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CANADIAN MANUFACTURER

AND INDUSTRIAL WORLD

DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

Vol. 22.

TORONTO, JANUARY 15, 1892.

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SEVENTEENTH ANNUAL MEETING

OF THE

Canadian Manufacturers' Association.

REPORT OF PROCEEDINGS.

The seventeenth regular annual meeting of the Canadian Manufacturers' Association was held in their offices in Toronto, Friday, January 15, 1892.

Among those who were present were W. K. McNaught, President; P. W. Ellis, Second Vice-President; J. J. Cassidy, Secretary; George Booth, Treasurer; Frederic Nicholls, Chairman Executive Committee; R. W. Elliot, D. C. Ridout, J. C. Copp, William Christie, Samuel May, Frederic Crompton, H. D. Warren, Robert Watson, Robert Crean, J. A. Parker, P. Freysing, C. E. Pease, Thomas Robertson, F. P. Birley, G. W. Beardmore, William Pender, Joseph Simpson and J. O. Thorn, Toronto; M. B. Perine, Doon; J. R. Barber, Georgetown; James Watson, Henry New, J. C. New, T. D. Murphy, Hamilton; John Cowan, Oshawa; C. J. Miller, Orillia; George Lang, Berlin.

W. K. McNaught, President, occupied the chair, and J. J. Cassidy, Secretary.

The minutes of the last regular meeting of April 16, 1891, and of the special general meeting of June 11, 1891, called to take

action relative to the death of Sir John A. Macdonald, were read and approved.

In business arising out of the minutes, the Secretary called attention to the resolution passed at the last annual meeting regarding the opposition of the Association to any change in the policy of the Dominion Government which would subject Canadian manufacturers to the unequal competition of foreign manufacturers, and protesting to the Government against any arrangement being made with any other Government by which there would be any trade discrimination whatever against Great Britain, and stated that, in accordance with the wishes of the Association, these resolutions had been presented to Sir John A. Macdonald. The Secretary also stated that the resolution bearing on these subjects, passed at the later meeting of the Association, had been presented to the new Premier, Hon J. J. C. Abbott. With reference to the action taken by the Association upon the death of Sir John A. Macdonald, in carrying out the instructions of that meeting a copy of the resolutions then passed had been beautifully engrossed and illuminated on parchment, enclosed in a silver casket, and presented to the widow of the dead chieftain.

PRESIDENT'S ADDRESS.

President McNaught read the following address.

Gentlemen of the Canadian Manufacturers' Association:

It is a pleasure, as well as a duty to welcome so many of the members of the Canadian Manufacturers' Association to its Seventeenth Annual Meeting, for your presence is the best testimony you can give that the Association still enjoys your confidence and support.

In spite of all that has been said to the contrary, the objects of our Association are not only legitimate, but strictly honorable in every respect, and that we are not afraid to have them bear the light of day I give them as officially set forth on every document issued by the Association. They are as follows

"To secure by all legitimate means the aid of both Public Opinion and Governmental Policy in favor of the development of home industry and the promotion of Canadian Manufacturing enterprises.

"To enable those in all branches of manufacturing enterprises to act in concert as a united body whenever action in behalf of any particular industry, or of the whole body is necessary."

It has been charged against this Association that we are neither more nor less than an organized band of robbers, whose sole object is to wring from the toiling agriculturists of Canada exorbitant prices for the goods we manufacture, and which, under the present fiscal system they are compelled to purchase from us.

It is also charged that from these ill-gotten and illegal gains we have placed so much money at the disposal of the parliamentary supporters of the National Policy that the evils of protection have been perpetuated against the wishes and to the detriment of the Canadian people.

These seem to be the head and front of our offendings.

To the second of these charges I must enter an emphatic denial, for I can say from my own personal knowledge that since I have been officially connected with the Association, during which time two general parliamentary elections have been held, not one dollar of the Association's money has ever been spent, either directly or indirectly, for political purposes. While our members have in many cases taken an active part in the elections, as every citizen has an undoubted right to do, it has been done in their individual capacity and not as members of the Canadian Manufacturers' Association. Although we are united on the question of protection, our members do not all see eye to eye politically, and those of us who were favorable to the support of the present government because we believed that only through their success could the permanency of the National Policy and the prosperity of Canada be assured, have, during the last two political contests, banded ourselves together in a separate organization known as the "Manufacturers' League," the sole object of which has been to assist in the election to parliament of gentlemen who would support a policy of protection to Canadian industries. This assistance has been rendered exclusively by the publication and distribution of literature favorable to protection, and we hold that we have exactly the same right, and it is just as commendable on the part of Canadian protectionists to propagate their particular views regarding trade, by this or any other honorable means, as it is for the Cobden Club to disseminate the doctrine of free trade in a similar manner. The "Manufacturers' League" have never spent a dollar in any other way than that already indicated.

In answer to the charge that we are simply a legalized band of robbers, we plead not only "Not Guilty," but we claim that we are honestly and successfully helping to elevate our country to a higher level and doing our share towards increasing the general prosperity. This charge has been so often and so thoroughly refuted by the press and upon the platform, that it would be superfluous on my part to enter into any detailed argument regarding it at this time. Suffice it to say that although these charges have been reiterated in season and out of season for the past twelve years, the majority of those appealed to have decided that they were not well founded, and have therefore steadily endorsed the principle of protection to home industries. Four times have these charges been weighed in the scales of public opinion, and four times they have been found wanting, and although we do not endorse the sentiment that "The voice of the people is the voice of God," still we recognize the fact that the majority of the people should not only govern, but that they are generally right in their decisions. What was simply a theory in 1878 has by the vote of the people become an accomplished fact, and under the sanction of the law and by its special invitation, our citizens have invested so much money in manufacturing enterprises that a new condition of things has been created, and the question of vested interests will now have to be considered in connection with, and must play an important part in the final settlement of this great economic question. We cannot leave this phase of the subject without entering an emphatic protest against the attempts which are continually being made to antagonize the agricultural and manufacturing classes of our community.

The interests of these two classes are not only identical, but are so interwoven that a blow cannot be aimed at either of them without injuriously affecting the other. In this connection we commend to all such the words of Richard Cobden, the great free trader, which are just as true in Canada to-day as they were in England when they were uttered: "The farmer's interest is that of the whole community. This is not a partial interest, and you cannot touch him more sensitively than when you injure the manufacturers, who are his customers."

No purely agricultural country has ever become a great country; and to make Canada great it is necessary to have diversity of industries and employment. The perfect specimen of manhood is not one whose arms, or legs, or brain, are abnormally developed, but one in which these members are so admirably proportioned as to give at once strength and symmetry to the whole body. The ideal country is likewise one whose industries are widely diversified, and where agriculture and manufactures are so evenly balanced that each class is able to consume the surplus products of the other.

A favorite fallacy of free traders is that the imports and exports, in other words the foreign trade of any country must be taken as the measure of its prosperity. The absurdity of this contention becomes apparent when we consider that nations, like individuals, sell only the surplus products which cannot be consumed at home, and that, as a rule the prices obtained in the home market are at least equal to the best prices obtained abroad. To say that a farmer or manufacturer who sells his product for consumption exclusively in his home market is realizing less money for it than if it had been sold for export, is to state an absurdity so palpable as to be at once detected by any intelligent man; and what applies to the individual obtains also in regard to the country at large. Before Confederation the exchanges of products between Ontario and Quebec and the Maritime Provinces was classed in the blue books as foreign trade to both them and ourselves. When, however, Confederation became an accomplished fact, this immense exchange now reckoned at \$50,000,000, was at once metamorphosed into domestic trade within our own borders, and consequently disappeared from the Trade and Navigation returns, and if the volume of foreign trade was an index of prosperity, both countries were evidently suffering instead of profiting by political union. Will any sane man assert that the aggregate trade of these provinces became less on account of Confederation, or that there was less profit on the exchange of their products because it had to be classified under the head of domestic instead of foreign trade? Take another example. Our annual import and export trade with the United States averages in round numbers, say \$90,000,000, but suppose that unrestricted reciprocity became a reality and, as the Hon. Edward Blake points out, annexation were to follow, would the political union of the two countries blot out this vast trade entirely? While each country would have its foreign trade reduced by \$90,000,000 annually, surely its domestic trade would be increased by at least that amount, and if the advocates of unrestricted reciprocity are to be believed, the profits made on the then domestic exchange would far exceed that now made on it as foreign trade.

Canadian protectionists have always taken the ground that the best market the farmers of this country can have, is their

own home market. Like the United States, our greatest competitor in broadstuffs in foreign markets, Canada has hitherto consumed about nine-tenths of all the agricultural products raised by her farmers (Mr. George Johnson, Dominion Statistician, estimates the entire product of Canadian farms at about \$500,000,000, and the exports thereof at about \$51,000,000,) and that this is so is largely owing to the impetus given to manufacturing industries of all kinds by the present protective policy. When we consider that the city of Toronto and suburbs alone, even before the passage of the McKinley Bill, used more of the products of our Canadian farms than the whole 65,000,000 of people in the United States, it can be readily understood why the supporters of the National Policy contend that it would be utter folly for this country to jeopardise the home market which consumes such a vast proportion of its agricultural products, for the problematical gain which might accrue from the free entry of the one-tenth we have to spare into the markets of our greatest competitor.

We are being told continually that our farmers are on the downgrade to absolute ruin, and that between the upper millstone of the National Policy and the nether millstone of the McKinley Bill, there will soon be nothing left to them but the privilege of paying the interest on the mortgages with which their farms are encumbered. That this statement of the condition of our farmers is absolutely false, has always been maintained by protectionists, who point to the statistics furnished by the Provincial Agricultural Bureaus in proof of the fact that our agricultural population are not retrograding, but actually increasing in wealth in a fairly satisfactory manner. In regard to the free entry to the markets of the United States, offered to our farmers by the advocates of unrestricted reciprocity as a panacea for all their troubles, we hold that as water cannot rise above its own level, so even in the event of unrestricted reciprocity becoming a fact, our farmers could not hope to reach a higher level of prosperity than that enjoyed by the American farmers who are now actually in possession of this much overrated market. If we can believe the official statistics published by the different States, it is evident that even with the possession of that "illimitable" market, the farmers of the United States are not nearly as prosperous or independent as those of our own country. That this view is practically correct, seems also to be the belief of the Hon. Oliver Mowat, who in an open letter recently published, uses the following language: "It is quite certain that the farms of the United States are heavily mortgaged as well as Canadian farms; and we have no solid ground for assuming that they are less heavily mortgaged than our own farms. So our farmers as a class, our mechanics as a class, our laborers as a class, whatever the reasons may be, are not less comfortable on the whole than the farmers, mechanics, and the laborers of the United States appear to be, though these are harassed by no McKinley tariff and by no like obstruction to the dealing of the States with one another."

To sum up this matter we contend that the largest and best market for the Canadian farmer, the one that consumes nine-tenths of all he produces, is the home market right at his own door.

That for the surplus, which has to be exported because it cannot be consumed at home, our best market is not the United

States which produces \$10 to our \$1 of agricultural products and is our most formidable competitor in the European markets, but Great Britain the market to which we both send our surplus, and which in a general way absorbs the surplus agricultural products of the whole world. The foreign markets that Canada should specially cultivate are not, in our opinion, those whose products are exactly the same as our own, and who are our direct competitors in other countries, but those which are consumers of the products we have to dispose of and who in return desire to sell us articles which cannot be produced in Canada. For this reason we heartily commend the efforts which the Government have been, and are now making, to cheapen and facilitate the transport of goods to the British and other European markets, and also to open up closer trade relations with the West Indian Islands, Cuba, South America, Australia, China and Japan.

The United States has practically told us, through the McKinley Bill, that they propose to buy nothing from us that they can possibly be supplied with by their own people, and while we are glad to see our people do all the trade with them that is mutually profitable, we unhesitatingly denounce the doctrine advanced by the advocates of unrestricted reciprocity, that a free entry to the markets of the United States is absolutely necessary to our existence. One of the best replies to such assertions is that made by Sir Richard Cartwright who in a speech delivered at Charlottetown, P.E.I., gave utterance to the following loyal and truthful sentiments:

"They say we must have reciprocity and we cannot live without it. For the Dominion of Canada, I take exception to that statement. While reciprocity is desirable we are not in such a state of subjection to the United States that we cannot live without it. We have men and ships and we will carry the war into Africa. We will find new markets for ourselves and cut them out. There is nothing better calculated to prevent the bringing about of reciprocity than to tell the Americans that we cannot live without them. It would induce them to believe that they had the power to drive us to their own terms!"

Another fallacy assiduously propagated by the advocates of unrestricted reciprocity, is that Canadian manufacturers object to free trade with the United States because they are afraid of fair competition with the manufacturers of that country. They assert that were unrestricted reciprocity in force, Canadian manufacturers would have the best of the bargain, because they would then have free entry into a market of 65,000,000, whereas the American manufacturers would only get access to 5,000,000 additional customers. The manufacturers of Canada are not afraid of fair competition with the manufacturers of the United States; what they object to is the unfair competition to which they would be subjected under such a juggled arrangement.

As Erastus Wiman has pertinently stated, the manufacturers of the United States have a market of 65,000,000 and a manufacturing capacity of 100,000,000 and they want an outlet for the surplus which cannot be consumed at home. They also know that no 5,000,000 foreigners can use so many of these products as the people of Canada, and hence their anxiety to get possession of this market. Their expenses would not be increased, but rather lessened proportionately by manufacturing up to their full capacity and they know that under the

unequal conditions which would then exist, their Canadian competitors would be badly handicapped in the struggle for the ownership of their home market. If they thought otherwise, these astute American manufacturers (and it is the manufacturers and not the farmers of the United States, who desire unrestricted reciprocity) would be the very last people in the world to become a party to any bargain which would disadvantage themselves. The manufacturers of Canada occupy relatively the same position to the manufacturers of the United States, that the manufacturers of the United States do to those of Great Britain and other European countries, and if we can judge by the spirit of the McKinley Bill, the very last thing in the world that American manufacturers want is unrestricted reciprocity with Europe.

Any one who has studied manufacturing in Canada, must be aware that our factories are largely duplicates of American industries, a large proportion of which are carried on by the help of patents which secure to their owners an absolute monopoly of their own market. Our manufacturers of articles patented in the United States, and "their name is Legion for they are many," may be fairly classed under two heads; (1) those who have purchased Canadian patents taken out by American inventors, and (2) those who are making articles patented in the United States, which articles have never been patented in Canada, or on which, if secured, the patent has been allowed to lapse by reason of non-compliance with the patent act.

To the first class it is evident that unrestricted reciprocity could secure them no larger market in the United States than they now possess, for no tariff legislation could overcome the American patent, which so long as it lasted would corral the Canadian manufacturer within his own territory more effectually than half a dozen McKinley Bills. On the other hand, there is the almost certainty that his own home market would be adversely affected, on account of the commercial disasters which would undoubtedly follow in the wake of legislation, so sweeping as to turn the currents of commerce into new, and to many, unfavorable channels.

