 and 34 Lombard street, where all the original and considerable new machinery has been introduced, operated by steam power, and where about forty hands, mostly girls and women, are employed in the manufacture of chewing gum, pop-corn, prize packages, etc. Mr. Heisel is one of the most extensive manufacturers of this line of goods in the United States, and he has a branch establishment in Leith, Scotland. His business enterprise gave him an extensive Canadian trade, and for years these goods have been a standard article in the market. But he was handicapped by our tariff, and he discovered that if he wanted to reap the full benefit of his popularity in Canada he must start a factory here, and this he has done as we have shown. Mr. Heisel is not personally present in Toronto, but he is represented here by Mr. S. T. Britten, an active, pushing, energetic young man, who knows his business from the ground up, having been associated with Mr. Heisel in his Cleveland factory for many years. Having come to Canada to live and do business, Mr. Britten is identifying himself as a Canadian manufacturer who will do all he can for the prosperity of the country. We always take pleasure in welcoming such men to Canada.

AN ELECTRIC LIGHT PLANT.

THE Auburn Woolen Company is an enterprising one. It believes that the best work can be done by having the best appliances as well as first-class workmen, and the most improved machinery is used in the mill. For artificial light the company has had a gas house of its own and the large buildings were lighted at night by gas made on the premises. Now, however, another step in advance has been taken and the buildings throughout are lighted by electric light from a plant which has been put in. When the large industry in the north ward decided to use this light it did not have to go out of town for it, but reached down to the south ward and procured a plant from the Edison General Electric Company, and the machinery is now in its place and the lights are in position.

The electric light station is in a building well suited for the purpose south of the main mill. It is about 38x29 feet, and this room being entirely devoted to the light machinery there is space for all to be conveniently arranged. Power is furnished by a fine Leonard Ball engine of fifty horse power, made in London, which drives the No. 8 Edison dynamo. This dynamo was made at the Peterborough works of the Edison Company, and is a machine admirably adapted for a mill plant as well as for supplying general incandescent light. It is a direct current dynamo, and similar dynamos have been put in at Lindsay by the Edison company for general lighting purposes.

The station is also supplied with a complete equipment of other appliances necessary for the purpose. Opposite the handsome dynamo stands the large switchboard, with an ampere metre, a lightning arrester, the "switch" or cut off, and a resistance box for controlling the current. These appliances, as was the entire plant, were made at the Edison works in town.

From the station the wires conduct the current to the numerous incandescent lamps with which the mill is supplied and which furnish brilliant light for the operatives of the mill after the sun has

withdrawn its light. The lamps are arranged close to and over the machinery when the operatives work, the wires being arranged overhead and conducted into the building through protective insulators. In the finishing room flat there are about forty lamps, in the weaving room flat one hundred, in the spinning room sixty and carding room thirty-five, while the office of the company is supplied with ten. In all there are about 275 sixteen candle power lamps used in the various parts of the buildings of the mill and connected with it. In the weaving room two lamps are placed over each loom, and each room is supplied with a switch. With these lights all aglow the buildings are brilliantly illuminated and the work goes on as if daylight had not departed. The lamps and plant have been tried and give entire satisfaction, and the way the plant works and the brilliant light given is very creditable to the works from which it comes and would commend this Edison system to any manufacturing concern which wishes to keep up with the mark of improvement by putting in an electric plant.—Peterborough, Ont., *Review.*

UNDER the direction of Henry Elliott, the only artist who has ever drawn and painted the seal and walrus in their native haunts, an interesting exhibit for the World's Fair is being prepared by the Smithsonian Institution. This exhibit consists of models in papier mache representing the fur seal and walrus fisheries on the Alaskan coast. The animals to be represented, as well as the men who catch them, are being modeled in clay. One of the models shows a seal "drive." This model includes hundreds of mimic seals which Aleuts are driving along to the killing grounds by waving cloths and shouting. Another illustrates a "rookery" on which the full-grown seals, bellowing and pugnacious, have "hauled up" out of the surf upon the islands to breed. Another model will show a hauling ground of bachelor seals. The killing of seals will also be shown, a group of Aleuts being represented in the act of smashing their heads with clubs. There will also be represented a number of hair seals, which are not useful for their fur, but merely for food supply to the natives of that region. The walruses, now rapidly becoming extinct, are also to be reproduced in material that will give them a remarkably life-like appearance. Hundreds of models in clay are made of these animals, in order to represent the different species and sizes of each. They are to be cast in papier mache and painted.

