

IRON PRODUCTION IN CANADA.

The following is the memorial to the Finance Minister, the subject of iron production in Canada presented Tuesday, 11th Nov. S. L. Tully, K.C.M.G., etc., Minister of Finance.

The undersigned members of the House of Commons, beg respectfully to address you on the subject of iron production in Canada, and the means to be adopted for establishing this industry on a large scale on a permanent basis, as an important element in building up of the future strength and greatness of the Dominion. While recognizing the great benefit which the National Policy of the Government has even already conferred upon the country, and the still greater mass of good results which it is bound to bring about in time to come, we are nevertheless, deeply impressed with the conviction that the work of beneficial, patriotic legislation, now so begun, requires to be carried still further, and that more is yet necessary to complete it. In the production of iron Canada has already made good progress, and under the new policy is progressing more rapidly than ever before. But in the production of iron itself, from the ore, and of wrought iron from pig iron, we have as yet made only small beginnings. The experience gained in these small beginnings is too scanty to draw, that something important is yet lacking, to wit—the extension of the National Policy so as to bring within its vivifying influence production as well as the manufacture of iron. And we are hopeful enough to believe that from the Government which has so signally benefited the country by establishment of this new policy, and particularly by your own efforts, as the Minister who from official position chiefly to do with such matters, the proper measures in view to this end may reasonably be expected.

The magnitude and importance of the advantages to manufacturing countries may be had from the following figures:—

Table showing large and value of pig iron produced in the countries named in the year 1877. Columns include Country, Tons, and Value.

In 1878 the production of pig iron in Great Britain was 6,381,051 tons; and in 1879 6,995,337 tons. The average of the last ten years is about six million tons. We may compare Canada with Belgium, which has about the same population as our four millions. The area above shows, with all our vast natural resources and extent of territory, we are behind the little Belgium in the production of iron.

Total imports into Canada of iron and manufactures from 1870 to 1879—1870-71 to 1879-80—

Table showing total imports into Canada of iron and manufactures from 1870 to 1879. Columns include Year, Tons, and Value.

This large amount, of ten years importation was made up under—

Table showing the breakdown of iron and manufactures imports: Machinery, hardware and iron manufactures generally; Lumber, etc., for railways, iron and steel; and other.

It will be seen that for the last ten years the imports of iron, steel and railway iron and steel averaged seven million dollars per annum, and of machinery, general hardware and other iron manufactures, five and a half millions more; or a total average of twelve and a half millions. The question may be considered, whether a greater part of this seventy millions worth might not have been produced at home, instead of being imported from abroad, all this vast amount of money being out of the country to pay for it. But what a gain to the Dominion it would have been had we produced at home only the half of this consumption of seventy millions worth.

What the above figures show may be put in another way thus: Our average import of iron manufactures generally, including machinery, hardware, and such like, is \$3,500,000 per annum. Our imports of the direct products of the smelting furnace and the rolling mill in the shape of pig iron, bar iron, steel, railway iron, etc., average \$7,000,000. What is wanted is something to give a Canadian production of the latter as well as the former.

We may assume that it is not necessary here to cite figures and statements, from recognized authorities, to prove the fact that there are in the Dominion vast treasures of iron ore in great variety, of superior quality, and in quantity practically inexhaustible. It may be taken for granted that yourself and colleagues are well enough aware that in Canada we have iron enough in its natural state, and that there is no question as to the existence of the raw material of excellent quality and unlimited supply within our borders. Nor is there any question either of the fact that some of our most extensive iron deposits are in localities very convenient of access and very favorably situated as regards facilities of transportation. What does appear to be the practical question is, however, the topographical relation of these iron deposits to available supplies of fuel for smelting furnaces and rolling mills. The different kinds of coal used in iron making are these:—bituminous coal and coke, anthracite coal and wood charcoal. From bituminous coal and coke nearly the whole of Great Britain's immense production of iron is made, while charcoal is used in various countries, and anthracite only in the United States, to any extent worth mentioning. East of Lake Superior our coal deposits, as far as known, are all in the Province of Nova Scotia; but within that comparatively small area there are inex-

