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Vol. 20.

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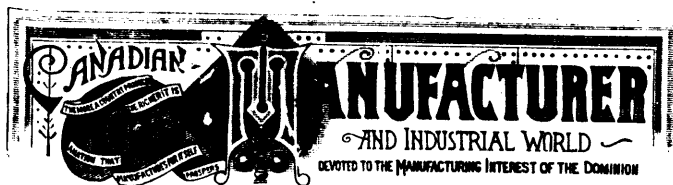
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THE MANUFACTURERS' PROTEST.

At the recent meeting of the Canadian Manufacturers' Association, the preamble of the following resolutions set forth several obvious facts bearing on the subject, the resolution being as follows :

Resolved.—That the Canadian Manufacturers' Association is most decidedly opposed to any change in the policy of the Dominion Government which would subject Canadian manufacturers to the unequal competition of any foreign manufacturers.

Resolved.—That this Association would most strongly object to any arrangement being made by the Dominion Government with any other Government by which there would be any trade discrimination whatever against Great Britain.

Resolved.—That the existing National Policy of Protection to Canadian manufacturing enterprises is well suited to the needs of this country and has proved of advantage to all classes of our people ; therefore this Association now places itself upon record as opposed to unrestricted reciprocity with the United States in manufactured products.

The "unequal competition" alluded to, means this : Canada is a comparatively new country as regards the manufacturing industries. But a few years ago she adopted the present policy of protection, and under it she is rapidly advancing in material wealth and prosperity. To a large extent she is manufacturing at home many articles which were formerly imported ; and to a large extent she is consuming at home, in her manufacturing industries, many articles which were formerly exported. Under her policy of protection thousands of work shops, factories and industrial establishments have sprung into

existence, giving employment to tens of thousands of workmen who would either have been in idleness or competitors of those employed in agricultural and kindred pursuits. These tens of thousands of workmen, on the other hand, are consumers of a very large portion of what those employed in agricultural pursuits produce, creating a profitable home market where no market at all before existed. Any change that would disturb this equilibrium—any thing that would injuriously affect the manufacturing element of Canada—anything that would deprive the agricultural element of Canada of the large and profitable near by home market—would be embraced in the phrase "unequal competition."

It is claimed by the advocates of unrestricted reciprocity that the agricultural element, and all other elements in Canada should be allowed to buy and sell in the open markets of the United States, and that to prevent this is to grant favors to Canadian manufacturers by which they are becoming rich, at the expense of the rest of the country which is becoming poor. No one denies that the United States is a great and prosperous nation—no sane man will deny that that greatness and prosperity were attained under almost exactly such conditions as now prevail in Canada—that protection did it. That policy which has added so much to the importance of the United States will do as much for Canada if allowed the same opportunity. There the manufacturing industries have attained greater perfection, many of them than anywhere else in the world. With all the facilities that wealth can supply they have absorbed their own market and are ready to absorb any others they may find ready access to. Without the intervention of the tariff they would soon absorb the Canadian market to the destruction of Canadian manufacturing industries. If Canada proposed giving herself up to her rival—if she had no high aspirations for the future in which are embodied hopes for national greatness and independence—if she is anxious for annexation and assimilation with the Great Republic, then there could be no surer nor quicker way of gratifying this desire than by unrestricted reciprocity.

What is said regarding American manufacturers may also be said with more or less force regarding the manufacturers of Great Britain, France and Germany. Those are old countries in which the arts and sciences attained perfection long years ago. The land teems with population with whom it is a life and death struggle for bread. The common people—the laboring classes—are pauperized ; and they gladly sell their labor at prices unheard of in Canada. Do the laboring classes of Canada want to work in unrestricted competition with these ? We think not, yet that is precisely what free markets and cheap goods mean. With unrestricted reciprocity with the United States, or free trade with the world as some desire, if the Canadian manufacturer continued his operations it would of necessity be with labor as cheap as the cheapest with which he had to compete. Therefore Canadian manufacturers are opposed to the unequal competition of any foreign manufacturers in the United States or any where else.

The Association objects to any arrangement for any sort of reciprocity by which there would be trade discrimination against Great Britain. Whatever necessity may have existed in the past for a reciprocity with the United States whereby such discrimination was made or contemplated, it does not

exist now. Canada has advanced long strides in industrial independence since then. It is suggested by some in favor of such discrimination that "it is inevitable that any wide reciprocity in manufactured goods, and the American newspapers say Mr. Blaine will not look at any half measure, should involve discrimination against similar goods of British make, so that in demanding that there shall be no discrimination whatever, the Association is practically asking that manufactured articles shall not be included at all, and tying the Government down to reciprocity in natural products alone." This is just exactly where the Association stands. It is exceedingly tiresome to have it constantly thrown in the face of Canadians the assertion that Mr. Blaine says this that or the other, just as though Mr. Blaine was a little god who ruled this portion of the universe. It is not only tiresome but disgusting. Mr. Blaine looks out for his side of the question but not for ours, and no doubt he will make as good a bargain for his side as possible; but Canada has many good reasons why, if reciprocity is arranged for, she would be able to dictate terms. Of late years, and for many years, the American Government aided, abetted and instigated by Canadian annexationists, have been making and enforcing laws hostile and intended to be hostile to Canada. For years we have bought millions of dollars every year more from that country than Americans have bought from this; and a very large percentage of these purchases have been of manufactured products. Is the Canadian market of any value to American manufacturers? It would seem so, for even although theirs is a highly protected country in certain lines, they can and do sell us much more than Britain sells us, in return for which they impose a duty of five cents per dozen upon Canadian eggs. They think that they can squeeze us into unrestricted reciprocity, which they understand means annexation, and so they proceed with the squeezing. They think that British domination can be squeezed off the North American continent and that makes them squeeze all the harder.

The way to offset and overcome this desire on the part of Mr. Blaine and his government to force Canada into discrimination against Britain, is to discriminate actively against the United States. It would be bitter medicine for Mr. Blaine to take, and it would not hurt Canada. Going southward from Canada we are met at the international line with onerous and hostile duties upon Canadian exports, and these we are told will be increased and widened unless we surrender our market to American manufacturers. Coming northward from the United States a low tariff confronts these American manufacturers which they find no trouble in surmounting, for last year they sold us nearly twenty million dollars worth of their products. These goods might just as well have been brought from Britain, and a slight discrimination in that direction would divert the trade from an avowedly hostile people to those whom we know to be friends. This should be Canada's answer to Mr. Blaine. Should Mr. Blaine and the American people object or think it unkind or unfriendly if Canada should impose as high a tariff against American products as the United States impose against the rest of the world? Suppose Canada did that—suppose she adopted the McKinley tariff in all its phases to operate against the United States, retaining

the present tariff to operate against the rest of the world, where would the Canada export trade of American manufacturers go to? Our revenues would not be affected for our trade with the rest of the world would go on just the same—only to an increased extent. This is the sort of discrimination that would teach Mr. Blaine a lesson.

UNRESTRICTED RECIPROCITY—NO.

At the recent meeting of the Canadian Manufacturers' Association held in Toronto, a declaration was made against unrestricted reciprocity. The preamble set forth that, whereas a very large majority of manufacturers of Canada, engaged in almost all branches of manufactures, have invested in them an immense amount of capital, and giving employment to many thousands of Canadian workmen, are strongly opposed to allowing free access to the Canadian market to any foreign manufactures, therefore they are decidedly opposed to any change in the policy of the Dominion Government which would subject Canadian manufacturers to the unequal competition of any foreign manufacturers. They also strongly objected to any arrangement being made by which there would be any trade discrimination whatever against Great Britain.

The existing Government of Canada, the National Policy, and the prosperity of the country stand or fall on this platform. These sentiments represent the views of the men who put the Conservative party in power, who made the N.P. the keystone of the situation, and who have lifted Canada to the high plane of greatness and prosperity which she now occupies. Unrestricted reciprocity is not necessary to the prosperity of Canada. On the contrary, it would be the ruination of the industries upon which Canada depends to such a vital degree for her prosperity. Carried to its legitimate and inevitable result, unrestricted reciprocity would soon force Canada into annexation to the United States. If annexation is the thing to be desired, unrestricted reciprocity is the most direct and shortest road by which it can be reached. If Canadians desire annexation this is the way to bring it about. If annexation is what they do not want, then they must steer clear of unrestricted reciprocity.

The manufacturers of Canada have done well to take the stand they have on this question. It is a vital one with them, but none the less so with all Canada. They do not desire a common market between Canada and the United States; for unrestricted reciprocity would not place them upon even terms with American manufacturers. They would not have that free, fair and full access to the American market that is so much talked about. In the nature of things it could not be. They would be crowded to the wall, and their trades destroyed by having Canada made the slaughter ground for surplus American manufactured products.

The annexationists make strong objection to the resolution of the Association which declares against discrimination against Great Britain; and we are told that "it would be exceedingly difficult to frame a reciprocity in manufactures without discrimination against Great Britain, which would be acceptable to the Americans." Precisely so; and for this very reason unrestricted reciprocity cannot but be an impossibility. The people of Canada will not discriminate against Britain,

and if the Americans decline to enter into any form of reciprocity with us which admits Britishers to equal terms with them, then there will be no reciprocity.

The great mistake Canada has made and is making, is in not placing as high duties upon American products as the United States places upon Canadian products. If this were done then Canada would have something to offer in exchange for what she would like to receive. But instead of doing this some unfortunately foolish Canadians go whining and begging to the United States, saying that Canada will be ruined without the smiles and favor of the Americans, and getting for answer a McKinley tariff that imposes five cents per dozen on Canadian eggs. This is the sort of smartness that our American friends boast of; and they are now in a position to grant Canada a favor by removing the duty on eggs if Canada will allow American manufactures to come in free. Canada has shown no tariff aggressiveness as against the United States. She has never imposed a duty of five cents per dozen on American eggs, nor thirty cents per bushel on American barley. But when Canadian manufacturers want to send any of their products there, they are confronted with a duty at least fifty per cent. higher than the Canadian duty on similar articles, the Canadian duty not being high enough to exclude American manufactures. The Americans are striving to make trade arrangements with South American States, whereby they can sell them the surplus of their workshops and factories, but their trade is greater with Canada than with all the countries south of Mexico. Their unfriendly legislation, represented by their five cents per dozen duty on eggs, is intended to force Canada to open her doors for the free admission of American manufactures.

In declaring against any trade arrangement which would discriminate against Great Britain the manufacturers were not moved by any sentimentality in that direction. It is true they have strong attachments for the Mother Country and for the British Flag; and they believed that unrestricted reciprocity would soon place them under the jurisdiction of another flag, and within the authority of another country. They do not desire such a denouement. They believe that Canada cannot always maintain such relations as now connect her to Britain, and they intend that when Canada dissolves political relationship with Britain it will be to assume among the powers of the earth that equal, just and right position to which the laws of God and nature entitle her. She will never swap flags—never—and whenever the time comes to lower the British flag, the dear old emblem of freedom will be carefully folded and laid away in our archives as a pleasant reminder of what we once were. Its place will then be taken by the emblem of free and independent Canada; and under that emblem Canada, possessing the greater half of a continent, will become in power, strength, influence and wealth one of the greatest and most influential nations of the world.

This glorious Canadian destiny can never be attained through or after unrestricted reciprocity with the United States.

KEEP OUT CHEAP GOODS.

FOR the past few years the workingmen of our cities have found to their cost that there is no labor schedule in the tariff. When a dispute takes place in any highly protected industry, labor can be imported free. Protection does not protect the wageworker. He sells his labor in the market of open competition with the world; he buys his goods at the prices fixed by the combines. Now Sir John Macdonald proposes to apply the same rule to the farmer. Reciprocity in natural products only means that the farmer shall be subject to the competition of American labor, and still continue to buy his supplies at the prices set by monopolists. The way out of the trouble is plain. If there is to be competition, let it be all round. We cannot build a Chinese wall high enough to keep out cheap labor. Let the workingmen unite in pulling down the barrier that keeps out cheap goods. In a fight between the red parlor on the one side and the workingmen and farmers on the other, the victory must be for freedom of trade in the end.—*Toronto Globe.*

Every schedule of the tariff provides protection to workingmen, whether it be those of our cities employed in the trades, or those who toil in the fields between the handles of the plow. The schedule that imposes a duty upon boots and shoes protects the shoemakers by enabling the manufacturer to pay higher wages when competing with the cheaper labor of other countries. The schedule that demands a duty upon machinery enables the manufacturer to pay higher wages to his machinists than he could possibly do under free trade. The schedule that imposes a duty upon textile goods gives employment to thousands of women, girls and boys in Canadian factories and mills. The schedule that imposes a duty upon wheat, flour, bacon and pork makes it possible for our farmers to measure the increased price they get for their products above what they would otherwise obtain by just the amount of the duty. They are protected and benefited to that extent. Protection protects the wageworker.

Protection is discrimination against foreigners and in favor of Canadians. It was never intended for protection to discriminate between Canadians. It discriminates against foreigners. Canada wants to increase the population by the immigration of worthy people, and such are always welcome to our shores. When people come to Canada to live they become Canadians. They come here because they think they can better their condition; and no matter how humble that condition may be in Canada, it is infinitely better than it was, or was likely ever to be, in the country from which the immigrants came.

The wageworker does not sell his labor in Canada in competition with the labor of all the rest of the world until he has supplied all the demand at home. The outside world gets the overflow, or surplus after the home demand has been satisfied. In some particular lines that demand may be satisfied, but if this satisfaction exists at all, or to any considerable extent, there are many other lines where it is not satisfied, nor can it be until the population of Canada is much greater than what it is, the industries of the country much more diversified, and many millions more of wealth invested in them. Foreign trade consists in large part of buying in foreign countries what we need but cannot produce at home. The value of the imports into Canada last year was \$121,858,241. It is true many of the articles imported could not possibly have been produced at

home, but it is equally true that, with a more advanced system of manufacturing, a great many imported articles should have been made in Canada.

The natural conditions of Canada and the United States are very similar, and there were but very few articles produced in the United States and imported into Canada but what could have been produced here. But our imports of American products last year amounted to \$52,291,973, which was \$11,769,163 more than what we sold there: and these latter figures indicate the balance of trade against us with that country. While international trade is desirable, it required all we sold to the United States, and \$11,769,163 in cold cash besides, to pay for what we bought from them. Now it is evident that if Canada could have manufactured the millions of dollars' worth of merchandise we bought from the Americans last year—and our imports of manufactured goods from there amounted to \$18,652,610—instead of having to pay out over eleven millions of money to settle the account, there would have been more than \$18,000,000 distributed to Canadians, and Canada would have been that much better off in our trading with the United States. In other words, if much of the energy that was expended in Canada last year in producing things that Canada could not consume and did not want, and which had to be sent to foreign markets for sale, competing in the open markets of the world had been directed to the production of things that Canada needed but did not produce, the profit made by foreign capital and labor would have been saved upon what we really bought, and diverted into the pockets of Canadians.

The *Globe* says: "Let the workmen unite in pulling down the barrier that keeps out cheap goods." This idea of "cheap goods" is an unmitigated mistake. Cheap goods are a curse to the country that produces them. Cheap goods means cheap men. Of what avail would it be to Canadian workmen to have cheap goods, the product of cheap labor in foreign countries, if by the importation of these goods Canadian manufacturing industries are closed up, and the workmen thrown out of employment? Of what avail would it be to Canadian workmen to know that goods can be bought cheap if he, being out of employment, had no money with which to buy? Britain is a land of cheap goods, and no doubt the man who has the money could buy cheap goods there. But the workman is far worse off there than in Canada, where goods are dearer. According to General Booth in his book "Darkest England," in a population there of 37,000,000 there are at least 2,000,000 out and out paupers, and probably half that number little less than starving beggars. Mr. Joseph Chamberlain says that in England there is a population of paupers equal to the population of London—4,000,000. Of what avail is cheap goods in England to these millions of starving wretches?

