

money for our iron and steel and go on borrowing!! You are probably all aware that a Commission reported last year on the mineral resources of Ontario, and in connection therewith some information was given about this question of Iron and Steel Smelting. The report states on page 21: "The industry is of first-class importance and every proper means should be taken to secure its establishment in Ontario"; also on the same page: "It is unquestionably in a country's interest not only to smelt its own ores, but to refine and manufacture the metals, providing always that the various operations can be carried on economically and without taxing other interests indefinitely for their maintenance."

I think the few notes I have given will have shown that there certainly exists a great gap in the chain of our national development, for who will deny that iron and steel are the back bone and sinews of a nation?

The next two questions which inevitably follow are:—

1. Can we make iron and steel; have we the materials?
2. Have we market for it if made?

I shall be obliged to answer these important questions shortly, but I think satisfactorily.

I shall not allude to Nova Scotia where smelting is carried on, and where in more than one locality ore and coking coal occur at no great distance from one another. But in Ontario I have shown in the commencement of my paper that parts of the greatest iron producing ranges of the United States run into Ontario and that geologically speaking there is no question about the quantity of iron ore available. Furthermore, the considerable quantities of ore produced in the past in Eastern Ontario as instanced in a very interesting paper by Mr. T. D. Ledyard, read before the New York meeting of the American Institute of Mining Engineers last September, and many other sources, leave no room for doubt that the supply of good ore will be forthcoming in the future.

There will of course be many disappointments about individual occurrences of ore as there have been in the past, and much expensive and heavy work lies in front of those who undertake the prospecting and development of our iron ores to supply the steady demand of smelting. But this steady demand would be met, and further, on account of it, developments would be made which would prove the possibility of our supplying foreign demand if it should arise.

With regard to fuel, I may draw your attention to the facts embodied in the Mining Commission report which carry out the fact so long recognized, that there is no more favourably situated district for charcoal iron smelting in North America than Eastern Ontario. In this connection I would add that the Rathbun Company, of Deseronto, is shipping large quantities of charcoal to the United States, and it is a known fact that for a long time charcoal has been shipped from Essex to Detroit chiefly for iron smelting purposes.

With regard to coke let me briefly remark that the Illinois Steel Company at Chicago produced last year the largest output of steel rails of any firm in the United States—nearly a million tons (exact amount 925,000 tons), and we should not have to bring our coke or ore so far to the works—say at Toronto.

A new and great factor in steel making, as you all know, has recently appeared. Mr. James Riley, of Glasgow, and others showed that structural steel could be improved in quality by alloying it with from one to five per cent. of nickel, and carrying out the tests on a larger scale; recent experiments at Annapolis proved that armour plate made of steel containing nickel was superior to any other plate.

These facts and the statement in the New York *Mining Journal* in connection with the Sudbury deposits (and which my observations lead me to believe are correct) "that the Canadian mines alone could supply the whole demand in the world even if the other sources did not produce anything" give to us a new interest in this question of manufacturing steel, as well as gratifying information as to the supply of this new element which, without doubt, will enter into its composition in the future.

I shall, lastly, briefly touch on the question of market. I merely allude to home market, for what foreign demand might spring up for a superior grade of nickel steel, did we make it, I shall not attempt to predict.

The fact that I previously pointed out that a man living south of the 49th parallel has produced for him in his own country 134 times as much pig iron as if he were located to the north of the said line, seems to prove to me one of two things, namely, that there is a great deficiency that can be legitimately made up by smelting and manufacture, or that the average Canadian is lower in the scale of civilization than I believe him to be.

I think if the matter were thoroughly investigated that a Canadian uses per capita as much iron and steel as an inhabitant of the United States.

As to the amount of the consumption I do not think I could quote anything more disinterested as authority than the geological survey of Canada. In the report for the year 1887-88, page 37 of part S, we find that "during the years 1886 and 1887 there were imported for consumption into Canada 345,000 tons of pig iron and 283,000 tons of steel. If to this is added the amount of pig iron consumed as such, it will be seen that, excluding all the iron and steel entering into such highly manufactured articles as cutlery, surgical instruments, edge tools, machinery of all kinds, engines and many other hardwares and manufactures, there was a total consumption equivalent in pig iron in 1886 and 1887, respectively, to about 415,000 tons and 356,000 tons.

If made in the country, this quantity of pig iron would represent to our makers at actual prices a value of about \$5,000,000; it would necessitate a yearly supply from Canadian iron mines of 1,000,000 tons of ore, and, before this ore could be melted into pig iron and further made into the different mercantile articles of iron and steel, which are now imported, it would also require about 3,000,000 tons of coal."