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GUARANTEED RESULTS;

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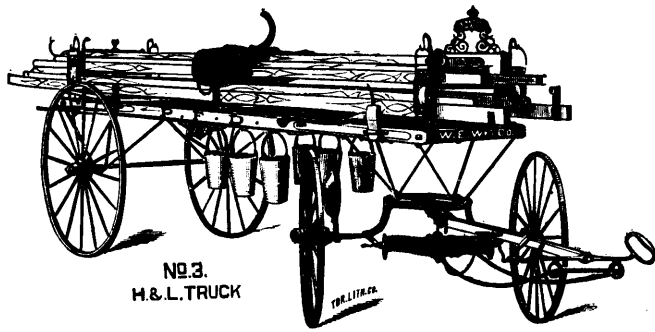
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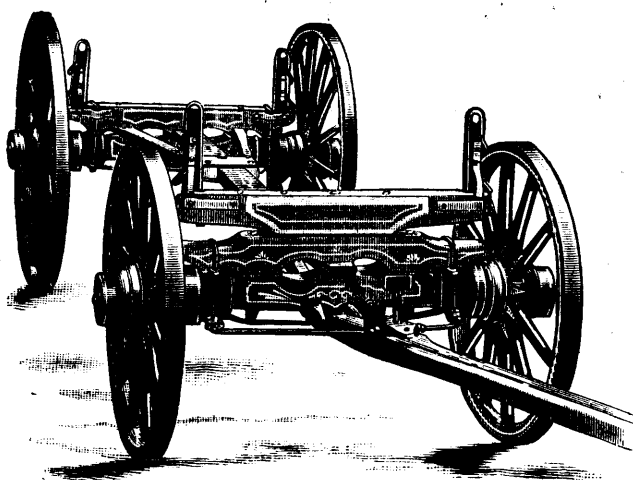
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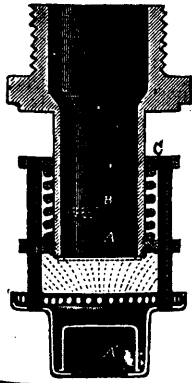
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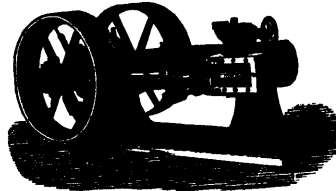
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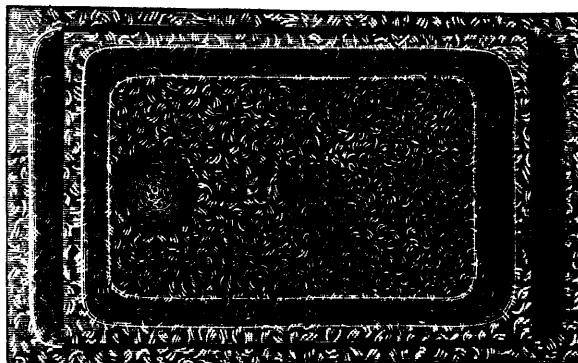
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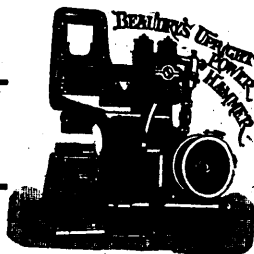
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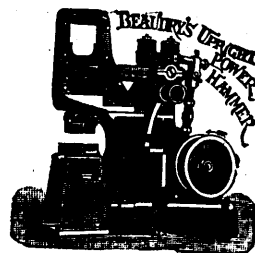
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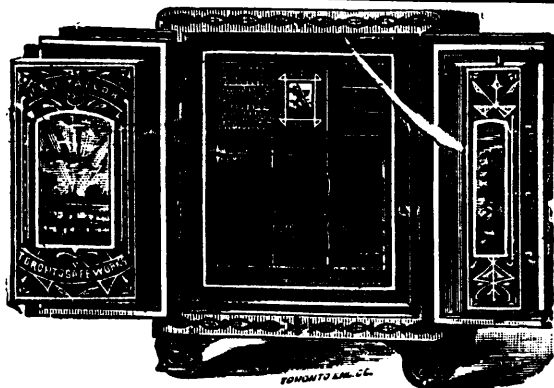