Canada wants no free trade.

SUPERFICIAL TRADE THEORIES.

THE two arguments most frequently urged against the policy of protection are:

1. That it incapacitates the manufacturers of the country where it is in operation from manufacturing at prices enabling them to compete with free trade countries for exports to foreign countries.

2. That it enables manufacturers to exact, and that in fact they do exact from consumers prices for their products equal to the cost delivered of similar articles imported, plus the amount of duty levied.

With regard of the first argument, its advocates overlook the fact that in the United States at any rate manufacturers are allowed a rebate on all their manufactured goods exported equal to ninety per cent. of the customs duty which had been paid on any of the imported materials used in their manufacture. The amount so refunded in 1890 was \$2,771,225, and in the two preceding years this sum was exceeded.

With respect of the second argument, the following figures show that protection does not necessarily mean high prices to the consumer. On the contrary, American manufacturers sell their most highly protected products at such low prices that a foreign nation, like Canada is, finds them quite as cheap and in many cases cheaper than similar goods in free trade Britain.

According to the Trade and Navigation Returns, the value of manufactured merchandise imported into Canada from the United States during 1890 was as follows:

Dutiable.....	\$18,652,610
Free of duty.....	4,300,887
Total.....	\$22,953,497

Of this merchandise the following proportions were protected in the United States by Customs duties as follows:

Varying from 45 per cent. upwards.....	\$8,026,000
“ “ 35 “ “ but under 45%.....	2,547,450
“ “ 25 “ “ “ 35%.....	1,783,000
“ “ 20 “ “ “ 25%.....	5,529,470
Free of duty or under 20%.....	5,066,977

\$22,953,497

This statement may seem surprising in view of the greater abundance of capital and the much lower rates of interest and wages in Great Britain than in the United States. Several causes seem to combine to produce this result. There appears to be greater inventive capacity in the latter country; more effective machinery for the production of many classes of goods, and, of greater importance than all other considerations, a more thorough acquaintance and compliance with the tastes and requirements of consumers.

It is an easy matter to propound plausible but superficial trade theories, based upon generally entertained ideas, but if these theories prove to be at variance with actual business experience, what are they worth?

These facts regarding the export trade of protected products of the United States to Canada should be borne in mind; of these articles upon which the American tariff imposes duties ranging from 35 per cent. to above 45 per cent., the imports into Canada amounted to over 46 per cent.; those upon which the American duty is from 25 per cent. to 35 per cent., our imports were 32 per cent., while those which are free of duty or the duty is less than 20 per cent., our imports were only 22 per cent.

This shows that while Canada is but a limited purchaser of raw materials from the United States, it is a fine market for their manufactured products, particularly those of the more valuable and highly finished descriptions.

And it is against these goods that Canada needs further protection.

CANADA WILL NOT SUBMIT.

The Chicago Tribune (Rep.), in its issue of May 1st, gives this word of advice and warning to the Tory party in Canada :

If this is what the Canadians want, if they intend to secure a reciprocity which will admit their raw materials here and shut out our manufactures there, what object is there to be gained by the conference next October of which the Governor General speaks? They might as well save themselves the trouble and expense of coming to the conference. Secretary Blaine has already notified them that jug-handled reciprocity of that sort will not be entertained. If they have nothing better to offer the two tariffs will have to work against each other until they have. We can get along without the free admission of our manufactures just as long as they can without the free admission of their agricultural products.

If some ministerial papers are to be credited Sir John contemplates trying the effect of a little coercion by reviving the export duty on logs and by putting export duties on fresh lake fish, on the white woods from which pulp for the manufacture of paper is made, and last, but not least, on nickel ore which now enters the United States free of duty. Whether he can worry our neighbors in this way into conceding reciprocity in natural products alone remains to be seen. We are inclined to think that he is much more likely to provoke retaliation.—*Toronto Globe*.

Let us look a leedle outt into this. It is true that last year Canada sold to the United States of what the Chicago Tribune calls "raw materials" as follows :

Farm animals—horses, cattle, swine and sheep...	\$2,832,739
Grain and products—flour, oatmeal, etc.....	5,522,794
Coal.....	2,309,064
Products of the forest.....	10,247,640
Products of the fisheries.....	2,850,528
Eggs.....	1,793,803
Total....	\$25,556,568

On the other hand Canada imported largely of these same lines of "raw materials" as follows :

Farm animals—horses, cattle, swine and sheep.....	\$819,091
Grain and products of.....	2,642,258
Coal.....	8,124,686
Products of the forest.....	1,197,567
Products of the fisheries.....	515,271
Eggs.....	91,773
Total....	\$13,390,646

This shows that after offsetting our imports against our exports our obligation to the United States for a market for these products amounted to \$12,165,922.

The Tribune says: "We can get along without the free admission of our manufactures just as long as they can without the free admission of their agricultural products." This is where ignorance is supposed to be bliss. Canada is fast making other arrangements regarding her foreign shipments of agricultural products; and though it pinches the old women on the farms to have to pay five cents duty upon their surplus eggs it don't hurt bad enough to make us surrender on demand. It is funny to see Mr. Blaine prancing up and down the Western Hemisphere, looking for an outlet for American manufactures, and making all sorts of offers of reciprocity to gain it; and then to observe the nonchalant manner in which the trade of that country with this in manufactures is discussed. The Tribune seems to be oblivious of the fact that the trade of the United States with Canada is actually larger and more important than with Brazil, or in fact with all the South American States combined. And still it jabbars about getting along without this trade unless Canada accepts unrestricted reciprocity.

Last year Canada bought of merchandise of different sorts

from the United States, to the value of \$52,291,973, while the value of merchandise sold by Canada to that country was but \$40,522,810, showing a balance of trade in favor of the United States of \$11,769,163. Is this large balance of trade in their favor to be counted of no value?

The proportion of imports free of duty in the interchange of merchandise between the two countries last year was as follows:

Into Canada from United States, 41.53 per cent.
Into United States from Canada, 30.82 per cent.

Which shows that the average rate of duty levied upon dutiable imports from Canada into the United States is very much higher than that levied upon dutiable imports from the United States into Canada.

The *Globe* alludes to some proposed tariff changes as being in the direction of efforts to "worry our neighbors" into conceding reciprocity in natural products alone. It is evident that if Canada does not intend to throw up the sponge in this contest, she will have to adopt many changes in existing arrangements. It is the opinion of many that the export duty on logs should never have been removed, and that the best thing that can be done for Canada is to reinstate it. But a few days ago a statement was telegraphed from Detroit that 160,000,000 feet of saw logs were ready to be rafted from Georgian Bay to Michigan; and the Sault Ste. Marie *Pioneer* states that "not one saw mill in the wide district of Algoma can be kept running full time this year, owing to the abolition of the export duty on saw logs." The export duty on saw logs should be reimposed.

So, too, with lake fish. Our amiable neighbors want Canadian lake fish, but they are not willing for Canadians to catch them. If Canadians take fresh lake fish to any American market, they pay a duty of three-quarters of a cent per pound thereon; but American fishermen are permitted to fish in Canadian waters without restraint. Undoubtedly there should be an export duty upon fresh lake fish.

So, too, with woods from which pulp for the manufacture of paper is made. Because their forests of these woods are fast becoming depleted, our American friends very generously allow Canadian woods to come in free, but they place an exhorbitantly high duty upon Canadian pulp. The arrangement is bad for Canada and should be amended by placing an export duty on wood for the manufacture of pulp.

So, too, as regards nickel ore. As badly as our generous American neighbors want nickel, they do not want it badly enough to admit the refined article duty free; and if they think the industry of refining the ore should be McKinleyized to the extent of a duty of \$200 per ton, they should not esteem it much of a "worry" as the *Globe* terms it, to pay a Canadian export duty of say \$200 per ton upon the nickel contained in the ores they want for their refining works. There is no desire to impose any export duty upon Canadian refined nickel, but an export duty should certainly be laid on nickel ore and matte.

The *Globe* is exceedingly solicitous about Canada in looking after her own interests doing anything to "worry our neighbors," but it fails to take into account the fact that our neighbors are doing all they can to worry Canada into annexation.

The correct plan for Canada to pursue in this matter is to adopt the American tariff in all things applicable to imports of American produce; and to impose export duties upon such

things as saw-logs, fresh lake fish, wood for making pulp, and nickel ore. Commercial warfare and retaliation is not a desirable condition of affairs; but the United States is already practising it against Canada, and will continue to make and exercise hostile and unfriendly legislation exemplified by a duty of five cents per dozen on Canadian eggs as long as Canada will submit to it.

Self respect, however, will not allow Canada to submit.

EDITORIAL NOTES.

J. J. CASSIDY, the able and genial editor of the CANADIAN MANUFACTURER continues to grow in popularity with the business men of the country of his choice. He was recently elected secretary of the Canadian Manufacturers' Association, an organization made up of the best men of the Dominion, and which owes much of its success to Mr. Cassidy's efforts. The election of Mr. Cassidy to this office is a deserved tribute to his ability and loyalty, and it can be set down as a fact that it will materially advance the interests of the Association.—*St. Louis Farm Machinery.*

LARGE quantities of elm logs are being shipped over the L. E. E. & D. R. Railway for Wyandotte and Detroit. They are taken on that line to the Grand Trunk and dumped on the bank to the west of this town and rafted either across or down the river. About 200 car-loads of timber will be shipped from the slip north of Harrow.—*Walkerville, Ont., Mercury*

This depletion of Canadian forests for the benefit of American saw-mills will continue until the Canadian Government put a stop to it, and they ought to stop it p. d. q.

A TELEGRAM from Madrid states that several nations have notified Spain of their readiness to negotiate for a renewal of their commercial treaties with her. The Spanish Government have replied that there would be no negotiations, and all must wait for the report of the royal commission, which is compiling a new protection tariff whereon all negotiation must be based. Spain will also insist on her colonies being excluded from any future treaties with European powers, and will decline to assent to any stipulation of "favored nations" treatment. Alas, for free trade! Alas for Britain who has no whip handle policy of protection!

THE railroad statistics of New England, as given in a late bulletin of the Census Bureau, are of considerable interest. They summarize as follows:

	1889	1880
Number of Passengers carried	103,374,387	52,221,338
Tons of freight moved	35,295,896	24,003,967
Earnings from passenger service	\$33,477,965	\$21,435,831
Earnings from freight service	\$34,001,568	\$25,683,014
Total earning and income	\$69,479,533	\$49,001,720
Total expenditures	\$68,909,681	\$46,915,222

This is an immense amount of trade and traffic carried on in New England, but no account of it is taken in computing the foreign trade of the United States. But if it was done across a boundary line dividing two nations, it would be heralded as showing the foreign trade of the contiguous countries. Free traders declare that the prosperity of a country may be measured by its foreign trade, but it is evident that this inter-state trade is quite as valuable as it could possibly be if it had been had with foreign countries, and yet it does not represent one dollar of the foreign trade of the United States.

THE census taken throughout the United Kingdom is expected by some authorities to show a population considerably less than has been estimated by Government officials. A writer in the *Times* of April 7th places the total at 37,873,000, whereas the lowest official estimate is 38,652,000. It appears that there has been a marked falling-off in both the birth rate and the death rate during the last decade, that of the birth-rate being excessively large. Then there has been a considerable increase in emigration, half a million more British and Irish emigrants having gone than in the previous ten years.—*Toronto Globe.*

The *Globe* is constantly asserting that thousands of Canadians are emigrating from Canada every year because of Protection, going to the United States where there is greater protection; the panacea for the ill being the adoption of free trade. But here the story is reversed, and it shows that the birth-rate in Great Britain is decreasing to a remarkable and excessive extent, and that during the last decade there was a considerable increase in emigration, half a million more emigrants having gone than in the previous ten years. And this from the only distinctively free trade country on earth. If protection is driving people from Canada, what is driving them from free trade Britain? And what is driving them by hundreds from Dakota to Manitoba?

Few believe that England would revive the Corn Laws for the sake of the Canadian farmer, even though Canada should offer to admit British manufactures under a preferential tariff.—*Toronto Globe.*

In 1890 the value of imports into Canada from Great Britain aggregated \$43,390,241, upon which \$9,576,965 duties were paid—an average of a little over twenty two per cent. In the same year Canada exported to Great Britain of her own products as follows:

The Mine	\$ 630,815
The Fisheries	2,707,422
The Forest	14,098,865
Animals and their produce	18,587,722
Agricultural products	3,661,826
Manufactures	1,816,147
Miscellaneous	5,352
Total products of Canada	\$41,499,149

If Britain should levy a discriminating duty in favor of Canada, of say ten per cent., and Canada should remit an equal amount from our duty upon British imports, Britain would not be out of pocket. On the contrary, the trade between the two countries would increase and also be more valuable to those engaged in it, while the arrangement would not apply to any other country. We could afford to sacrifice some of our revenue to accomplish this arrangement.

AMONG the most prosperous and enterprising of the large towns of this province is Peterborough, the population of which, according to the assessors' returns for this year, is 9,841, an increase of 504 since last year. The town and its suburb, Ashburnham, have a total population of about 11,500. This figure will doubtless be largely increased during the present year, as the result of the opening of the works of the Edison General Electric Company, the completion of whose monster machine shop was celebrated on Monday evening last.—*Toronto Mail.*

The Edison General Electric Company have millions of dollars invested in the United States in works for the production of electrical appliances, from which they could easily supply their Canadian trade, and would do so if there was

unrestricted reciprocity between the two countries. As it is the N. P. compels them to erect a vast and expensive plant in Peterborough, where the army of workmen who will be employed there will, as the *Mail* suggests, largely increase the population of that town. It is the large population living in Canadian cities and towns that affords a near-by home market for what Canadian farmers have to sell: and still the *Mail* is doing all it can to bring about a condition that would depopulate our cities and towns and drive our farmers to seek the distant markets of the United States for whatever they may have for sale.

The *Toronto Globe*, appreciating the hopelessness of its fight against protection and in favor of unrestricted reciprocity, in discussing the resolutions recently passed by the Canadian Manufacturers' Association, says:

What action Government will take remains to be seen. It has to choose between the interests of the Association and those of the great mass of the people. If it should prefer to serve the latter either by declaring for unrestricted trade or by offering a mixed treaty of a wise and generous character, it may count on the hearty support of the Liberal party, and their united forces ought to be able to bid defiance to the red parlor.

Knowing that no declaration for unrestricted trade is possible, the *Globe* now proposes "a mixed treaty of a wise and generous character." The sun stands still in breathless expectancy for the *Globe* to explain what sort of a creature it wants to bring forth. Why don't it explain? And then what a sight for gods and men to behold in the culmination of the "hearty support of the Liberal party" which is to be given to the Government. What an opportunity there would be for the amateur photographer with his kodak when Sir Richard Cartwright falls upon the neck of Sir John, and amid tears of joy and sighs of relief, the opposing forces become a united and happy whole in bidding defiance to the red parlor. My! Walk up brethren and denominate your liquid refreshments.