Taking this amount, say 400,000 tons (which we must believe is constantly increasing from year to year), we have the product of 27 to 28 blast furnaces being used per annum in Canada, instead of what we often hear—that one blast furnace would glut our market. I take the basis of furnace output, the standard adopted by Mr. Bartlett, alluded to in his evidence before the Mining Commission.

I would refer you as having a most important bearing upon this matter to the sworn statement of Mr. J. H. Bartlett, of Montreal, which appears as evidence given before the Royal Commission on the mineral resources of Ontario—page 396 and following pages. Mr. Bartlett is the author of a book on the manufacture, consumption and production of iron, steel and coal in Canada. I might add that he is also one of the ablest and most authoritative writers on the subject in Canada, both from the stand point of theory and practice, and his evidence contains an epitome of many of the most important facts and statistics bearing upon it, and I would strongly urge its perusal by all interested.

In 1879, after I had been for some time at smelting works in North Staffordshire, I wrote an article, "A Few Words About Iron," in the *Canadian Monthly*. In it I pointed out that iron of the finest quality was being produced at that time in North Staffordshire for \$5 a ton, while it was costing \$20 a ton at Pittsburg to smelt a bessemer grade, prices in both cases not including management, interest, etc. I then stated that I was at a loss to know how we in Canada were to build up our iron and steel industries under a smaller protection than the United States.

I have yet to be enlightened on that point, and the existing state of affairs seems to indicate that no satisfactory basis has yet been arrived at. It would surely be better to have no protection than a half-hearted one, which is a tax on the consumer and yet one which will not build up a national industry.

The expenses in connection with the establishment of smelting works are so enormous that without a policy which says "We are going to smelt our own iron and steel," little can be hoped for.

But once that policy is adopted, whether by protection or by bonus, and the gigantic industries can be launched and set running, and we shall have taken a greater step in the commercial development of our country even than by the building of the Canadian Pacific Railroad.

This question is one of immense, nay, of vital, importance to us who are citizens of Toronto. There ought to be no point more favourably situated. Iron ore can be brought from the North-East, nickel from the North-West and coke from across the lake. The magnitude of the operations can be realized when I say that, from my personal knowledge, one private works in England paid in wages alone \$40,000 a week.

And not only Toronto, but the whole province would be benefited if we smelted our own iron and steel. Iron ore occurs in so many parts that it is difficult to say what part of the province might not be directly benefited by mining, besides the general renewed prosperity it would give to the whole Dominion.

#### PARIS LETTER.

M. GUIMET is a Lyons gentleman, who possessing a certain wealth expended it on globe-trotting, in the East especially, and buying up rare books, manuscripts, images, idols, relics, sacerdotal clothing, altars, vessels and praying machines. Feeling that his immense collection was out of place at Lyons he offered it to the municipality of Paris to form a "Museum of Religions"; it was accepted. The municipality conceded a site for the museum near the Trocadéro; the State erected the structure, allocated 45,000 frs. for its annual support, and appointed M. Guimet director of the museum for life.

The Upper Ten of the Republic assisted at the first Buddhist ceremony performed in the Guimet museum by two authentic Japanese priests from Ceylon. Messrs. Floquet, Ferry and Clemenceau, with their wives, were present; also one of M. Carnot's attachés, Messrs. Jules Simon, Faine, etc. The two young priests wore white leather shoes, a tight fitting white costume, and a black scarf, and hoods in variegated silks. They performed numerous genuflexions before the images of Buddha-Amida and Sin-Ran, and those of lesser deities. With a nasal twang they indulged in liturgical supplications by a series of groans, hiccups, tender cooings and warblings, all vocally scored. There were also "hymns" chanted in Chinese as well as in Japanese, but while the latter embassy and the Rising Sun colony in Paris were in full force—the Japs have 17,000 bonzes, it is said—not a single John Chinaman was present, not even that most cynical of Parisians, General Tchong-Ki-Tong, who runs the Celestial Embassy in Paris.