haustible supplies, of bituminous coal only. Anthracite we might bring from Eastern Pennsylvania, but in our view the effort should be made to develop iron production as far as possible from our own resources entirely. Bituminous coal we have in quantity sufficient; but a main point to be determined is, how best to bring it and the ore together. There are in Nova Scotia considerable deposits of iron ore, lying near to the coal, and there the convenience of the two, each to the other, is not in question. If, however, coal is to be used in connection with the iron deposits in other provinces then the question as to convenience and cost of transportation becomes a practical one. On this point we would suggest that coke, made at the pit's mouth in Nova Scotia, might be cheaply delivered in Quebec and Ontario, at or near the various localities where the principal deposits of iron ore, as far as known, are found. On the Intercolonial and other main lines of railway there are always long trains of empty cars going west, which might just as well as not carry coke to furnaces and rolling mills in Quebec and Ontario, though of course facilities for cheap transportation by water are not to be lost sight of. Coke would be a comparatively clean, light and easily handled, freight, and its transportation westwards, in cars which would otherwise go empty, should not cost much. With a view to the development of an important inter-provincial trade, which would be of large benefit, both to coal mining down by the sea and to iron production along the line of the St. Lawrence and the lakes, the Government might reasonably grant the best facilities and the lowest rates practicable on the Intercolonial Railway. As bituminous coal must be made into coke before being used in the smelting furnace, and as by taking coke from the pit's mouth an enormous saving in weight to be carried would be effected, the advantages of this plan are obvious enough. The supposed disadvantages of having to carry fuel long distances would in fact be reduced one-half or more, by the simple plan of carrying the light, clean, and easily handled coke instead of the heavy natural coal. This relates to fuel for smelting furnaces only; soft or bituminous coal in its natural state being the fuel used in rolling mills, or in the making of bar iron.

With regard to the carrying of coal to the ore, and of ore to the coal, a very general and serious misapprehension prevails. Because in Great Britain and the United States most of the old iron mines and furnaces which have long been worked are in the immediate vicinity of coal deposits, it is popularly supposed that all furnaces are supplied with both ore and coal native to the spot, and that without having the two lying together iron-making cannot profitably be carried on. A few facts will show that while the bulk of the iron production of these countries is from districts where coal and ore are found near together there is in both, but in the United States especially, a large production from furnaces which are supplied with coal or iron ore, or with both, brought from long distances. Great Britain imports large quantities of iron ore from Norway, Spain, Northern Africa, and other places. The quantity of iron ore smelted in Great Britain in 1879 was 15,797,000 tons, and of this 1,417,343 tons, or nearly 10 per cent., was imported from abroad. And the import of iron ore from foreign countries into the United States is now about six hundred thousand tons annually, valued at about a million and a half of dollars. Ore from the Lake Superior region, on the American side, is carried several hundreds of miles to furnaces in Ohio and Pennsylvania; Canadian ore, from the Ottawa district and the county of Hastings, is carried all the way to Crown Point and Troy, in Eastern New York, to the State of New Jersey, to Cleveland, to Pittsburg, and other points even further distant. It is just as easy to carry the coal to the ore as the ore to the coal; nay, easier, we should say, if the plan of first reducing the coal to coke be adopted.

In the Maritime Provinces whatever iron deposits there may be, have the coal so near at hand that there the convenience of the supply is not at all in question. In Quebec and Ontario, however, the cost of bringing coal or coke, as we suggest, from Nova Scotia will always be an important element in the problem of iron-making. Either soft coal in its natural state, or the coke made from it, must be fuel for furnaces and rolling-mills, with which a large proportion of Canadian iron is made, if an iron-making country Canada is to be. But the problem of iron-making in Canada is not wholly dependent for its solution upon the supply of mineral coal from any source. There might and should be a very large production of Canadian iron from charcoal, the material for which exists in superfluous, overwhelming abundance in "this wooden country." It so happens that the principal Quebec and Ontario mines, as far as discovered, are situated close beside inexhaustible supplies of waste timber, which is positively of no commercial value whatever, except for the single purpose of making charcoal for iron furnaces. In connection with the increasing demand for charcoal iron, the importance of this circumstance can hardly be over-estimated. Every year the use of iron is extending; every year it is being taken for new uses; and it is a remarkable fact that for these new uses the prevailing demand is for iron of great strength and superior quality, capable of standing heavy and long continued strains. In shipbuilding, in iron bridges, and for many special railway requirements, charcoal iron or other iron approaching it in quality is in increasing demand, and the demand is sure to keep increasing very largely in time to come. Still more remarkably increased would the demand for this kind of iron be, should the time come when Governments, with a view to public safety, shall insist upon the use of the best iron only in permanent constructions of all kinds, as well as in railway rolling stock. In all parts of the same where the use of inferior iron might put life and property in danger. That legislation will more and more take this direction in time to come is certain, and equally certain is it that an increasing demand for high-class iron will be the consequence. In strength and resistance to strain and shock charcoal iron is before all other, and therefore its greatly extended use in time to come is a moral certainty. The bearing of all this on Canada's unequalled facilities for the production of the best charcoal iron, in large quantity, is obvious at a glance. As an exaggerated idea of the importance of anthracite as an iron making fuel appears to prevail with some

people, it may be well to note the fact that in the United States the proportion of anthracite furnaces is decreasing, while the proportion of bituminous coal and charcoal furnaces is on the increase. The New York Iron Age, a good authority, gives the following figures, showing the number of furnaces of each kind in blast on the 1st of January, in the years 1880 and 1881, respectively:—

Table comparing charcoal and bituminous furnaces in 1880 and 1881. Columns include Charcoal, Anthracite, Bituminous, and Total.