"THE United States cannot consent to unrestricted reciprocity with Canada unless we have at least an equal chance to benefit by it. What advantage could it be to us to enter into reciprocal relations with a country which produces the same things as we produce? Why, for example, should we admit Canadian lumber free to the injury of our own lumbering interests, or Canadian barley to spoil the home market of our own farmers! It is because of this similarity of produce that the United States can see no advantage to itself in Canadian reciprocity. The result would be to furnish the Canadian producer with 65,000,000 possible customers for his products, while the American producer would have only some 4,500,000 Canadians as his customers. The disproportion is too great to make unrestricted reciprocity commend itself to the American people."—*San Francisco Chronicle*.

Last year Canada bought more than eighteen million dollars worth of manufactures from the United States, which shows that Canada is worth considerable to the United States as a market for manufactured products. The average duty paid upon these was only about 20 per cent., while if Canada were sending similar manufactured products to the United States they would be liable to duties ranging as high as 45 per cent. and higher. Of course if the United States is disinclined to admit any Canadian products free, Canada can and should impose as high duties upon American products as they themselves

impose upon similar products. Tariff discrimination is a game that more than one can play at.

THE removal of the export duty on logs has, it seems, occasioned considerable activity among the Michigan lumbermen who happen to be the fortunate owners of extensive timber limits on Georgian Bay. These, we are told, are preparing to take upwards of 160,000,000 feet of logs from the district referred to, to points in the State of Michigan to be there sawn up and manufactured into lumber. This has caused some astonishment in the face of the announcement that the Government of Ontario had decided that the sales of limits would be subject to the condition that all the logs cut thereon must be sawn in the Province. The Government of Ontario, has, it is true, so decided, but this only applies to recent sales and does not affect former ones in which no such restriction or condition is inserted, so that holders of timber limits under sales previously entered into are not bound by any such obligation. Under such circumstances it becomes a question whether the removal of the duty on logs to meet the requirement of the McKinley tariff was one calculated to benefit Canada. We do not think it is in keeping with the principle of the National Policy. While the conditions on which the timber limits of the Provinces are sold are under the exclusive control of the Provincial Governments and cannot be interfered with by the Dominion Government, the question of customs duties, whether it be import or export, is exclusively within the jurisdiction of the Dominion Government, and it is in this form that the remedy for the grievance must be applied. Under these circumstances we may expect that the question will be fully discussed at the session of the Dominion Parliament now assembled. It is to be hoped that legislation will be resorted to which will prevent the removal from Canada, without some equivalent of so large a portion of the country's wealth, as is contained in the vast timber limits of the country.—*The Shareholder*.

It is clear that the increasing political pressure put upon our trading connections with foreign countries is beginning to develop a considerable amount of impatience amongst those who are subject to the constriction induced by the successive turns of the tariff screws. It is not over-sanguine to anticipate that out of this frame of mind steps may soon be taken that will lead to good results. At a meeting the executive committee of the United Empire Trade League—lately formed by Mr. Howard Vincent, M.P.—held on Tuesday at the House of Commons, it was stated that the general council now included four peers and sixty five members of Parliament. It was agreed to ask Lord Salisbury to receive a deputation, with the object of urging upon him the importance of meeting the colonists with open hands in this matter, and of either summoning an Imperial Conference or appointing a Royal Commission to examine the best means of bringing about closer commercial relations within the British Empire, with due regard to the importance of cheap food and raw materials, and without interfering with the fiscal liberty of the self governing colonies. Some steps of this kind are what is wanted, and we trust our readers who may be constituents of these members referred to will do all they can to sustain and press on their action in the matter—Manchester, Eng. *Textile Mercury*.

Lord Salisbury may affect to ignore the presence of the large and rapidly growing sentiment in Britain looking to the adoption of some sort of protection for that free trade ridden country, but a nucleus of sixty five members of Parliament, avowedly in favor of discriminating in favor of British colonies and against all foreign countries which impose high duties upon British manufactures, the portentous shadow of the coming event can be seen.

MR. COBDEN prophesied that the adoption of Free Trade by England would undoubtedly be followed by the general acceptance of the principle by all nations within ten years; but after thirty-eight years of British free trade Mr. John Bright admitted that through it "the agricultural classes of Britain had lost more than 150,000,000 pounds sterling." Truly, under her non protective system Britain is losing her supremacy in manufactures, trade and navigation; and she is no longer queen of the realms of commerce, mistress of the seas, or creditor in chief of the human race. Her free trade policy has done it.—CANADIAN MANUFACTURER.

Well, well, if that is "treason," make the most of it. That it is a fact, there can be no doubt. But to have the fact stated so frankly, so clearly and so emphatically, and that by a leading Canadian journal, an able advocate of the National Protective policy of that country, and a vigorous supporter of the present Tory Government, is refreshing, to say the least. Beyond question Great Britain has lost immensely through free trade and not the least among her losses may be that of the prosperous, intelligent and liberal minded people at the north of us. That Canada will ever become an integral part of the United States we very much doubt. Indeed, we fail to see the desirability on either side of such a union. But we do sometime look for a complete separation from the Mother Country, politically as well as commercially: and no surer way of bringing about this result can be had than that of building up on this continent a people whose prosperity comes from a policy totally at variance with that of Great Britain.—*Iron Trade Review*.

These kind words are appreciated. Our Cleveland contemporary comprehends the situation. Canada will always entertain the kindest feelings towards Great Britain. There will probably be a political separation some day, but it will not be through revolution such as made the United States a nation. Canada desires to live in peace and amity with the United States, but all aims at annexing her must be abandoned. She has a different destiny before her.

IN a late issue of the Bulletin of the American Iron and Steel Association was presented "the exact record," as shown by its annual report, "of the production of leading articles of iron and steel in the United States in 1890, in which year the United States made the best record in the production of iron and steel that has ever been made by any country. Not even Great Britain has ever achieved such remarkable results in the production of iron and steel in one year as were accomplished in the United States in 1890. And to show how marvellous was the growth in production in that year, we give in comparison the statistics for 1888 and 1889, each of which was regarded at its close as a remarkably active year." The totals are in net tons of 2 000 pounds (except nails):

Articles	1888	1889	1890
Pig iron, including Spiegel	7,268,507	8,516,079	10,367,028
Spiegeleisen	54,769	85,823	149,162
Bessemer steel ingots	2,812,500	3,281,829	4,131,535
Bessemer steel rails	1,552,631	1,691,264	2,091,978
Open-hearth steel ingots	352,036	419,488	574,820
Open-hearth steel rails	5,261	3,346	4,018
Crucible steel ingots	78,713	84,969	79,716
Rolled iron, except rails	2,397,402	2,576,127	2,804,829
Rolled steel, except rails	1,201,885	1,584,364	1,829,247
Iron rails	14,252	10,258	15,548
Pig, scrap and ore blooms	39,875	36,260	30,783
Kegs of iron cut nails	2,170,107	1,778,082	1,806,130
Kegs of steel cut nails	4,323,484	4,032,676	3,834,816
Kegs of wire nails	1,500,000	2,435,000	3,135,911
Iron and steel wire rods	313,341	407,513	511,351

It is worth noting that the production of pig iron in the

United States on April 1, 1891, was so far reduced as to be at the rate of only about 5,000,000 tons per annum, one-half what it was in 1890, and that the demand has gone down with it. A feature of the table printed above is found in the decline in the production of cut, and the large increase in the output of wire, nails.

A FEW days ago a deputation of manufacturers waited upon the Finance Minister and presented him with a petition asking that crude petroleum, for fuel, be placed upon the free list. The petition stated as follows:—

We beg to submit the following statement regarding the duty on petroleum as affecting its use at fuel for furnaces: (1) About three years ago petroleum was introduced as fuel for furnaces into Canada under American patents, which covers the burning of petroleum with air. (2) The plant required for this process is costly and several manufacturers have gone to great expense in putting it in. (3) At the time they put in the plant petroleum could be bought f.o.b. cars at Petrolea for \$1 per barrel; now it is \$1 36 per barrel. (4) When petroleum was \$1 per barrel there was a saving in using it for fuel, as compared with anthracite coal, of about 25 per cent.; now when the price of petroleum advances there is no saving, but rather a loss, and the manufacturers who have put in plant for burning oil lose not only the profit they expected, but the interest of the money invested in the plant. (5) Should petroleum advance, which is usual in the fall and winter months, manufacturers who have put in plant for burning it will have to take out their plant and change their furnaces for coal, consequently losing the cost of said plant and having the additional expense of altering these furnaces to coal burners. (6) Petroleum in Buffalo is about 75 cents per barrel, but the duty on it is \$2.45 per barrel, over 300 per cent. (7) In order to avoid this loss, we request the Government to allow petroleum, when imported by manufacturers for their own use for fuel, to come free. (8) Anthracite coal is admitted free, and we respectfully submit that, although petroleum is found in Canada, the supply is not sufficient for it to be sold at such a price that it can be used for fuel instead of anthracite coal, that the labor in pumping from the well is much less than mining coal, therefore the producers of petroleum will not be injured by the duty being removed. On the other hand, if the present duty is enforced it will be a permanent check to our industries and a serious injury to some of our chief manufacturers.

PROTECTION of farmers has been a shibboleth with the Dominion Government. Now, let any candid-minded person go over the whole tariff in the fairest spirit and he cannot find thereon one solitary article of import taxed in such a way as to add a single dollar to the yearly revenue of the farmer. Canada does not import farm products, so that no import tax could be beneficial to the agricultural classes. The farmers are fast learning this, and a full realization of it is all that is necessary to complete the overthrow of a Government that is steadily tottering.—*Montreal Herald*.

A fair presumption is that the man who wrote this editorial item for the *Herald* is a boss idiot escaped from an asylum. Last year the importations into Canada of animals and their produce, nearly all of which came from the United States, were valued at \$4,907,375, and the importations of agricultural products were valued at \$3,419,469, a total of \$8,326,844. These importations were all farm products, and yet the *Herald* declares that Canada does not import farm products. Then the importations of the produce of the fisheries amounted to \$501,078, and of the forest \$1,197,567, a total of \$1,698,645. These were all free goods, and were brought

into direct competition with other than manufacturing industries. Then there were other products of the farm and manufactures thereof that were imported in considerable quantities upon which duties were collected, included in which were :

Animals, living, valued at	\$347,978
Breadstuffs.....	2,997,533
Fruits, green.....	780,325
Seeds.....	253,164
Vegetables.....	242,763
	\$4,641,763

These were all farm products, or manufactures thereof, upon which large duties were collected, and which to that extent was beneficial to the agricultural classes, and yet the *Herald* says that "Canada does not import farm produce," and that "no import tax can be beneficial to the agricultural classes." Some people are entirely too economical with the truth.

In a recent letter Mr. Porter, the superintendent of the United States census gives some interesting facts concerning the development of the Southern States. In 1860 the best estimates that can be obtained show that the South produced less than a million tons of coal and in 1870 about 2,000,000 tons. In the year 1880, as shown by official data, this production had increased to 5,676,160 tons. The production in 1890 was 17,772,945. This gives an out-put in the coal-producing States of the South in 1890 more than twice the entire output of bituminous coal in the United States in 1860, and nearly 2,000,000 more tons than the total production of the United States in 1870. The development of the iron industry in the South has been equally remarkable. The only one of these States producing pig iron in 1860 and 1870 was Tennessee, which in 1860 produced 13,741 tons; 1870, 28,688; jumping to 70,875 in 1880 and in 1888 producing 267,931 tons. The entire production of all the Southern States, including Tennessee, in 1880 was 397,301 tons, which had in 1890 increased to nearly 2,000,000 tons. The production of iron ore in the South now almost equals the total production of the United States in 1870. In that year the United States production was 3,163,839 tons, while in 1890 the production of the nine iron ore producing States of the South was 2,917,529. Can anyone bring himself to believe, with the Tories in Canada, that this extraordinary progress could have been made under restriction, that is, if the South had been cut off by tariff barriers from the rest of the continent?—*Toronto Globe*.

The advance of the South in the production of coal and iron since the war is phenomenal and astonishing. But protection did it, and anyone who reads history and is posted as to current events can but acknowledge that this extraordinary progress could not have been made under any other than the protective policy of the American Government. But how ridiculous for the *Globe* to say that this industrial advance in the South could not have occurred "if the South had been cut off by tariff barriers from the rest of the continent." The South and every State of the South has always been "cut off" from the rest of the world just the same as the North and the West and New England; and it was because of the encouragement given to the industry by the American tariff that that country has become the great iron producer it is. And it will only be through the operations of such a tariff that Canada can ever become the producer of her own iron.

The seeds of the wind being constantly sown in Canada in the importation of the young scoundrels gathered up in the

slums of London by such unique Christian gentlemen as Dr. Barnardo is constantly being realized in the whirlwinds that we read of in the papers, illustrated by a couple of recent instances. On April 24th the following telegram was sent out from Stratford, Ont.:

There has just been lodged in the jail here a young man, who for his age of eighteen or nineteen years, has displayed a remarkably vicious propensity. His name is said to be Charles Steeley. He was brought to this country by some of the immigration societies or homes sending children from England to Canada, and about a year and a half or two years ago he was hired by William Dow, of the sixth concession of Hibbert in Perth county. He left Mr. Dow's last fall and went to Hugh Kennedy's for the winter. For some reason which has not yet come to light he harbored a spite against Mr. Dow. Between two and three o'clock Wednesday morning he entered Mr. Dow's house armed with a heavy club. Leaving his boots in the woodshed he put on a pair of rubbers and walked into Mr. Dow's bedroom. He first struck Mr. Dow on the face with his heavy club, making an ugly wound. The next blow fell on Mr. Dow's hand, which was thrown up in defence. Mrs. Dow by this time waked up, and on rising from her pillow received a heavy blow on her breast. The fellow then became alarmed at the noise he had made and rushed out of the house to the barn, which he fired and had ablaze in a few minutes. On seeing the fire the inmates of the house rushed out and had just time to get the live stock out of the burning building. The barn was a large and splendid building, and contained a large quantity of hay and grain and implements. All the hay and grain contents, with one calf, were burned. The loss is put by some at \$1,700; insurance light. Steeley was arrested and taken before Magistrate Flagg, who committed him to the county jail to await his trial. He admitted that while living with Mr. Dow he was well treated, but said that Dow owed him some money which he refused to pay. This, Mr. Dow, however, denied.

And on May 7th the following was sent out from Lucan, Ont.:

This afternoon the barn and contents belonging to Mr. George Haskett, situate one mile from Lucan, were burned to the ground. It seems he had an English immigrant boy in his employ named W. K. S. Bryant, and his month having expired he demanded his wages, which Mr. Haskett did not pay. He went out to the barn and deliberately set fire to it, and then started for Lucan, followed by an enraged crowd, but he got safely into the hands of the village constable, confessed the deed, and was committed for trial this evening.

This importation of criminals into Canada should be suppressed with much suddenness.