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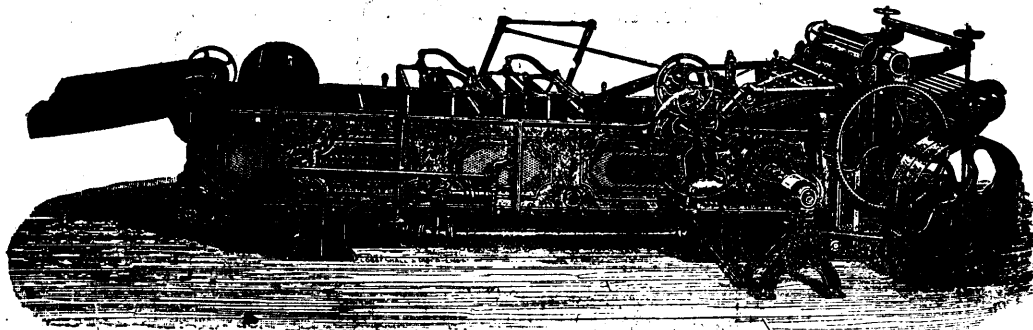
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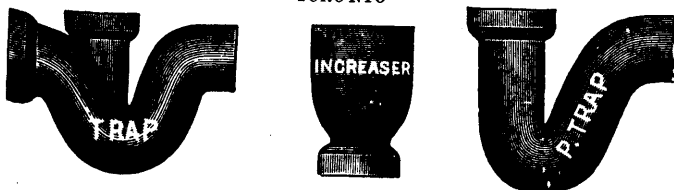
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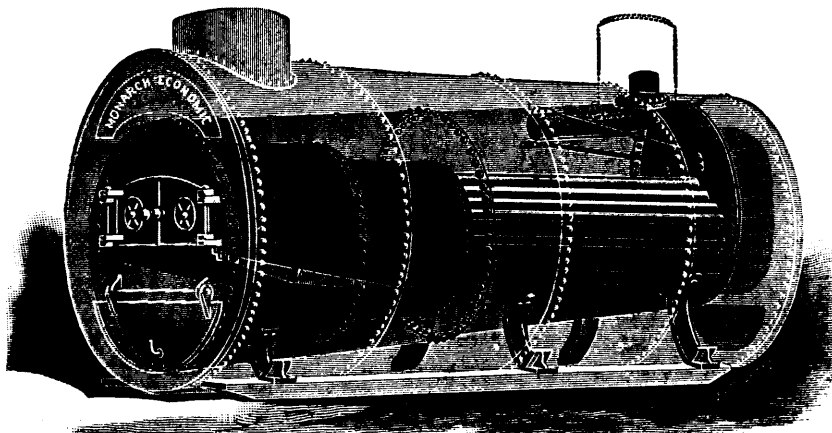