To the second class it is evident that unrestricted reciprocity would mean anything but fair competition, for while the United States manufacturers would have the protection of the Chinese wall erected by their patents, which it would be utterly impossible for their Canadian competitors to surmount, they could send their goods into this country as freely as they could into any part of the United States covered by their patents. It hardly needs that a person shall be thoroughly conversant with manufacturing to know just how such an arrangement would operate on the Canadian industries affected by it. It would simply mean ruin to them, for they would be wiped out before such a treaty would have been half a year in existence.

The Canadian manufacturers who were not effected by patents would be forced to revolutionize their business in order to meet the altered conditions which they would then have to face. Instead of a general line, they would be compelled to manufacture specialties, thus necessitating a heavy loss on their plant and machinery, much of which would have to be practically thrown aside as useless. This being the case, is it reasonable to suppose that wide-awake manufacturers would

incur all this expense with the fact staring them in the face, that, in the event of such a treaty being abrogated, they would find themselves on the Canadian side of the boundary line with a plant capable of manufacturing a specialty for 70,000,000 while the market for $\frac{1}{3}$ of their product lay in the United States, from which country they would then be shut out. Prudence would dictate the advisability of such Canadian manufacturers locating in the United States before incurring so great an expense, so that if such a contingency did arise, they would at least find themselves on the same side of the international boundary line as their market.

The identical reasons that would compel Canadian manufacturers, under unrestricted reciprocity, to move across to the United States, would also prevent American manufacturers from locating on this side of the line.

Viewed from a manufacturing standpoint, even if the patent rights difficulty could be overcome, unrestricted reciprocity would be a decidedly dangerous remedy for the ills of Canadian trade. Speaking for myself, as a Canadian and manufacturer, I unhesitatingly say that much as I dislike it, I consider annexation pure and simple to be far more honorable, and more in the interests of this country, than any round-about scheme which would ultimately land us at the same goal. Of the two evils, annexation or unrestricted reciprocity, I consider annexation the least, because, under it, we would, at least, have permanency, a thing essential to the development and prosperity of Canada or any other country.

The manufacturers of Canada have not been standing still during the past few years, and any person who will take the trouble to compare their output of to-day with what it was thirteen years ago will find that in the matter of variety, quality, finish, and price they have not only made gigantic strides, but will bear favorable comparison with those of any country in the world. In certain lines not only do we supply our own home market, but we have won a fair share of patronage in foreign markets where our goods have to compete on equal terms with those of other and older manufacturing countries. We have not any figures for 1878, but in 1881, the output of Canadian manufacturers was estimated at about \$310,000,000, while to-day it is said to be over \$500,000,000, an amount equal to the product of our farms.

The advocates of unrestricted reciprocity tell us that protection is a bad thing even in our own interest; but as practical manufacturers, and probably knowing nearly as much about our own business as outsiders, we have learned from experience that situated as we are, protection is an absolute necessity to the Canadian manufacturer. The assertion that the National Policy is draining the life blood of the country and impoverishing the many that a few may become wealthy, is squarely contradicted by the Government returns regarding the progress of Canada.

How Canada has prospered under the National Policy of protection to native industries may be learned from the following comparison between the years 1878 and 1890:

	1878.	1890.	Increase.
Miles of railway.....	6,143	13,088	7,845
Tons of shipping.....	23,102,551	41,243,251	18,140,700
Letters and post cards carried by P.O. Dept. . .	50,840,000	100,000,000	49,160,000
Deposits in chartered and savings banks.....	\$88,995,126	\$197,895,452	\$108,900,326

	1878.	1890.	Increase.
Money orders.....	\$7,172,900	\$11,007,862	\$4,777,862
Bank note circulation....	\$20,750,805	\$47,117,071	\$17,631,266
Production of coal (tons)	1,152,000	3,000,000	1,848,000
Value exports of Canadian cheese.....	\$3,007,521	\$9,372,212	\$5,374,691
Value exports of Canadian cattle.....	\$1,152,334	\$0,049,417	\$5,797,083
Value exports of Canadian sheep.....	\$690,337	\$1,234,347	\$538,610
Value exports of manufactured wood.....	\$13,000,629	\$20,050,343	\$6,750,719
Value exports of home manufactures.....	\$18,182,047	\$25,530,003	\$7,347,356

Referring to a comparison of Canadian progress, similar to the grand showing just set forth, it is no wonder that the Hon. James Young, in a speech delivered before the National Club at Toronto, said: "It is possible that Canada might have progressed still faster than this, and it is true that our farming and even our manufacturing industries are suffering at present from somewhat serious depression, but the foregoing statistics clearly attest that not only have we no reason to despair of our country, but it would be difficult indeed to produce any other country, which, when its population was only 5,000,000, could point back for twenty years to a better record of progress and prosperity."

In the face of such testimony as this, surely the people of Canada have no real cause for despair.

We harvested last year the largest and most valuable crop that we have had for more than a decade and although its beneficial effects have not been as immediate as could have been desired, still it is bound to bring prosperity to our farmers, work for our artisans, freights for our railways and shippers of every kind; in fact every wheel of commerce, whether agricultural or manufacturing, must sooner or later feel its beneficial effects.

Owners of half a continent; with natural resources, which are practically inexhaustible; with fresh water and deep sea fisheries, which dwarf those of other countries; with fully two thirds of the great wheat producing zone of the north American continent and all the necessary climatic conditions for bringing this great staple cereal to its fullest perfection; with a hardy, energetic and self reliant people; surely, under Providence, it depends very much upon ourselves, what our national future shall be.

If, instead of whining for something which cannot be purchased except at the price of national honor, we are animated by a spirit of loyalty to our country and are ready to make the best of the opportunities within our reach, we have no reason whatever to be dependent upon the favor of any foreign country, no matter how great or how prosperous it may be.

Canada is on this continent to stay, and loyal and self respecting Canadians should make it plain that no problematical monetary gain will ever induce them to enter into reciprocal arrangements with the United States upon terms which if once consummated, would ultimately blot out our national existence beyond recall.

I cannot conclude without a few words in reference to the great loss Canada has sustained since our last annual meeting, in the death of our late Premier, Sir John A. Macdonald. Although his mantle has fallen upon the shoulders of loved and trusted colleagues, who are honestly and successfully carrying on the great work which he inaugurated, and who

have our confidence and support, still it would be ungenerous on the part of an Association for whom he did so much to let this occasion pass without some tribute to his memory.

In every age there exists master minds, which are masterful because they have the prescience to see clearly the trend of coming events and having the courage of their convictions, to act fearlessly upon them, in order to turn them into realities. Such are the leaders of men, and such was Sir John A. Macdonald.

The late Premier's mind was essentially national and not provincial. What other statesmen in Canada saw, like him, that in order to knit the Dominion together it was necessary to unite our scattered provinces by bonds of steel as well as by those of sentiment? Who, like him saw the necessity of providing that magnificent system of water ways by which the products of our inland provinces could find a cheap and rapid transport to the markets of the old world? And what other saw afar off in Canada's National Protective Policy, a cure for the depression of business, which had for so many years enveloped this country like a funereal pall? That Sir John A. Macdonald had the prescience to see the necessity of these great undertakings and the courage and audacity to carry them out, in order to create a nation out of the few scattered provinces which were committed to his political guidance nearly a quarter of a century ago, is now a matter of history. Although bronzes may be erected to his memory by the score, the best and most lasting memorial he can have, will be the vast colonial empire he has founded. Like Sir Christopher Wren's, his best epitaph would be the words, "If ye seek his monument, look around you." He was a thorough Canadian to the core, and a British-Canadian at that, and whatever his faults, he possessed the one great merit of having a most profound and abiding faith in this country and its people.

Although in Sir John Macdonald's death, Canada has sustained a severe loss, there is consolation in knowing that he was not called away until his life's work had been practically accomplished.

The country is greater than any man however great he may be, and the nation still lives. Though much has been taken, much abides. The architect is gone, but the building whose foundations he laid so deep and broad still remains, and others have been raised up, who will help to carry on the work towards completion. The sentiment which inspired faith in Canada and loyalty to Great Britain are not buried in his grave. It lives and blossoms in the hearts of his countrymen, and the future will prove that it is still a mighty power in the land.

SECRETARY'S REPORT.

Secretary Cassidey read the following report:

Mr. President and Gentlemen of the Canadian Manufacturers' Association.

Since the last annual meeting of this Association, which was held on April 16th last, several events have occurred which possess unusual interest to this Association and to the country at large. It will be remembered that the dissolution of the Dominion Parliament, and an appeal to the people for a ratification of what the Government had been doing, eventuated in

a short, but very hotly contested campaign, in which the Government was sustained and continued in power. During that contest he who had for so many years been the leader of the tariff party of Canada, Sir John A. Macdonald, took an exceedingly active part, visiting and making speeches in a great many of the constituencies. An indomitable determination carried him through his arduous labors, but the reaction came with the subsidence of the excitement, and soon after the assembling of the new House of Commons, our grand old captain was stricken down by disease, which resulted in his death on June 6th. As soon as his death was announced a special general meeting of this Association was called, to convene on June 11th, for the purpose of taking suitable action in the matter. This meeting was held and appropriate resolutions passed; and it was ordered that a copy of them be suitably prepared, and presented to Lady Macdonald.

The death of Sir John A. Macdonald was made the occasion, by the Opposition, to furiously attack the Government, in the hope that in the confusion which then prevailed to some extent, the Government would be defeated and the National Policy destroyed. But strong, true and skilful men were in command, and the storm was weathered; and subsequent events have shown that the people of Canada are as fully determined as ever to maintain and perpetuate that policy which has made this Dominion the great and prosperous country it is; and this Association may feel proud in the knowledge that in the first bye-election occurring since the adjournment of Parliament, our respected ex-president, Mr. Bennett Rosamond, was called to take a seat in the grand council of the Dominion.

On the assembling of the new Parliament last spring, Finance Minister Foster announced that the Government had determined to place certain grades of raw sugar upon the free list; and the House of Commons subsequently ratified the proposition. The duty was removed from all sugar imported for refining purposes, not above number 14 Dutch standard; but a duty of eight-tenths of a cent per pound was retained upon all sugar above that number.

It was supposed that at the last session of Parliament the Finance Minister would have dealt with some of the many tariff matters which require revision; but the removal of the duties upon raw sugar caused such a large reduction in the revenue; and pending negotiations, looking to some sort of reciprocity in trade with the United States, were deemed sufficient reasons for deferring action in the matter, and therefore no further changes were made in the tariff. But the representations made to the Government by this Association have received serious consideration, and it is to be presumed that a suitable time will soon arrive when such amendments and changes will be effected in the tariff as will meet all the reasonable objections now urged against it. I am pleased to state, however, that some of the incongruities complained of have been rectified by Orders in Council which will hold good until the close of the next session of Parliament.

The question of reciprocity in trade with the United States has been very fully discussed in Parliament, in the press and on the hustings, and probably quite as much so in the United States, and it was thought that some consultations regarding it would have been had before this time between the authorities of the two countries. But the clamorous demands of the anti-protectionists

and annexationists for unrestricted reciprocity have created the impression in the United States that Canada is very desirous for it and cannot do without it, with the result that that country is holding off from official discussion of the subject, in the hope that Canada will ultimately ask to be annexed and made part of the American Union. There are those in Canada who are striving for this result, but they are few in numbers and weak in influence, the masses of the people being most decidedly averse to any such arrangement. As representatives of the people the Dominion Government are willing to negotiate a treaty on the basis of reciprocity in natural products, but not in manufactures; and unless this idea comes to prevail it is not probable that any treaty will be made.

This Association has always entertained most decided views upon this question, and it has frequently given expression to them; and at its last annual meeting a series of resolutions were passed which emphatically declared the opposition of the Association to any change in the policy of the Government which would subject Canadian manufacturers to the unequal competition of any foreign manufacturers; or to any arrangement being made by which there would be any trade discrimination whatever against Great Britain. This sentiment was so pronounced that your secretary was instructed to present a copy of the resolutions to the Government. This was accordingly done, and they were duly placed in the hands of Sir John A. Macdonald, the receipt of which was duly acknowledged by him.

After the death of Sir John, at a meeting of the Executive Committee, it was deemed essential that the now Premier, Hon. J. J. C. Abbott, should be personally informed of the sentiments of this Association. The Secretary was instructed to prepare another copy of the resolutions for presentation to him, and a committee was appointed to convey it to him and assure him that unrestricted reciprocity with the United States would deal a most damaging blow to the manufacturing industries of Canada. This commission was duly executed, and I feel safe in saying that the sentiments of the Government on this subject coincide entirely with those of the Association.

A few days ago, in view of the early assembling of the Dominion Parliament, I sent out an invitation, calling upon the members of the Association, who may desire changes to be made in the tariff, to meet the Tariff Committee here to day. A considerable amount of business has developed before the Committee, and it is probable there will be several other meetings of it before the convening of Parliament.

I desire to express the obligations I have been under from time to time, in the discharge of my duties as your Secretary, to President McNaught and Mr. Frederick Nicholls, Chairman of the Executive and Tariff Committees, for their willingly rendered assistance in transacting the affairs of this Association.

Treasurer Booth presented his annual financial statement, which was read and adopted. It showed the Association to be in a sound financial condition.

The following officers were elected for 1892:

President—W. K. McNaught.
First Vice-President—John Bertram.
Second Vice-President—P. W. Ellis.
Treasurer—George Booth.
Secretary—J. J. Cassidey.

F. J. G. H. J. J. A. W. M. S. C. W. W. Jar. The A. C. Joh. Fet. Rob. Tho. J. R. D. I. Wm. H. I. Jam. B. G. C. A. A. E. J. T. Henr. John. Hon. Alex. T. D. J. M.

EXECUTIVE COMMITTEE.