In connection with the statement from which these figures are taken, the remarks of the Iron Age are suggestive. "It will be seen," says this excellent authority, "that the number of charcoal and bituminous furnaces in blast this year is greater than at any time within six years, while the number of anthracite furnaces is less this year than last. One of the most marked features of this report is the large number of charcoal furnaces reported in blast. This (the month of January) is usually the season when these furnaces blow out for repairs, or in accordance with a belief that short blasts are better for charcoal furnaces. This year is an exception to the rule. The chief reason for this is doubtless to be found in the heavy demand for cold-blast charcoal iron, arising from large orders for our wheels made from it.

We come here to a point where there are two things to be put together. First, it is shown that the demand for charcoal iron is sure to be a rapidly increasing one. Next, we have the fact that no country in the world can match Canada in natural facilities for the production of charcoal iron. No other iron mines on the face of the globe have such a vast, inexhaustible background of charcoal timber supply behind them as ours. Already, in Sweden and Norway, the supply of charcoal timber is insufficient, and there being no other fuel for the purpose in the country, in order to save the industry from extinction, the Government has interfered to limit the annual make of iron. Other countries, Spain and Algeria, for instance, have iron ore in great quantity, but neither timber nor any other fuel. The inference is clear that Canada needs but to take the right course to become the greatest charcoal iron producing country in the world. While this should be held established, it leaves untouched the certainty of another fact, that we have within our own borders, and independent of any foreign supply whatever, the material for a production besides of iron from bituminous coal and coke, in quantity to be limited only by the demand for it.

The estimate is made by experts that a blast furnace producing 100 gross tons of iron per day would employ 60 men, at an average of \$1.25 per day wages. This would give:—

Table showing wages and value of product per annum for a rolling mill making 100 gross tons per day.

Such estimates as the above may be extended to the various products of iron, through successive stages of manufacture, showing an immense expansion of work and wages for the industrial classes, and the building up of the country's strength, both moral and material.

The high average of wages paid for labor, in connection with smelting furnaces and rolling mills, and the attraction which such employment would have in the way, both of retaining our own population and bringing in more, is a consideration that may well engage the attention of our statesmen. In actual results, no other immigration policy whatever can equal that of providing the powerful attraction of ready work and good wages, to bring in new arrivals, and to retain those who are already here. Create the work and the wages, and to the place where these are, people will flock of themselves, if no disagreeable circumstances forbid. Even very high wages might not suffice to draw English, Irish and Scotch emigrants or emigrants from anywhere in Europe, north of the Alps, to anywhere in America south of the Potomac, and to keep them there. But in Canada, if only plenty of work at fair wages be secured them, emigrants from anywhere in Northern or Central Europe find themselves at home and contented at once. Not only as a means of increasing population, but also of developing a back-bone of material strength for the Dominion, the importance of making iron for ourselves, in our own country, and from home materials, cannot be overrated. Not alone the labour directly employed in iron-production, but the employment which this industry creates for various interests outside, should be considered. Take for instance one item, the gain to railways and other agencies of transportation alone. Before the Committee of Ways and Means at Washington, last year, evidence was given respecting the outlay made at home by one single industry, that of the production of Bessemer steel, in connection with which the following figures were cited:—

Table showing capital invested and annual expenditure for Bessemer steel works.

Leaving out scrap iron, the Bessemer steel works created a market for the following materials, one year's supply:—

Table showing materials used in Bessemer steel works: Pig iron, Spiegeleisen, Coal and coke, Iron ore, Limestone.

