working well in both Quebec and Ontario. Not a single petition in favour of changing back again to the old system was presented to Parliament. Not a single public meeting was held to demand it, nor did any deputations wait upon Ministers for that purpose. These two Provinces—Quebec and Ontario—were well satisfied with the law as it then stood. But there was no organization to give voice to the popular feeling, and a change, of which it is safe to say that not one fourth of the people approved of it, was carried out. With the Association of 1858 in existence, and a few public meetings in Montreal, Toronto and other places, Parliament would have hesitated ere destroying the good work of eight years before. But in the public mind the importance of Confederation appeared to overshadow everything else; there was no organization capable of acting in the emergency, and the case for home manufactures was, as we may say, allowed to go by default. Through this grand mistake the country has lost millions upon millions, and its progress has been delayed. The change of 1866 was followed by a loss of confidence, which is only now in course of being regained. To recall this passage in our history is really no reflection on the Government of that day, after all, for in 1866 our statesmen did not feel behind them enough strength of Canadian public opinion to resist the enormous pressure from the Mother Country in favour of Free Trade. Since 1866 we have changed all that, and if we fail to maintain a Canadian policy for Canada it will be our own fault.

The great work of the Canadian Industrial Association in 1858, and the lamentable consequences from the want of such an organization in 1865 and 1866, carry to us a lesson which should not be forgotten. No such great internal change as Confederation is likely to occupy our attention for a long time to come, but there may be external changes that will imperatively demand it. The fishery stipulations of the Treaty of Washington will expire by effluxion of time in a year or two, and, in order to prevent dangerous complications down by the sea, it is absolutely necessary that new arrangements be made. The Imperial Government, we may be perfectly certain, will exert the very strongest pressure it can bring to bear in favour of Free Trade or Reciprocity of some kind. But even what the Imperial Government may do is not what will most urgently require watching. Pressure from high financial and commercial quarters, exercised in ways the particulars of which are not published in the newspapers or embodied in Parliamentary documents, is really the most potent influence against which we will have to guard. Now, let not Canadian manufacturers be deceived, or go to sleep on this subject: if they do fall asleep on it there is a rough and rude awakening in store for them. Here are two things to be kept in view, things that will certainly come to pass within two years. First, that another fishery treaty will have to be negotiated—this must be done. And, second, that the Americans will take occasion there and then to press for the reduction or abolition of our duties on their manufactured goods, as the condition of admitting to their markets our raw produce. This view of the proper relations of the two countries was laid down very positively by the late Mr. HATCH, of Buffalo, in his official reports to the American Government on the working of the Reciprocity Treaty; and it is still firmly held by every Board of Trade in the United States, from Boston and New York to the Mississippi. We hold it to be the wrong view entirely, but that is not the point now; what we have to consider is that it will certainly be pressed by our neighbours. They will not lower their tariff to admit our manufactures, but they will say, "send us Canadian raw produce, and take American manufactures in exchange." That is their idea of what would be fair between the two countries. It is ominous to reflect that on this particular question the whole weight of British influence—the political influence of Downing street, and the financial influence of "the City" of London—will certainly be thrown on the side of the United States and against Canada. We need not conjecture whether this is likely to be so; we may assure ourselves beforehand that it will and must be so.

Now, to recapitulate—a great emergency is in prospect, to meet it we must have live Manufacturers' Associations, wide-awake and in running order. To have local head-quarters at Toronto and Montreal, also at Halifax or St. John, is a natural and necessary division of the work. But even without the emergency referred to, perpetual organization is the price that Canadian manufacturers must pay for safety against disturbance. The principle of our commercial legislation may be settled, but practical questions as to its application will always be turning up. Our methods of manufacture and business being the same as the American, our business men must organize themselves as they do over the border, or suffer the penalty of falling behind, and being caught at a disadvantage some of these days. We cannot afford to run the risk; let us hope that our manufacturers, both East and West, will keep themselves prepared accordingly.

MOTIVE POWER IN FACTORIES.

(BY G. C. ROBB, TORONTO.)

Manufacturers are not usually so careful as they should be with regard to the motive power of their factories. They can understand the sources of loss and waste in the products of their machinery, and take special pains to reduce these to a minimum, at the same time that, through defects, often unknown and unsuspected, in the motive power, much greater loss is daily incurred.

Steam and water power are the most common means of driving the machinery in factories and mills, and some argue that water power is both better and more economical than steam. It has happened that the interest on the money spent on the mill dam and water channels came to more than the cost of fuel for a steam engine of the same power as the water wheel. Sometimes a steam engine and a water wheel are coupled together to drive the same shafting, and it is not easy to adjust them so that each will take a fair share of the work. An arrangement of this kind was tested, when it was found that the water wheel was being driven by the engine, and the stoppage of the wheel reduced the coal bill.

An escape of water from the mill dam is at once recognized as a waste of power, and every effort will be made to stop it as the elevated position of the water is the source of the power of the water wheel. Heat, the source of power in the steam engine, is not so easily held in as water, but is ready to escape in all directions, and its escape is just as positive a loss of power as the flow of water from the mill dam. Steam is a