Chairman.....	Frederic Nicholls	Toronto.
Secretary.....	J. J. Cassidy	"
Ex-Officio.....	W. K. McNaught, American Watch Case Co.....	"
	John Bertram, John Bertram & Sons.....	Dundas.
	P. W. Ellis, P. W. Ellis & Co.....	Toronto.
	George Booth, Booth & Son, Coppermiths	"
R. W. Elliot.....	Elliot & Co., Mnfrs Chemicals	"
Edward Gurney.....	E. & C. Gurney Co., Stove Founders.....	"
William Christie.....	Christie, Brown & Co., Mnfrs Biscuits.....	"
John F. Ellis.....	Barber & Ellis Co., Mnfrs Stationery.....	"
John Taylor.....	Dominion Dyewood & Chemicals Co., Mnfrs Chemicals	"
H. Heintzman.....	Heintzman & Co., Mnfrs Pianos	"
Samuel May.....	Dodge Wood Split Pulley Co.....	"
Frederic Crompton.....	Crompton Corset Co., Mnfrs Corsets.....	"
H. B. Warren.....	Gutta Percha and Rubber Mnfrg Co.....	"
Robert Watson.....	R. & T. Watson, Mnfrs Confectionery.....	"
Robert Crean.....	Ontario Straw Goods Co.....	"
E. C. Boeckh.....	Chas. Boeckh & Sons, Mnfrs Brushes, etc.....	"
P. Freyning.....	P. Freyning & Co., Mnfrs Corks.....	"
F. J. Phillips.....	Colban Mnfrg Co., Mnfrs Mouldings, etc.....	"
C. E. Pease.....	American Rattan Co., Mnfrs Rattan Furniture.....	"
Thomas Robertson.....	Robertson Bros., Mnfrs Confectionery.....	"
A. E. Kemp.....	Kemp Mnfrg Co., Mnfrs Metal Goods.....	"
J. A. Parker.....	Acme Silver Co., Mnfrs Silver Ware.....	"
S. B. Brush.....	Brush Corset Co., Mnfrs Corsets.....	"
G. W. Beardmore.....	Tanner.....	"
L. J. Cosgrave.....	Cosgrave Brewing & Malting Co., Brewers.....	"
A. J. Somerville.....	Ontario Lead & Barb Wire Co.....	"
Wm. Pender.....	Erick & Co., Mnfrs Combs.....	"
Eugene O'Keefe.....	O'Keefe & Co., Brewers.....	"
Wm. Stone.....	Toronto Lithographing Co.....	"
W. G. Gooderham.....	Gooderham & Worts, Distillers.....	"
Joe. Simpson.....	Mnfr Knit Goods.....	"
Jas. W. Corcoran.....	Canada Printing Ink Co.....	"
James Morrison.....	Brass Funder.....	"
F. O. Thorn.....	Metallic Roofing Co.....	"
F. P. Birley.....	Dominion Paper Box Co.....	"
J. S. Williams.....	Williams, Greens & Rome, Mnfrs Shirts, etc.....	"
B. Rosamond.....	Rosamond Woollen Co.....	Almonte.
W. H. Storey.....	W. H. Storey & Son, Mnfrs Gloves.....	Acton.
J. Y. Shantz.....	J. Y. Shantz & Son, Mnfrs Buttons.....	Berlin.
Geo. Lang.....	Tanner.....	"
H. J. Bird.....	Mnfr Knit Goods.....	Bracebridge.
Robert Henry.....	A. Watts & Co., Mnfrs Soap, etc.....	Brantford.
J. S. Hamilton.....	Pelee Island Wine Co.....	"
J. G. Farwell.....	Dominion Organ & Piano Co.....	Bowmanville
John Turnbull.....	Cornwall Woollen Mnfrg Co.....	Cornwall.
A. G. Watson.....	Canada Cotton Mnfrg Co., Mnfrs Cottons.....	"
Wm. Rosamond.....	Cobourg Woollen Co., Mnfrs Woollens.....	Cobourg.
M. B. Perine.....	Perine & Co., Mnfrs Twine.....	Doon.
S. Lennard.....	S. Lennard & Sons, Mnfrs Knit Goods.....	Dundas.
C. C. Cleveland.....	J. L. Goodhue & Co., Mnfrs Leather Belting.....	Danville, Que
Wm. Henderson.....	Ontario Worsted Co., Mnfrs Woollens.....	Elora.
Wm. Bell.....	Bell Organ & Piano Co., Mnfrs Musical Instruments.....	Guelph.
James Goldie.....	Miller.....	"
Thomas Cowan.....	Cowan & Co., Mnfrs Machinery.....	Galt
A. M. Newlands.....	Mnfr Glove Linings, etc.....	"
C. Shurley.....	Shurley & Dietrich, Mnfrs Saws.....	"
John Goldie.....	Goldie & McCullough, Mnfrs Machinery.....	"
Peter Hay.....	Mnfrs Machine Knives.....	"
Robert McGregor.....	McGregor, Gourlay & Co., Mnfrs Machinery.....	"
Thom. A. Bissett.....	Cant Bros. Co., Mnfrs Machinery.....	"
J. R. Barber.....	Wm. Barber & Bros., Mnfrs Paper.....	Georgetown.
D. F. Jones.....	D. F. Jones Mnfrg Co., Mnfrs Agrl. Implts.....	Gananoque.
Wm. Byers.....	Gananoque Spring and Axle Co., Mnfrs Springs and Axles.....	"
H. E. Walton.....	Gananoque Carriage Co., Mnfrs Carriages.....	"
James Watson.....	Strathroy Knitting Co., Mnfrs Knit Goods.....	Hamilton.
B. Greening.....	Victoria Wire Works, Mnfrs Wire Goods.....	"
C. A. Birge.....	Canada Screw Co., Mnfrs Screws.....	"
A. E. Carpenter.....	Ontario Canning Co., Mnfrs Canned Goods.....	"
J. T. Barnard.....	Hart Emery Wheel Co.....	"
Henry New.....	Hamilton and Toronto Sewer Pipe Co.....	"
John Calder.....	John Calder & Co., Mnfrs Clothing.....	"
Hon. W. E. Sanford.....	W. E. Sanford & Co., Mnfrs Clothing.....	"
Alex. Gartshore.....	A. Gartshore & Co., Pipe Foundry.....	"
T. D. Murphy.....	Hamilton Whip Co., Mnfrs Whips.....	"
J. M. Young.....	Hamilton Cotton Co., Mnfrs Cottons.....	"

A. W. Brodie.....	Mnfrs Woollens.....	Heapeler.
F. J. Leigh.....	Canadian Locomotive and Engine Co.....	Kingston.
Isaac Waterman.....	Imperial Oil Co., Mnfrs Oils.....	London.
D. S. Perrin.....	D. S. Perrin & Co., Mnfr Confectioners.....	"
T. H. Smallman.....	Canada Chemical Co., Mnfr Chemicals.....	"
A. W. Porto.....	McCormick Mnfrg Co., Mnfrs Biscuits.....	"
Robert Mitchell.....	R. Mitchell & Co., Brass Founders.....	Montreal.
Geo. W. Sadler.....	Robin & Sadler, Mnfrs Leather Belting.....	"
A. W. Morris.....	Consumers Cordage Co., Mnfrs Cordage.....	"
Wm. Angus.....	Wm. Angus & Co., Mnfrs Paper Pulp.....	"
John McFarlane.....	Canada Paper Co., Mnfrs Paper.....	"
S. Davis.....	S. Davis & Son, Mnfrs Cigars.....	"
A. McArthur.....	A. McArthur & Co., Mnfrs Paper.....	"
J. A. Pillow.....	Pillow-Hersey Mnfrg Co., Iron Rolling Mills.....	"
Graham Fraser.....	Nova Scotia Steel and Forge Co. New Glasgow, N.S.	
John Cowan.....	Oshawa Malleable Iron Co.....	Oshawa.
C. J. Miller.....	Tanner.....	Orillia.
T. D. Craig.....	T. D. Craig & Sons, Mnfrs Leather.....	Port Hope.
F. Outram.....	Globe File Works, Mnfrs Files.....	"
W. H. Law.....	Central Bridge Works.....	Peterboro.
James Kendry.....	Auburn Woollen Co., Mnfrs Woollens.....	"
George Pattinson.....	Ferguson & Pattinson, Mnfrs Woollens.....	Preston.
George Clare.....	Clare Bros., Stove Founders.....	"
H. Stroud.....	Stroud & Co., Mnfrs Carpets.....	Paris.
J. Schofield.....	Paris Mnfrg Co., Mnfrs Knit Goods.....	"
Wm. Chaplin.....	Welland Vale Works, Mnfrs Edge Tools, etc.....	St. Catharines.
S. Collinson.....	Whitman & Barnes Mnfrg Co., Mnfrs Agrl. Machinery.....	"
Louis Côté.....	L. Côté & Bro., Mnfrs Boots and Shoes.....	St. Hyacinthe, Que.
A. Paton.....	Paton Mnfrg Co., Mnfrs Woollens.....	Sherbrooke, Que.
Hiram Walker.....	H. Walker & Son, Distillers.....	Walkerville.
James Hay.....	James Hay & Co., Mnfrs Furniture.....	Woodstock.

REPRESENTATIVES TO TORONTO INDUSTRIAL EXHIBITION ASSOCIATION.

W. K. McNaught,	George Booth,
J. J. Cassidy,	R. W. Elliot.
Samuel May.	

The Tariff Committee of last year, of which Mr. Frederic Nicholls was chairman, was reappointed, and the chairman authorized to add to the membership of the same as might be deemed advisable.

RESOLUTIONS.

The following resolutions were passed declaring faith in the National Policy:

Whereas, The Canadian Manufacturers' Association, at this their seventeenth annual meeting, desires to again go upon record as unswerving supporters of the National Policy; therefore,

Resolved, That the existing National Policy of protection to Canadian manufacturing enterprises is well suited to the needs of this country, and has proved a vantage to all classes of our people.

Resolved, That unrestricted reciprocity with the United States would work the destruction of the National Policy, and, therefore, would be against the interests of Canadian manufacturers and to the great disadvantage of all the people of Canada.

Resolved, That it would be against the interests of manufacturers, and of all the people of Canada, for the Dominion Government to make any arrangement with any other Government by which there would be any discrimination whatever against Great Britain.

Resolved, That the Canadian Manufacturers' Association have the utmost confidence in the existing Dominion Government, believing, as the upholders of the National Policy, all the interests of the country are safe in its keeping.

Resolved, That a copy of these resolutions be forwarded to the First Minister of the Government.

The following resolution was passed regarding the undervaluation of imports:

Whereas, by a recent decision of the Exchequer Court of Canada, it appears that job or unsaleable goods can be imported at slaughter prices, although, in consequence of combinations amongst the foreign manufacturers, they cannot be sold for consumption in the home market at less than regular prices; and

Whereas, it is unfair to the manufacturers of this country that such undervaluation should be allowed;

Resolved, That the secretary be instructed to communicate with the Government with a view to having the Customs' Act so amended that such goods shall pay duty upon the regular and not upon the slaughter prices; and that where such goods have, for any reason, been withdrawn from the market where manufactured, the duty price for Canada shall be the lowest price at which *bona fide* sales have been made for consumption in the country where they were manufactured.

A resolution of condolence was passed regarding the death of the Duke of Clarence and Avondale, and the secretary was instructed to forward the same to Her Majesty Queen Victoria, and to H.R.H. the Prince of Wales.

A resolution was passed creating a committee to consider the question of the compulsory furnishing of models to the patent office when applications for patents are made. The committee will consist of experts, who will report to the Executive Committee with a view to making such suggestions to the Government as may be deemed advisable.

The Secretary made the following statement:

It is understood that the Dominion Government are arranging to have a creditable display made of Canadian products at the forthcoming World's Columbian Exposition at Chicago. This is exceedingly gratifying, and it is to be hoped that a spirit of national pride and enthusiasm will prevail throughout the country which will ensure a display which will impress upon the minds of those who may visit there the fact that Canada is qualified and entitled to take high rank among the nations of the earth in all that makes a nation great.

In the competent hands of those whom the Government may place in charge, no doubt the specimens to be shown there representing our various industries will be of a most instructive character; and while we may point to these with commendable pride, the claims of Canadian artists should not be overlooked.

I am pleased to call the attention of this Association to the fact that, with a view to bringing Canada most prominently to the attention of the world, Mr. Hamilton MacCarthy, R.C.A., the well-known Canadian sculptor, proposes to produce an allegorical statue of colossal size, representing Canada and her products to be exhibited at Chicago. In this statue Canada will be represented in the character of a typical Canadian maiden in all the glory and beauty of form

and feature of her race. The attitude chosen by the artist shows the figure in a dignified and graceful position. With pleased and interested enquiry she gazes into the future where her destiny lies hid. Her features are radiant in the consciousness of strength to pursue her course—radiant in the faith which will sustain her in it. She contemplates her vast Dominion and the treasures which a beneficent Providence has bestowed upon it. She bears a cross in her right hand—symbol of her faith in God and in her ability to rule in righteousness. Her left hand rests upon an anchor, emblematic of her hope in her future, and upon an oar, suggestive of the maritime interests of her country. These symbols form part of a trophy which is at her feet, and which includes emblems of her varied products, suggestive of the mine, the fishery, the forest, the farm, the factory and the workshop, her merchandise, her transportation facilities and her many other industries. Disposed in graceful folds about this trophy is the British flag, indicating Canada's connection with and loyalty to that mighty empire in whose crown she is the brightest jewel. The height of this statue will not be less than nine feet; and it will be constructed of adamantine.

The colossal bronze statue of Col. Williams (who was killed while fighting for his country in the North-West a few years ago), is a familiar object to us. While it was on exhibition here in Toronto it excited much admiration, and it demonstrated the ability of the sculptor, Mr. MacCarthy, to comprehensively grasp his subject and to carry out and develop his design in a most artistic manner. Canada may not be very rich in such works of art, but the statue of Col. Williams, which now stands upon its pedestal at Port Hope, reflects a credit upon its maker of which all Canadians are proud. Mr. MacCarthy has produced other similar works, notably a life-size bust of Sir John A. Macdonald, which does him infinite credit.

I allude to this proposed statue in the hope that Mr. MacCarthy may meet such financial encouragement as may enable him to carry out his design.

Mr. J. J. Cassidey read the following paper:

THE VALUE OF ORGANIZATION.

The history of the Canadian Manufacturers' Association is familiar to most of its members, and there are many of its members who were present at its inception and who assisted in giving it life and activity. It may be interesting to know something of other similar organizations, and what they are doing in the direction of advancing the interests of their members and of manufacturing industries generally, and of shaping and influencing legislation. Many organizations exist not only among manufacturers but among tradesmen and professionals as well, looking generally to the special interests which they were intended to conserve. Most of these are intended to control prices, direct trade and to prevent overproduction.

The Canadian Manufacturers' Association is the only organization in Canada which is distinctive and exclusive in its objects in securing, by all legitimate means, the aid of both public opinion and Governmental policy in favor of the development of home industry and the home market; the promotion of Cana-

dian manufacturing enterprises, and the enabling of all engaged in the various branches of manufacturing enterprises to act in concert as a united body whenever action in behalf of any particular industry or of the whole body may be necessary. The inception of this Association dates back to 1874 at a time when Canadian manufacturing industries had no tariff protection. It was then that a number of manufacturers, without distinction of party, foregathered, and after full discussion and consultation determined that the success of their enterprises depended upon the adoption by the Government of a sound and sufficient tariff system. What we now know as the National Policy was the result, in great degree, of the stand then taken by these patriotic men. They were the pioneers of a movement the progress of which was slow, tedious and frequently disheartening. But their admirable courage sustained them, and their indomitable perseverance carried them onward, regardless of the constantly recurring obstacles which presented themselves, until, after a hard and hotly contested fight in 1878, victory rested on their banners. It was then that protection triumphed and the manufacturing industries of Canada were delivered from the coils of the free trade python. This organization was then known as the Ontario Industrial Association, and its efforts were confined generally to the propagation of the sentiments of protection in the Province of Ontario.