THE exercise of a modicum of sound business discretion and wisdom at this time should lead the Dominion Government to place raw sugars upon the free list and to effect any other legislation that would make granulated sugar as cheap in Canada as it is in the United States. To do this would be in harmony with the protection policy. Sugar is an article of prime necessity. Under the N.P. there is enough capital invested in sugar refining in Canada to supply the demands of the country. Raw sugar is not produced in Canada; and it is against the general principle of protection to impose duties upon raw materials not produced in the country. A slight duty—say one-half cent per pound—might be imposed upon refined sugars, and this would be the measure of the margin of profit which the refiners would make over foreign competitors. But by all means let the people have cheap sugar. Another exercise of Governmental wisdom would be the paying

of a bounty upon the production of Canadian sugar. It has been shown repeatedly in this journal that the growth of the sugar beet in Canada, and its manufacture into sugar is perfectly feasible and should be encouraged. This being the fact, why not encourage the enterprise? France, Germany, Austria, and other European nations find the production of beet sugar a great source of their national wealth; and the United States has also turned its attention in this direction. Why not Canada also? Beginning with July the United States will pay a bounty of two cents per pound upon all sugar manufactured in that country, and until July of next year machinery for the manufacture of beet sugar will be admitted duty free. Why not Canada? If no sugar were made no duty would be paid; and the offering of a liberal bounty on beet sugar would induce farmers to engage largely in the cultivation of the sugar beet, thereby diversifying their crops and giving them a brighter prospect for financial success. There is abundant capital now standing ready to be invested in beet sugar factories and it would quickly materialize if the Government offered a bounty for the production of sugar. It would also be well in offering a bounty on sugar to place sugar making machinery upon the free list. Of course this would not include such machinery as steam engines, boilers, shafting, etc., but only those technical parts which are now made in Germany to greater perfection and cheaper than anywhere else. By all means remove or greatly reduce the duty on raw sugar; and by all means let there be offered a bonus for the manufacture of Canadian beet sugar.

WHEN the British corn laws were on the point of being repealed, a public meeting in Toronto protested and petitioned; the British American League came into existence, and a few years later the Montreal annexation petition was signed. It is an anachronism and an anomaly for the Toronto Board of Trade to discuss the question of asking Great Britain to reimpose the corn laws for the benefit of the colonies. What do the colonies propose to give in return, and is the Board of Trade authorized to speak for them or any one of them? The talk of re-enacting the corn laws is a proposal to plunge back into the darkness of the past; it is at best a delusion, a waste of time, and cannot possibly lead to any practical result. It is the strangest thing conceivable that a resolution asking for this retrogression should obtain the unanimous support of the Board of Trade. The resolution declares that a duty on foreign "food product" would "not enhance the value of the food products of the empire." If so, what is the object of it? What good would such duty do to the colonies, if it did not raise the price of "food products?" All this passes comprehension, the more so that it should come from the Board of Trade of the metropolitan city of Ontario.—*Monetary Times*.

The blind cannot see, and the wilfully blind refuse to see. If Great Britain and Canada should enter into such an arrangement as that contemplated by those who desire to see established a system of discriminating duties in favor of any of the colonies which might come into it, and against the rest of the world, Canada could give Great Britain a market for the nearly nineteen million of dollars of manufactured products bought of the United States last year. This discrimination would freeze American manufactures out of the Canadian market, or force American manufacturers to transfer their works to Canada: and as it required a McKinley tariff to keep British goods out of the American market (and it does not do

it either) the lower Canadian tariff would give British manufacturers virtual possession, or nearly so, of the Canadian market. This would be giving Britain a great deal for a re-enactment of a corn law. If Britain should impose an import duty upon American food products and admit free all similar products from British colonies, the colonial products would obtain the highest market price, while the American producers would be forced to pay the duty or abandon the British market, which they of course could not afford to do. The arrangement would not increase the price to British consumers, but it would force American farmers to emigrate to Manitoba; and the amount of the British duty would indicate the difference between the value of farm products in Canada and the United States. This, instead of being "a plunge back into the darkness of the past," would be a long stride forward into the brightness of the future.

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 343 of this issue. This Generator is being adopted by the leading manufacturers in Canada and the United States. Every steam user should investigate its merits.

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

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

FOR SALE, A VALUABLE CANADIAN PATENT.—The Trenholm Improved Perpetual Hay Press, patented 1882, has been manufactured in New Brunswick for nine years, and stands without a rival in the Maritime Provinces. As it has not been introduced in the Upper Provinces, the purchaser can, if he manufactures there, get practically a complete control of the business in Canada, as this machine is cheaper, stronger, 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.

A RISING TOWN. The Town of West Toronto Junction possesses exceptional residential and business advantages, and

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

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

The energy and ability which characterize the present management of the *Dominion Illustrated* are more and more apparent each succeeding week and month. "Lumbering in Canada," "The Great Chignecto Ship Railway," "The Formal Opening of the Dominion Parliament," are among the subjects that have been taken up recently and exhaustively illustrated. Both from the literary and artistic point of view this journal is a pronounced success, and in the fullest sense deserving of its steadily growing popularity. The great prize competition is still open to new subscribers. The publishers of the *Dominion Illustrated* are the Sabiston Lithographic and Publishing Company, Montreal.

The fifth paper in the *Popular Science Monthly's* illustrated series on "The Development of American Industries since Columbus" will describe the manufacture of wool. It will appear in the June number, and the writer is S. N. Dexter North, secretary of the National Association of Wool Manufacturers, and special agent of the eleventh census. The concluding part of Dr. Andrew D. White's paper on "Miracles and Medicine" will appear in the same issue. This portion of the record deals with changes of vogue in regard to saintly healing relics, theological intolerance of Jewish and other physicians, inoculation, and anaesthetics, the history of the royal touch, and similar fetichisms.

EVERYBODY knows the career of Helmuth von Moltke, the German General; how many persons have read of Helmuth von Moltke, the poet and sentimentalist? It is the latter phase of the dead warrior's character that is dealt with chiefly in an article in the *Illustrated American* for May 9th; comparatively little is said about the well-known facts of his career. The article is illustrated with various portraits of Moltke and with scenes of the most striking events of his life. In the same number, the play "Alabama" receives the treatment due a successful American dramatic production, and the opening of the season of out-door sports is recognized in articles on the prospects of the summer as regards yachting and base-ball. Ex-Congressman McKinley is represented as a Presidential possibility, and information, instruction or amusement, as the case may be, is given, as usual, in the regular departments of this news magazine. "Vick's Magazine" for May presents to its readers an article entitled "An Era of Spraying," in which this practice in horticulture is briefly traced from its origin to its present condition, showing how

very generally it is now employed for the destruction of insects and fungi which prey upon cultivated crops. An illustrated article on "Our Native Plants," treats of the large white Trillium or white wood Lily, and the Hepatica or Liverleaf. "Among the Ranchers" is the first part of a story with a practical bearing, by Charles Howard Shinn, of California. Number four of "Carolina Wild Flowers" describes fully the Wild Ginger, "Asarum Virginicum," and more briefly notices some other plants. Other articles are "A Woman's Vineyard," "Emmeline's Tomatoes," a story, but one that shows how tomatoes may be raised in a small space. "Amateur Hybridizing," Part 2, Our Patriot Dead—poetry. The department of Foreign Notes is interesting as usual, and that of Pleasant Gossip is entertaining and instructive.

MANUFACTURING PROFITS IN FREE TRADE ENGLAND.

A WELL-KNOWN opponent of tariff protection in the United States once said that "a lie well stuck to is as good as the truth." This maxim of unscrupulousness seems to preside over the fierce attacks precipitated upon the unoffending heads of American manufacturers, when, on infrequent occasions, some of the companies are able to declare a dividend of 10 or 12 or more per cent. Then they are assailed with the most opprobrious epithets—stigmatized as "robber barons," as "monopolists," as "devourers of the people," as "the creatures of bounty," and so on, until the sharpest and bitterest words in the vocabulary of execration have been utilized to excite hatred and contempt against a valuable class of the community—men who, by organizing capital for vast production, give employment at good wages to large numbers of industrious laborers, and by helping others to help themselves, confer a far more excellent and durable benefit upon society than if, instead of furnishing opportunities for earnings, they had contributed charity pure and simple. These attacks never are actuated by a love for the truth, because they violate the inspired criterion set up in the Bible—"every one that doeth evil hateth the light, but he that doeth truth cometh to the light;" hence, when light is let in upon the misrepresentations, the common resort for refuge is to avoid the plain issue by emptying denunciation, sometimes Billingsgate, upon him who carries the torch of truth, thus showing that the real object is to win the appearance of a victory, not to ascertain and establish the honest facts of the case.

In full consonance with this view, we point out the conspicuous circumstance that those who are aroused to a high pitch of exasperation by high dividends declared by American manufacturers have no complaint against equal or higher dividends declared by British manufacturers; yet, if reprobation is deserved in the one case, why not in the other? Let us illustrate the position by several examples. In *The Mechanical World* (London)—a reputable trade journal in England of February 21, 1891, is published, on page 75, the following statement: "Messrs. Brunner, Mond & Co., the well-known firm of Cheshire chemical manufacturers, have issued their report for the half year. The total divisible profits are £174,354, out of which they propose to pay a dividend of 7 per cent. on the preference capital, 40 per cent. on the ordinary capital, place £28,829 to the reserve account, and carry forward £10,539." A similar statement appears immediately under the above, in these words: "The directors of Henry Bessemer & Co., Limited, recommend the payment of a dividend of 35s. per share, which, with the 15s. per share paid in July last, makes a dividend of 25 per cent. for the year. They also recommend writing off £5,000 for the improvements and additions account. This will leave a balance of £32,306 to be carried forward to the credit of net revenue account."

It would be very surprising, indeed, if such announcements as these by American manufacturer's did not excite a furious onslaught of bitter words, with intent to thrust in the pillories of public opinion, as objects for the unpitying finger of scorn, the daring plunderers who had ventured to accumulate, within the sacred limits of the great republic, such enormous profits by applying the mechanic arts to wholesale production. Instances of the kind may multiply in Great Britain, but they arouse no ire in the minds of free trade critics. It is only the American manufacturer who is hectoring and abused; his foreign rivals are allowed to go scot free. The sauce which is good for the goose is not, it seems, good also for the gander.

It is charged that the source of the American manufacturer's power to declare the large dividends which are denounced a "robbery" is derived from the protective system, and that under a tariff policy like that in operation in England, such dividends would be impossible. If they would be impossible under such conditions in

the United States, why should they occur frequently under those conditions in Great Britain? There must be a fatal defect in an argument (if it can be properly so dignified), which draws opposite conclusions from equivalent premises. Assuming that the undutied admission of manufactures into this country would prevent enormous profits by manufacturing establishments on this side of the Atlantic, why should they not, on a parity of reasoning, be prevented by undutied admission on the other side of the ocean? The trouble with the professional free trader is that he is looking after his bread and butter—the verities have small place in his illogical method. To take all the legitimate factors into his problem would spoil his plans and defeat his purposes. It is easier, and he prefers, to appeal to prejudice, to ignorance, to selfishness—to anything rather than to the realities, the substantial truths of the case.—*Chicago Industrial World.*

ATLANTIC GREYHOUNDS.

THE wisdom of the last Congress in passing a postal subsidy measure, which will entitle American built vessels to liberal remuneration for the swift conveyance of mails from the United States to foreign countries is already beginning to bear fruit.

Both the famous Inman and Cunard Companies are in negotiation with the Postmaster-General as to the conditions on which the subsidy could be obtained, if they were to build ships of speed and power hitherto unequalled. There is no trouble as to the amount of the subsidy that would be forthcoming, for the law lays down clearly that thirty cents per ton for a speed of twenty knots and over for each 1,000 miles sailed from a United States port will be paid to home-bound mail-carrying steamers approved by the American Government. The subsidy thus due to a 12,000 tonner of twenty knots on an outward voyage of 3,000 miles would amount to a sum of no less than \$12,000, which would be no mean incentive to the building and running of high-class steamers.

The only stumbling-blocks in the way are the two clauses in the Act, which resemble the corresponding clauses in the British Postal Subsidies Act. The one of these clauses is that the vessels so subsidized shall have a contract for carrying mails, and the other is that they must submit to the conditions of being utilized by the Government in time of emergency, and of being built on such lines as the Government would approve, with a view to that possible utilization.

There would be little trouble in connection with the latter clause; for, in a general way, the build of vessels that would be of most value to the Government in time of need would be the very build that would lead to the best paying results to the owning company. But about the mail-carrying clause in the Act there might be a difficulty. For it is clear that mail-carrying contracts could not be made with every company that might wish to run vessels and otherwise comply with all the conditions of the Act.

It is respecting this mail-carrying stipulation that the Inmans and Cunards are now in negotiation with John Wanamaker, and it is to be hoped that the genius of that statesman will find a way of satisfying the postulates of both companies. For in the event that they obtain satisfaction in respect of obtaining the subsidy, they are ready, both of them, at once to invite tenders for steamships that will be guaranteed to cross the Atlantic in five days. The Inman people have already arrived at some sort of understanding with the Cramps, of Philadelphia, in reference to such construction, as the following excerpt from the *Philadelphia Record* will show:

"President Clement Griscom, of the Inman and International Navigation Companies, said yesterday that it had been decided to build two of the finest steamers that the ingenuity of man could devise, and that the contracts would be awarded within a few months. 'The only thing now being considered,' said he, 'is the postal subsidy, which we would like settled, and when that is done to our satisfaction the vessels will be built in this city.'

"Mr. Griscom says that he has not the slightest doubt that the Cramps can build as fast a vessel as was ever built in England, or any other country, and his company is perfectly willing to make the contract with them, other matters being satisfactory. He also said that he would like to see the vessels under the flag of his country, and had every confidence of their success if built here.

"The vessels when completed will cost about \$4,000,000, and will be similar to the *City of Paris* and the *City of New York*. They will register 10,500 gross tons, and will be 527 feet long, 63 feet beam, and 22 feet depth of hold, with engines of 2,500 horse power. Every modern improvement known to science and art for comfort and safety will be put in them, and, best of all, appliances to cook food as Americans like it."

The Cunard Company are not behind hand with their rivals, for they have already invited tenders from American shipbuilding firms for the

construction of two vessels quite equal to the prospective demands. For each one of the pair is to be 12,000 tons, 600 feet in length, and 65 feet wide, with a minimum speed of 20 knots, each vessel to cost \$2,000,000.

Thus, under the impetus of the Subsidy Act, are we likely soon to see a development of shipbuilding in this country which will bring back the glories of the days of old, when the "stars and stripes" was seen on every sea, and when the ocean-carrying trade was as important an item of gain to Americans as it has been of recent years to Englishmen. *New Orleans Times-Democrat.*

A DISMAL ACCOUNT.

THOSE who believe that Canadian farmers are much worse off than those of the United States should read Professor A. N. Currier's article in the January number of the *Popular Science Monthly*. That article contains a review of the state of the rural districts of New Hampshire. The story he tells is not a cheerful one, and it will appear still less so when it is remembered that what is true of New Hampshire is also true of Vermont and of the farming districts of other New England States. Fifty years ago, New Hampshire was in a flourishing condition. It was the home of an industrious, a contented and a prosperous people. The farmers worked hard and lived in a plain way, but they were independent, and raised their families respectably. Some of the foremost men of the United States were the sons of the small farmers of New Hampshire and other North-eastern States. Such men as Webster, Choate, Chase, Greely, Cushing, Bryant, Whittier, Beecher, Hopkins, were raised on these small New England farms, where idlers were not tolerated, but where every one had to do his or her share of the work. The farmer's family did all, or nearly all, the work of the farm. Hired labor was not to be had. Many of the sturdy farmers could not, and others would not pay for the help to till the fields.

All this is changed now. Deserted homesteads are found in every district of the State. The land has passed out of the hands of the old families who were all freeholders. Strangers of a different race carelessly till the impoverished soil. Land that was once valuable is now unsaleable. The low price given for farm land is almost incredible, farms with buildings on them being offered for sale at from \$2 to \$10 an acre, and purchasers are not found at even those prices.

"Many farms," Mr. Currier says, "are without resident cultivators, and in all probability will never again be homesteads. The New Hampshire Commissioner of Agriculture reports 887 such farms, and these are only a small part. I know a district where eight contiguous farms have been thus abandoned, and, taking the farm on which the writer was born as a centre, a circle with a radius of five miles would enclose twenty farms abandoned within the last few years."