M. Clemenceau is credited as "bossing" the new religion; he is assisted by Professor de Rosny, of the Sorbonne, who boasts that there are 40,000 Buddhists in

Paris, now possessing a place of worship. Now the *fidéles* are to have a grand temple. As soon as the sect numbers 100,000 it can legally claim state endowment, like Catholics, Calvinists, Jews and Mahomedans. It would not be astonishing if the new religion spread; it presses into its service all that is beautiful in Japan art, flowers, stuffs, designs, sculpture, colours, a cushat-dove softness of ceremony, and lotus-intoxicating appeals. In three words, thrice repeated, addressed to that most accommodating of goddesses—Buddha-Amida—consists all the ceremony exigible from members of the congregation. This will preserve even the prettiest Parisiennes from the necessity of reducing their bodies to powder, in order to secure the favour of Tathagata.

Whether the object of the visit of the Empress Frederick be artistic or political, while not doing any harm, it will not be productive of much good. It has stirred up in not a few patriots of the Déroulède type, the ember souvenirs of 1870-71. Before this re-roused hostility to the Germans many artists who were sitting on the fence have climbed down to the stay-at-home side, and will send no pictures to the Berlin Show. The visit has demonstrated that there is nothing in the way of reconciliation between Teuton and Gaul to be attempted till Alsace be first restored. Germany now knows the part-purchasing price of French friendship. Is Barkis willin'? The Empress showed that she is a woman of sense, tact, and courage. She was everywhere courteously received, and closed a blind eye to Déroulédism. Perhaps her happiest day here was her drive to Versailles, with Comte de Munster, who is not only a "careful driver," but a past master in handling the ribbons. He is a coaching club in himself. Had they returned by St. Cloud Park—a lovely drive—they might have encountered M. Carnot who was visiting the ruins of the castle to form a definite opinion as to what was best to be done with them. The Empress has had during her stay an uninterrupted spell of Queen's weather. The Princesse Marguerite passed most of her time with the Comte de Munster's daughter, the Comtesse Marie—that ideal of gentle and winning manners. In 1867 I encountered in that *bijou* part of the grounds of Versailles, the *Jardin du Roi*, the Crown Princess of Germany and her husband, sitting affectionately by themselves under the shade of the trees, reading together what appeared to be a guide book. Since then she has become an Empress and a widow. A fact not to be overlooked in the expiring struggles of the irreconcilable monarchists, couples with the free fight on the French Episcopal Bench, as to holding out against or rallying to the present constitution. There were elections on Sunday last in different parts of France for seven deputies. Not a monarchist candidate had the courage to face a poll. Not only were the republicans victorious but the number of voters in their favour had largely augmented since the preceding elections.

The Brothers de Goncourt had the questionable custom whenever they dined in company of writing out on their return home all the good or bad things expressed by the most notable guests. They applied this Boswell habit to the proceedings at the monthly dinners of their literary confrères. In due time these notes were published in their "Journals," and since the death of Jules his brother Edmond has continued the practice. Not having given warning of his intention "to note" to the guests was like striking below the belt. Certainly it would have produced such reserve that a dinner table would resemble a Trappist refectory. M. Renan complains bitterly of the manner he had been pumped, at the professional dinners; at one of which during the Siege of Paris, having observed: "that the Germanic was a race superior to the Gallic, because Protestant, and which naturally explained all the calamities of France." This was duly published. He does not deny the soft impeachment; but denounces the infamy of de Goncourt's stenographing on his paper cuffs, conversation intended only for four walls. Edmond de Goncourt's reply reveals the singular fact that in the books written by the Siamese brothers all the talent must have been on the side of his deceased brother Jules.

The French Government is at last beginning to take up position against the proposed tariff of the ultra-protectionists, who think that they command the situation, by placing heavy dues on imported products, and from those countries that buy from five to six times more goods from France than France does from them. The latter will likely shut out her goods, as is the intention of Belgium and Switzerland. The new tariff law will prevent France from negotiating commercial treaties, and even if these were to be made, a country will exact the benefit of the entire French minimum tariff. One authoritative journal asserts that the application of the new tariff in 1892 will produce at once an annual deficit of 400,000,000 frs. or one-eighth of the total revenue of France. England takes 1,000,000,000 frs. or a little less than one-fifth of all the exports of France, while the latter takes in return only 538 frs. and so on with other states. Z.

If we are ever in doubt what to do, it is a good rule to ask ourselves what we shall wish on the morrow that we had done.—*Sir John Lubbock*.

In a learned essay on "Experiments with Hydrogen on Vital Action," Dr. Richardson, of London, states that "hydrogen is neither anæsthetic nor hypnotic, but if inhaled so as to be taken up by the blood it proves rapidly fatal to warm-blooded animals, while in cold-blooded animals it suspends life for a long time before actually destroying it."