When the Canadian Government adopted its system of tariff protection the Ontario Industrial Association widened its field of action and merged itself into one more national and general in its objects, and became the Canadian Manufacturers' Association. The influence of this Association has contributed largely to the solidification of public sentiment, and to the direction of tariff legislation, looking to the best interests of the country. Its income is not large, the annual dues for membership being only \$10, and this is expended in defraying the incidental expenses of the Association, and disseminating patriotic literature and a knowledge of the principles of protection.

It is stated that the inception of this Association dates back as far as 1874; but organization for the advocacy and support of protection existed in Canada as early as 1858 when, under the leadership of Hon. Isaac Buchanan, a spirited movement was inaugurated, looking to the establishment of a system of tariff protection for Canadian manufacturing industries. This movement eventuated in the formation of the Canadian Industrial Association, under the influence of which the Government enacted a tariff law which imposed duties upon foreign imports averaging from twenty to twenty-five per cent. ad valorem.

The history of that organization should be well considered by this Association. Having gained the great advantage of tariff protection to their manufacturing industries, the ardor of its members and supporters became cooled, and when Confederation came a few years later the average rate of duty was reduced to about fifteen per cent. This was a tariff for revenue only, of course, and the disastrous effects of it were widespread and general. The Canadian Industrial Association had ceased to exist, and there was no organization among manufacturers for supporting the brave handful of men in the Parliament who fought against the change.

The opposition to the tariff of 1858 did not originate in Canada. It came chiefly from British free traders, who spent

much money in compassing its destruction. The law had worked well, and during its continuance no petition was ever made to the Government asking for its repeal. No public meetings were held anywhere in Canada to make such a demand, and it was under these conditions of repose, inactivity and fancied security, that the advocates of tariff protection slumbered at their posts. It was a fatal sleep. If the organization of 1858 had maintained its existence and activity the catastrophe would not have occurred.

How interest in protection revived, and how, under the leadership of that great captain Sir John A. Macdonald a pronounced tariff party acceded to power and gave to Canada her great National Policy, are events with which we are all familiar. But in the light of the unfortunate failure of the Canadian Industrial Association to maintain its organization and its life; and of the breaking down of the protection tariff incident thereto, the members of the Canadian Manufacturers' Association, and Canadian manufacturers generally, and all who uphold the National Policy, should remember that supineness, lethargy and indifference on their part will certainly experience a similar result.

Perhaps the oldest, certainly one of the most important organizations in the United States composed of manufacturers is the American Iron and Steel Association. Other similar organizations had previously existed, but they were short lived. In 1864 a number of iron manufacturers of Pennsylvania and neighboring States, sent out an invitation to the iron and steel manufacturers of the country to meet together for the purpose of considering a plan of organization "whereby the whole American iron interest might be promoted, and each branch cared for;" and in response to this a large number of manufacturers assembled in Philadelphia, in November of that year, and formed the American Iron and Steel Association. The chairman of that meeting was Captain E. B. Ward, of Detroit, Mich., but a native of Canada; and he was elected the first president of the Association, which honorable position he held until 1869. Since the formation of that Association in 1864, it has had only four presidents, two treasurers and four secretaries, the present secretary and general manager, Mr James M. Swank, having had charge of the office work of the Association for about twenty years. This Association is now a recognized authority in all matters relating to the manufacture of iron and steel except scientific and technical details, and it is consulted by Congressmen and Government officials at home and by persons in all countries who desire accurate information concerning the iron and steel industries of the United States. It has a library of several thousand volumes, including all the leading trade and scientific journals of the world. The present membership is composed of over three hundred companies and firms engaged in the manufacture of iron and steel, and of a large number of dealers in iron and steel, iron ore, etc. The association is sustained by yearly contributions and subscriptions which vary from \$25 to \$500 each. Members who are manufacturers of iron and steel are subject to an annual assessment of one cent per ton of pig and manufactured iron made by them, and five cents per ton of steel made into any marketable shape; and manufacturers of machinery, etc., are assessed according to their annual sales. Annual contributors of \$50 are entitled to one vote in the

management of the association, of \$100 to two votes, and over \$100 to three votes. In 1866 the association began the weekly publication of the *Bulletin* under the efficient management of Mr. Swank, and this is one of the most interesting and instructive tariff journals published. An annual report is also prepared by Mr. Swank which includes all the valuable statistics of the iron and steel industries; and in addition to these, a grand work is done in publishing and distributing millions of tariff tracts annually. The great value of this educational tariff work consists in the fact that it is not spasmodic, but is continued from year to year.

The American Protective Tariff League was formed in the city of New York in 1885. In its application for incorporation it was stated that it was to be "for political and patriotic purposes," the particular business and object being to advocate and uphold a national tariff policy, which should protect American labor by a tariff on imports which should adequately secure American industrial products against the competition of foreign labor. The membership of the League consists of honorary members; life members, who pay the sum of \$500 on demand, and a *pro rata* therefrom exempt from the payment of all further dues; defenders, who pay during each year such part of \$100 as may be called for by the Executive Committee of the League, and general members who pay \$1 annually. The aims of this League are bounded by no state lines and are limited by no special or local form of industry. It is thoroughly national in its character. Its work is of two distinct classes: First, the distribution of pamphlets and tracts, the publication of appropriate articles in newspapers, and proposals to college students for prize essays on economic subjects. Second, correspondence, and the establishment of local organizations, with public meetings and addresses. In pursuance of this work, it has sent out, chiefly to individuals in every State and Territory of the Union, about 150,000,000 pages of tariff statements and arguments, and 800,000 copies of their *Tariff League Bulletin*, now known as the *American Economist*. The League's work of organization has resulted in the formation of similar associations all over the country, among which are the Home Market Club in Boston; the American Protective Tariff League in San Francisco; the American Protective Tariff League in St. Louis; and the Home Market Club in Chicago. The "Defenders" belonging to the League, number about 900, and their contributions have exceeded the sum of \$75,000, the total receipts of the League since its organization amounting to about \$100,000. To these Defenders is accorded the honor of having been the chief instrumentality by which the vast and important work of the League has been accomplished. The secretary and executive officer of the American Tariff League is Mr. F. B. D. Curtis.

The organization of the Home Market Club, of Boston, Mass., is exceedingly simple, its objects being for educational and social purposes, the investigation of economic and political science and the dissemination of correct ideas concerning the tariff. The motto of the club is "American wages for American workmen; American markets for the American people; Protection for American homes," and this is a most comprehensive synopsis of the scope and objects of the association. One of the most effective tariff publications placed before the public is the *Home Market Bulletin*, owned and published

by this Club under the able editorial management of Col. Albert Clark, the secretary. The membership of this club is very large, over 1,500, composed of the most intelligent manufacturers of the New England States, representing an active business capital of more than \$500,000,000. During the last presidential campaign this club raised a very large guarantee fund which was assessed upon as occasion required, and it was expended in extending the circulation of the *Bulletin* and in sending out hundreds of thousands of pages of tariff tracts, the entire work of the club being confined at all times to the education of voters in the principles of protection. In anticipation of the presidential election which will occur in November next, this club will doubtless raise a new guarantee subscription which will be very much larger than any it has heretofore raised. The entire work of the club is done by an office staff under the direction of an efficient secretary. In a very courteous note written by the secretary of the Home Market Club to the secretary of the Canadian Manufacturers' Association the following kindly sentiment is expressed: "You are engaged in an important public work which I hope will be strongly sustained throughout the Dominion. Without protection Canada would have been pretty nearly wiped out by this time. I hope to see the Fair Trade and Imperial Federation scheme succeed. It is the only rational and safe economic condition for Great Britain and her colonies. On this side the line we have the kindest feelings towards Canada, and should be glad to have a complete union of the two countries if Canadians should prefer that to a closer union with the Mother Country, but all depends upon the wishes of the Canadians."

One of the best organized associations of which I have any knowledge, for carrying on such work as it is engaged in, is the Manufacturers' Club, of Philadelphia, of which Mr. Charles Heber Clark is secretary. This club was organized in 1887 and now enjoys the patronage of about a thousand members. The membership is divided into three classes: Resident, non-resident and honorary. Resident members pay an entrance fee of \$50 and an annual fee of \$40; and non-resident members pay \$25 annually; and this large income is expended in publishing *The Manufacturer*, which is devoted to the propagation of tariff sentiments for the education of the public, and the distribution of tariff tracts and similar literature, this distribution being about 1,500,000 pages per annum. A knowledge of the methods of this club in the management of its journal, *The Manufacturer*, is interesting. The average circulation of it is over 3,000 copies, distributed chiefly to members and other manufacturers; and it has an advertising patronage not confined to any particular class of manufacturers, but representative of the large variety of industries which depend for success upon tariff protection. So far as my information goes no other organization controls an organ of this kind, or is able with greater positiveness to influence public opinion. The importance to such an organization of the ownership of such a journal in such political crises as those through which the manufacturing industries of a country like the United States are continually passing, cannot be exaggerated. Pending the last presidential election, when the assaults made by President Cleveland and his free trade friends in Congress and out of it, menaced the protection system, under which

American industry had been successfully operated for so many years, this club raised a sufficient amount of money to prepare and distribute 1,360,000 tariff documents, in sections where it was thought they would do the most good. Members of the club did very effective personal service in reconciling differences among protectionists, in assisting in the collection of campaign funds, and in addressing meetings; while the general membership of the club contributed with great liberality to necessary expenses.

The only really effective organization in Canada having a distinct political object in view, similar to those in the United States to which I have alluded, is the Canadian Manufacturers' Association. It is clearly in the interests of its members that the Government should be kept fully informed on all matters wherein they are affected by the tariff, and it is within the scope, as it is the duty, of this Association to promptly put itself in communication with the Government whenever these interests require it. Communication with the Government by individuals regarding matters in which they are only personally interested cannot possibly be as effective or have as much weight as it would have if had by a large and influential association, the members of which were engaged in many different industries, but having a common interest in the matter under consideration. One's individual interest might warp his judgment, but the unanimous judgment of many, arrived at after viewing a subject from many different standpoints, is entitled to much weight. Before any suggestions are ever made to the Government touching tariff matters, they should be fully weighed and considered by the representatives of the many interests which might be affected by any tariff changes which might be made in consequence thereof. Interested individuals cannot give this unprejudiced consideration; and separate organizations of individual trades cannot give it, simply because they could not fully comprehend the far reaching effects of the changes which they might desire. The Tariff Committee of this Association is composed of men engaged in the manufacture of many different lines of products, and under the methods observed by this Association no recommendations for tariff changes can be forwarded to the Government until they have been fully considered by this Committee and have its unqualified endorsement.

There was a great deal of informal discussion on topics suggested by the proceedings on questions affecting Canadian manufacturing industries, and the greatest good feeling and enthusiasm prevailed.

It is understood that the Tariff Committee will hold one or more important meetings in the near future for the consideration of such business as may be brought before it.

NICKEL STEEL.

THE recent armor tests made at Indian Head, Maryland, by the United States Government, possess considerable interest to Canada, in that it was decided that the nickel-steel plates which were experimented upon were undoubtedly the best armor plates ever subjected to such tests. These tests were applied to six plates, three of which were furnished by the

Bethlehem Iron Company and three by Carnegie, Phipps & Co. The Board of Armor Tests, appointed by the Secretary of the Navy, under whose supervision the tests were made, after careful consideration of the results upon the firing upon the six plates, decided that they be placed in the following order of merit, viz:—

1. The high-carbon nickel steel Harvey plate, furnished by the Bethlehem Iron Company.
2. The high-carbon nickel steel plate, furnished by the Bethlehem Iron Company.
3. The high-carbon nickel steel plate, furnished by Carnegie, Phipps & Co.
4. The low-carbon nickel steel Harvey plate, furnished by Carnegie, Phipps & Co.
5. The low-carbon nickel steel plate, furnished by Carnegie, Phipps & Co.
6. The low-carbon steel Harvey plate, furnished by the Bethlehem Iron Company.

It will be observed that of these six plates, five of them were composed in part of nickel, and that the one which stands lowest on the list contained no nickel.

The right side of plate No. 1 showed very remarkable qualities. The two projectiles which struck that side penetrated not more than 7 inches, the head remaining in the plate, completely filling the hole, and with the appearance of having been welded to the surrounding metal, while the body was shattered into many fragments. No cracks were made on that side of the plate, while the back of the plate showed no disturbance, except a hardly noticeable swelling on the surface. All of the armor plates were more or less cracked through, but only two, Nos. 3 and 6 badly, and these two plates alone showed cracking before the fifth shot. Plates Nos. 1, 2 and 3 kept out all the projectiles; No. 4 was perforated by one, and Nos. 5 and 6 by two projectiles each.

Comparing the plates of this trial with the Creusot steel and the Creusot nickel steel plates of the Annapolis trials of September, 1890, the board in their report were of the unanimous opinion that:

No. 1, the high-carbon nickel steel Harvey plate furnished by the Bethlehem Iron Company, and No. 2, the high-carbon nickel steel plate furnished by the same company, are superior to the Creusot steel and nickel steel plates of last year.

The Secretary of the Navy has given a written opinion of these tests, and those portions of it which are of the most interest to Canada we summarize as follows:

By far the most momentous question which the Department has had to consider in connection with the construction of the new navy is that of armor: 1, to secure a supply of American manufacture, and 2, to determine what kind of armor should be adopted, having reference both to its composition and mode of treatment.

The experiment made last year at Annapolis, described in the annual report for 1890, consisted of a test of the two principal foreign types of armor, the English compound plate and the French all-steel plate, and an entirely new plate, also made in France upon the special order of the Department, of nickel steel. The result of the trial showed that the compound plate was decidedly inferior, and that as between nickel steel and all steel the former had distinct and positive advantages, the all-steel plate being broken into four pieces while the nickel plate remained absolutely uncracked.

A series of tests made during the following spring and

summer confirmed the conclusions formed at the Annapolis trial as to the superiority of nickel steel, and the Department accordingly decided to adopt it, and made arrangements with the contractors looking to that end.

It remained, however to give a thorough trial to the first armor of domestic manufacture before beginning to place it upon the vessels, and for this purpose it was decided to order typical plates, which should be made the subject of an experimental test. This trial was to ascertain two points: 1, whether our domestic manufacturers could produce an armor that would stand competition with the material manufactured abroad, and 2, which of the various modes of treatment suggested would give the best results. In reference to the latter point the questions to be considered were the relative merits of rolling and forging in the manufacture, and the effect of a new method of treatment, named, from its inventor, the Harvey process, designed to harden the surface of the plate while retaining the toughness of its body.

In these trials, the plates were subjected to tests more severe than had ever been applied to any foreign Government trials and the results were in the highest degree satisfactory. Each of the six plates was superior to the English compound plate, while the nickel Harveyed plate and the high carbon nickel plate were superior to all the foreign plates of the Annapolis trial. They may, therefore, be pronounced in advance of the best armor hitherto manufactured in Europe.