This is, indeed, a melancholy account. If any part of Canada were in this sad state, the fact would be published far and wide and the Government would be blamed for the ruin and desolation that had been produced.

But, it is not only in the North-eastern States that the farmers are complaining that farming does not pay. The grievances of the farmers of the Western, South-western and North-western States are so many and so great that they have combined to get them, if possible, redressed. Mortgages are so common, and it is so difficult to obtain money to pay the interest on them, that the United States Government is asked to lend the farmers money at little more than a nominal rate of interest. In some States a kind of plan of campaign is in force, and a man occupies a farm on which there has been a foreclosure at the peril of his life. The farmers have defied the law and, by force, prevent mortgagors taking possession of farms whose owners are deeply in their debt, and they have ceased even to try to fulfil the condition of the mortgages they have given.

If what is said about the condition of the men who farm the prairie lands of those States is true, it is no wonder that they are steeped in poverty and are utterly unable to pay their debts. It is said that it has been proved on evidence that the net income of a quarter section farm (one hundred and sixty acres) has fallen to \$300 a year, and is still declining, and this, too, in a good year, when there is no loss from accident or bad weather. These United States farmers complain of high taxes, and they declare that their life is crushed out of them by soulless monopolies—railway and other.

Yet the farmers who are in this unhappy condition have open to them the market of sixty-five millions, of which we have heard so

much in the course of the last four or five years. If this great market has failed to enrich the farmers of the New England States and of the prairies of the West, or even to enable them to make a comfortable living, is it likely to be an unqualified benefit to the farmers of Canada?—Victoria, B. C., *Colonist*.

ANOMALIES OF THE BRITISH SYSTEM OF WEIGHTS AND MEASURES.

Mr. W. WYLEY LORD, of Birmingham, has written a very powerful exposure of the ridiculous anomalies which attend the operation of our system of weights and measures. The occasion which called for this display of Mr. Lord's ability was the moving of a resolution at the recent thirty-first annual meeting of the Associated Chambers of Commerce, to the effect that "the Executive Council be requested to take such steps as they think best to facilitate the introduction into this country of the decimal system of coinage, weights, and measures." Owing to indisposition, Mr. Lord was unable to read his paper personally, but Mr. W. T. Haydon, secretary of the Birmingham Chamber, did so for him. Our English tables of coinage, weights, and measures contain some thirty different quotients, ranging between two pints to one quart, and 1,728 cubic inches to one cubic foot. Several quotients, moreover, contain fractions, such as the $\frac{1}{4}$ in 30 $\frac{1}{4}$ yards which make one "rod, pole, or perch"—if our memory, which has failed us in respect to some of the tables that were laboriously hammered into us at school, be correct. With such jumbled measurements it spells disaster for one making a calculation to forget for an instant with which table or which column he is dealing, the easily remembered quotient ten only appearing twice to tell us ten chains go to a furlong, and ten ankers to a gallon of wine. The strain on the memory involved by these unmethodic methods, when contrasted with the easy and regular progression by tenths under the decimal system, produces great risk of error, and, besides, occupies at least one-third more than is really necessary. It is obvious that the decimal system enables calculations to be made with positive exactness, and the widely divergent estimates made for exactly similar classes of work are perhaps sometimes due to the impossibility of conveniently attaining this end by our own methods. If we take up the local papers and look at the market quotations, we find that "pickled cod" are so much a barrel, "trawled cod" so much each, "large hooked cod" so much a score, and "crimped cod" so much a pound. Dutch smelts one buys at Billingsgate by the basket; English smelts are sold by the 100. At Grimsby these fish are sold mostly by the "box" or "last"—two different tables actually in our own country for the same article! A "load" of straw is 1,296 lb.; a load of *old* hay, 2,016 lb.; and a load of *new* hay 2,160 lb., although the tables do not tell us, as Mr. Cousins, of Leeds, wittily put it at the meeting of the Associated Chambers, at what age the hay becomes *old*. What is a barrel? A barrel of beer is 36 gallons; of coal tar, 25 gallons; of flour (American), 196 lb.; of soap, 256 lb.; of gunpowder, 100 lb.; of anchovies, 30 lb.; of oats, 14 stone; and of barley, 16 stone. Why cannot we adopt a unit—say the pound—and sell on the basis of that unit? Why should we have to learn that "7 pounds of wool are one clove; 2 cloves one stone; 2 stones one tod; 6 $\frac{1}{2}$ tods one wey"—and all the rest of it? It is, of course, easy to point out the absurdities of our system, but it may to some appear more difficult to suggest a way out of our troubles. The fact, however, that English shippers of textiles are compelled to familiarise themselves with the foreign metric system, which is applied in the leading European countries when levying duties on our goods, is sufficient reason, where a choice has to be made between the two, for throwing over our own antiquated system.—*Textile Mercury*.

TOOL CHESTS FOR GIRLS.

PARENTS do not object to see saw and hammer, gimlet and screw-driver in their son's hands at a very tender age. They look upon tools as a boy's birthright. But a little girl is hurriedly told in a horrified tone to "put them down," "to not touch," that she will cut herself or pound her fingers, and "get hurt" generally. But the time is not far off when there will be a room in the house set apart for the workbench and that bench and its tools will be as free to the daughters as to the sons. In their fashionable brass-hammering and woodcarving the girls have "got a taste" of it. We may expect to yet see the carpenter come to give lessons as regularly as the music teacher. Why not? That eight children out of ten would like it better there is no doubt. A dozen years hence certain branches of many trades will be largely occupied by women. We shall see young women at study

and work in architects' offices, in the wall-paper designing rooms, mixing paints and stains and finishes and fresco-washes. We shall see the student at the Harvard Annex emerge from her long companionship with the "higher mathematics" with the "plans and elevations" of a house in one hand and a "bill of lumber" in the other as "applied mathematics." At present the training, in geometry say, is so unapplied that the "sweet girl-graduate" lays the tea-table with the cloth awry, and the plates at all angles and distances, and is serenely unaware that she has hung her water-color drawing crooked until some distressed occupant of the room points it out.

The modern female hand and eye are so far untrained that not one young woman in five can take shears and cut straight across a breadth of goods unless she fold and crease the cloth, or "slowly cuts by a thread."

For myself I have saved many a dollar first and last by being "handy with tools."

When I was a little girl and held a mortal objection to allowing my older brother any accomplishments which I had not, I conceived the brilliant idea, one summer's rainy day, of making myself a churn, which was to be an exact reproduction in miniature of an old-fashioned instrument my grandmother used and called "an up-and-down churn."

A gentleman called at our house and found me under the shed diligently boring a hole into a round piece of wood. Wishing to make himself agreeable to me, I suppose, he inquired what I was making. I replied in the most matter-of-fact way, as if it were the most common matter in the world for seven-year-old girls to manufacture household tools, "A churn;" and great was my indignation when he went away laughing as if he had heard the greatest joke in the world. After that I never met him, even after I had grown to the dignity of young ladyhood and trained gowns, but what he inquired with a most aggravating interest if my churn was done.

It never was, I am bound to say; but I learned my lesson just the same, and whenever I want a nail driven in, a shelf put up, or a window-shade adjusted, I do not wait for a carpenter. Instead I thank my stars that I ever practiced on churns and wooden sewing-machines; and if it were necessary, I think I could—with all the confidence I once began my churn—build a house after a fashion!—*Wile Awake*.

A DINNER FROM CANS.

SUCH an advance has been made in late years in canning all sorts of stuff that one can now obtain a whole course dinner, from soup to desserts, in tin. The variety of soups that are now canned so as to be ready for consumption with very little trouble as to heating, is remarkable.

One may select from this list: Tomato, mock turtle, ox-tail, consommé, julienne, macaroni, orka, gumbo, green turtle, chicken, pea, beef, bouillon, Maggi, vermicelli, mulligatawny, clam broth and clam chowder. All these soups come in cans, and with nothing more to be done than a little heating, are ready for the table.

If one does not care to begin his dinner with soup, he may do so with oysters. These come in cans, and one may have either Saddle Rocks or Blue Points, as he pleases, or both. If he prefers clams to oysters, he can have them, for the Little Necks are now done up so well in cans that they may be had at hand always. For fish he may choose from bloaters, fresh markerel, fresh salmon, whitefish and brook trout. Incidentally, for relishes he may have olives, radishes and even celery.

When it comes to meats, roast chicken, roast turkey, roast beef, ham, roast lamb, roast mutton and roast duck, are all canned. The vegetable list comprises asparagus in a half-dozen varieties, corn, tomatoes, peas, succotash, spinach, squash, potatoes, Boston baked beans, lima beans and stringless beans. For game he may have pheasant, quail, partridge, grouse, woodcock, snipe and wild duck. By this time he may be ready for his dessert, and for that he may choose from all kinds of fruits, jellies, marmalades or English plum-pudding. The last not only comes in cans, but is even accompanied by the necessary sauce.

Other things that are canned and that may be made to fit here and there in a dinner, are lobster, chicken and scrimp salads; sardines and deviled crabs, that are not only canned, but are sold with the accompanying crab shells, so that the deviled crab may be served just as though it had been picked out and specially prepared for the occasion.

In addition to this list, there are to be found in cans and ready for consumption codfish balls, green turtle, herring, smelts, lamb's tongue, boned turkey, boned chicken, ox tongue, chipped beef, smoked beef, ham sausage, compressed ham, pig's feet, tripe, deviled

chicken, ham, lobster, tongue and turkey; potted duck, chicken, tongue, game, ham and turkey; Boston brown bread and evaporated vegetables of all kinds.

The list of canned fruits includes apples, apricots, blackberries, blueberries, cherries, cranberry sauce, figs, grapes, gooseberries, peaches, pears, pineapples, plums, quinces, raspberries, strawberries, and even preserved roses. There are also fruit jellies of every kind and fruit preserves, jams and butter. Mince meat and desiccated cocoanut likewise come in cans.

With the extension of the food stuffs canned there has also come an improvement in the cans used. Whereas it formerly required a great deal of trouble to open a can of any sort, this difficulty is overcome by a simple though curious device. Around the can is soldered a strip of tin, one end of which may be fitted in a key; by turning this key the soldered rim is twisted off without the least trouble and the can is opened for use.

Many people may not like a tin-can dinner, but those who eat such a dinner, either from choice or necessity, certainly cannot complain of the variety or quantity of the food at their service.—*New York Times.*

WASTEFUL HABITS.

If there is one thing more than another concerning which the American people need to be cautioned—it is waste. Other nationalities are, of course, given to this same senseless folly, too, but none appear so indulgent in it as our own people. It almost seems that in the United States, waste is regarded as a law of the universe, and therefore necessarily unavoidable. Throughout this broad land there are not many concerns of any importance but what a certain per cent. of waste is unconsciously allowed to enter into the estimates, whether they be for a year, a month, or a single job. True, in working up material, there must always be what is known as waste. Concerning this no caution is intended. Here the term is really applied to that which after all is not waste. A log of given dimensions will produce only so much lumber, and the slabs that are called waste, in reality are nothing more than slabs. For them to be waste would require that they had possessed the proper dimensions of sound wood, requisite to be made into lumber, but that somewhere on their journey from the parental stump to the buzzing saw these sound dimensions were taken from them. The same could be said of working lumber up into implements or vehicles, or of any other manufactures. Were the marble chips that fall at the tap of the sculptor's mallet, or the sparks that fly from the anvil, waste, then indeed there would be little need for caution. But it does not stop here. From this the spirit of waste seems to have been caught up and it is carried into everything. Machines are left standing in the field unsheltered to be devoured by the rust or warped by the heat; a fan is allowed to run at too high a speed, blowing over a heavy percentage of the grain; the mill is neglected, always at a loss of customers, and a thousand other things equally as destructive in their results, are permitted and even systematically gone through in a sort of a stereotyped, happy-go-lucky way, all because it is understood that there is to be 10, 15 or 20 per cent. waste, which will cover the loss. By what law is a business house compelled to pay out annually no inconsiderable sum for extra and inefficient clerk hire? Or why is one man required to do four men's work? Will an average be struck and the loss, if any, be thrown into the percentage allowed for waste? To be candid, there are no grounds for any such looseness as a waste percentage. It need not be, and should not exist. Nature does not have it. The great amount of waste that seems to be going on in her workings is, when closely examined, found to be a revenue pouring into her own private coffers. Arid land, impenetrable forests and beast-infested jungles, all do their silent work towards carrying out nature's own object. The sunbeam that falls in the forest unnoticed and seemingly to no purpose, has a wonderful mission. Aside from carrying life to the growing vegetation, it is absorbed and stowed away for future use. And as is taught in the common school branches, both the light we read by and the heat we warm by, are sunbeams that fell during the carboniferous age. This all goes to show that nature teaches economy. And even if she did see fit to be a little lavish at times, man would still have no grounds for his carelessness; for her resources are infinite, while the resources of man to some extent are limited. The growth of a flower, the falling of a rain drop, the flash of lightning, all teach economy. For ages, nature has been thundering this in man's ear. The wonderful advancements and the power of the nineteenth century are directly attributable to the proper interpreting of her voices. And now all that remains to be done is, to be watchful for the tapping of her silent forces, always striving to imitate her in the husbanding of means.

SAULT AND SUEZ CANAL TRAFFIC.

A RECENT number of *Industries*, one of the leading trade publications of London, gives a return, year by year, of the tonnage passing through the Suez canal from its opening in 1869 to the year 1890 inclusive, and we have taken advantage of the statement to make the following comparison for a similar period of years with the tonnage passing through the Sault Ste. Marie canal, the great waterway connecting Lake Superior with the lower lakes:

SUEZ CANAL.			SAULT CANAL.		
Year.	No. of Vessels.	Net Tonnage.	Year.	No. of Vessels.	Net Tonnage.
1869	10	6,576	1869	1,338	523,885
1870	486	436,609	1870	1,828	690,826
1871	765	761,467	1871	1,637	722,101
1872	1,082	1,160,743	1872	2,004	914,735
1873	1,173	1,367,767	1873	2,517	1,204,446
1874	1,264	1,631,650	1874	1,734	1,070,857
1875	1,494	2,009,984	1875	2,033	1,259,534
1876	1,457	2,096,771	1876	2,417	1,541,676
1877	1,663	2,355,447	1877	2,451	1,439,216
1878	1,593	2,269,678	1878	2,587	1,667,136
1879	1,477	2,263,332	1879	3,121	1,677,071
1880	2,026	3,057,421	1880	3,503	1,734,890
1881	2,727	4,136,779	1881	4,004	*1,567,741
1882	3,198	5,074,808	1882	4,774	*2,029,521
1883	3,307	5,775,861	1883	4,315	*2,267,105
1884	3,284	5,871,506	1884	5,689	*2,874,557
1885	3,624	6,335,752	1885	5,380	*3,256,628
1886	3,100	5,767,655	1886	7,424	*4,527,759
1887	3,137	5,903,024	1887	9,355	4,897,598
1888	3,440	6,640,834	1888	7,803	5,130,639
1889	3,425	6,783,187	1889	9,579	7,221,935
1890	3,389	6,890,014	1890	10,557	8,454,485

*Actual freight tonnage.

The figures in the above table are taken from official records in both cases. The great gain in traffic made by the Sault during 1889 and 1890 is a fair indication of the wonderful growth of lake commerce, and the showing is especially favorable to the lake waterway when it is considered that the Sault canal was open to navigation for only 234 days in 1889, and 228 days in 1890, as against free navigation at all times in the Suez.—Cleveland, Ohio, *Marine Review.*

THE VALUE OF THE SUGAR BEET TO COMMERCE.