The interest which railways and other transportation lines have in iron-making at home is no small matter. Making iron abroad creates business for foreign railways; making it at home creates business for our own railways. Above we see the item of eight million dollars paid in one year to American railways and vessels by the Bessemer steel works; were there no such works in America the greater part of this sum would have gone to European railways instead. In the year 1870 the American Congress imposed on Bessemer steel rails a duty of 1 1/2 cents per pound, or \$28 per gross ton. That year the American production was only 30,257 tons, and the home price \$106.75 current, or about \$94 gold per ton. In 1880, ten years after, 917,992 tons were produced in the country, and the average home price was about \$60 per ton. By the duty a large

American production, which otherwise would not have existed at all, has been created through this American production being added to the English production the price of steel rails has been reduced our half. In this case protection has had the effect of making the article, not scarce and dear, as some contend, but abundant and cheap. It would be strange indeed if doubling the capacity of manufacture were to raise the price. The Bessemer steel works of the United States have now an aggregate producing capacity fully equal to that of the English works, and this addition to producing capacity has been wholly created by the duty.

The rise of the Bessemer steel industry in the United States, and its present magnitude and importance, are shown by the following figures:—

Table showing production of Bessemer steel ingots during nine years (1872-1880) and production of Bessemer steel rails, same period.

The Weekly Bulletin, which is published at Philadelphia by the American Iron and Steel Association, states as a certainty that, large as the Bessemer steel production of 1880 was, it will be greatly exceeded in 1881.

It is our firm belief that the way to cheap iron, by the creation of a new Canadian supply, in addition to the existing British and American supply, lies through such a measure of protection as will suffice to bring this new Canadian supply into existence. And from inquiries made we believe, further, that such a measure of protection, sufficient to create this new Canadian production of iron, would be found in the imposition of duties on the following basis, namely:—\$3.60 per ton on pig iron, with a proportionate increase on bar iron and manufactures of iron. But, while asking for this increase of duties, we do not by any means admit that there would be any permanent rise in prices to consumers in consequence. Fortified by the lessons of experience, many times repeated, we hold it certain that a new or largely increased Canadian production in the various lines of iron-making and iron manufacture would soon bring about the result of more abundant supply and lower prices than before. But without a safe and sufficient basis of protection to rest upon, it is idle to expect that capitalists will sink large amounts of money permanently in such costly fixtures as blast furnaces and rolling mills. We have spoken of some small beginnings already made in Canada, but these are only experiments as yet—experiments that may not be very long continued, unless iron making be placed on the same satisfactory footing as most branches of manufacturing industry already are in Canada. The collapse of these new enterprises would be a most undesirable result, and both at home and abroad would injure greatly the prestige of Canada's new National Policy, now in the way of being made conspicuously successful before the world. The present Government has doubtless adopted and boldly acted upon the general principle of building up home industries in the mass by means of protection, with, as we believe, the hearty support and approval of the Canadian people. And what we now ask is that the same principle be extended to the iron making as well as to the iron manufacturing and other industries. We hold that the logic of our country's position requires that we take this other step forward in the path of industrial legislation, lacking which the National Policy still remains incomplete. The present duty of \$3 per ton on pig iron merely adds so much to what the consumer has to pay for it, while it falls short of being enough to benefit him by the creation of a new Canadian production of the article, in addition to the supply from present sources. After much consideration of the subject, we come to this conclusion, that what will best suit Canada's circumstances is the imposition of the proposed increase of the duty on pig iron, with other changes to correspond. And we believe we are warranted in assuring the Government that, were the changes made which we suggest, capital for the enterprise of iron making in Canada on a large scale would be forthcoming at once, and that very soon the success of the new step forward would be established by results. Hoping that the Government may see the way clear to such legislation as is above indicated.

We remain, Your most obedient servants, JAMES DOUGLASS, Chairman.

Edward Haycock, Secretary. March 1st, 1881. Signed besides by nearly forty members of the House of Commons.

The New York Mercantile Journal furnishes the following interesting statement respecting the public debts of the United States:—"The special agent of the Census Bureau has prepared a statement of the indebtedness of all the cities of the United States which have over 7,500 inhabitants. The bonded debt of three hundred cities foots up \$684,000,000. This is an average of a little more than 2,000,000 for each, but a very large proportion of the aggregate sum is owed by a few large cities. Seventy-five New England cities own \$62.18 for each inhabitant, and the average for seventy-two cities in the Middle States is \$16.51, for thirty-eight cities in the South \$35.60, and for one hundred and fifteen Western cities \$32.28 for each resident, while the average for all is \$38.53. If to this \$684,000,000 of municipal indebtedness be added the county debts, which are estimated at \$200,000,000, the indebtedness of town and school districts \$100,000,000, and the State debts \$250,000,000, we have a total burden of \$1,234,000,000, in addition to the national debt. Such amounted on the 1st instant, in round numbers, to \$1,892,000,000. The load of debt which our people are carrying is thus upwards of three thousand and one hundred millions of dollars."