Further light was thrown upon the question of the relative merits of all-steel and nickel steel armor, and any doubt which may have remained on that subject was finally set at rest. Of the three plates made by Bethlehem two were of nickel steel, one treated by the Harvey process, the other not, and the third was of all-steel, Harveyed. Both the nickel plates proved to be far superior to the all-steel Harveyed plate, notwithstanding the advantages which it may have derived from the special treatment, and both proved superior to the French all-steel plate tried at Annapolis.

A third nickel plate, manufactured by Carnegie under the rolling process, also showed a marked superiority over the all-steel plate, and both it and the corresponding Bethlehem plate manufactured under the hammer showed a capacity of resistance to perforation fully 10 per cent. greater than that of the French all-steel plate. In this respect the results furnished by the two American plates manufactured by the different processes (forging and rolling) proved to be remarkably uniform, the 6 inch shots that were fired at them differing in penetration but an inappreciable amount.

The trial thus definitely establishes the fact that armor of excellent quality may be produced by the rolling process, and that forging by means of the hammer, the greatest source hitherto of expense in manufacture, is no longer to be regarded as an absolute necessity. The importance of this fact can hardly be overestimated, for it raises a probability that within a year or two the armor-producing capacity of the United States may be quadrupled in case of necessity, and that if we had 10,000 tons to let and could give 18 months from date of contract to commence delivery, the cost of manufacture would be reduced from 25 to 33 per cent., while the work hitherto confined to two firms would be thrown open to a large number of competitors.

Finally, the trial shows that the high-carbon nickel Harveyed plate is undoubtedly the best armor plate ever subjected to ballistic test.

All the nickel entering into the construction of these armor plates was produced in Canada. The discovery of the value of nickel steel in the manufacture of armor for war ships came, fortuitously, just at the time that the United States Navy authorities were deciding upon what particular style of plates they would adopt for their new ships. At the Annapolis trials both English and French plates were experimented upon, and

the superior excellence of plates composed of nickel steel inclined the authorities to adopt that style, deciding at the same time to make further and more exhaustive tests with it, the result of which is here alluded to.

THE NEW ROUTE TO INDIA.

In speaking of the old and the new routes to India, the *Illustrated American*, says:

The great struggle for empire between Russia and England in Central Asia is imminent.

British troops are face to face on the Pamir frontier with tribesmen who are believed to have been instigated by the Russians.

It is possible that the Czar has had no hand in those intrigues against the English rule in Asia; it may be, as Sir Edwin Arnold, who lived in India for many years and knows something about Russian methods, says, that "the Russian colonels commanding the frontier forces are officers whom it has always been difficult for the Czar to keep in check. Their lives are spent on the frontier; they stagnate; they grow almost savage; they are always yearning for war; they have but one idea—to push on and push on toward India."

But the fact remains, that the blood of English officers have been spilled in the skirmish near Gilgit, and, as Sir Edwin stated: "There is a tradition in the English army in India, and it is held almost as Gospel throughout the entire Indian Empire, that British blood is sacred. Once spilt, there can be no washing it out, no compromising, no explanation, save the most convincing disavowal on the part of any foreign government implicated in the act of bloodshed; and no satisfactory settlement except the most prompt and complete expiation for that shedding of English blood, and the blood of its officers in India is an article for which the Anglo-Indian Empire charges one million pounds a drop."

The *Illustrated American* then reviews most interestingly and learnedly the several routes to India from England, and what the results would be to those routes if England and Russia should come to war. It also speaks of the recently discovered route which, or in an emergency, would prove of great service to England. It says:

What makes this Gilgit affair particularly interesting to this country is, that England has lately been experimenting with a new military route to India through the North American continent. A party of marines and sailors from the British North Pacific fleet was recently carried from Vancouver to Halifax on the Canadian Pacific Railway on their way to the old country, while another party was carried westward to join the Pacific squadron. Should England and Russia go to war in Central Asia, this route will be of the utmost importance to the English. In time of war the British Government cannot depend on the Suez canal, for only one vessel can pass through it at a time, and it would be a very simple thing to block up the passage and prevent such great troop-ships as the *Orontes* reaching India.

India being the star of the British Empire, and the greatest market in the world for English textile fabrics, all Englishmen—save the few who belong to the "Perish India" school—are deeply interested in securing a route to it which cannot be interfered with by any foreign power in case of war. This route they seem to have found in the Canadian Pacific, and, having discovered it, it is not likely that they will allow Canada to secede without a struggle.

The article is brilliantly written; and should be read by all who wish to become posted on this all-important question of what will become of India in case of war.

EDITORIAL NOTES.

THE value of exports from the United States last year increased more than \$93,000,000 over that of the previous year; and the value of exports from Canada during the first five months of the current fiscal year amounted to \$6,000,000. On the other hand, the value of the imports into the United States last year decreased about \$3,000,000, and from Canada in the five months named over \$660,000. In both these instances the balance of trade is in favor of the countries alluded to.

MANUFACTURERS who may be looking about to find a good location in which to conduct their operations would do well to investigate the factory building in Berlin, Ont., now being offered for sale by the Crompton Corset Company, Toronto. This factory was built specially for the manufacture of trunks, etc., and is well adapted for that or any similar business. In fact the arrangement of it is such that it could be used for several smaller industries. The property is large,—having a frontage of 100 feet and a depth of 150 feet. The building is of brick, four stories high and the equipment includes a 20 horse power Goldie & McCulloch steam engine and two 30 horse power steam boilers.

THE CANADIAN MANUFACTURER calls for the creation of a Department of Manufactures at Ottawa. Some years ago an act was passed giving authority for a new Department of Trade and Commerce; but the department was never organized, probably because Sir John Macdonald never found the right man to take charge of it. We do not think a department solely concerned with manufactures would be a necessity or altogether an unmixed good; but a Department of Statistics, which could include manufactures, would be of great service. Mr. Johnson, the Dominion Statistician, and Mr. Roper, compiler of the Statistical Record, are able men and do excellent work, but their scope is too limited. When special subjects are agitating the country we want to know more about them than can be got from the census returns, and a statistical department is needed to furnish the information.—*Canadian Journal of Fabrics.*

This journal is more interested in the establishment of some department of the Government which will supply the information desired than in the name of it. As our contemporary points out, the scope of both the Statistical Department, under Mr. Johnson, and the Statistical Record, under Mr. Roper, is too limited.

Onward, the young people's eight-page weekly, edited by Dr. Withrow, begun a year ago, reports very gratifying progress, with a circulation of nearly 27,000. It is emphatically the young people's organ of Canadian Methodism, and furnishes full reports from their many Young People's Societies. It is handsomely illustrated, gives special prominence to temperance and missions, has strong temperance stories, and is very cheap.

THE *Dominion Illustrated* announces an important departure, and one that will mark a new era in the high class journalism of Canada. The publishers of that splendid weekly have decided to convert it into a monthly with the beginning of the year. It will be a 64-page magazine, differing in shape from the present one, handsomely illustrated throughout, and its pages will be graced with the writings of the most gifted Canadian authors. It will be called the *Dominion Illustrated Monthly*, and the subscription, \$1.50 per annum, will place it within the reach of all. Address the Sabiston Litho. & Pub. Co., Montreal.

A new volume of *Good Housekeeping* begins with the January number, and begins grandly. Every paper within its generous compass is one that touches the vital interests of the people, and there are initial numbers of several new series which promise to be very valuable. Among the list, mention may be made of "The Expert Waitress," "The Household Mending Basket," "The Household Laundry," "The Food of the People," and "The Game of Whist." Not the least attractive, to a good many readers, will be the latter, now that the game has attained such a degree of well-nigh universal popularity. The magazine also appears in a fine "dress" of new type. Sample copies may be had of the publishers, Clark W. Bryan & Co., Springfield, Mass.

A UNIQUE experiment will be tried in the February issue of *The Ladies' Home Journal*. The entire number has been contributed in prose, fiction and verse by the daughters of famous parentage, as a proof that genius is often hereditary. The work of thirty of these "daughters" will be represented. These will comprise the daughters of Thackeray, Hawthorne, Dickens, James Fenimore Cooper, Horace Greeley, Mr. Gladstone, President Harrison, William Dean Howells, Senator Ingalls, Dean Bradley, of Westminster, Julia Ward Howe, General Sherman, Jefferson Davis and nearly a score of others. Each article, poem or story printed in this number has been especially written for it, and the whole promises to be a successful result of an idea never before attempted in a magazine.

THE opening article of the February *Popular Science Monthly* will be on "Personal Liberty," by Edward Atkinson and Edward T. Cabot. It bears chiefly on the labor question, giving the results of an exhaustive examination of the decisions of the courts concerning restrictions on hours and modes of labor, regulation of the method of payment, etc. The Poet's articles in this magazine's industrial series will be followed by two on another attractive subject—"The Making of Musical Instruments," by Mr. Daniel Spillane. The first of these, to appear in February, is devoted to "The Piano-forte." It describes the precursors of this instrument, and recounts the steps of improvement by which the United States has reached its present high position in the piano manufacture. The article is copiously illustrated. President David Starr Jordan, of Stanford University, will have a delightful account of how the hot springs and lava-cliffs of the Yellowstone Park were formed, and what adventures have befallen the finny inhabitants of its lakes and streams. The article is called "The Story of a Strange Land," and it will be illustrated with several full-page and smaller views. "Urban Population" is the subject of the fourth of the Lessons from the Census, by Hon. Carroll D. Wright. It shows just how much ground there is for the current apprehension in regard to the increase of the slum population of cities.

THE *Illustrated American* for the week ending January 9, 1892, is one of the most interesting numbers yet published, and is rich in superb illustrations of events of the day. It is truly a great paper. Its leading article is on the present constitutional crisis of Quebec that may lead to the religious and social war in the Province, which many believe will sooner or later occur throughout Canada. A short account accompanied with a portrait of Stephen B. Elkins is published, and the Life of Lord Hartington, the present Duke of Devonshire, is also touched upon. One of the most interesting sketches in the paper is the account of the ball given on the eve of the Battle of Waterloo, by the Duchess of Richmond, in Brussels, made famous by Byron in "Child Harold." Accompanying the sketch is a picture showing an interior view of the coach house where the dance took place. An article which will interest many is that entitled "Our Merchant Marine," and another one is about Michael Davitt, the candidate for Parliament as the successor to the late Charles Stewart Parnell. Those who have followed the interesting series of sketches on "Beauties of Bygone Days," will undoubtedly regret that they have come to an end. The last sketch appears in the number for week ending January 9th, and is entitled "Marie Antoinette." These sketches will be followed in turn by a series of articles known as "Napoleon's Adversaries," which are virtually a continuation of the stories published a short time ago in the *Illustrated American*, called "Napoleon's Marshals." The frontispiece for this number is No. IV. of "Titled Americans," the Duchess of Marlborough. The gallery of players is represented by Stuart Robson in "The Henrietta," and the short story is called "Cecilia."

MESSRS. GEORGE E. TUCKETT & SON., the well known tobacco manufacturers of Hamilton, Ont., have merged their business into a stock company under the corporate name of the George E. Tockett Company, with a capital stock of \$500,000.

* INVENTIONS. *

This department of THE CANADIAN MANUFACTURER is devoted to the interests of inventors, of patentees of inventions, and of manufacturers of patented articles. Patents are granted in Canada for fifteen years, the Government fee for which may be paid by instalments. Arrangements have been made by which the issue of all patents by the Canadian Patent Office will be promptly noticed in this department, and a brief description thereof given; and this will include not only patents, but Copyrights and Trade Marks, and all renewals and extensions thereof. Enquiries on these subjects are invited and will receive prompt attention. No charge will be made for answers by mail when return postage is sent. Information given free regarding patent laws and the obtaining of patents in Canada, United States, Great Britain and all foreign countries. Claims for inventions, as embodied in Letters Patent, also the illustrations of them, will be inserted in this journal at moderate charges. The attention of manufacturers is specially directed to the opportunities for lucrative business which may be acquired by close observation of whatever may appear in this department.

VASELINE is said to be among the best materials for keeping bright iron from rusting.

By a mixture of oil and graphite, screws used about machinery may be prevented from becoming rusted.

EXPERIMENTS place the breaking strain of manilla rope, for transmission, at 9,500 lbs per square inch : 7,000 lbs at splice.

PENCIL tracings cannot be affected by acids. There is no solution or agent known to science which can dissolve pine carbon or its equivalent, plumbago, of which lead pencils are composed.

FOR a double track road, suited to municipal purposes, Mr. Edison estimates the cost of his newly contrived electric underground system at from \$30,000 to \$100,000 per mile, not including stations.

A FRENCHMAN has invented a new and ingenious frictional machine. Mercury is forced by means of a pump through the pores of a piece of chamois, and electricity in considerable quantities is generated by the friction.

A NEW material is being made by an English company which resembles leather and India rubber, and will be made into boots and shoes, waterproof clothing and other similar products. It is known as blandyte, but the composition is not made public.

A NEW invention is a rubber doorstep and holdback, to prevent the slamming of doors and the marring of walls. A rosette containing a rubber ring is screwed into the door, while a knob surrounded with an acorn shaped ball of rubber is fastened to the baseboard. When the door is thrown back, the knob engages in the ring, holding the door firmly.

IN Germany, wood with a mirror polish is coming into use for ornamental purposes in place of metal. The wood is first submitted to a bath of caustic alkali, for two or three days, at a temperature of about 175 deg. Fah., then dipped into hydrosulphate of calcium for twenty-four to twenty-nine hours, after which a concentrated solution of sulphur is added. After another dip in an acetate of lead solution, at about ten degrees, a shining metallic surface is given by polishing, when dry, with lead, tin or zinc.

THE large flouring mills at Ottawa are now operated entirely by electricity. The 75-horse power motor weighs seven tons, and is of the grammo ring type, and handles the mill with ease by means of an eighteen-inch driving belt. This contract for electric power is the only instance in America where an electric company has furnished so large a motor to run continuously, and in addition this mill is the first in the world to be operated entirely by electricity. It took six cords of wood per day to make steam enough to drive the mill when it was operated by the steam engine.

IN England and in many parts of the Continent they have been for a long time using a horseshoe made by compressing common cowhide. It is composed of three thicknesses of cowskin pressed in a still mould and then subjected to a chemical preparation. It is claimed for it that it is much lighter, that it lasts longer, and that split hoofs are never known in horses using it. It is perfectly smooth at the bottom, no caulks being required, the shoe adhering firmly to the most polished surface. Its elasticity prevents many strains, the horse's steps being lighter and surer.