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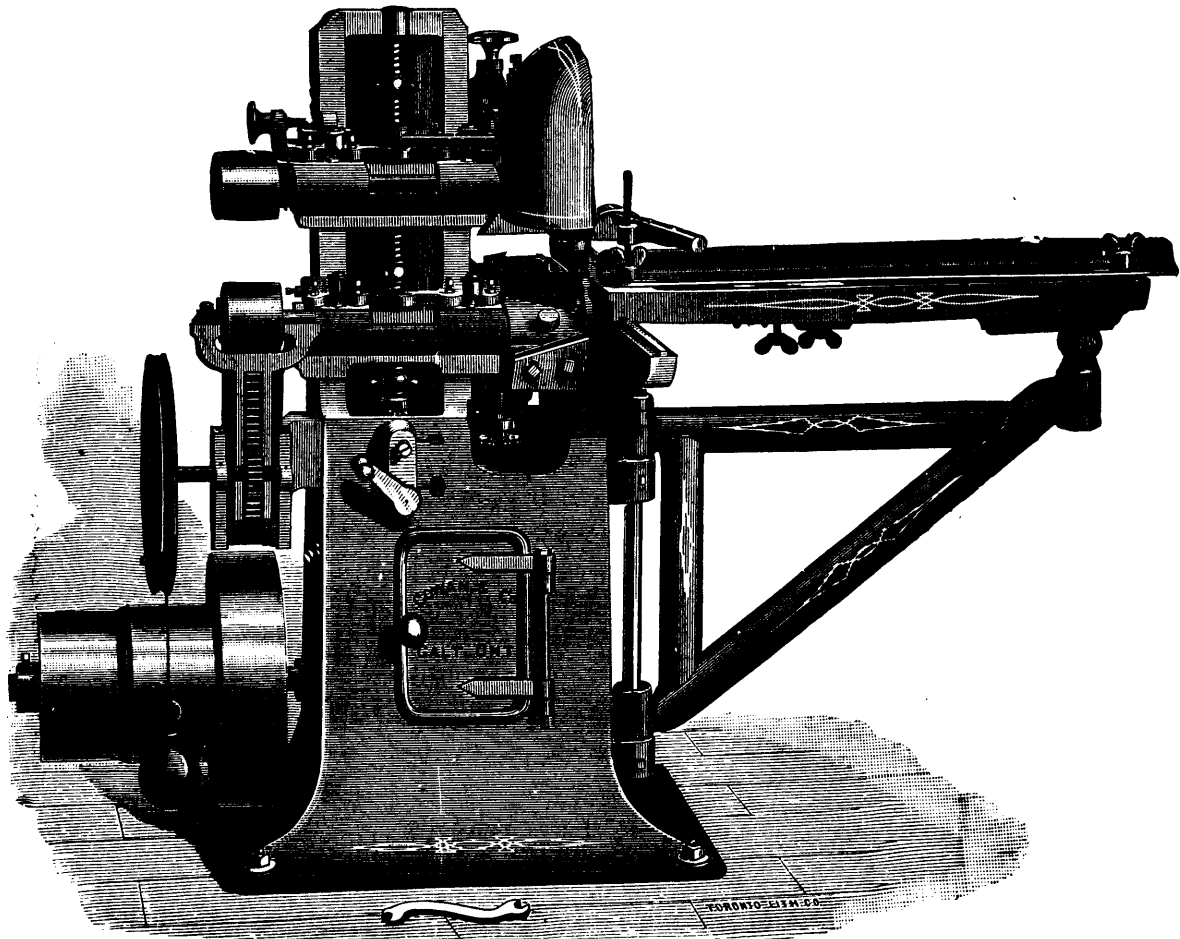
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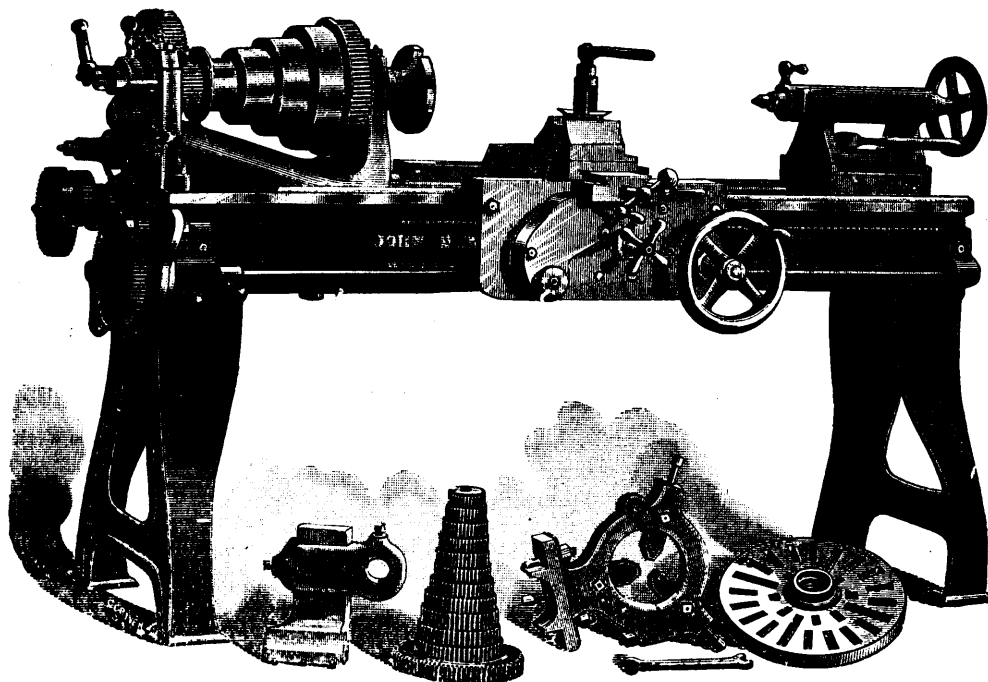
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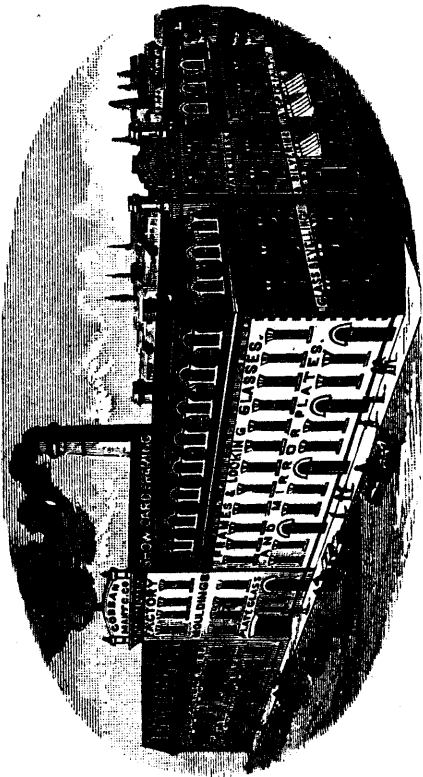