THE culture of the sugar beet is in the ascendancy. Several things have contributed to make this industry more important and therefore more sought after. Among other inducements given to encourage the culture of the beet might be mentioned that means have been devised by which the sugar can be extracted much more economically than heretofore and with little or no waste; it has been found that the saccharine richness of the beet can be increased very materially in its growth; and that governments, particularly Germany, France and the United States, have recognized the importance of this industry and are beginning to give it a hearty support. Heretofore in Germany a tax was imposed on raw beets which were to be made into sugar together with a rebate for the finished product when exported. This was known as the "material tax" or "weight duty," and worked very well so long as the manufactured sugar was consumed at home, for the full tax was retained by the State treasury. But when the product was to be exported the responsibility of determining the rebate was imposed upon the customs authorities. Recent legislation has very materially modified this tax in favor of the beet sugar industry. And even with this modification there is still a slight inconsistency, or want of equilibrium, inasmuch as the present system seeks to return the amount of tax upon all exported sugar, to carry out which, every pound of raw beets must be estimated to produce a given quantity of sugar. This can be done theoretically, but practically it is impossible, since different districts vary in different years, no two pounds of beets yielding exactly the same amount of sugar. The only way out of this difficulty is to strike an average, wherein lies the lack of equilibrium; for to those factories with improved appliances which work up beets rich in sugar, the rebate comes both as a reimbursement and as a bounty, while on the other hand those factories with poor

appliances and beets lacking in saccharine richness, get neither reimbursement or bounty. France is not so far advanced in this industry as Germany. It was estimated in 1884 that it required seventeen tons of roots in France to produce a ton of sugar, as against nine and one-half tons in Germany for the same purpose. In legislation France was correspondingly slow. In fact, the history of all sugar legislation is nothing more than a record of experiments which necessarily had to be made before matters could be intelligently and properly adjusted. The United States should not be reluctant to profit by studying the results obtained in other countries. Both in climate and soil Louisiana, Florida, California and South Dakota are especially adapted to the production of the sugar beet. With the aid of improved machinery and the knowledge of growing the root to the very best advantage, together with intelligent legislation in the light of our present experience, the culture of the sugar beet in the United States should become not only successful but one of our most permanent industries.—*Farm Machinery.*

FERROID, A NEW ARTIFICIAL STONE.

THE *Journal of the Association of Engineering Societies* describes a new artificial stone, "a compound, partly chemical and partly mechanical, of iron, sulphur and silicon, with more or less foreign matter. The normal color is a dark slate, varying somewhat with the manner in which it is dressed, but the color can be somewhat modified by the introduction of pigments. Successful imitations of various colored brick and sandstone have been made. It is about the hardness of ordinary bluestone and can be worked by the usual stone-cutting tools, turned in a lathe or planed. The tensile strength is from 650 pounds to 1,200 pounds per square inch, and under compression endures from 9,000 to 12,000 pounds. Its specific gravity is about 2.6. It melts at about 300 Fahrenheit very slowly. It does not deteriorate under exposure to the weather. As it can be melted and molded, it is applicable to a great variety of uses to which stone cannot be put, and particularly so for large castings, such as pipes for sewage, etc. Architectural forms can be very conveniently made from it in position if needed. For culverts and bridge foundations, the perfect smoothness of which the surface is so susceptible, is advantageous in lessening water friction."

THE ADAMS DIRECT PROCESS.

It is now generally conceded by those who have examined the Adams process, though not universally by those who have not seen it in operation, that in the little simple Adams reducer iron ore can be completely and inexpensively reduced to a metallic sponge in from one to two hours. It is also proven that this sponge can be used to the extent of at least 66 $\frac{2}{3}$ per cent. of the charge of an open-hearth steel furnace. It is also true that most of the phosphorous contained in the ore is removed in the open-hearth process, and in some cases some of that in the pig iron. In these three points, at least, then the Adams process is an acknowledged success: first, complete reduction; second, use of two-thirds or more of the sponge in the manufacture of open-hearth steel; third, removal of most of the phosphorous in the ore.

In addition to these results there are others that are still somewhat in the experimental stage, though some of these even are so well advanced that the owners of the process have no doubt as to their being already successes. The use of the basic bottom is one. There seems to be no question that, as pointed out by Mr. Snelus in his letter published in the *American Manufacturer*, November 14th, the Adams process can be used in an open-hearth furnace with a basic bottom, and that in some cases the steel so made is better than that made on the acid bottom. Other results have been obtained that we are not as yet at liberty to state which will, we think, mark this process, as it has already been termed, as the most important and valuable invention in steel making since the discovery of Bessemer.

The little experimental furnace at Pittsburgh, in which the experiments in connection with this process have been carried on under the most unfavorable conditions, has been visited by the experts of some of the largest and most important steel works in the United States. Without exception the reports of these experts, no matter how prejudiced they may have been against direct processes, have been in effect that at last a successful direct process had been invented, and as a result negotiations are pending for its use not only at works in Pennsylvania, but also in Minnesota, in Virginia, in New England, and in Canada. The Norristown Steel Works

have decided to adopt it for their new works just below Norristown. The reducers are to be added to the open-hearth furnaces, which are now in course of construction.

ONE-HALF per cent. on a thirty-day bill paid in ten days is equal to interest at the rate of eight per cent. per annum. One and one-half per cent. on a sixty-day bill paid in ten days is equal to interest at the rate of 11 per cent. per annum. Four per cent. off on a four months' bill is interest at the rate of twelve per cent. per annum, or a four-months' bill paid in twenty days with three per cent. discount is interest at the rate of twelve per cent. per annum. Five per cent. discount off on a four months' bill is interest at the rate of fifteen per cent. per annum; or if paid in thirty days, less four per cent., it is sixteen per cent. per annum. Bills paid are safer than money in any bank, however strong. Cash discounts are the dealer's first profit, and one he is sure of.

The Latrobe Steel Works, at Latrobe, Pa., have adopted the Adams process in connection with their open-hearth steel plant. The Pittsburgh *Dispatch* also announces that a company has been formed to operate the Adams process exclusively. The new concern is called the Adams Iron Company, and is composed of the Steel and Iron Improvement Company, of Pittsburgh, which controls the Adams process patents, and a number of other Pittsburgh and Eastern capitalists. The capital stock is placed at \$200,000. A piece of land for the works has been purchased at Glenwood, in the 23rd ward of Pittsburgh, Work on the buildings is to be commenced this month. The company expects to turn out iron for crucible steel stock which will be superior to Swedish bar for this purpose.—*American Manufacturer.*

A FEW years ago one would frequently hear the statement made that Winnipeg could never become a manufacturing city, but in spite of these pessimistic notions, our industries have been steadily growing, and there is room for more. One of the latest additions is a scale factory, which has been established here in connection with the business of the E. & C. Gurney Co., of which Jas. Burrige is the manager. The business is known as the Gurney Scale Factory. J. G. White, formerly of Toronto, an expert in this line, has been secured to look after this branch, and so far the amount of work secured has fully warranted the establishing of the industry. The principal work done so far is in repairing scales, and in this line the establishment of the factory here is a great convenience. Many very good scales, which only required a little repairing, were formerly cast aside because they could not be fixed short of sending them away down east. Now scales can be fixed at home, and thus the expense of purchasing new scales is often saved. The industry of course is a small one yet, but some of the largest manufactories in Canada started in just as small a way. The great Massey works at Toronto were evolved from a country blacksmith shop, and if Winnipeg is to progress in manufacturing lines, we must encourage just such small beginnings.—*Commercial.*

"Two years ago," says *Iron and Coal Trade Review*, "the Canadian Government despatched a Commissioner to the Argentine Republic, Brazil and Uruguay with a view of ascertaining in what manner an interchange of products could be best secured between the Dominion and the countries referred to. In reporting to his Government, the Commissioner assigns the first place to lumber as an article of export to the countries of South America, and next to this he places coal. At present South America gets substantially all its coal from Great Britain. In the year 1888 the Brazilian Republic took from England over 590,000 tons of mineral fuel, Uruguay 291,000 tons, and the Argentine Republic 467,000 tons, representing an aggregate value of £714,000. At Sydney, Spring Hill, the Joggins and Cape Breton coal can be put on board ships cheaper than can be done in England, and coal can be carried from the mines in those places to ports in South America at a lower rate of freight than from British ports. The imports of mineral fuel into the Argentine Republic appear to have more than doubled during the last few years, and from this important circumstance, as well from the fact that Montevideo is about to make an effort to develop her great resources, the Commissioner concludes that the colliery owners of Canada will find in those countries an excellent market for their fuel in the near future. Brazil also requires a large supply of coal, and for years past her imports have shown a steady expansion. As an illustration of the fact that Canada can successfully compete with Great Britain in the supply of coal to the ports of South America, the Commissioner mentions that last year no fewer than three hundred and fifty steamers coaled at Sydney, Cape Breton. In Nova Scotia, preparations have been made for shipping coal from that part of the Dominion to South America."

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. COLLETT & HUNTER are about building a sawmill at Nicola, B.C.

MESSRS. J. & D. J. LA LONDE, Winnipeg, Man., have started a show-case factory and are turning out some very fine work.

MESSRS. ALLEN & GINTER, the celebrated American manufacturers of cigarettes, will establish a large branch factory at Victoria, B.C.

MESSRS. R. H. OSGOODBY & Co., Toronto, inform us that they have recently introduced a complete photo engraving outfit into their establishment.

HENDERSON'S woolen mill at Thorold, Ont., is to be started up again very soon, an outfit of new machinery, wool-cleaners, etc., being now introduced.

THE Ottawa Powder Company, with headquarters at Buckingham, Que., has been incorporated with a capital stock of \$25,000, for the manufacture of explosives.

THE Canada Chemical Manufacturing Company, London, Ont., is being organized, with a capital stock of \$80,000, for the manufacture of chemicals, dyestuffs, etc.

THE capacity of the Rock Bay sawmill at Victoria, B.C., is to be increased to 80,000 feet per day. An electric plant has been put in for the purpose of lighting the mill.

THE Lion's Gate Woolen Manufacturing Company is being organized at Vancouver, B.C., with a capital stock of \$200,000, for the purpose of erecting mills and manufacturing woolen fabrics.

THE Royal Bridge and Iron Company (Limited), Montreal, has been incorporated with a capital stock of \$30,000, to manufacture steel, iron and other bridges, and all structures of iron and steel.

MESSRS. E. BROAD & SONS, the well-known manufacturers of edge tools, etc., at St. Stephen, N.B., have merged their business into that of a limited liability company, without change of name, with a capital stock of \$40,000.

A LARGE passenger and freight steamer is being built at Victoria, B.C., in which the Messrs. Dunsmuir are largely interested. She is to be 180 feet long, and will be driven by twin screws. All the machinery will be built at the Albion Iron Works, Victoria.

WORK is being pushed upon the construction of the lumber mills of the Pacific Lumber Company at New Westminster, B.C., which are to be under the management of Messrs. McLaughton & Fraser. This mill will be supplied with all modern and improved machinery, and when completed will have a daily capacity of about 250,000 feet.

NEGOTIATIONS are on foot for the formation of a company with extensive capital, to construct and operate a line of sailing ships in connection with the Chemainus saw mills, whose output is expected to reach every quarter of the globe. This company is separate and apart from the sawmill company, which will also have its own ships. —Victoria, B.C., Colonist.

THE large tower clock just installed in the Victoria, B.C., City Hall is the one recently built by Messrs. J. E. Ellis & Co., Toronto, and was on exhibition at 63 Front Street, West, this city. Messrs. Ellis & Co. are building quite a number of these clocks, having established works for that purpose. One of their finest specimens is that in the City Hall at Hamilton, Ont.

THE Goldie and McCulloch Company (Limited), Galt, Ont., has been incorporated, with a capital stock of \$700,000, to acquire and take over the business carried on by the firm of Goldie and McCulloch, and to carry on any of the business of founders, mechanical engineers, machinists and electro-platers, and whatever may be incidental or collateral to the same.

THE Montreal Metal Works (Limited), Montreal, will be incorporated with a capital stock of \$50,000, to manufacture and deal in wires, rods, cables and every description of apparatus and metals used in connection with the business of telephone, telegraph, electric light, electric railway, or cable companies, and generally to do all such other things as may be required or are incidental or conducive to the attainments of the objects referred to.

THE pressed brick to be used in the front of the new Bank of British Columbia building, has been purchased from the Toronto Pressed Brick and Terra Cotta Company, and the first carload is now on the way. This would indicate that notwithstanding the high rate of freight, the manufacturers in Toronto are able to compete with San Francisco brickmakers, and it is assured that the quality will be as good if not better. —Vancouver, B.C., Telegram.

THE Dominion Bridge Company, whose works are at Lachine Locks, Que., and whose head offices are at Montreal, built the two 116-foot high electric light poles for the Quebec and Levis Electric Light Company. This company build railway and highway bridges of all designs in both iron and steel, plate and lattice girders, pin and link or riveted truss work, trestles, swing bridges, turntables, roofs, telephone poles, truss rods, Kloman eyebars and all kinds of structural iron work.

F. F. HEAD, architect of Portage la Prairie, Man., is preparing a number of plans for elevators at several places in the Province. Among the proposed structures are: Addition to the Farmers' Elevator, Portage la Prairie, with a capacity of 50,000 bushels, increasing the total capacity to about 115,000 bushels; Farmers' Elevator, Rapid City, capacity 70,000 bushels; Farmers' Elevator, Neepawa, capacity 90,000 bushels; elevator at Austin for Walter Clifford, capacity 30,000 bushels; elevator at Indian Head for Lord Brassey, capacity 20,000 bushels.

A VERY interesting event took place at Acadia Mines, N.S., on Saturday, April 25th, in connection with the iron works. The new blast furnace, which has been under construction for some months, was put in operation, the ceremony of "lighting up" devolving upon Miss Florence Leckie, daughter of Manager R. G. Leckie. As the torch was applied to the last tuyere hole, three cheers were given by the crowd assembled. Shortly after, the engines operating the blast were set going by Mrs. Perrin, wife of C. P. Perrin, under whose superintendence the construction and the operation of starting the furnace have been successfully conducted. The new furnace is seventy-five feet high and nineteen feet in diameter of bosh. It is expected the output of iron will reach 100 tons a day.

THE use of spectacles can be traced back as far as two thousand years. The Emperor Nero, who was short-sighted, used concave glasses to enable him the better to watch the gladiators. Up to the thirteenth century only single glasses, such as are now known as reading glasses, were known, and the invention of the two-eyed spectacles fall somewhere about the year 1290. In an epitaph found at Florence, one Salvo degli Arinati is credited with the invention, but other authorities ascribe it to the monk Alexander von Spina. In the fourteenth century spectacles were fairly common, and, as they were considered precious, were often specially mentioned in ancient testaments. Frequently a kind of beryl was used in place of glasses; hence the German name "brille." The manufacture of spectacles was at first carried on in Italy, afterwards in Middleburg, in Holland, but as early as 1482 we have spectacle makers mentioned at Nürnberg. After a while the use of spectacles became fashionable in Spain, and no doubt many a one at the present time who carries the appendage of eyeglasses does so more for appearance than actual need of assistance to the eye.