FROM a single ton of ordinary gas coal may be produced 1,500 lbs. of coke, 20 gallons of ammonia water and 140 lbs. of coal tar. By destructive distillation the coal tar will yield 69.6 lbs. of pitch, 17 lbs. of creosote, 14 lbs. of heavy oils, 9.5 lbs. of naphtha yellow, 6.3 lbs. of naphthaline, 4.75 lbs. naphthol, 2.25 lbs. alazarin, 2.4 lbs. solvent naphtha, 1.5 lbs. phenol, 1.2 lbs. aurine, 1.1 lbs. benzine 1.1 lbs. aniline, 0.77 lbs. toluidine, 0.46 lbs. anthracino and

0.9 lbs. of toluene. From the latter is obtained the substance known as saccharino, which is 230 times as sweet as the best cane sugar.

An interesting experiment was tried a few days ago at the Milwaukee works of the Illinois Steel Company. The attempt was made to roll thin steel sheets on the mail-plate train, which has been standing idle for several years. Some 500 pounds of No 30 sheets were turned out, which proved to be smooth, even and of very good quality. They were taken to Chicago to be tinned. The officers of the company are reticent regarding their intentions, but the expectation is entertained that the success of the experiment may lead to the manufacture of tin plate at this plant. The rolls are narrower than the usual tin-plate rolls, but they can be widened without much difficulty.

By a new invention the services of the driving cords or belts now generally in use for driving spinning spindles are absolutely dispensed with, the amount of the product increased, and a more regular and uniform and much greater speed is obtained. Regarding the regularity and equality of the twist of the strands the product is far superior to that usually secured. A valuable feature of the new idea is that by it any individual spin may be removed without stopping the whole frame. Altogether, it is a most ingenious and practical arrangement, and is something that will prove successful by its own merits. A patent has been granted the inventor, and it will soon be on the market.

A SUIT of more than ordinary interest was recently on trial in the United States Circuit Court at Pittsburgh. The plaintiffs are John T. Haskin, John H. Dalzell, W. J. Crawford and Francis T. Bates, the latter of Philadelphia. The defendants are Dilworth, Porter & Co., Limited. The suit was for damages for the alleged unlawful use of a patent rolling mill. Haskin invented an open housing for a rolling mill while in the employ of Dilworth, Porter & Co., and when he refused to assign the patent to them they dismissed him from their service. Defendants held that when they employed Haskin they also employed all his inventive ability, and that in consequence they rightfully own the patent. This Haskin denied, and the court must settle the controversy, which involves about \$20,000. The decision has not yet been made public.

AN interesting experiment in the way of shipbuilding is presently being carried out in the shipyard of Messrs. Swan & Hunter, Wallsend, England. The firm are having built a steel barge, almost every rivet in which—shell as well as interior—have been put in by hydraulic machinery. The shell plates have their ends and edges flanged inwards to join the jointing medium, and this serves the double purpose of giving such rigidity to the shell as to enable the ordinary frames of ribs to be dispensed with, and of enabling machine riveters to accomplish the whole work of riveting. The results of the experiment (for the vessel is still on the stocks) will be watched with lively interest by every shipbuilder in the kingdom, and should this attempt to entirely dispense with hand-riveting prove a success others will not be slow to follow the example set them by the enterprising Tyneside firm.

PAPER manufacturing in the United States is on an enormous scale. Out of the nearly 4,000,000 pounds of book and news paper turned out daily in the various paper manufacturing localities, almost one-third is made in New York State. Massachusetts comes next with nearly 550,000 pounds, and Wisconsin third with over 400,000 pounds. That is only two kinds of paper, and these pulp mills supply the paper makers of the country with nearly one-half of the pulp they use in getting out paper for use in books and newspapers, or 1,030,000 pounds. Take the whole daily capacity of the mills, including all varieties of paper, from the finest bond paper to the coarsest wrapping paper, and it foots up to the

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immense amount of almost 15,250,000 pounds. The number of mills is about 1,200, and not more than 30 per cent. of them are fitted with steam power, so that they are liable to be interrupted by drought.

An interesting and successful trial of an electric locomotive designed and built by the Thomson-Houston Motor Company, for hauling freight cars, was made at the company's works, at West Lynn, Mass., a few days ago. The machine was built for the Whitin Machine Company of Whitinsville, Mass., to transport freight cars from the Providence and Worcester Railroad to their works—a distance of 2½ miles—and is the first one built in the United States for a similar purpose. It is nearly square, and all the machinery is below the platform between the axles, of which there are two. Its total weight is 43,000 pounds, and it is rated at 100 horse power. It was intended to build a machine that would draw two loaded cars, but the machine drew six such cars, weighing 163 tons, with great ease on a curve and up a 3 per cent. grade. It might have developed more power, but there were no more loaded cars at hand.

A GLASS manufacturer of Vienna, Austria, claims that he has produced a new substitute for glass. In an account of his invention he says: "I dissolve from four to eight parts of collodion wool in about one hundred parts by weight of ether or alcohol or acetic ether, and with this I intimately combine from two to four per cent. of castor oil or other non-resinous oil, four to ten per cent. of resin or Canadian balsam (soft resin). The compound, when poured upon a glass plate and subjected to the drying action of a current of air of about fifty degrees Centigrade, solidifies in a comparatively short time into a transparent, glass-like sheet or plate, the thickness of which may be regulated as required. The sheet or plate so obtained has substantially the same properties as glass, as it will resist the action of salts and alkalies and of dilute acids, and, like glass, is transparent and has no smell. On the other hand, it has the advantage of being pliable or flexible and infrangible to a great degree, while its inflammability is much less than that of the collodion substitutes.

It has recently been remarked that only very careful readers of technical literature can realize the advances already made in the manufacture of pressed steel in this country, and the statement is also made that some of the most complicated forms in this line are now produced here more successfully than in Europe. One of the latest achievements of this character, as noted, is a steel bottle intended for a cream separator—a bottle some nine-sixteenths of an inch thick, uniform throughout, of eighty pounds weight, and having only one opening, that at the top. It is made from a plain sheet, by several operations, and finally moulded to the desired shape. It is stated that this construction, simple as it is, is a veritable boon to dairymen, as former bottles for this purpose, made of castings of steel and malleable iron, did not possess the requisite degree of safety when revolving at the rate of 7,000 revolutions a minute. Sweden is said to be the only other place where these bottles are manufactured.—*Industrial World*.

A QUEER submarine boat, for which the inventor claims some wonderful things yet to be attempted, has been launched at the Detroit Boat Works. It is the invention of George C. Baker, of Chicago. The propellers are reversible and placed amidships. They are intended to regulate the immersion of the boat and propel it. The craft is 40 feet in length, 9 feet in width and 14 feet

in depth. It is elliptical in shape, and it draws eight feet of water. A cover of prepared canvas is stretched over the oak frames, and that is covered with one-inch plank. The boat will withstand a pressure of eighty-six feet of water. Air is stowed at a pressure of fifteen pounds, and sufficient can be stored to last three men for several hours while the boat is submerged. An observing tower two feet in height is on top of the boat.

HERE are some points of interest about forging and welding by electricity: The outer part of a piece of iron, when heated in a forge, is at a white heat while the inner part is comparatively cool, and it cools so rapidly that several heatings may be necessary before it can be forged. In forging by electricity, the slow alternating currents heat the inner part first, and the heating is so rapid that the part that is in the path of the current is heated to any extent the ends being hardly warm. A workman can handle a bar of iron a foot in length that has six inches red hot. The heating apparatus has bronze clamps, with electrodes, that hold the piece to be heated. A bar of iron can be heated to a white heat in a few seconds. A steel wire can be twisted in a spiral at one heat. A square bar of iron can be heated evenly throughout its length, worked into different shapes on an anvil, and straightened again at one heat. In welding by electricity, the two pieces are brought end to end, and the imperfect contact causing resistance, the ends become heated and are then pressed together.

THE BERLINER PATENT CASE.

THE issue by the Patent Office of what is known as the "Berliner patent" for a telephonic transmitter has made evident to the public what has long been known to every sharp patent lawyer and inventor, that there are ways of making the actual life of an invention and practically the life of a patent, a good many more years than the seventeen provided for by law.

In the first place, an inventor has two years after the date of his invention in which to make application for his patent. This two years can be almost indefinitely extended if he can show that his delay has been for the purpose of perfecting his invention. During all of this time, be it two years or twenty, he can use the invention himself provided it is not introduced into general use.

When it gets into the patent office, that is, after the application for an invention is filed, the grants of the patent can be prolonged indefinitely, as this Berliner case has been, by methods that are well known, such as filing claims to have them refused, making amendments that may be more or less germane and that may be rejected or allowed, all to get a record of some action on the part of the Patent Office, usually an adverse action being desired, as the inventor has two years after such adverse action on the part of the office in which to act himself and to get another adverse action, when he can delay another two years.

Under such methods, and for each of these rules or methods there are excellent arguments when they are honestly used, it is easy to see how an application can be kept alive in the Patent Office and the practical life of a patent, for during all of these years the inventor is protected, can be extended almost indefinitely. The aim of the inventor is not to get final allowance of his claim, for then the patent must go to issue in six months, but to prevent the granting of his claim.

Under these circumstances it is easy to imagine how this Berliner patent has been held in the Patent Office, especially if there was

an interference case. The Bell Company owned both the Berliner and Edison inventions. The Bell telephone was amply protected now, and until the original Bell patents expired there was no need of getting a final decision on the Berliner claims. Now that the Bell patents are about to expire, the company allows the Berliner case to go to issue. As this is practically a microphone, and as there is not now known any method of conducting a telephone business commercially, which does not employ the microphone in one of its many forms, the Bell monopoly is continued until 1908 if the Berliner patent holds, and as we understand the case we do not see how it can be overthrown.—*American Manufacturer.*

TRAVEL BY ELECTRICITY.

AN electric railway recently constructed in the British metropolis has been so great a success that an impetus for further means of locomotion by a similar agency has set in. Five bills are to be submitted to the consideration of the Houses of Parliament during the forthcoming session, and all of these bills are either for the construction of new electric railways or for the extension of lines which have already been authorized. These five railways are the Great Northern and City Railway Company, the Islington and City Company, the Grand London Company, the Baker Street and Waterloo Company, and the Royal Exchange and Waterloo Company. We are convinced that the development of electricity as a motor power is yet in its infancy. Great wonders may be expected during this year. In this city the street railway authorities may at any time ask for a change in the by-law granting them power to run cars drawn by "horses or mules only." That power was given less than sixteen years ago, but how great have the strides of progress been since then! Little is risked in predicting that ere the year grows old, not only may electricity take the place of many steam locomotives, and nearly all street car horses, but that, by means of storage batteries, private carriages will begin to course along our public highways. Then will come the halcyon days for the horse and his long suffering companion, the mule. Some people even believe that, through recent discoveries, the marvelous metal, aluminium, will be rendered so cheap, light and strong, that combined with electricity, it will in the near future help to solve the centuries' old problem of aerial navigation. We shall be contented with speedy and inexpensive vehicular transit; let those fly who have a mind to.—*London Advertiser.*

A SPEED DEVELOPING MACHINE.

PERHAPS one of the most original inventions ever produced in this quarter of the world, says the *Boston Herald*, is one that Mr. James O. Brown, of this city, has recently patented. He believes that by its aid alone can the two-minute trotter become anything but a chimera. At first sight the drawings of this remarkable invention appear somewhat complicated to an eye accustomed to the light and elegant racing sulky, as they represent a waggon weighing about 2,000 pounds and carrying a four-horse power engine, or other suitable propeller.

Brown's "horse developing machine" is essentially a waggon with heavy rubber-tired wheels, having in itself sufficient motive power to move at the rate of a mile in two minutes. From the front of the machine heavy shafts protrude, and between these the horse whose gait has to be "improved" is forthwith installed. Once there he is entirely at the mercy of his driver. A stout belly-band of steel, leather covered and padded inside, encircles the stomach of the steed, while equally unbreakable quarter strap, breeching and breast strap hold the horse as in a cage.

Although the restraint is there, it does not gall in the least, so long as the animal does what is wanted, but if he tries to break he will find the quarter strap in his way; should he wish to lie down and roll he will surely be prevented by the belly band, and should he not go fast enough he will find the inexorable two-minute machine thundering in his rear, and, by a mild but irritable pressure on his hindquarters, inculcating the beauty of celerity.

The driver, who has control of all this complicated mechanism, sits on a seat much like any ordinary mortal. In his hand he holds the reins which are included in the outfit, just to accustom the animal to their presence, as he could be as effectually guided without them when once safe within the shafts of Mr. Brown's "developer." By pressing upon sundry levers with foot or hand, the man on the box seat can either increase the speed of the machine; turn the horse and fore-body of the waggon to right or left, raise or lower the shafts, and, in fact, act the part of an irresponsible despot should he desire to show the quadruped in the shafts who is boss.

Mr. Brown claims another valuable quality for his invention. By its aid he can exercise as many as ten colts at a time. In order to do this he affixes a pole to the rear of the waggon, takes off the shafts, and to the end of the pole aforesaid adds a heavy cross-tree with wheels at either end and having shafts for the attachment of five horses on each side of its centre part. It is the intention of the inventor to arrange for the supply of one of these machines to every track in the country.

MAGIC LANTERNS.

THE magic lantern is classed by the British Government at the Patent Office under the heading of "Toys," an act which might have been justified some years ago, but of late it has become a potent instrument in original scientific research, and for educational purposes. It is tending more and more to abolish the use of diagrams at universities and scientific institutions, and photographic departments for the production of lantern slides for teaching purposes are becoming regular appendages to high class scientific educational establishments. Consequently, within the last few years the instruments have increased in complexity and usefulness, so that in the construction of some of the best of them the highest skill of the mathematician and the working optician has been called into requisition, nor does it appear to be likely the present rate of advance will tend to decline for some years to come.

The popular toy of our younger days has a somewhat lively history, especially in the sensation created when it was first used to produce phantasmagorical effects. It may be of interest to mention that the first patent taken out in England relating to the magic lantern was in 1800, by the late Mr. Willoughby Smith, the electrician.

As time passed on the optical system of the lantern was gradually improved, but the Argand lamp had not been invented, the lime-light was unknown, so the illumination must have been poor. "Towards the close of the eighteenth century, Dr. Gravesande, a Dutch man of science, described a magic lantern containing a four-wick lamp. The oil from the lamp traversed a horizontal pipe carrying the wicks. The flames were made up of four little flames, which, by touching one another, made one square flame 2in. wide." A concave reflector behind increased the illumination. This lantern had a 5in. double convex condenser. The objective consisted of two double convex lenses; the diameter of the one next the light was 3½in., and was of considerable convexity. The front lens of the combination was smaller and flatter, and was placed 3in. from its neighbor. There was a diaphragm between the lenses, and the information was published that unless the diaphragm "be just where the rays intersect, it does a great deal of mischief."