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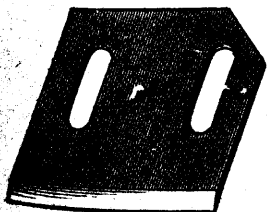
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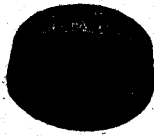
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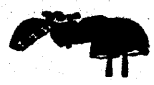
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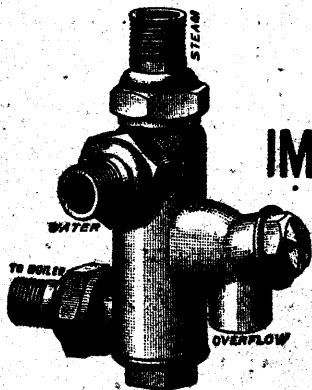
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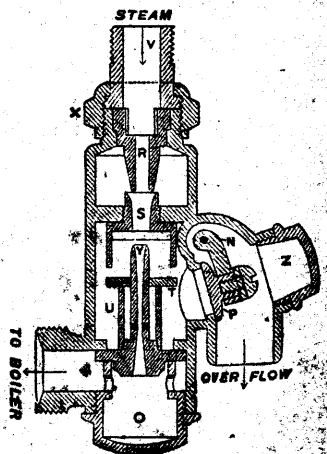
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