THE first sod for the new tunnel to be constructed under the Detroit river connecting Canada, at Windsor, Ont., and the United States, at Detroit, Mich., was turned April 30th. The tunnel will take a direction which will bring it to the river below the Michigan Central Railway slip dock. The total length will be 12,033 feet, of which there will be an open cut of 2,000 feet on the Windsor side, and 1,500 on the Detroit side. The inside will be twenty-seven feet in diameter, wide enough for a double track. The inside shield will be of steel, outside of which will be six courses of brick laid in cement. The bottom will be of concrete, on which the track will be laid. On May 4, 1888, the present Company obtained an Act from the Dominion Parliament to tunnel the Detroit River to the international boundary. The Act was assented to on May 4, 1888, and provided, among other things, that the construction of the tunnel must commence not later than May 4, 1891, and be finished within eight years from the passage of the Act. It is said by those interested in the work, that it will be in running order in two and a half years. Both the Canadian Pacific and Michigan Central Companies are largely interested in the work, and will control its management.

HARD WOOD FURNITURE.

PROBABLY the most popular wood at the present time is oak, which may be divided into two general classes, as quartered and natural. In the manufacture of the former, the log is cut in quarters and the boards are sawn out at right angles with the grain; this gives a much more pleasing appearance to the finished article, and is largely employed in the manufacture of fine furniture, though by no means exclusively. "Antique oak" is prepared by rubbing the wood over with a brownish stain which fills the porous grain and imparts a dark hue, and is an imitation of the popular brown oak of England. The better grade of oak is somewhat scarce and the prices have advanced considerably; but when finished nicely its appearance is very beautiful and it is found impossible to successfully imitate its finish upon a cheap base. A new fashion is that of bleached oak, which will probably never prove very popular, as the natural wood has to go through a chemical treatment from which it comes forth white. The oak supply of the country comes largely from the central states, from Indian Territory east to Virginia.

Rosewood is no longer in great demand, the supply is very limited, and the price is very high. What there is comes from South America, being imported to this country in the log, and costs something like \$750 per thousand feet, board measure. Perhaps owing to its high price and limited use, it is but little imitated, though it is claimed that other hard woods may be so stained as to deceive even an expert; but imitations grow dingy and lose their appearance with age. It is employed only for the highest grades of furniture, cases for pianos and the like, but for such uses it is fashionable, and will doubtless always remain so.

Cedar finds its principal use in the manufacture of wardrobes, chests and the like, owing to the protection which it gives from insects. It is very difficult to obtain cedar free from knots, hence its use must be confined to purposes where these will not be a fatal objection. The supply for this country comes from South America, that grown here being worthless for the use of the cabinet maker. Cedar has a peculiar smell which cannot be successfully imitated, and by which its genuineness may be easily tested. Ash and chestnut are considerably used, principally for furniture sets and interior finishing of dwellings. Their qualities, as well as those of birch, beech, maple and other standard American hard woods, are too well known to require any special mention.

Imitations are of course, numerous, though less harmful than in many other industries. Mahogany is imitated in cherry, maple, sycamore and other substitutes, which by means of stain, present the genuine color and grain quite closely. The high polish, however, cannot be attained, and in time the stain becomes dead and reveals the sham. Walnut is imitated by whitewood, maple, birch and poplar, as also is cherry. For many purposes these imitations are, doubtless, practically as valuable as the original article.—*Good Housekeeping.*

PAPER BELTS.

THE almost unlimited use to which paper pulp is put proves this to be one of the most valuable, and at the same time cheapest and easily worked, of American products.

In one form or another it has been adapted to the manufacture of a variety of utensils for household use, and applied to mechanical and industrial products with equally good results.

As a substitute for iron, metal and wood it has proved a success, and in many cases superior to either of these, being lighter, equally strong and durable.

It has been found an excellent substitute for iron in the manufacture of car wheels, and for the driving wheels of locomotives. Pulleys are made of it that are pronounced superior those of either wood or iron. In the manufacture of pails, tubs and other household utensils it is extensively used. But there is one use to which it has been put that is more surprising than any of the others. We refer to its use for belting.

For some time one of the largest paper manufacturing establishments in this country has been turning out paper belts that are declared superior in many respects to either leather or gum.

These belts are made from pure linen stock and are of any desired thickness, width or length, having a driving power equal to any other from an equal surface. While they are not adapted to all kinds of work, they are found to work well as straight driving belts of not less than five inches in width.

Where they have been tested side by side with leather belts for strength and durability they have proved equally satisfactory. They adhere very closely to the pulley, and do not generate electricity while running. They are flexible, and are not affected by tempera-

ture within ordinary limits. There is one place, however, in which they cannot be used, and that is where they have to run in water, or where they are constantly subjected to moisture.

This belting is best adapted to heavy driving belts, and for this purpose is much the cheapest material, and when once in position will run until worn out.

These belts have been tested by various concerns and under different conditions, and are pronounced to work well.—*Manufacturers' Gazette.*

A NEW ELECTRICAL INSULATOR.

DR. SELWYN, director of the Dominion Geological Survey, is now making a series of experiments which if successful will reveal a new material which can hardly fail soon to have a high commercial value. A Montreal *Star* correspondent recently called on the doctor at Ottawa, and found before him a long, narrow box filled with lumps of a peculiar black earthy substance glittering with sandy particles. It was not unlike lumps of brown, sodden coke. "This," he said, "is a sample of petroleum-saturated sand which is found in almost immeasurable quantities in the Athabasca district, and for which, I believe, I have found excellent and practical use. It can, I have no doubt, be used to great advantage for insulating underground electric wires. Its insulating power has already been tested by Mr. Gisborne, Dominion Electrician, who says it makes a perfect insulator, and I am now about to make further tests to see how it will stand the frost and weather. The discovery of this sand is not new, it having been known to and described by Sir Alexander Mackenzie a hundred years ago. It has already been referred to in the Survey reports, and petroleum experts have given it as their opinion that a large amount of petroleum could be extracted from this great body of sand if the proper appliances were secured. It has also been referred to as a possible fuel; but its projected use as an insulator is new."

To show how this sand would burn as a fuel, the doctor placed a small piece upon the grate fire, and it flamed up brightly in a few seconds and burnt steadily like coal. "It would, I think," said the doctor, "also make good pavements similar to the asphalt. This petroleum sand exists exposed all along the Athabasca River region, and we know that it exists (covered) for thousands of miles around. The exposed region, it is calculated, would yield twenty-six cubic miles of solid material. The sand has a saturation of 12 per cent. of petroleum. It is supposed that a great petroleum field underlies this locality, and the petroleum, in trying to escape, has forced its way up through the sand. How much remains below is now the question. I believe that oil exists there in paying quantities, and will recommend to the Government to have a boring made next year at Athabasca Landing, which is about 200 miles from the lake. If oil could be found there it would be a great boon for the North-West, as all the oil used there is at present brought from Ontario or from the oil wells in the Kootenay (British Columbia) district. In the hot weather, in the sand regions spoken of, pure tar oozes out of the sand, and has been used for a long time by the Hudson Bay Company in pitching their boats. It is about 170 miles from Edmonton to the sand regions, and as the Calgary and Edmonton road is now being built to Edmonton, it would, I believe, be built to Lake Athabasca, should the sand prove useful, as expected. In the Athabasca district are also found good indications of sulphur, gypsum, salt and lignite coal."

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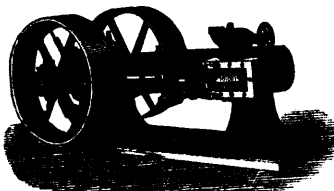
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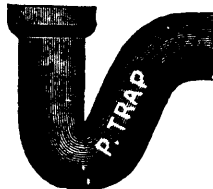
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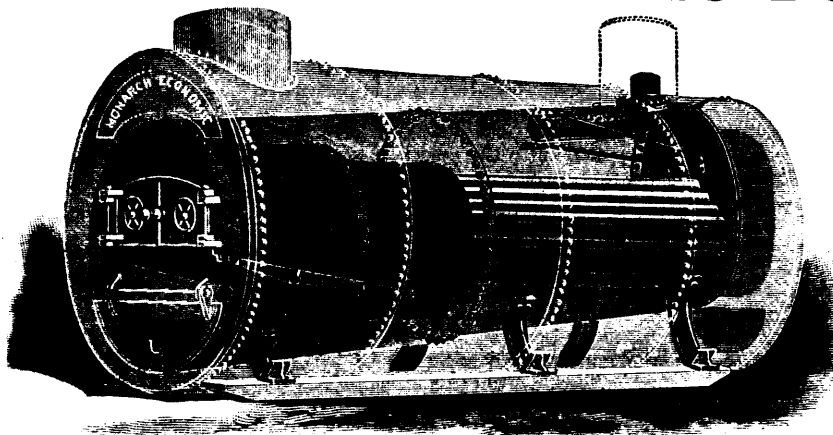
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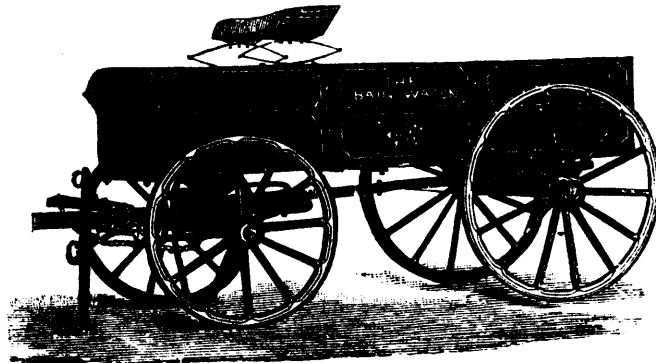
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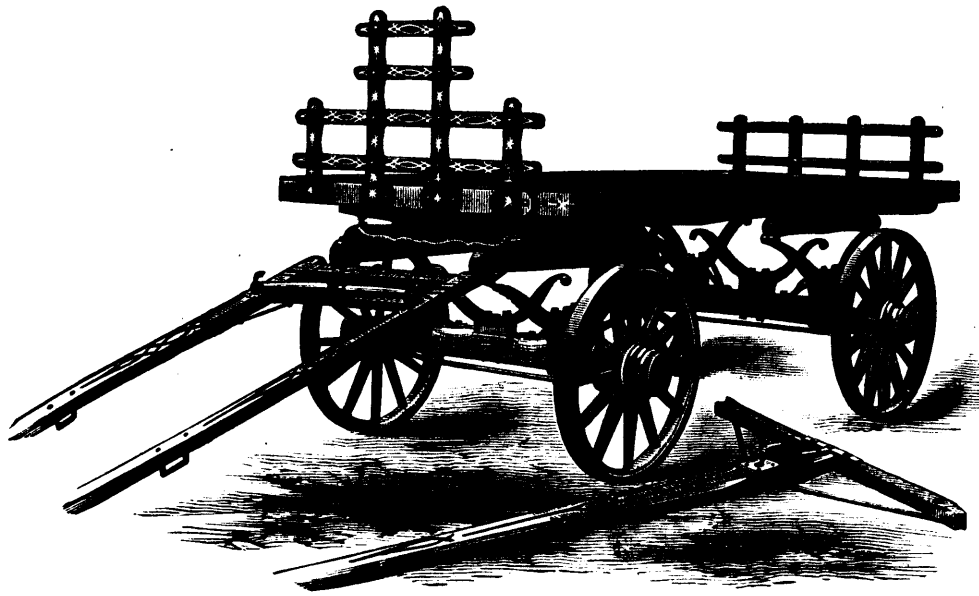
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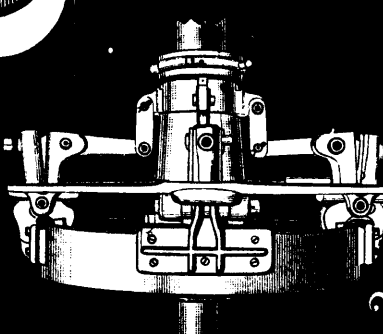
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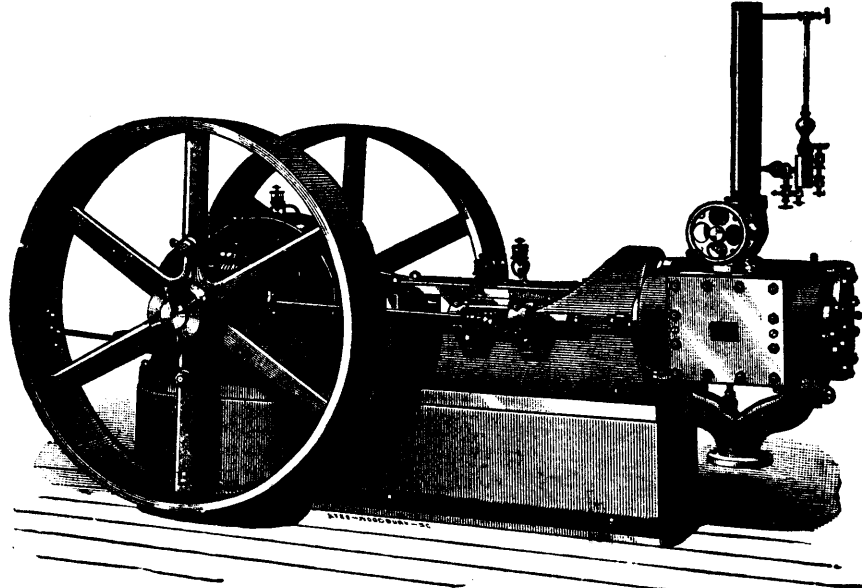
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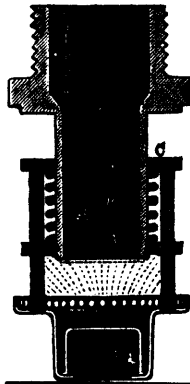
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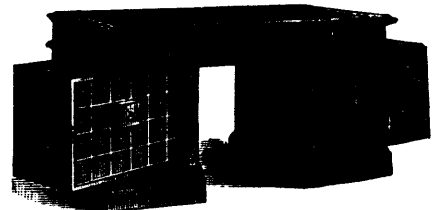
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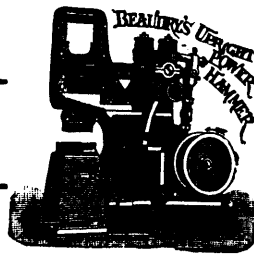
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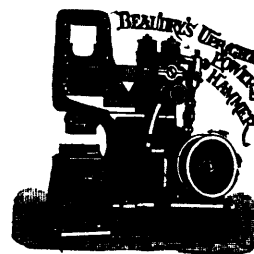
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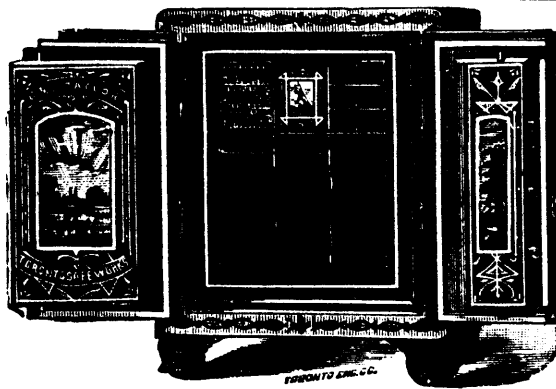