Five years after this, in the year 1789, Argand invented his lamp. Before this date the optical lantern was necessarily an imperfect kind of instrument, unless sunlight were used as an illuminant. The solar microscope was invented by Nathaniel Lieberkuhn, of Berlin, in 1738." The influence upon the public mind of the advent of phantasmagorical effects in London may be gathered from the following extract from *Chambers's Journal* of April 28, 1849: "In 1802, a French gentleman, a M. Philipstahl, astonished crowds of people in London by an optical exhibition, which he entitled Phantasmagoria. It was a soul-appalling spectacle to those who had hitherto been ignorant of the wonders of light and shade. The spectery was a room where no light but that of a small oil lamp, hanging in the center, was admitted. On the assembling of the audience, this lamp was drawn up into a chimney, and a pitchy gloom overspread the place. Presently mournful notes of music were heard, and a curtain rose displaying a cavern, on the frowning walls of which were depicted skeletons and spectral figures. The music ceased, the rumbling of thunder was heard in the distance. Gradually it became louder, until at length vivid flashes of lightning, accompanied with peals apparently of the deep toned organ of the skies, gave all the impressions of a tremendous storm. The thunder and lightning continued at their height, when suddenly a small cloud of light appeared in the air; it gradually increased in size, until at length it stood revealed a ghastly spectro around whom the lightning gleamed in fearful reality. Its eyes moved agonizously from side to side, or now turned up in the sunken eye socket, the image of unutterable despair. Away, back to the dim abyss from whence it came it was seen swiftly to retire, and finally vanished in a little cloud, the storm rolling away at the same time. Then came other phantasms, some of which rushed up with apparently amazing rapidity, approaching the spectators, and again as rapidly receding, to return clothed with flesh and blood, or in the form of some well-known public personages. After a display of a number of similar apparitions, the curtain fell."

These phantasmagorical effects are produced by means of two or more lanterns and a translucent screen, preferably wetted if it be made of linen. From the front, for instance, a picture of a forest scene is projected, with a cave with a dark entrance in the middle. The dark entrance to the cave is practically an unilluminated part of the screen adapted to the reception of other magic lantern views, which in this case are projected from behind. An ogre is projected by a lantern running upon rails at right angles to the screen; the farther the lantern from the screen the bigger the ogre gets, but the focus of the projection lens has to be gradually changed in the running. In the old times the operators did not trouble about rails; they merely tucked a hot oil lamp lantern under one arm, and, walking towards the screen, altered the focus with their fingers.—*London Engineer.*

NICKLE MINES AND MINING.

The remarkable developments of the nickel mining industry in Canada is one of the marvels in the recent history of mining. In 1889 there was but one company producing in the Sudbury district, and in the following year the output exceeded 1,000,000 pounds of nickel, surpassing the output of the famous mines of New Caledonia. With these two deposits of nickel, both of which are of vast extent and contain ore of high grade, there is evidently no danger that the demand for nickel will outstrip the supply, although consumption of the metal is increasing enormously. During the past year this has been particularly marked, a large amount of nickel having been purchased for the manufacture of nickel steel, both in the United States and Europe. A large proportion of the world's production of nickel has been absorbed in this way.

At the same time the demand for nickel from other channels of consumption, such as nickel-plating and the manufacture of German silver and various alloys, has undergone considerable expansion, and bids fair to increase still further, as several new alloys, of which nickel is an important constituent, and which promise to be of considerable use in the arts, have been invented during the past year. This and the fact that the United States Government has definitely decided upon the adoption of nickel steel for the armor of the new cruisers and battle-ships insures a very large consumption of the metal next year. In view of this the *Societe du Nickel* and the Canadian companies have all been increasing their smelting plants, and the supply of ore being very large, the supply of the metal is limited by the capacity of these works only.

The United States, which formerly led the world in the production of nickel, has dropped to third place since the opening of the Canadian and New Caledonian fields, and for several years its production has been steadily diminishing owing to the exhaustion of the famous old Lancaster Gap mine. This has been the only important producer of nickel in this country, and, although deposits of the ore which have been considered promising, have been discovered in several places, nothing has come of them so far. Oregon and Nevada are perhaps the most promising localities, nickel silicate ore having been discovered at Riddles in the former state, and nickel-cobalt sulphide in Churchill county in the latter. Nothing of consequence has been done at the Oregon mines during the past two years, and those of Nevada were also long idle. Last spring, however, one of them was purchased by an Anglo-American company which has done some development work since then; a considerable quantity of ore has already been taken out, we are informed, which it is thought will assay well, but none has been shipped yet. The results of this enterprise will be watched with interest. It seems very doubtful, however, from the present outlook, whether either the Oregon or Nevada mines will ever replace the Lancaster Gap. The only other producers of nickel in the United States are the Mine La Motte and St. Joseph Lead Co., whose lead ore contains a small amount of nickel and cobalt-bearing pyrites, which is saved as a by-product, but the production from this sort is insignificant.—*Engineering and Mining Journal.*

THE DISTRIBUTION OF PIG-IRON INDUSTRIES.

The pig-iron industry of the United States has made rapid headway in the last decade. The conditions of supply and demand have been in touch with the development of the country. This has been the thermometer of production, inside the lines of home requirements. The opening of foreign markets will add to the demands on production, and the probabilities of the future development of this important industry has been the popular theme of our iron prophets. Among these we find Abram S. Howitt as President of the American Institute of Mining Engineers, thus fore-

casting the development of the iron industry. He says: "I think it safe to estimate that in 1900 the world will require 35,000,000 gross tons of iron, of which the United States must supply 45 per cent, and the other iron-producing countries the remainder, in the proportion of half to Great Britain and half to Germany, France, Belgium and the other smaller producers." This prediction indicates a production in the United States of some 15,750,000 gross tons in the year 1900. This is supplemented by a calculation made along the same line of probabilities by Edward Atkinson, the eminent economist and statistician, who says: "If this increasing demand should continue, the supply must be 10 per cent. in excess of that which now prevails. The supply in 1900 must be 50,000,000 gross tons. Who will supply it?"

This future output, as estimated by even these eminent men, may probably be exaggerated, but within reasonable limits there can be no question as to the increasing development of the pig-iron industry, with its cognate departments of labor, as in ore and coal mining, coking and other tributary branches of industry.

It is a fact worthy of note that the ratio of production and population are not in coincidence. In the census report of 1860, one ton of pig-iron was produced for about every thirty-two inhabitants; in 1870, one for every thirty-one inhabitants; in 1880, one for every fifteen inhabitants, and in 1890 one ton for every seven and one-third of the population.

In the location of production, the New England States in 1860 made one ton of pig-iron for every 118 inhabitants, and the like quantity for each 156 of its population in 1890. The Middle States, in 1860, produced one ton for every eleven inhabitants, and in 1890, an equivalent to one ton to every two and three-quarters inhabitants. The Southern States, in 1860, produced one ton for every ninety-nine inhabitants, and in 1890 the same amount for every ten and one-quarter inhabitants. In the Western States, the production in 1860 tallied as one ton for every seventy inhabitants, and in 1890 one ton to every twelve and two-thirds inhabitants.

The future centres of this industry are as yet undetermined. There are many possible and qualifying conditions, not as yet in the line of calculation or forecast. The science of mining is not yet at its best, the transport of ore and fuel has a wide margin for new and cheaper methods, and the process of manufacture may yet be quadrupled in efficiency and science. These possibilities will considerably affect the question of proximity between material and markets as determining the centre of the pig-iron industry. The future sites of manufacture are to be determined by the possibilities and conditions named. The iron industries in Pennsylvania, New York and the Lake region, with the South and the West in the field, and Canada a potent factor in production, will each and all be contributory to the general result, with a permanence of demand insured all round, but with a doubt as to whether any one section or State will so lead the rest as to dictate prices or monopolize trade.—*Age of Steel.*

CHANGES IN FACTORIES.

I suppose there are very few persons who are familiar with the compilations of statistics who have not reached a condition of very profound distrust of the deductions which may be drawn from great averages covering very wide areas and very different conditions, even in respect to the same product. The trained and permanent employees in a continuous bureau would qualify the great averages by comparing them year by year with typical establishments and by ascertaining the relative conditions of different parts of the country wherein the same branch of industry may be undertaken.

To illustrate, there is one cotton factory in New England which has been operated for more than fifty years upon the same fabric, working the same grade of cotton, under the same conditions except so far as those conditions have been changed year in the progress of discovery and invention. That corporation has never failed, has rarely, if ever, reduced its product, has been continuously profitable, and may therefore be taken as a typical establishment working on that standard grade of goods.

From the books of that concern it is proved conclusively that in the course of fifty years it has been necessary to change the entire machinery of the factory, even though it might not have been worn out, two to four times, according to its kind; second, there is but a part of the outer walls left and one or two floors of the original building; third, the whole motive power has been changed; fourth, the average capacity of each operative in the factory has been increased in productive power from 5,000 yards per year, produced in thirteen hours per day, to 30,000 yards per year, produced in ten hours per day.

The earnings of those who now work in that factory ten hours are nearly twice as much per day as the earnings of those who worked on the lesser product thirteen hours each day under the former conditions, and are more than double per hour, while the price of the cloth on the same cost of cotton is much less to the consumer now than it was then. By that single typical standard the progress of that branch of textile manufacture may be measured more accurately than by any possible compilations of figures covering the whole country, however correctly they may be averaged.—*Engineering Magazine*.

STIMULATING HOME INDUSTRIES.

A VERY cheap effort is being made by the free-trade element, which is now the working power in the Democratic party, to spread the belief that there is to be a sharp rise in prices, and consequent suffering here in America, because of the passage of the McKinley Bill.

This is misrepresentation in several ways. Slight advances are hailed as burdensome, while in fact, if there were no campaign, the same papers would exploit exactly the same facts as proofs of business improvement; and a good many advances are purely imaginary, mere inventions to deceive. Everybody who buys anything knows that phenomenal cheapness prevails in almost every line.

But, suppose the McKinley Bill did advance prices so as to cost each person a few dollars a year more to live. Wouldn't it be better to pay a little more and have something to pay with, than to have prices still lower and by lack of work be unable to buy? And the McKinley Bill means work at home and lots of it.

Take some cases that the *Courant* is able to give as facts. A great concern in Scotland has been in the habit of selling immense quantities of Scotch gingham in this country, having its travelling salesmen at work here all the while. This year the concern has taken orders as usual, and, seeing what was coming, the management some time ago secured mills in and about Philadelphia, set up the machinery there, and is now filling those orders already taken with Scotch Ginghams made in the United States. They are sold by the same people to the same customers as the same goods; the only difference is that their manufacture is conducted here, and all the benefits that come from such a factory accrue to America and not to Scotland.

Another. A leading New York importer appeared before the Ways and Means Committee to fight the bill and was beaten. After he had been back at his office a little while one of the foreign manufacturers of fine velvets, whose goods he sells extensively, called upon him. The importer prepared himself for a talk on the Bill and an explanation of his defeat, but the foreigner passed that matter all by in a word and said that what he had come to discuss now was not the Bill but the plan he entertained of putting up a large mill in the United States, and he decided to build it.

An English manufacturer of fine hosiery and knit goods went to Washington and cast his influence for a higher tariff, and explained that, if it were adopted, he should build a mill here and become an American manufacturer.

Sunday's *New York Sun* says:

"A lot of English, Scotch, Irish and Frenchmen are running about this country now looking for favorable sites on which to erect mills and factories where linen's, hosiery and woollen dress goods can be made. They are hunting, too, for mills that have been shut down, or they are willing to purchase an interest in American mills where these goods are manufactured. They are the agents of the owners of mills in Europe, which have for years been supplying the American market with all the fine linen consumed here, and with stacks and stacks of woollen dress goods and hosiery that have been sold by the American storekeepers. The new tariff is responsible for the agents' raid. The new rates of duty on the product of the European looms threaten to ruin their trade with America, and just as a matter of self-defence they are going to move over here and manufacture their goods. They won't shut up their European mills, but none of the product of those mills will be put on our counters."

All this means busy times. There is all the work of preparation which makes demands upon hundreds of industries, and then there will be the work of the new concerns when established, their employes to feed and clothe, etc. Business activity creates activity. The new tariff hasn't deprived us of goods. It has simply given a lively impetus to their manufacture at home, and unless all signs fail we stand at the beginning of a period of business progress that the whole country would hail with enthusiasm, if it were not election time.—*Hartford Courant*.

A SEAM of natural coke, closely resembling the manufactured article, has recently been discovered in New South Wales at the Bulli Pass coal mines. The coal measure at this point covers an area of about 550 acres and is six feet in thickness. The upper half of this seam is coal of a character differing but little from the ordinary Australian coals, while the lower portion of the measure is a natural coke. The junction of the coal and coke is clearly defined and can be traced all through the workings. This natural coke is slightly heavier than the manufactured article, contains slightly less fixed carbon, but a much smaller quantity of ash and a lower percentage of sulphur. It is stated that it burns without smoke and can be mined for much less than the cost of manufactured coke.—*Coal Trade Journal*.

MESSRS. CONNER & ANDERSON, manufacturers of presses and dies, and all kinds of special machinery, 39 Adelaide Street West, Toronto, display a letter in their advertising space which they received from Mr. J. O. Thorn, managing director of the Metallic Roofing Company, of Toronto, regarding the excellence of a set of dies made for him by Messrs. Conner and Anderson. These dies are for forming the metal sheets manufactured by the Roofing Company, and Mr. Thorn's testimony is that they perform in one operation what no American made dies would do in less than two, and that they give "entire satisfaction." This is saying a great deal for this enterprising Canadian firm. They have similar letters from other manufacturers for whom dies have been made which bear equally high testimony to the excellence and efficiency of the work turned out by Messrs. Conner & Anderson.

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File Business—Very cheap—everything required to run it on hand—will sell at half cost. Present owner not understanding the business. Address,

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On Saturday, February 13, 1892, at 1 o'clock p.m. will be sold by Public Auction on the premises, in the town of Berlin, Ont., the valuable four story, brick Factory Property, with two 30 H. P. Boilers and a Goldie & McCulloch 20 H. P. Engine. Lately occupied by J. E. McGarvin & Co., trunk makers.

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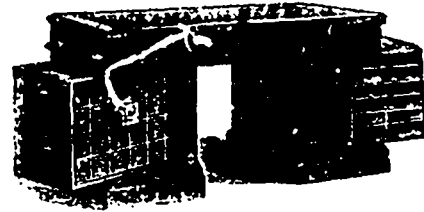
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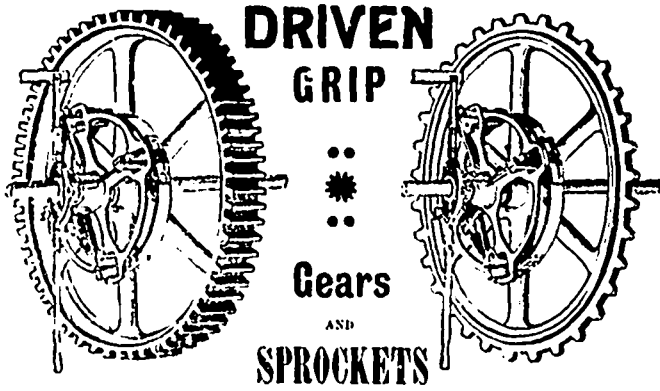
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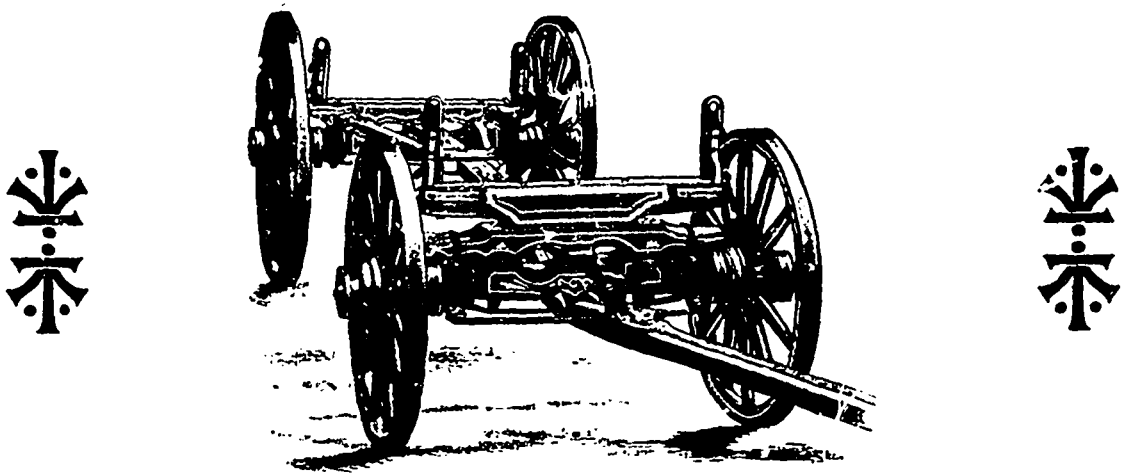
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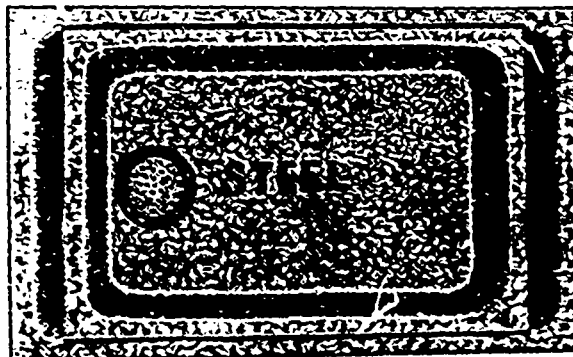
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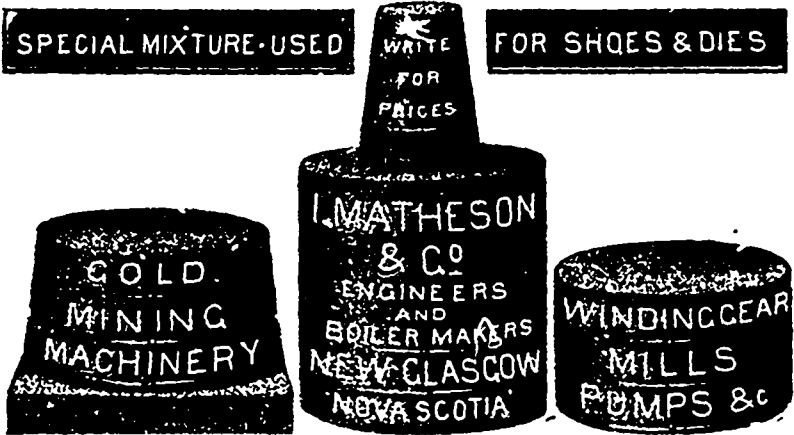
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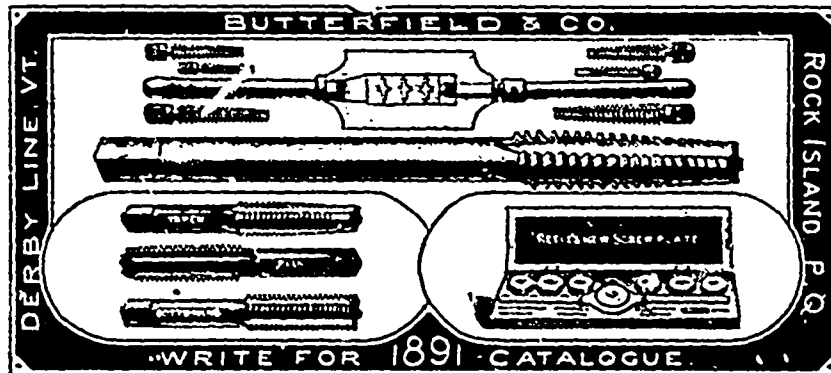
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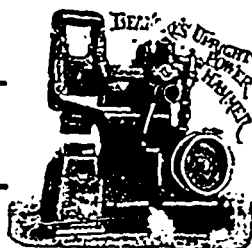
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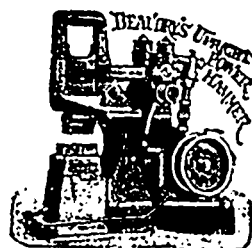




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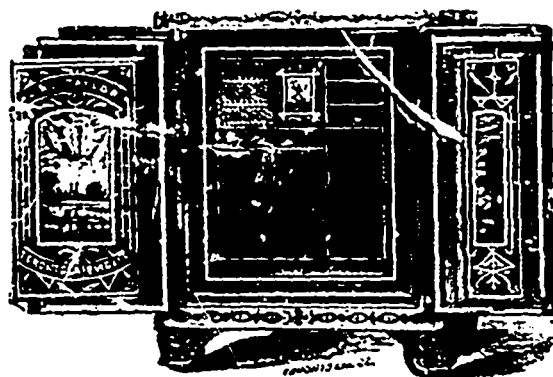


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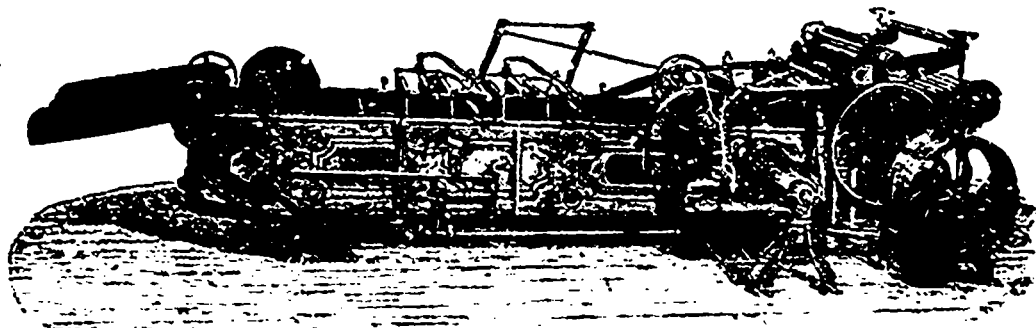
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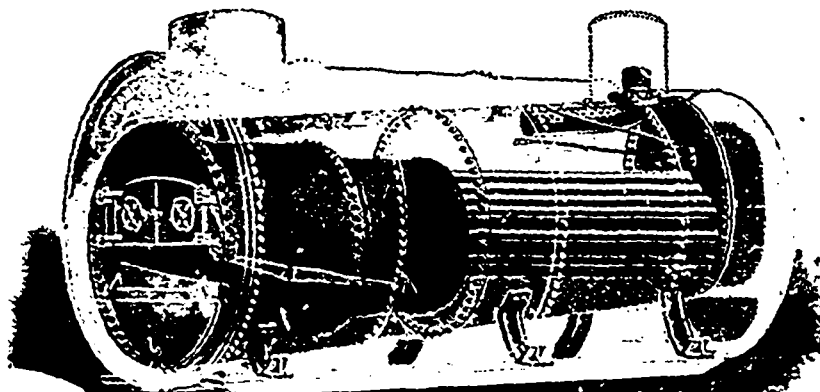
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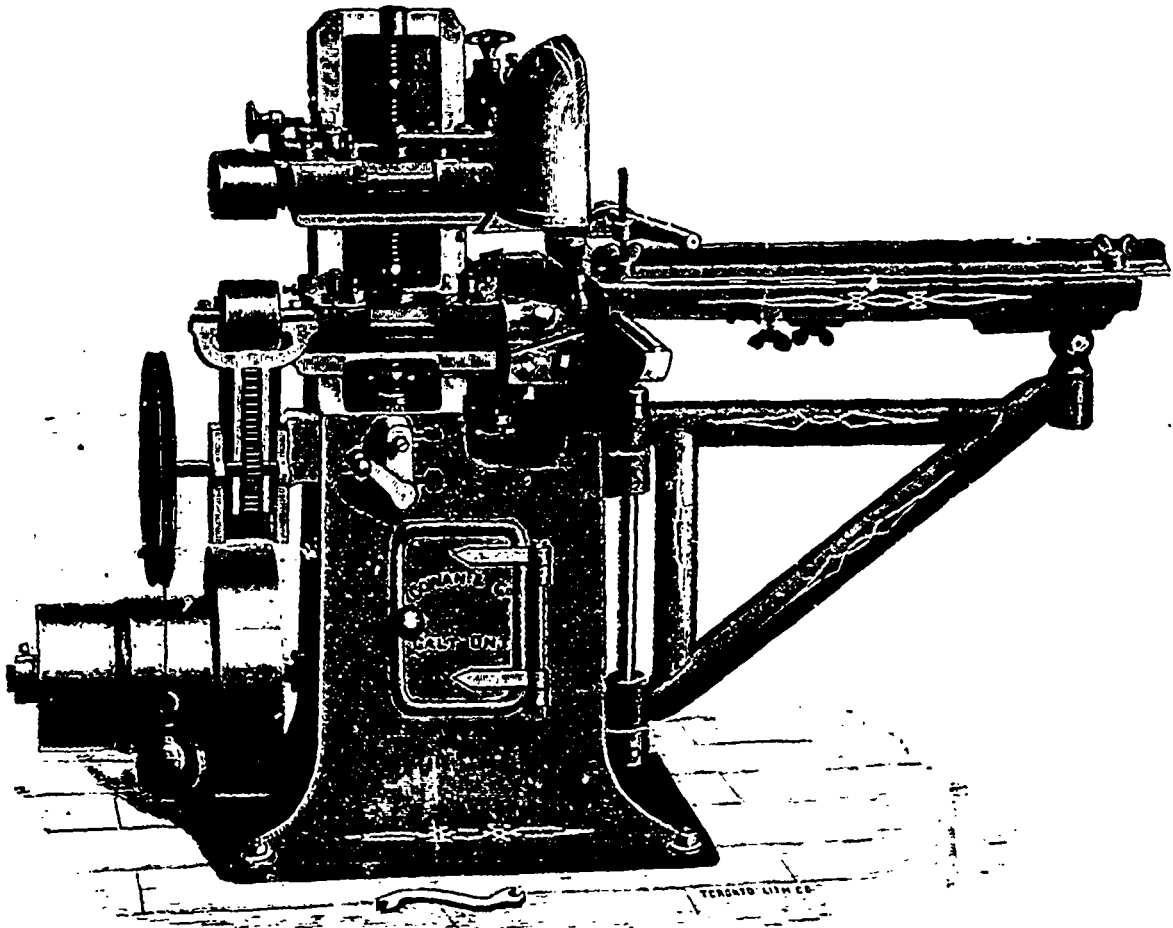
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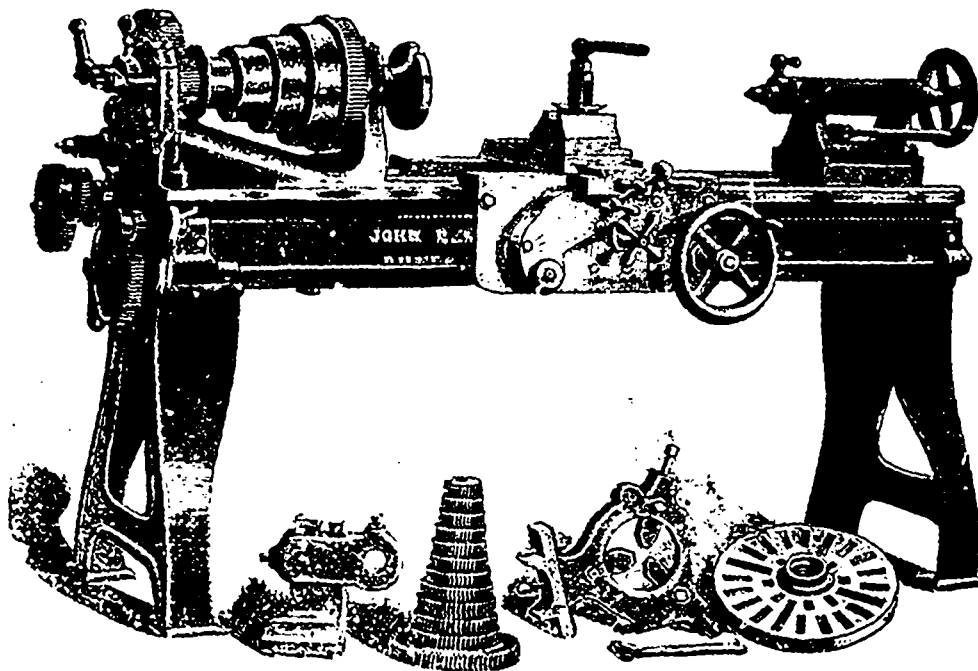
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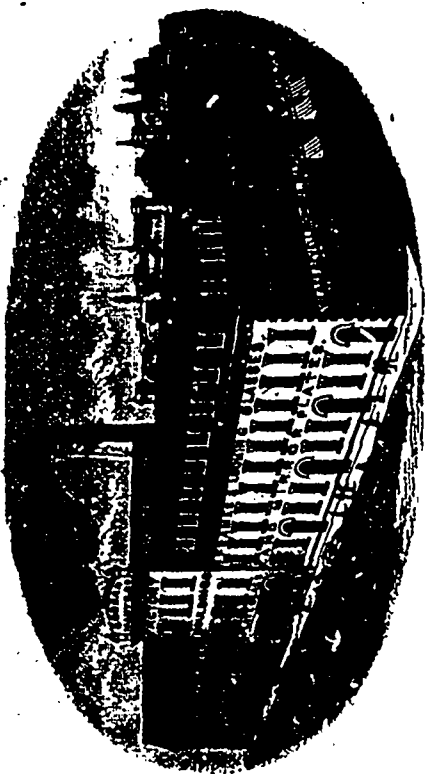
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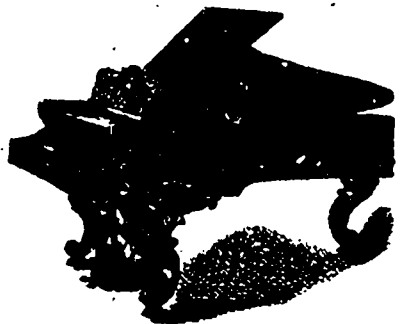


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