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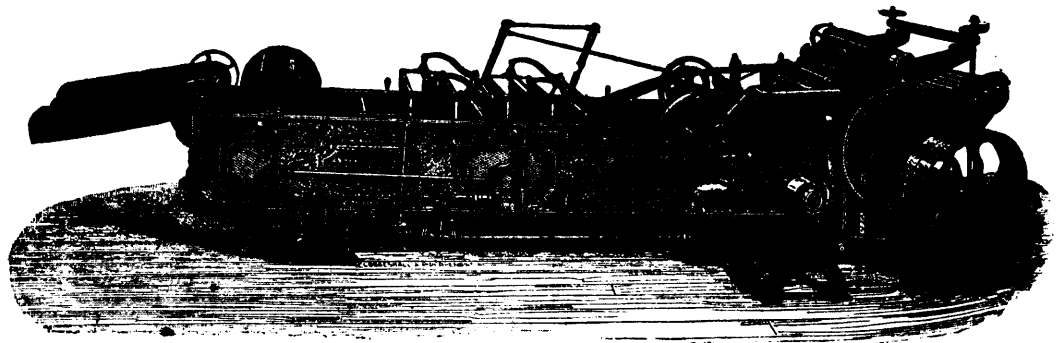
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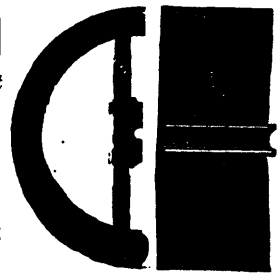
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We remain, yours truly,

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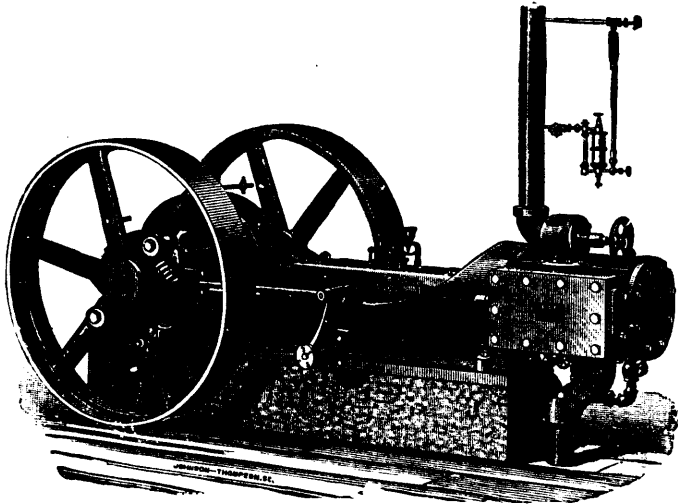
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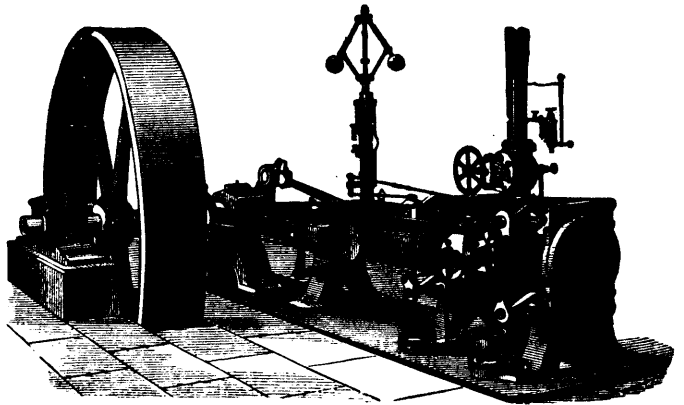
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TAKE NOTICE.—Our List of Prices for the Dodge Patent Wood Split Pulleys is for all Split Pulleys.

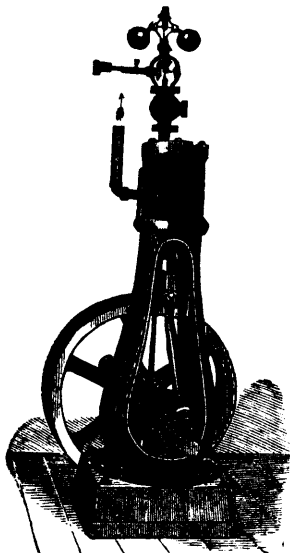
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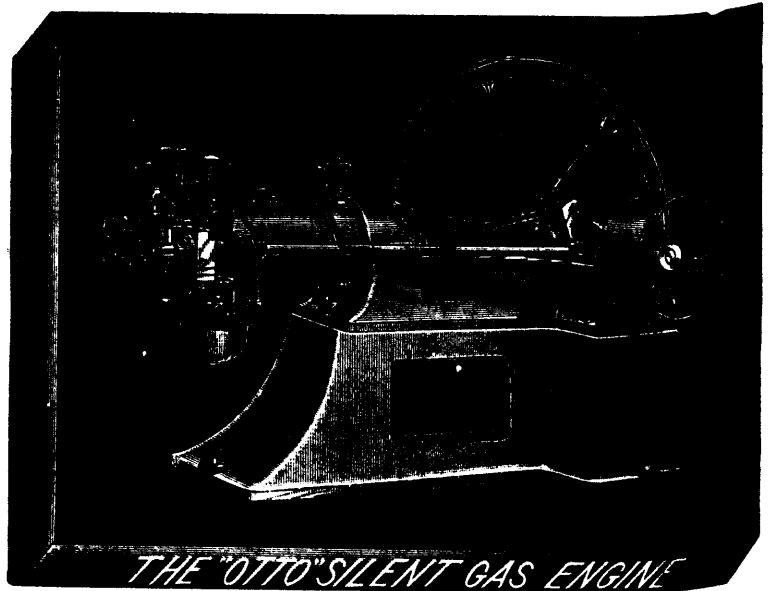
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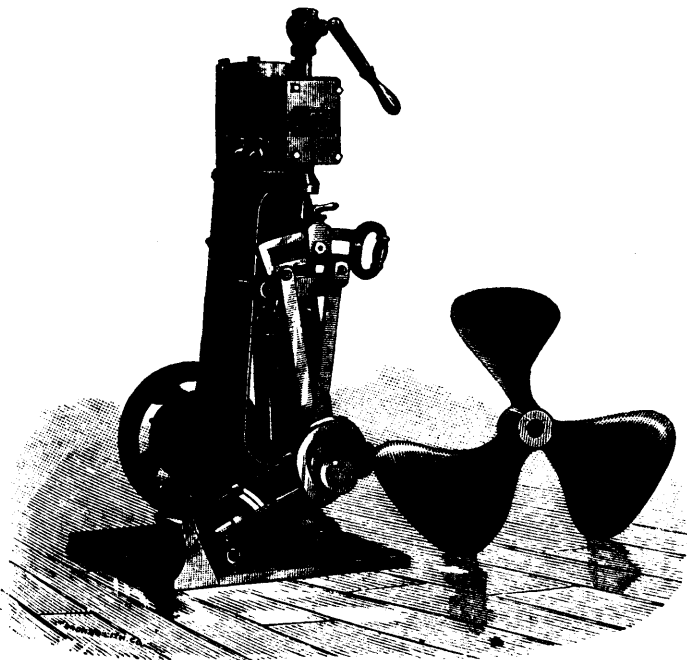
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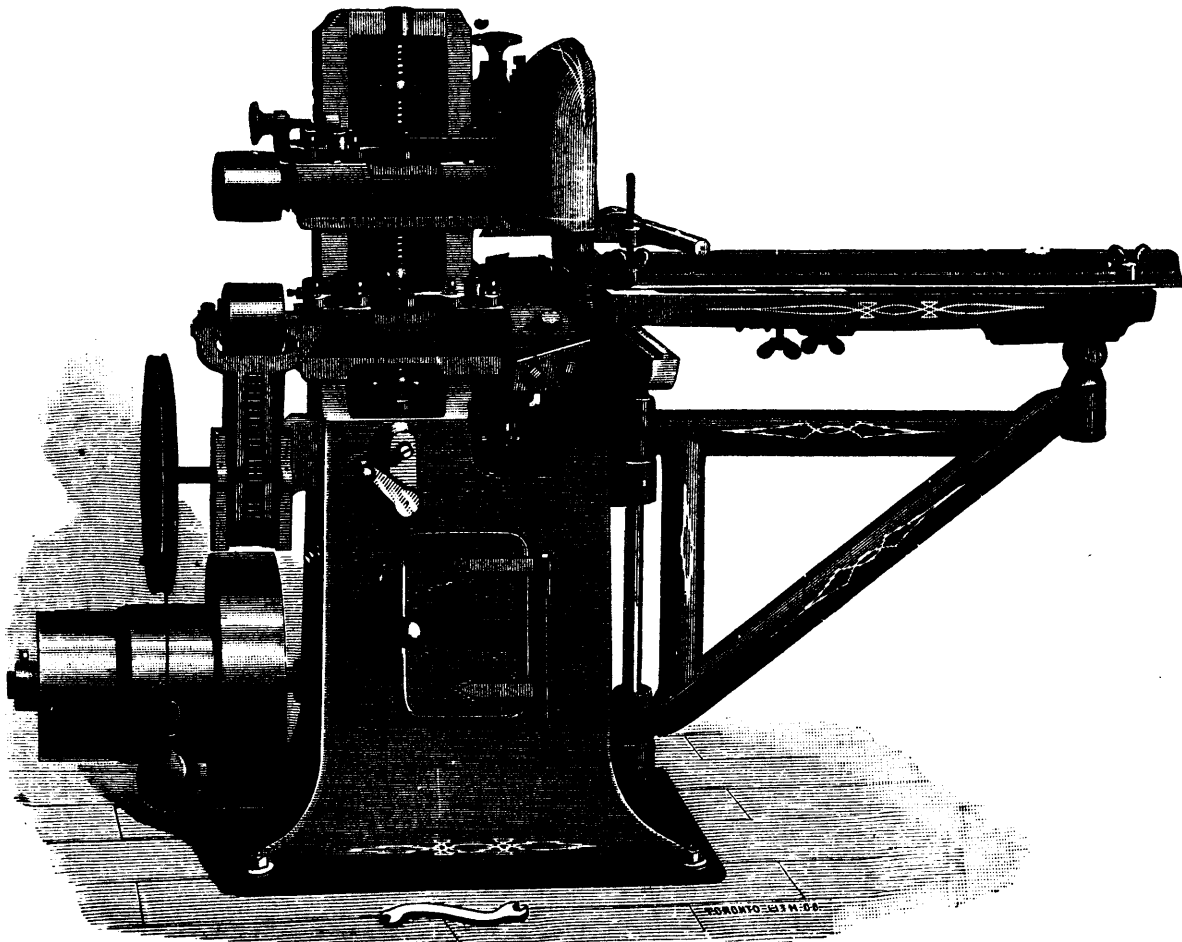
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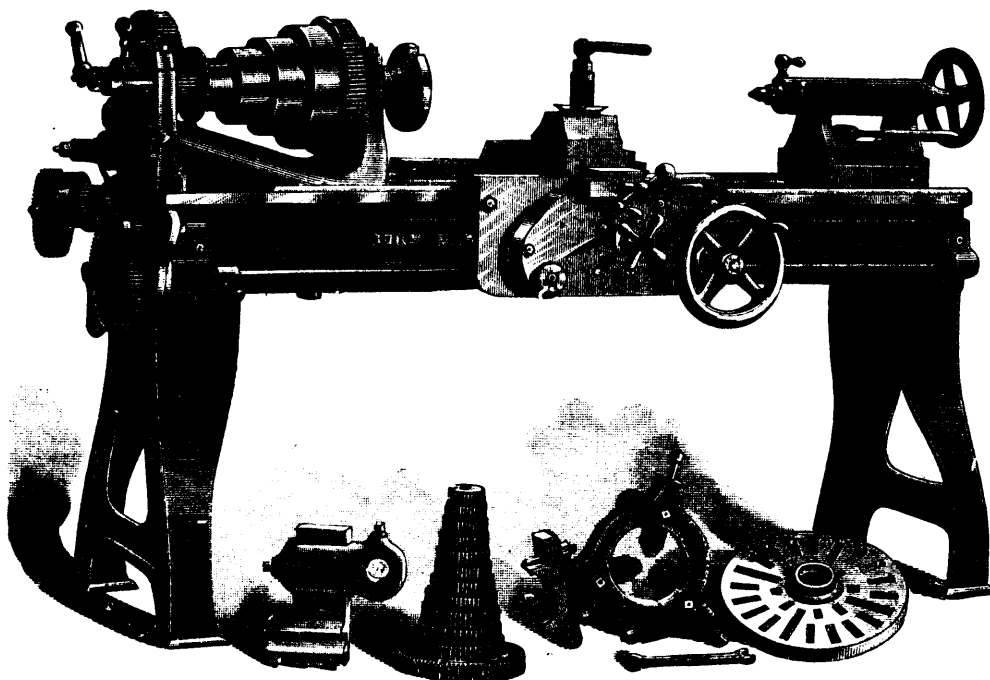
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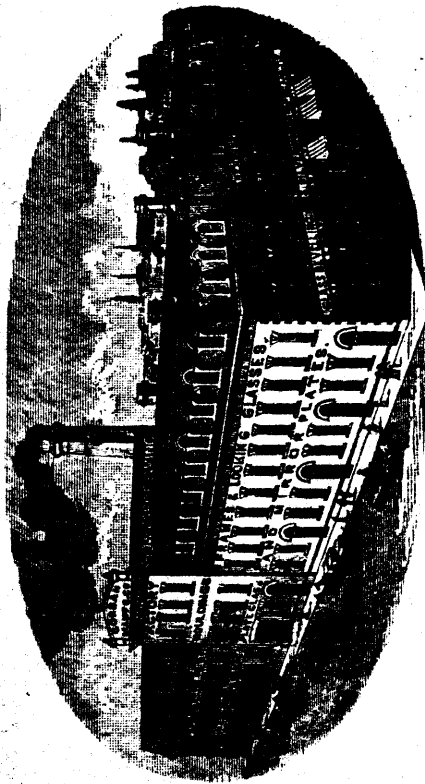
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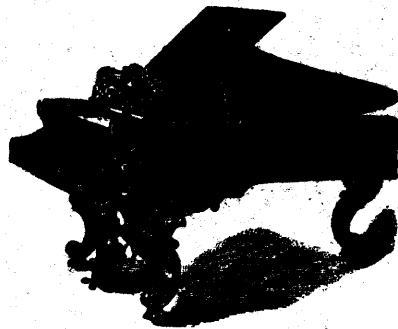


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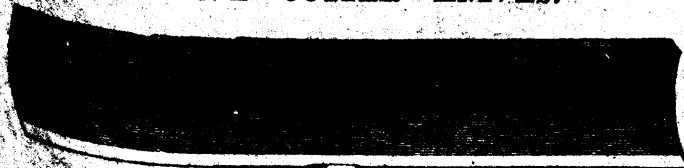
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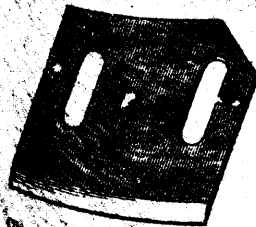


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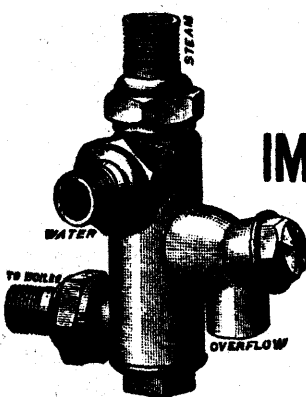
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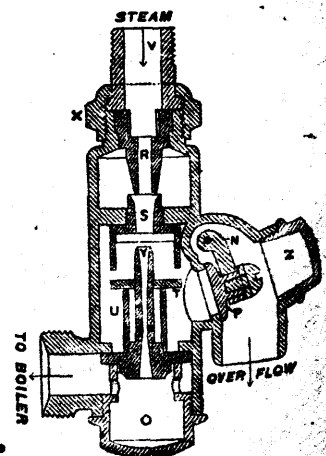
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